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THE WORLD'S EVENTS, PRICED IN US MARKETS

RESEARCH PAPER 01 · PORTFOLIO CONSTRUCTION

The Market-Neutral Allocation Framework

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ABSTRACT

Market-neutral is widely treated as a description of a portfolio's direction. It is more usefully treated as a description of what a portfolio is being paid for. This paper sets out the allocation framework that follows from that second reading: how a market-neutral sleeve is sized, what exposure it actually carries once direction is removed, why its correlation to equities is low in normal conditions and unreliable in the conditions that matter, and what an allocator should require of it before capital is committed. It is a framework paper. It contains no return figures and no recommendation.

1 What neutrality actually removes

A market-neutral book is constructed so that small movements in the underlying index do very little to its value. That is the whole of the claim, and it is narrower than the name suggests.

Removing directional exposure does not remove risk. It exchanges one exposure for several others, and the exchange is the point. An allocator who understands the trade is buying something specific. An allocator who hears "neutral" and infers "low risk" has bought something they have not understood.

What is removed is the first-order sensitivity to price. What remains, and what the strategy is actually paid to carry, is the following.

TABLE 1. WHAT REPLACES DIRECTIONAL EXPOSURE

EXPOSURE	WHAT IT MEANS IN PRACTICE	WHEN IT IS FELT
Volatility level	The price of insurance rises, and short-premium positions are marked against immediately, before any move in the underlying is realised	Within hours of a dislocation
Convexity	Neutrality holds for small moves and decays as moves get larger, so the book becomes directional exactly when direction is expensive	Large moves, in either direction
Correlation	Positions that looked independent behave as one position in a correlated event	The event itself

EXPOSURE	WHAT IT MEANS IN PRACTICE	WHEN IT IS FELT
Liquidity and financing	Spreads widen, collateral requirements rise, and both happen while the book is being marked down	Days two to ten

Illustrative. The timings describe the ordinary sequence of a dislocation and are not a forecast of any particular episode.

> Neutrality is a statement about the first derivative. Every risk that matters to an allocator lives in the second.

2 The allocation question, stated properly

The question an allocator faces is not "how much market-neutral exposure should a portfolio hold". Framed that way it invites an answer expressed as a percentage of assets, which is the wrong unit.

The right question is: **how much of a correlated-event loss can this portfolio absorb without the allocation decision being reversed at the worst possible time?** That reframing does three things. It puts the constraint before the opportunity. It makes the sizing depend on the holder rather than on the strategy. And it names the actual failure mode, which is not a bad year but a forced exit.

The three inputs

Maximum tolerable loss. An absolute figