

Portfolio Construction with a Gulf Sleeve: Sizing, Pacing and Correlation

How a measured allocation to the Gulf fits into a global multi-asset portfolio, and how to size, pace and integrate it

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ABSTRACT

Accepting that the Gulf merits a place in a global portfolio is a different task from constructing the allocation well. This paper addresses the portfolio-construction question for a family-office or institutional investor adding a Gulf sleeve to an existing multi-asset portfolio: how large the sleeve should be, how it should be paced into the portfolio over time, and how its low correlation with global assets shapes its contribution. Drawing on the literature on portfolio selection, the diversification value of low-correlation assets, and the pacing and cash-flow management of illiquid programmes, it advances five propositions concerning the construction of a Gulf sleeve. Using a stylised mean-variance framework with clearly stated assumptions, it shows how the sleeve shifts the efficient frontier, why its marginal contribution to portfolio risk is far smaller than its standalone volatility, how the benefit of additional size plateaus and eventually fades, and how a paced commitment programme becomes self-funding over time. The analysis finds that a measured Gulf sleeve improves a global portfolio out of proportion to its size because of its low correlation, that the benefit is greatest in the first increments and diminishes thereafter, and that disciplined pacing and a liquidity reserve are essential to realising the benefit in practice. The paper provides a sizing and pacing framework, a construction checklist and three portfolio cases, and discusses the limitations and avenues for further research.

JEL Classification: G11, G23, C61, O53, G15

Keywords: portfolio construction, asset allocation, diversification, correlation, Gulf allocation, pacing, mean-variance, illiquidity

1. INTRODUCTION

An investor that has concluded the Gulf deserves a place in its portfolio still faces a substantial and separate question: how to build the allocation well. The decision to allocate establishes that a Gulf sleeve should exist; portfolio construction determines how large it should be, how it should be brought into the portfolio over time, and how it should be integrated with the assets the investor already holds. These construction choices, more than the decision to allocate, determine whether the sleeve delivers the benefit the allocation case promises, because a poorly sized, hastily deployed or carelessly integrated sleeve can disappoint even where the underlying opportunity is sound.

This paper addresses the portfolio-construction question for a family-office or institutional investor adding a Gulf sleeve to an existing global multi-asset portfolio. It is written for the chief investment officer and the investment committee that have accepted the strategic case and now

confront the practical questions of sizing, pacing and integration. Its purpose is not to re-argue whether the Gulf belongs in the portfolio, which companion analyses address, but to set out how, given that it does, the allocation should be constructed so that it improves the portfolio rather than merely adding exposure.

The central insight that organises the paper is that a sleeve's value to a portfolio depends not on its standalone characteristics but on its contribution to the whole, which is governed above all by its correlation with the existing portfolio. Because Gulf assets correlate only loosely with global equities and bonds, a Gulf sleeve contributes less risk to the portfolio than its standalone volatility would suggest, and therefore improves the portfolio's risk-adjusted return out of proportion to its size. This single fact drives the sizing, the integration and much of the construction logic that follows, and it is the reason a measured Gulf sleeve can be a genuine improvement to a global portfolio rather than a satellite bet.

The paper makes three contributions. First, it shows how the Gulf sleeve shifts the efficient frontier and why its marginal contribution to portfolio risk is far below its standalone volatility, and it derives the implication for sizing, that the benefit is greatest in the first increments and plateaus thereafter. Second, it sets out how the sleeve should be paced into the portfolio across vintages and how a paced programme becomes self-funding over time, addressing the cash-flow management that illiquid construction requires. Third, it provides a practical sizing and pacing framework, a construction checklist and three portfolio cases. Throughout, the figures are modelled and clearly labelled; they illustrate the construction mechanics rather than forecasting outcomes, and they are not forecasts.

The remainder of the paper is structured as follows. Section 2 reviews the literature on portfolio selection, diversification and pacing, and develops five propositions. Section 3 describes the data and the stylised methodology. Section 4 presents and discusses the results, covering the frontier effect of sizing, the correlation structure, the marginal contribution to risk, the optimal sleeve size, the pacing schedule, the self-funding dynamic and three portfolio cases. Section 5 reports robustness. Section 6 sets out implementation considerations. Section 7 offers concluding comments, including limitations and directions for further research. A statement of disclosures, the references and appendices follow.

2. LITERATURE REVIEW AND PROPOSITIONS

The analysis draws on three strands of the literature: the theory of portfolio selection and the role of correlation; the diversification value of low-correlation assets and the limits of diversification; and the pacing and cash-flow management of illiquid private-markets programmes. This section reviews each and develops the propositions the analysis examines.

2.1 Portfolio Selection and Correlation

The foundational result of portfolio theory is that the risk of a portfolio depends not only on the risks of its components but on the correlations among them, so that combining imperfectly correlated assets reduces risk for a given return (Markowitz, 1952). The corollary central to this paper is that the value of adding an asset to a portfolio is determined by its marginal contribution to portfolio risk, which depends on its correlation with the existing portfolio, rather than by its standalone volatility. An asset that is moderately volatile but lowly correlated can reduce overall portfolio risk; one that is less volatile but highly correlated may add more. For a Gulf sleeve,

whose correlation with global assets is low, this means its contribution to portfolio risk is far smaller than its standalone volatility, which is the basis of the first proposition.

2.2 The Diversification Value of Low-Correlation Assets

A substantial literature confirms that the diversification benefit of an asset rises as its correlation with the rest of the portfolio falls, and that adding a low-correlation return stream shifts the efficient frontier outward, offering more return for a given risk (Solnik, 1974; Bekaert and Harvey, 2003). The same literature establishes that the benefit of adding more of a low-correlation asset is not linear: the first increments deliver the most diversification, and the benefit diminishes as the allocation grows and the asset becomes a larger, and eventually correlated-with-itself, part of the portfolio (Markowitz, 1952). This diminishing benefit underpins the second proposition, that the optimal sleeve size is a measured allocation beyond which additional size adds little and eventually detracts. The literature also cautions that correlations can rise in stress, attenuating the benefit when it is most valued (Page and Panariello, 2018), which the analysis tests in the robustness section.

2.3 Pacing and Cash-Flow Management of Illiquid Programmes

Because a Gulf sleeve is expressed substantially through illiquid private assets, the literature on pacing and cash-flow management is directly relevant (Takahashi and Alexander, 2002). This literature establishes that an illiquid programme should be built across vintages rather than deployed at once, both to diversify the entry environment and to manage the uneven, partly unpredictable cash flows of capital calls and distributions; and that a steadily committed programme eventually becomes self-funding, as distributions from mature commitments fund the calls of newer ones. It also establishes the need for a liquidity reserve sized to meet net calls during the build, since under-provisioning forces sales at bad times and over-provisioning drags returns. These findings underpin the third and fourth propositions, on pacing and the self-funding dynamic.

2.4 Synthesis and Propositions

Taken together, these literatures imply that a Gulf sleeve should be sized to capture the diminishing diversification benefit of a low-correlation asset, paced across vintages to manage the cash flows of an illiquid programme, and integrated with attention to its marginal contribution to portfolio risk rather than its standalone volatility. From this the paper develops five propositions:

Proposition 1. Because of its low correlation with global assets, a Gulf sleeve contributes less risk to a portfolio than its standalone volatility implies, and improves the portfolio's risk-adjusted return out of proportion to its size.

Proposition 2. The diversification benefit of the sleeve is greatest in the first increments and plateaus, then fades, so the optimal size is a measured allocation rather than the largest the investor can tolerate.

Proposition 3. The sleeve should be paced across vintages to diversify the entry environment and manage the cash flows of an illiquid programme.

Proposition 4. A steadily paced sleeve becomes self-funding over time, but requires a liquidity reserve sized to meet net capital calls during the build.

Proposition 5. The benefit is sensitive to the correlation assumption and to manager selection, and attenuates under stressed, high-correlation conditions, so it should be claimed with a margin of safety.

2.5 Liquidity, Illiquidity Budgeting and the Endowment Model

A further strand of relevance is the literature on managing illiquidity within a portfolio, associated with the endowment model and its emphasis on harvesting an illiquidity premium while controlling the portfolio's overall liquidity profile (Swensen, 2009; Ang, 2014). The construction of a Gulf sleeve, expressed substantially through illiquid private assets, is partly an illiquidity-budgeting exercise: the investor must decide how much illiquidity it can bear across the whole portfolio, and the Gulf sleeve consumes part of that budget. The literature establishes that long-horizon investors can bear more illiquidity and are compensated for it, but that the illiquidity must be sized against the investor's genuine liquidity needs, including its spending, its other commitments and its tolerance for being unable to rebalance quickly in a crisis (Ang, 2014). For the construction of a Gulf sleeve this means that the sizing decision is not only a diversification calculation but a liquidity-budgeting one: the sleeve must fit within both the risk budget and the illiquidity budget, and the more illiquid the sleeve, the more the investor must value the liquidity it gives up. This dual constraint, risk budget and illiquidity budget, refines the sizing analysis and is the reason the sensible sleeve range is bounded above not only by diminishing diversification but by the investor's capacity to bear illiquidity.

The endowment-model literature also offers a caution relevant to construction: that the illiquidity which is a source of premium in normal times becomes a constraint in a crisis, when the investor may be unable to rebalance or to meet calls without selling its liquid assets at depressed prices. This is the so-called denominator effect, in which a fall in the value of liquid assets raises the illiquid allocation above target, and the investor cannot easily reduce it. A well-constructed Gulf sleeve anticipates this by sizing the illiquid component conservatively and maintaining a liquidity reserve, so that the investor is not forced into the denominator-effect trap. This consideration, drawn from the experience of endowments in past crises, is built into the pacing and reserve disciplines of the framework.

2.6 Why Standalone Thinking Persists

It is worth examining why investors so often judge a prospective sleeve by its standalone characteristics rather than its portfolio contribution, since the framework's central insight runs against a persistent habit. The standalone view is intuitive and salient: a Gulf sleeve is visibly volatile and illiquid on its own, and these features are easy to perceive, whereas the marginal contribution to portfolio risk is an abstraction that requires a calculation involving correlation. The standalone view is also conservative in feel, an investor that focuses on the sleeve's standalone risk feels it is being prudent, even though it is in fact mis-measuring the risk and under-allocating. And the standalone view is reinforced by the way investments are often presented and discussed, asset by asset, rather than in terms of their portfolio effects. The portfolio literature has understood since Markowitz that this standalone thinking is an error, yet it persists because the correct, portfolio-contribution view is less intuitive and requires deliberate analysis (Markowitz, 1952). For the construction of a Gulf sleeve, the practical significance is that the investor must consciously resist the standalone habit and insist on the portfolio-contribution analysis, because the standalone view will systematically lead it to under-size or avoid a sleeve that would in fact improve its portfolio. Recognising the pull of standalone

thinking is the first step to overriding it, and the framework, by foregrounding the marginal contribution to risk, is in part a device for doing so.

3. DATA AND METHODOLOGY

This study is analytical, using a transparent, stylised framework whose assumptions are stated explicitly rather than estimated from a proprietary dataset, which suits a question about the prospective construction of an allocation. The figures are modelled and clearly labelled; they illustrate the construction mechanics an investor can apply to its own portfolio and inputs, and they are not forecasts.

3.1 The Construction Framework

The framework has three components: a mean-variance analysis of how the Gulf sleeve, at different sizes, shifts the efficient frontier of a representative global portfolio; an analysis of the sleeve’s marginal contribution to portfolio risk given its correlation; and a pacing and cash-flow model showing how a steadily committed sleeve is built across vintages and becomes self-funding. Together these address the sizing, integration and pacing decisions that constitute portfolio construction.

3.2 Assumptions and Their Justification

The stylised inputs, the expected return, volatility and correlation of the Gulf sleeve and of a representative global portfolio, are calibrations informed by the portfolio and diversification literatures and by the companion analyses of Gulf risk and return; they are indicative rather than precise estimates and are recorded in Appendix A. The correlation of the sleeve with the global portfolio is treated as the central uncertain input and is stress-tested in Section 5. The base-case assumptions are set out in Table 1.

Table 1. Base-Case Assumptions for the Construction Framework

Parameter	Assumption
Global portfolio expected return / volatility	7.6% / 9.5%
Gulf sleeve expected return / volatility	9.2% / 11.0%
Correlation, Gulf sleeve to global portfolio	0.40 to 0.45
Indicative sleeve size range	5% to 10%
Build / pacing period	5 years
Self-funding onset	Around years 5 to 6
Liquidity reserve	Sized to worst plausible net call during build

Indicative, forward-looking assumptions used to illustrate construction mechanics; not forecasts. See Appendix A.

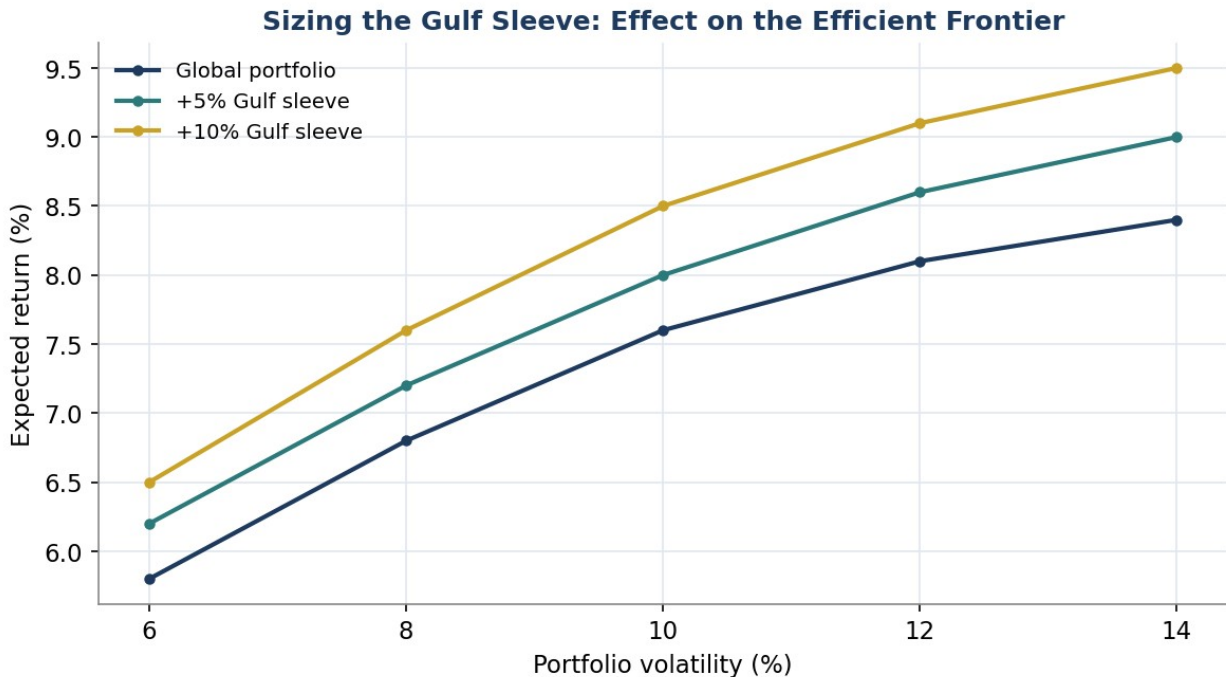
4. RESULTS AND DISCUSSION

This section presents the framework in the order of the propositions: the frontier effect of sizing and the marginal contribution to risk (Proposition 1); the optimal sleeve size (Proposition 2); pacing (Proposition 3); the self-funding dynamic and liquidity reserve (Proposition 4); and three portfolio cases, with the stressed scenario (Proposition 5) reported in Section 5.

4.1 Sizing and the Efficient Frontier

The first result shows how the Gulf sleeve, at different sizes, shifts the efficient frontier of a representative global portfolio, in Figure 1.

Figure 1. Sizing the Gulf Sleeve: Effect on the Efficient Frontier



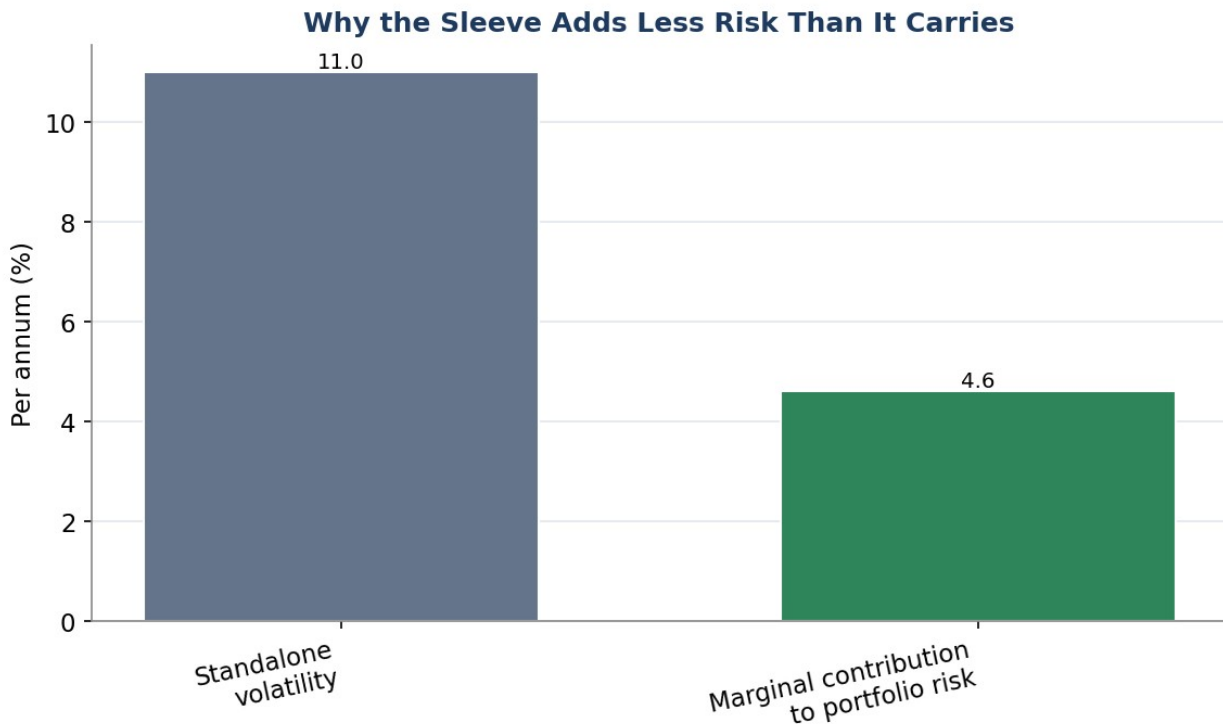
Indicative; adding a Gulf sleeve shifts the frontier up and to the left, more at 10% than 5%, but with diminishing gains.

The frontier shift supports Proposition 1. Adding a Gulf sleeve moves the global frontier up and to the left, delivering more return for a given risk, and a larger sleeve shifts it further, but the incremental shift from 5% to 10% is smaller than from 0% to 5%, previewing the diminishing benefit that Proposition 2 concerns. The improvement comes not from taking more risk but from adding a lowly correlated return stream, which is why the frontier moves left (less risk) as well as up (more return). For the investor the implication is that even a modest sleeve does real work, and that the construction question is not whether to add the sleeve but how large to make it given the diminishing returns to size.

4.2 Why the Sleeve Adds Less Risk Than It Carries

The mechanism behind the frontier shift is the sleeve's low marginal contribution to portfolio risk, shown in Figure 2.

Figure 2. Why the Sleeve Adds Less Risk Than It Carries



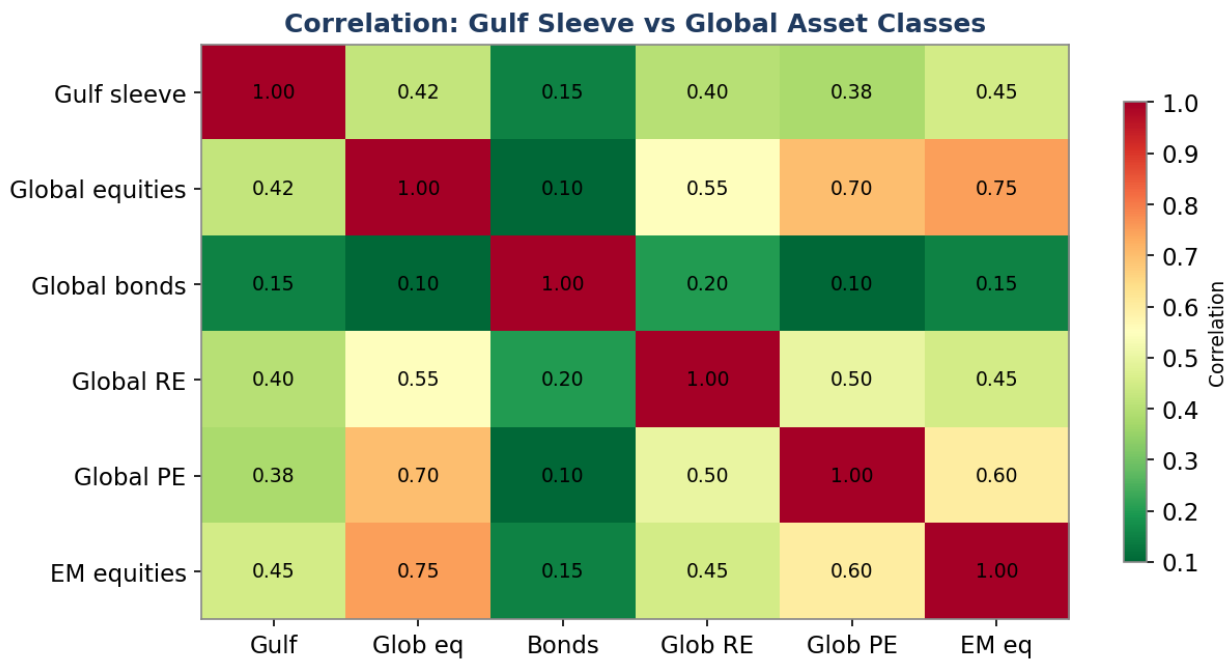
Indicative; the sleeve's marginal contribution to portfolio risk is far below its standalone volatility because of low correlation.

The figure makes Proposition 1 concrete. The Gulf sleeve's standalone volatility is substantial, but its marginal contribution to the risk of the overall portfolio is far smaller, because its low correlation with the existing assets means much of its standalone variability diversifies away at the portfolio level. This is the central fact of portfolio construction with a low-correlation asset: the risk that matters is the marginal contribution, not the standalone volatility, and an investor that judges the sleeve by its standalone volatility, "the Gulf is volatile, so a Gulf allocation makes my portfolio riskier", commits a basic error, because the sleeve can be volatile on its own yet risk-reducing in the portfolio. Recognising this is what allows the investor to size the sleeve appropriately rather than under-allocating out of an exaggerated fear of its standalone risk.

4.3 The Correlation Structure

The diversification benefit rests on the sleeve's correlation with the assets the investor already holds, set out in Figure 3.

Figure 3. Correlation: Gulf Sleeve versus Global Asset Classes



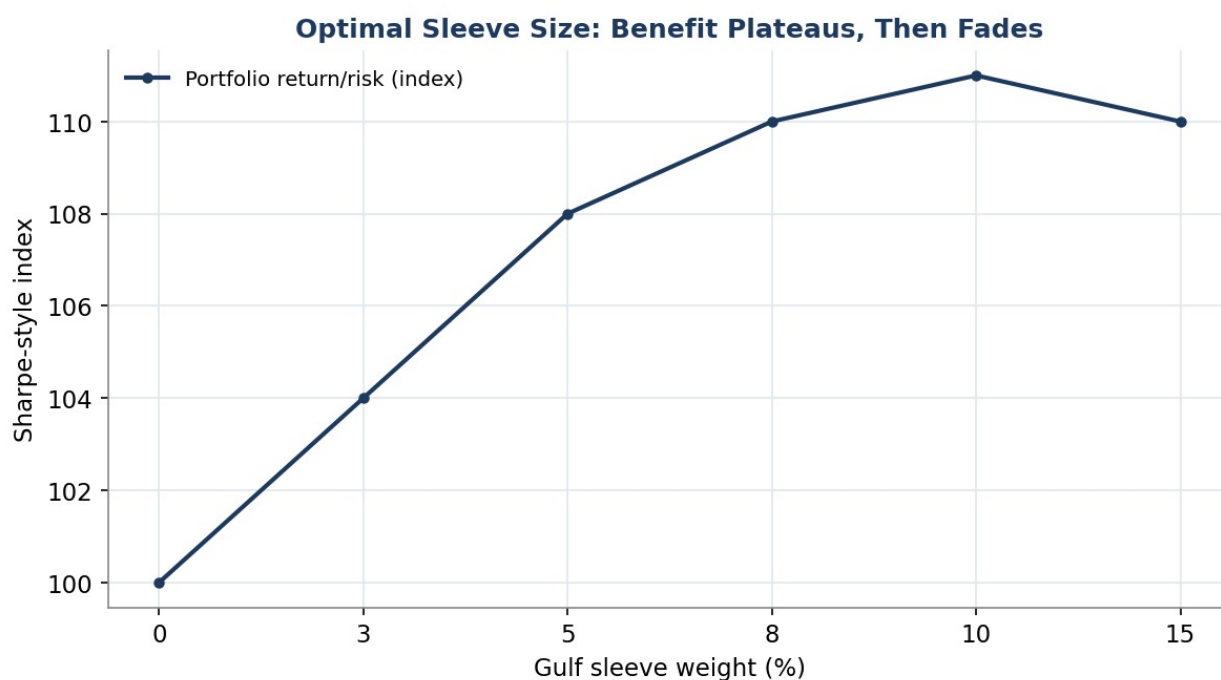
Indicative correlations; the Gulf sleeve is lowly correlated with the major global asset classes.

The correlation structure is the source of the construction benefit. The Gulf sleeve correlates only moderately with global equities and real estate, weakly with global bonds, and less with global private equity and emerging-market equities than those assets correlate with each other. This is because Gulf returns are driven substantially by regional factors, government spending, local supply and demand, the hub economy, distinct from the global drivers of the existing portfolio. The practical consequence is that the sleeve diversifies the specific risks the investor already carries, which is what gives it a low marginal contribution to portfolio risk and a high diversification value. An investor should examine this correlation against its own portfolio, since the benefit depends on the sleeve's correlation with that specific book rather than with a generic global portfolio, but the regional drivers of Gulf returns make a low correlation likely for most globally-diversified investors.

4.4 The Optimal Sleeve Size

Because the diversification benefit diminishes with size, there is a sensible range for the sleeve rather than a "more is better" rule, shown in Figure 4.

Figure 4. Optimal Sleeve Size: Benefit Plateaus, Then Fades



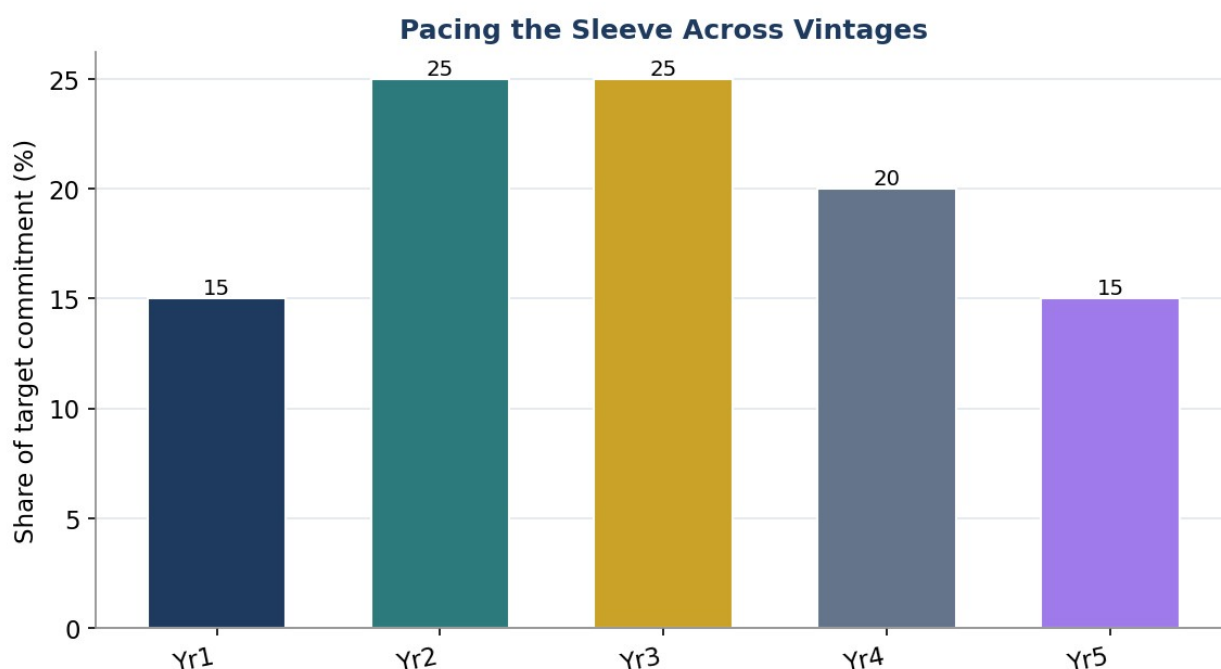
Indicative; the portfolio risk-adjusted benefit rises steeply at first, plateaus around 8-10%, then fades.

The curve supports Proposition 2. The portfolio's risk-adjusted return improves steeply as the first increments of the sleeve are added, because each increment brings diversification the portfolio lacked; the benefit then plateaus, in the base case around an eight-to-ten percent sleeve; and beyond that it fades, because the sleeve becomes a large enough part of the portfolio that its own risk and its correlation with itself begin to dominate, and because concentration and liquidity considerations argue against an outsized allocation to a single region. The practical implication is that the right sleeve size for most investors lies in a measured range, large enough to capture most of the diversification benefit but not so large as to over-concentrate, with the precise figure set by the investor's risk budget, liquidity needs and conviction. An investor that sizes within this range captures most of the available benefit; one that sizes far above it takes on concentration and liquidity risk for little additional diversification, and one that sizes far below it forgoes benefit that was cheaply available.

4.5 Pacing the Sleeve Across Vintages

Having sized the sleeve, the investor must bring it into the portfolio over time rather than all at once, as Figure 5 illustrates.

Figure 5. Pacing the Sleeve Across Vintages



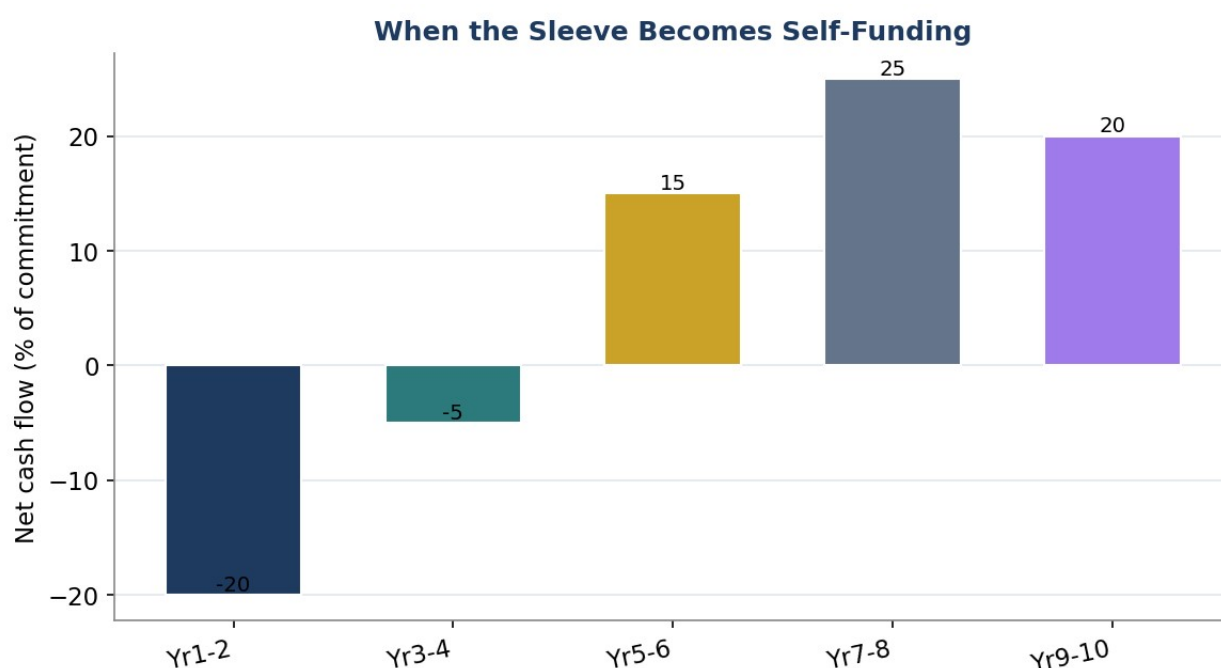
Indicative commitment schedule building the sleeve to its target over five years.

The pacing schedule supports Proposition 3. Committing steadily over several years, rather than deploying the full sleeve in one year, diversifies the entry environment so the outcome does not depend on the conditions of a single moment; spreads the manager-selection decisions so they can improve with experience; and smooths the cash-flow profile of an illiquid programme. Pacing is also a discipline that keeps the investor continuously engaged with the market, building the relationships and knowledge that improve later commitments. The schedule shown reaches the target sleeve over five years, a typical build for a first programme, and an investor should plan this ramp explicitly rather than expecting the target allocation to appear at once. Pacing is not a delay but a risk-management and capability-building device, and it is integral to constructing the sleeve well.

4.6 The Self-Funding Dynamic and Liquidity Reserve

A paced sleeve eventually funds itself, but requires a liquidity reserve during the build, as Figure 6 shows.

Figure 6. When the Sleeve Becomes Self-Funding



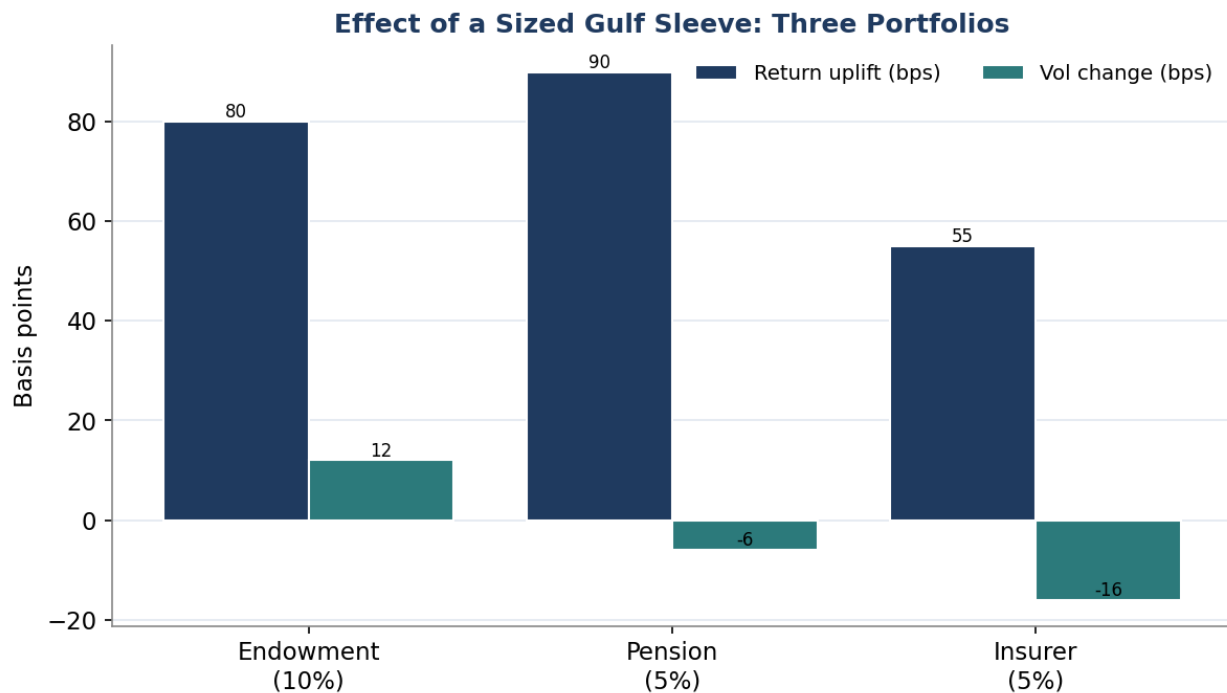
Indicative net cash flow; negative during the build, turning positive as mature commitments distribute.

The cash-flow profile supports Proposition 4. In the early years the sleeve draws capital, as commitments are called before earlier investments distribute, so the net cash flow is negative; as the programme matures, distributions from earlier commitments fund the calls of newer ones, and the net cash flow turns positive, the sleeve becoming self-funding around years five to six in the base case. The practical implications are two. First, the investor must hold a liquidity reserve during the build, sized to the worst plausible net call, since under-provisioning forces sales at bad times and over-provisioning drags returns; this is the cash-flow counterpart of the pacing discipline. Second, the investor should understand that the sleeve is a multi-year programme with a predictable cash-flow shape, not a single deployment, and should construct the rest of the portfolio with that shape in mind. An investor that anticipates the J-curve and provisions for it builds the sleeve smoothly; one that does not is liable to be caught short or to hold idle cash, either of which detracts from the result.

4.7 Three Portfolio Cases

Figure 7 applies the framework to three representative portfolios adding a sized Gulf sleeve.

Figure 7. Effect of a Sized Gulf Sleeve: Three Portfolios



Indicative return uplift and change in volatility from adding a sized sleeve to each portfolio.

Table 2. Portfolio Case Summary

Portfolio	Sleeve	Return uplift	Volatility change	Why
Endowment	10% across RE, PC, VC	+80 bps	+12 bps	Long horizon, return-seeking
Pension	5% in RE and private credit	+90 bps	-6 bps	Diversification lowers risk
Insurer	5% in private credit and infra	+55 bps	-16 bps	Yield, capital-efficient, risk-reducing

Modelled figures. The pension and insurer see risk fall as well as return rise, as the sleeve diversifies their books.

The cases illustrate the construction logic in practice. For each portfolio the sized sleeve raises expected return, and for the pension and insurer it lowers overall volatility, because the sleeve diversifies the risks already on their books, the central result of Proposition 1. The endowment, more return-seeking and starting from a higher-risk position, accepts a marginal increase in risk for a larger return uplift. The variation in sizing across the three, larger for the endowment, smaller for the pension and insurer, reflects their different risk budgets and liquidity needs, illustrating that the optimal sleeve size is investor-specific within the sensible range. In every case the sized, paced sleeve improves the risk-adjusted outcome, which is the result the construction framework is designed to deliver.

4.8 Constructing the Sleeve Across the Underlying Strategies

The Gulf sleeve is not a single asset but a composite of underlying strategies, real estate, private credit, and where appropriate digital infrastructure, venture and private equity, and its construction involves choosing the mix among them as well as the overall size. This internal

composition matters for the portfolio-level result, because the strategies differ in return, risk, liquidity and correlation, and the mix should be tailored to the role the investor wants the sleeve to play and to the rest of its portfolio. An income-oriented investor might weight the sleeve toward private credit and income-producing real estate; a growth-oriented one toward digital infrastructure, venture and private equity; a diversification-focused one toward whichever strategies are least correlated with its existing book. The construction of the sleeve therefore nests a smaller portfolio-construction problem within the larger one: just as the sleeve is sized against its contribution to the whole portfolio, the strategies within it should be combined against their contribution to the sleeve and, through it, to the portfolio. This internal diversification also strengthens the sleeve's low correlation with global assets, because the regional strategies are driven by somewhat different local factors, so a diversified sleeve is both less risky on its own and more valuable to the portfolio than a concentrated one. The practical guidance is to construct the sleeve as a deliberately diversified, multi-strategy allocation rather than a single-strategy bet, which is consistent with the companion analysis of constructing an alternatives portfolio across credit, real estate and venture.

A corollary is that the correlation and risk figures used at the sleeve level should reflect the chosen internal mix, and an investor should model the sleeve it actually intends to build rather than a generic Gulf composite. The base-case figures in this paper are indicative of a diversified sleeve; an investor weighting heavily toward one strategy should adjust the inputs accordingly, since a credit-heavy sleeve will have different risk and correlation characteristics from a venture-heavy one. This refinement does not change the construction logic but it sharpens its application, and it underlines that the sleeve is a constructed object at two levels, in its internal mix and in its size within the portfolio.

4.9 Currency and the Cleanliness of the Construction

A feature that simplifies the construction of a Gulf sleeve relative to other emerging-market allocations is the currency peg, which removes a layer of complication from the portfolio-level analysis. Constructing an allocation to a floating-currency emerging market requires the investor to model and manage the currency exposure, which adds a volatile, hard-to-forecast component to the sleeve's contribution and complicates the correlation analysis. For a Gulf sleeve, because the currency is effectively the dollar, the construction is cleaner: the sleeve's contribution to a dollar-based portfolio is not obscured by a large currency effect, the correlation analysis reflects the underlying asset behaviour rather than currency noise, and a non-dollar investor faces only a cheaply hedgeable dollar exposure. This cleanliness, examined at length in a companion analysis of the peg, is a quiet advantage in construction: it means the diversification and sizing analysis can be conducted with more confidence that it reflects the assets rather than the currency, and it is the reason the sensitivity analysis found the currency treatment to be among the least influential construction assumptions. An investor constructing a Gulf sleeve therefore enjoys a more reliable construction analysis than it would for a comparable floating-currency allocation, which is a further, if understated, reason the Gulf integrates well into a global portfolio.

4.10 Rebalancing an Illiquid Sleeve in Practice

Rebalancing deserves fuller treatment because it is where the construction of an illiquid sleeve most differs from that of a liquid allocation and where investors most often struggle. In a liquid portfolio, rebalancing is straightforward: the investor sells what has grown above target and buys what has fallen below. An illiquid Gulf sleeve cannot be rebalanced this way, because selling

private positions early is costly and slow, so the investor must rebalance primarily through the direction of new commitments, steering fresh capital toward or away from the sleeve to restore target weights over time. This makes rebalancing a slow, deliberate process measured in years rather than weeks, and it requires the investor to set tolerance bands around the target weight rather than a precise target, acting only when the drift exceeds the bands. The steady commitment pace that the pacing discipline establishes is also the principal instrument of rebalancing: by adjusting the direction of the ongoing commitment programme, the investor keeps the sleeve near its target without forced sales. Where the drift is large or the investor's circumstances change materially, the secondary market offers a route to adjust more quickly at a cost, but for most purposes commitment-direction rebalancing is the appropriate tool. An investor that understands this builds rebalancing into the construction from the outset, through the commitment programme and tolerance bands, rather than discovering at a moment of stress that it cannot rebalance an illiquid sleeve the way it rebalances the rest of the portfolio.

This also bears on the denominator-effect risk discussed earlier. Because the illiquid sleeve cannot be quickly reduced, a sharp fall in the value of the portfolio's liquid assets can push the sleeve above its target weight and leave the investor unable to rebalance down. The construction response is to size the sleeve with this in mind, leaving headroom below the maximum the risk budget would permit, so that a denominator-effect rise does not breach the budget, and to maintain the liquidity reserve that allows the investor to meet calls without selling liquid assets into a falling market. These are construction decisions, made when the sleeve is built, not crisis responses, and they are what allow the sleeve to be held through stress rather than becoming a source of forced, value-destroying action.

4.11 Integrating the Sleeve with Existing Alternatives

An investor that already holds alternatives, global private equity, real estate or credit, must construct the Gulf sleeve with attention to its overlap with those existing holdings, because the diversification benefit depends on the sleeve being lowly correlated with what the investor actually owns, not with a generic global index. If the investor's existing alternatives are themselves concentrated in, say, global private equity, the relevant question is the Gulf sleeve's correlation with that book, which the correlation analysis of Section 4.3 suggests is moderate but should be confirmed against the specific holdings. Conversely, an investor whose existing portfolio is heavily weighted to a particular region or strategy may find the Gulf sleeve especially valuable as a diversifier precisely because it is unlike what it already holds. The construction discipline therefore requires the investor to analyse the sleeve against its actual portfolio, including its existing alternatives, rather than against a textbook portfolio, and to size and compose the sleeve to complement rather than duplicate what it owns. This is the practical content of judging the sleeve by its marginal contribution: the contribution is to the investor's specific portfolio, and an investor with unusual existing exposures should expect its optimal Gulf sleeve to differ from the generic case accordingly. Two investors with the same total assets but different existing portfolios may rationally construct quite different Gulf sleeves, and the framework accommodates this by anchoring every decision in the marginal contribution to the specific portfolio.

A related point concerns avoiding inadvertent concentration. An investor that already holds, for example, global data-centre or real-estate exposure should be careful that a Gulf sleeve weighted toward the same sectors does not concentrate rather than diversify, even though the geography

differs. The construction analysis should therefore look through both geography and sector, ensuring that the sleeve genuinely adds diversification at the level of the underlying risk drivers rather than merely adding a geographic label to exposures the investor already has. This look-through discipline is a refinement of the correlation analysis and a guard against the subtle error of double-counting diversification that is not in fact present.

4.12 The Sleeve in a Multi-Asset Stress Test

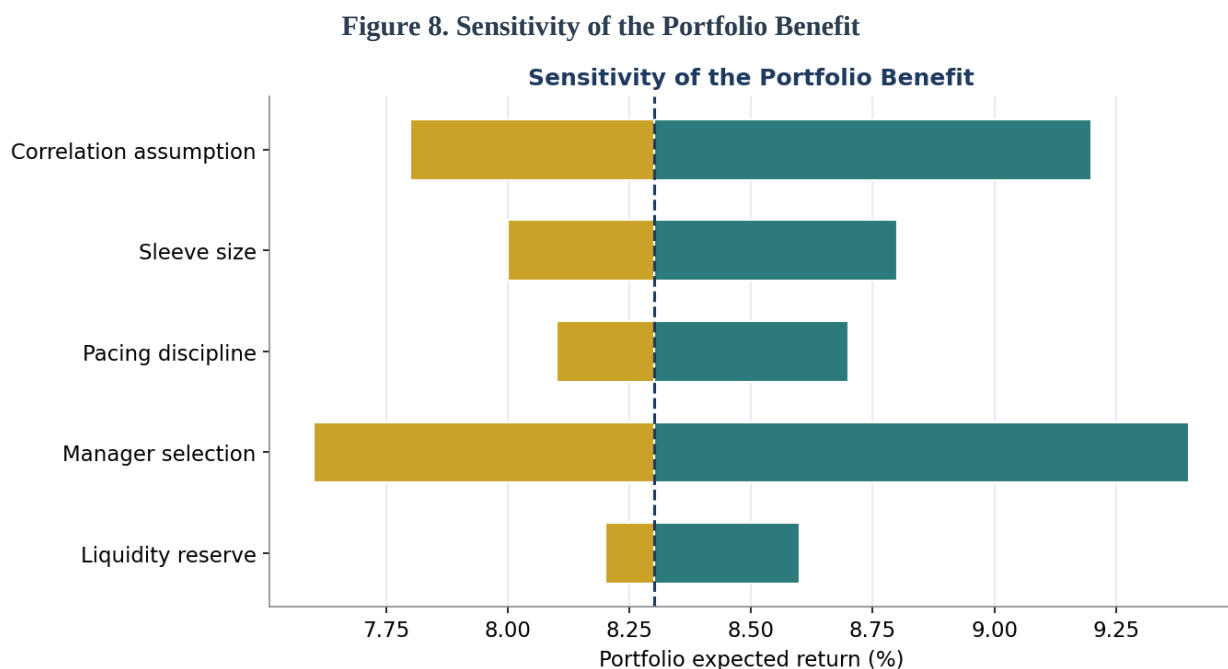
Beyond the stressed-correlation scenario, a complete construction analysis subjects the portfolio, with and without the Gulf sleeve, to a multi-asset stress test, examining how the sleeve affects the portfolio in a range of adverse scenarios rather than only in the average case. In a global equity drawdown, the sleeve's low correlation should cushion the portfolio, though less so if the drawdown is severe enough to raise correlations. In a rate shock, the sleeve's composition matters: an income- and credit-heavy sleeve may be more rate-sensitive than a diversified one. In a regional shock specific to the Gulf, the sleeve would suffer while the rest of the portfolio is largely unaffected, which is the diversification benefit operating in reverse and a reason to size the sleeve so that such a shock is survivable. In a liquidity crisis, the sleeve's illiquidity is a constraint, which is why the liquidity reserve and conservative sizing matter. Running the portfolio through these scenarios at the construction stage, rather than discovering the sleeve's behaviour in a real crisis, allows the investor to size and compose the sleeve so that the portfolio behaves acceptably across the range of stresses, not merely in the central case. This scenario discipline is the construction counterpart of the stress testing that prudent investors apply to their whole portfolio, and it ensures the sleeve is built to be held through adversity rather than abandoned in it.

5. ROBUSTNESS AND SCENARIO ANALYSIS

The construction benefit rests on assumptions, principally the correlation, and must be tested against them and against stress.

5.1 Sensitivity of the Portfolio Benefit

Figure 8 reports the sensitivity of the portfolio benefit to the principal construction assumptions.



Each bar shows the swing in portfolio expected return from varying one construction assumption around the base case.

The correlation assumption and manager selection move the benefit most, which aligns with the analysis: the diversification benefit depends on the low correlation, and the realised return depends on selecting capable managers. Sleeve size, pacing discipline and the liquidity reserve matter but are secondary. The ordering directs the investor's effort: validate the correlation benefit against its own portfolio data, and concentrate on manager selection, the two levers that most determine whether the constructed sleeve delivers. The robustness of the ordering gives confidence that these are the right priorities across conditions, not only in the base case.

5.2 The Stressed-Correlation Scenario

The most important robustness test concerns the correlation in stress, since correlations among risky assets tend to rise in severe, globally correlated crises, attenuating diversification when it is most valued (Page and Panariello, 2018). Re-running the construction with the sleeve-to-portfolio correlation raised substantially shows the diversification benefit narrowing: the frontier improvement shrinks, and for the most conservative portfolios the risk reduction can disappear, leaving the case resting more on the return premium than on diversification. Two points temper this, supporting Proposition 5. First, the benefit is robust in direction, the sleeve does not become harmful, even under stress; the attenuation is of the diversification benefit, not a reversal into a concentration penalty. Second, the appropriate response is built into the framework: size the sleeve conservatively within the sensible range, hold an adequate liquidity reserve, and avoid leverage that would turn a temporary correlated drawdown into a permanent loss. Constructed this way, the sleeve improves the portfolio in normal conditions and degrades gracefully in stressed ones, which is the honest characterisation of any diversification claim.

6.4 Building the Sleeve Within the Total-Portfolio Risk Budget

A disciplined investor constructs the Gulf sleeve not in isolation but within its total-portfolio risk budget, ensuring that the sleeve's marginal contribution to risk fits alongside the contributions of its other holdings. This means modelling the sleeve's addition to the existing portfolio, confirming that the combined risk remains within the budget, and recognising that, because the sleeve's marginal contribution to risk is low, it consumes less of the budget than its standalone volatility would suggest, leaving room for it that a naive analysis would deny. The risk-budget perspective also disciplines the sizing: rather than sizing the sleeve to an arbitrary percentage, the investor sizes it to the risk-budget room available given its diversification benefit, which typically permits a larger sleeve than a standalone-volatility analysis would. Integrating the sleeve into the risk budget at construction, rather than bolting it on afterward, ensures that the whole portfolio remains coherent and that the sleeve earns its place in risk-budget terms, which is the currency in which sophisticated investors increasingly make allocation decisions.

6.5 Governance and Documentation of the Construction

The construction of a Gulf sleeve should be governed and documented like any significant portfolio decision. The investment committee should approve not only the decision to allocate but the construction plan: the target size and its rationale in diversification and risk-budget terms, the internal strategy mix, the pacing schedule, the liquidity reserve and the rebalancing approach. Documenting the construction plan ensures that the multi-year build is executed consistently as personnel and conditions change, that the rationale for the size and pacing is preserved for later review, and that the sleeve is monitored against the plan rather than drifting. Good governance of

construction also guards against the common failure in which an allocation, approved in principle, is then built haphazardly, over-deployed in a strong year, under-funded for liquidity, or allowed to drift from its target mix, so that the realised sleeve bears little resemblance to the one the committee approved. Treating construction as a governed plan rather than an improvised process is the institutional counterpart to the analytical discipline of the framework.

6.6 Common Construction Errors

Several construction errors recur, and naming them helps an investor avoid them. The first is sizing the sleeve by its standalone volatility, which over-states its risk contribution and leads to under-allocation. The second is sizing it by its standalone return, which ignores the diversification that is its primary value. The third is over-sizing beyond the sensible range, taking on concentration and illiquidity for little additional diversification. The fourth is deploying the sleeve too quickly, concentrating the outcome on one entry environment and straining liquidity. The fifth is under-provisioning the liquidity reserve, risking forced sales. The sixth is judging the sleeve in isolation rather than by its contribution to the portfolio. And the seventh is failing to plan rebalancing, then being unable to rebalance an illiquid sleeve when it drifts. Each error is avoided by the framework's disciplines: size against the marginal contribution within the sensible range, pace the build, provision liquidity, integrate into the risk budget, and plan rebalancing through commitment direction. An investor that audits its construction against this list will identify where its sleeve is most exposed to avoidable error.

6.7 Reviewing and Re-Sizing the Sleeve Over Time

Construction is not a one-time act but a continuing process, and the investor should review and, where warranted, re-size the sleeve over time as evidence accumulates and circumstances change. The correlation that justified the sizing should be monitored against realised data, since a sleeve that proves more correlated than assumed delivers less diversification and may warrant a smaller allocation, while one that proves less correlated may warrant more. The investor's own circumstances, its risk budget, liquidity needs and conviction, also evolve, and the sleeve should be re-sized accordingly. Because the sleeve is illiquid, re-sizing is achieved gradually through the direction of new commitments rather than abruptly, so the investor should treat the target size as a living parameter adjusted over successive commitment cycles rather than a fixed figure. Reviewing the sleeve at least annually, against both its realised diversification and the investor's current circumstances, and adjusting the commitment programme accordingly, keeps the construction aligned with its purpose and prevents the sleeve from drifting into a size or composition that no longer serves the portfolio. This ongoing stewardship is the final element of construction, and it is what distinguishes a sleeve that remains a deliberate, well-fitted component of the portfolio from one that, however well built initially, gradually ceases to fit.

6.8 Communicating the Construction to Stakeholders

The construction of a Gulf sleeve should be communicated to the investor's stakeholders, trustees, beneficiaries or, for a family office, the family, in terms of its portfolio role rather than its standalone characteristics, because the standalone view invites exactly the misunderstanding the framework warns against. A stakeholder told that the portfolio now holds a volatile, illiquid emerging-market sleeve may reasonably be alarmed; the same stakeholder told that the portfolio has added a lowly correlated return stream that improves its risk-adjusted return and lowers its overall volatility understands the decision correctly. The construction analysis provides the basis for this honest, portfolio-level communication: the frontier shift, the low marginal contribution to

risk, and the diversification benefit are precisely the points that explain why the sleeve improves the portfolio despite its standalone volatility. Communicating in these terms is not spin but accuracy, because the portfolio-level effect is the real effect, and a stakeholder that understands it can support the multi-year build and the patience an illiquid sleeve requires. An investor that communicates the construction poorly, emphasising the sleeve's standalone risk or its illiquidity without the portfolio context, may face pressure to abandon a sound allocation at the first sign of volatility; one that communicates it well builds the stakeholder understanding that allows the sleeve to be held through its build and beyond.

6.9 A Worked Construction Sequence

To make the implementation concrete, the construction of a Gulf sleeve can be set out as a sequence an investor follows. First, the investor analyses the sleeve's expected return, volatility and, crucially, correlation against its own existing portfolio, establishing the marginal contribution to portfolio risk. Second, it determines the sensible size range by examining where the diversification benefit plateaus for its specific portfolio and where concentration and illiquidity constraints bind, and selects a target within that range consistent with its risk and illiquidity budgets. Third, it decides the internal composition of the sleeve across the underlying strategies, tailored to the role it wants the sleeve to play and to complement its existing holdings. Fourth, it sets a pacing schedule to build the target over several years and sizes a liquidity reserve for the worst plausible net call during the build. Fifth, it establishes the rebalancing approach, tolerance bands restored through the direction of new commitments, and a review cadence. Sixth, it documents the whole plan for governance and stakeholder communication. Followed in sequence, these steps turn the abstract decision to allocate into a concrete, governed construction plan, and they ensure that each construction decision, size, composition, pace, liquidity, rebalancing, is made deliberately and in light of the others rather than in isolation. An investor that works through this sequence will have constructed the sleeve as a coherent, well-fitted component of its portfolio, which is the outcome the framework is designed to produce.

6.10 The Construction Plan as a Living Document

A final implementation point is that the construction plan should be treated as a living document rather than a one-time approval. Markets evolve, the investor's circumstances change, and evidence about the sleeve's realised correlation and performance accumulates, and the construction plan should be revisited periodically in light of all three. At each review the investor should ask whether the target size remains appropriate given realised correlation and its current risk and illiquidity budgets; whether the internal strategy mix still serves the intended role; whether the pacing should be accelerated or slowed; whether the liquidity reserve remains adequate as the programme matures toward self-funding; and whether rebalancing is keeping the sleeve near target. Recording the answers, and the adjustments made, preserves the rationale for the construction over time and allows later decisions to build on earlier ones rather than starting afresh. A construction plan treated as a living document keeps the sleeve aligned with its purpose across the years of its build and life; one treated as a one-time approval drifts, as the gap between the sleeve that was approved and the sleeve that actually exists widens with each unmanaged change. The modest discipline of periodic review, against the documented plan, is what keeps the construction coherent over the long horizon that an illiquid Gulf sleeve occupies, and it is the final habit that distinguishes a deliberately managed allocation from one that, however well begun, is left to drift.

6. IMPLEMENTATION CONSIDERATIONS

The framework translates into practical steps for constructing a Gulf sleeve.

6.1 Size Against the Diversification Contribution

The first step is to size the sleeve against its contribution to the whole portfolio rather than against a standalone return target, recognising that the diversification benefit, not the standalone return, is the primary reason to hold it. The investor should locate the sleeve within the sensible range, typically five to ten percent, where most of the diversification benefit is captured, setting the precise figure by its risk budget, liquidity needs and conviction. Sizing against the standalone return, or against the sleeve's standalone volatility, leads to error in both directions; sizing against the marginal contribution to portfolio risk and return is the correct basis.

6.2 Pace the Build and Provision Liquidity

The second step is to pace the build across vintages and to provision a liquidity reserve sized to the worst plausible net call during the ramp. The investor should plan the multi-year build explicitly, commit steadily, and hold the reserve so that it is never forced to sell to meet a call. As the programme matures and becomes self-funding, the reserve can shrink. This cash-flow discipline is as important to successful construction as the sizing, because a well-sized sleeve poorly funded can still force value-destroying sales at the wrong time.

6.3 Integrate, Monitor and Rebalance

The third step is to integrate the sleeve into the portfolio's overall risk management, monitoring its correlation with the rest of the portfolio as data accumulate, and rebalancing as the sleeve and the portfolio drift from target. Because the sleeve is illiquid, rebalancing is achieved primarily through the direction of new commitments rather than through sales: the investor steers new capital to restore target weights rather than trading the existing illiquid positions. Integrating the sleeve into the portfolio's risk budget, and monitoring whether it continues to deliver the diversification that justified it, completes the construction and converts a one-time allocation into a managed component of the portfolio.

A connecting reflection places this paper within the broader programme. The case for allocating establishes that the Gulf belongs in a global portfolio; the peg and risk-classification analyses establish that its risk is lower than its label implies; the benchmarking and net-of-fee analyses establish how to judge the allocation and keep a fair share of its returns; and the manager-selection analysis establishes how to choose the managers through whom it is deployed. This paper supplies the portfolio-engineering link: given all of that, how the sleeve is sized, paced and integrated so that the portfolio-level benefit is actually captured. Construction is the step at which the strategic case becomes a change to a real portfolio, and the discipline it requires, sizing against the marginal contribution, pacing the build, provisioning liquidity, integrating into the risk budget, is what ensures the change is an improvement. Without it, the soundest allocation case can produce a disappointing sleeve; with it, a measured Gulf allocation becomes a genuine, durable enhancement to a global portfolio.

A final reflection concerns the generality of the construction discipline. Although framed for a Gulf sleeve, the principles set out here, size by marginal contribution not standalone volatility, capture the diminishing diversification benefit, pace the build, provision liquidity, integrate into the risk budget, and rebalance through commitments, apply to the construction of any low-

correlation, illiquid sleeve within a portfolio. The Gulf is a particularly clear case because its low correlation and its illiquid, private-markets expression make the construction questions vivid, but an investor that masters the discipline for the Gulf will find it applicable to any new, lowly correlated, illiquid allocation it considers. The broader contribution of the paper is therefore a way of thinking about adding a sleeve to a portfolio, one that judges the sleeve by its contribution to the whole and builds it with attention to size, pace, liquidity and integration, that serves the investor well beyond the specific case of the Gulf. Construction, in this sense, is a portable discipline, and the Gulf sleeve is an instructive instance of it.

To distil the argument: a Gulf allocation creates value at the level of the portfolio, not the asset, and that value is realised only through disciplined construction. Size the sleeve by its marginal contribution to the portfolio, not its standalone volatility; place it within the sensible range where most of the diversification benefit is captured; pace the build across vintages and provision the liquidity it requires; compose it as a diversified, multi-strategy allocation; integrate it into the total-portfolio risk and illiquidity budgets; plan rebalancing through the direction of new commitments; and review and re-size it over time. An investor that constructs the sleeve with this discipline converts the strategic case for the Gulf into a genuine, durable improvement in its portfolio's risk-adjusted return; one that constructs carelessly may find that a sound allocation underdelivers. The decision to allocate opens the opportunity; construction is what captures it, and it is in the quality of the construction that the difference between admiring the Gulf opportunity and benefiting from it is finally made.

It is worth closing on the relationship between construction discipline and the realisation of any strategic insight. An investment thesis, however sound, delivers nothing until it is built into a portfolio, and the building is where most theses succeed or fail in practice. The Gulf thesis, that an under-owned, lowly correlated, structurally sound region can improve a global portfolio, is compelling, but it becomes real only through a sleeve that is correctly sized, patiently paced, adequately funded, sensibly composed and properly integrated. This paper has set out that construction discipline in detail because it is the step at which the Gulf opportunity is either captured or squandered, and because it is the step most often given the least attention, eclipsed by the more glamorous question of whether to allocate at all. For the investor that has decided to allocate, the message is that the work is not done but beginning, and that the quality of the construction will determine whether the allocation becomes the portfolio improvement the thesis promises. Done with discipline, a Gulf sleeve is a durable enhancement to a global portfolio; done without it, even the best thesis can disappoint. Construction is the bridge between the two, and building it well is the task this paper has sought to equip the investor to perform.

A final connecting thought: the construction of a Gulf sleeve is, in microcosm, the discipline of portfolio management itself, applied to a new and instructive case. Every principle invoked here, judging an asset by its contribution to the whole, capturing diversification while respecting its limits, pacing the deployment of illiquid capital, budgeting risk and liquidity, planning rebalancing, and stress-testing the result, is a general principle of sound portfolio construction, not a Gulf-specific technique. The Gulf sleeve is a clarifying case because its low correlation and illiquid expression make these principles consequential and visible, but an investor that constructs the sleeve well is simply practising good portfolio management in a setting that rewards it. This is reassuring, because the investor already possesses the discipline; and it is demanding, because the setting, a new region, an illiquid asset, a low but uncertain correlation, tests the discipline more

than a familiar allocation would. The investor that meets the test builds a sleeve that genuinely improves its portfolio and, in doing so, sharpens a discipline that serves the whole of its investing. That dual return, on the portfolio and on the investor's own practice, is the deeper reward of constructing a Gulf sleeve with the care this paper has described.

In sum, the contribution of this paper is to treat the addition of a Gulf allocation as the portfolio-construction problem it actually is, and to set out the discipline by which a measured Gulf sleeve is sized, paced, composed, integrated and maintained so that it improves the portfolio it joins. The central insight, that the sleeve's value is its contribution to the whole and not its standalone profile, drives every recommendation: size by the marginal contribution to risk, capture the diversification benefit while respecting its diminishing returns and its limits in stress, pace the build of an illiquid programme and provision its liquidity, compose the sleeve as a diversified whole, integrate it into the risk and illiquidity budgets, and rebalance and review it over time. The propositions on which the framework rests are framed to be testable as the region's data matures, and their empirical examination, particularly of the correlation and its behaviour in stress, is the natural next step. For the practitioner, however, the direction is already clear and the discipline already available: an investor that has decided the Gulf belongs in its portfolio can, by constructing the sleeve with the care set out here, convert that decision into a durable improvement in its risk-adjusted return. Construction is the work that remains after the decision to allocate, and it is the work that determines whether the Gulf opportunity is captured in practice or admired in principle.

7. CONCLUDING COMMENTS

This paper has addressed how a family-office or institutional investor should construct a Gulf sleeve within a global multi-asset portfolio, and has argued that the construction choices, sizing, pacing and integration, determine whether the sleeve delivers the benefit the allocation case promises. The findings are consistent across the propositions. Because of its low correlation, the sleeve contributes less risk to the portfolio than its standalone volatility implies and improves the risk-adjusted return out of proportion to its size (Proposition 1). The diversification benefit is greatest in the first increments and plateaus, then fades, so the optimal size is a measured allocation (Proposition 2). The sleeve should be paced across vintages (Proposition 3) and requires a liquidity reserve during a build that eventually becomes self-funding (Proposition 4). And the benefit is sensitive to the correlation and to selection and attenuates in stress, so it should be claimed with a margin of safety (Proposition 5).

The implication for the investor is that constructing a Gulf sleeve well is a matter of disciplined portfolio engineering rather than of conviction alone. Size the sleeve to capture the diversification benefit without over-concentrating; pace it across vintages and provision the liquidity its build requires; integrate it into the portfolio's risk management and rebalance through new commitments; and judge it by its marginal contribution to the portfolio rather than its standalone characteristics. An investor that constructs the sleeve this way realises the improvement the allocation case promises; one that sizes carelessly, deploys hastily or judges the sleeve in isolation may find that a sound allocation disappoints in execution.

The deeper message is that the value of a Gulf allocation is a portfolio property, not a property of the Gulf assets in isolation, and that it is realised only through construction. The companion analyses establish that the Gulf merits a place in the portfolio and that its risk is lower than its

label implies; this paper shows how, given that, the allocation is built so that the portfolio-level benefit is captured. Construction is where the strategic case meets the reality of an existing portfolio with its own risks, cash flows and constraints, and it is in the quality of that construction, more than in the decision to allocate, that the difference between a sleeve that improves the portfolio and one that merely adds exposure is determined.

The study is subject to limitations that also define its contribution. It uses a stylised mean-variance framework with clearly-labelled assumptions rather than an empirical optimisation, a choice appropriate to a prospective construction question but one that trades precision for transparency, and it does not attempt to identify a single optimal weight, which would convey false precision given the uncertainty in the inputs. The correlation, the central input, is indicative and should be validated by each investor against its own portfolio, and it can change in stress. These limitations point to the natural avenues for further research: empirical estimation of the correlation of Gulf assets with global portfolios and its behaviour in stress; analysis of optimal pacing for Gulf programmes given the region's cash-flow patterns; and study of how the diversification benefit evolves as the region integrates with global markets. As that data matures, the construction framework can be applied to it. In the meantime, the contribution is the framework itself: a disciplined way to size, pace and integrate a Gulf sleeve so that it improves the portfolio it joins.

This paper completes a sequence on Gulf allocation for the international and family-office investor, and it is worth marking how the pieces fit. The case for allocating answers whether to be in the region; the currency-peg and risk-classification analyses answer how its risk should be measured; the benchmarking and net-of-fee analyses answer how to judge the allocation and keep a fair share of its returns; the first-allocation and manager-selection analyses answer how to diligence and deploy; and this paper answers how to construct the sleeve within a portfolio so that the benefit is captured. Together they form a complete arc from strategic conviction to a built, integrated, monitored allocation, with each piece addressing a link in the chain by which an idea about the Gulf becomes a result in a portfolio. An investor that has worked through the arc holds not merely a view that the Gulf is attractive but the apparatus to act on it well: to measure its risk correctly, to judge and price its managers fairly, to diligence its first commitment, and to construct and maintain the resulting sleeve as a deliberate component of a global portfolio. That apparatus, more than any single conclusion, is what equips the investor to convert the Gulf opportunity into realised, risk-adjusted return, and the construction discipline set out here is the final and indispensable link that turns the decision to allocate into a portfolio that is genuinely better for the allocation.

DISCLOSURES

The author is an independent researcher and transaction advisor who advises institutional and family-office investors on matters including portfolio construction and allocation related to the markets discussed in this paper, and may have professional or commercial interests in transactions involving the Gulf region. This paper is provided for information and educational purposes only; it does not constitute investment, tax or legal advice, an offer or solicitation, or a recommendation regarding any security or strategy. The figures presented are modelled and illustrative of construction mechanics, are not forecasts, and should be independently verified. Readers should obtain advice appropriate to their own circumstances and jurisdiction before acting.

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About the Author

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APPENDIX A. BASE-CASE ASSUMPTIONS

Table 3. Parameters Used in the Construction Framework

Parameter	Indicative value
Global portfolio expected return	7.6%
Global portfolio volatility	9.5%
Gulf sleeve expected return	9.2%
Gulf sleeve volatility	11.0%
Correlation, sleeve to global portfolio (base)	0.40 to 0.45
Correlation, stressed	0.70+
Sleeve marginal contribution to portfolio risk	~4.6%

Optimal sleeve range	5% to 10%
Build period	5 years
Self-funding onset	Years 5 to 6

Indicative figures illustrating construction mechanics; not forecasts.

APPENDIX B. A CONSTRUCTION CHECKLIST

- Is the sleeve sized against its marginal contribution to the portfolio, not its standalone volatility or return?
- Is the size within the sensible range (typically 5-10%) where most diversification is captured?
- Has the sleeve-to-portfolio correlation been validated against the investor's own book?
- Is the sleeve paced across vintages rather than deployed at once?
- Is a liquidity reserve provisioned for the worst plausible net call during the build?
- Is rebalancing planned through the direction of new commitments rather than forced sales?
- Is the sleeve integrated into the portfolio's risk budget and monitored for continued diversification?
- Is the benefit claimed with a margin of safety against a stressed-correlation scenario?

APPENDIX C. GLOSSARY

The following terms are used in this paper. Definitions are provided for the general reader and are not intended as formal definitions.

Correlation A measure between minus one and plus one of how closely two assets' returns move together; lower correlation adds more diversification.

Diversification benefit The reduction in portfolio risk, for a given return, from adding a lowly correlated asset.

Efficient frontier The set of portfolios offering the highest return for each level of risk; a low-correlation asset shifts it outward.

J-curve The pattern of early negative and later positive cash flows in an illiquid programme.

Liquidity reserve Cash or liquid assets held to meet capital calls without forced selling of illiquid holdings.

Marginal contribution to risk The amount an asset adds to total portfolio risk, which depends on its correlation and can be far below its standalone volatility.

Mean-variance framework The standard portfolio-construction approach selecting portfolios on expected return and variance, accounting for correlations.

Pacing Committing capital steadily across years (vintages) rather than all at once.

Rebalancing Restoring target portfolio weights; for illiquid sleeves, achieved mainly through the direction of new commitments.

Risk budget The total risk an institution is willing to bear, allocated across holdings.

Self-funding The state in which a paced programme's distributions fund its new commitments, reached as it matures.

Sleeve A discrete allocation to a strategy or region within a broader portfolio.

Standalone volatility The risk of an asset considered in isolation, distinct from its marginal contribution to portfolio risk.

Vintage The year a commitment begins investing; diversifying across vintages spreads entry-timing risk.

Illiquidity budget The total illiquidity an investor can bear across its portfolio, a constraint on the size of illiquid allocations alongside the risk budget.

Denominator effect The rise in an illiquid allocation above target when liquid assets fall in value, constraining rebalancing in a crisis.

Internal mix The composition of a sleeve across its underlying strategies, itself a portfolio-construction decision.

Total-portfolio risk budget The overall risk an investor allocates across all holdings, within which a new sleeve must fit.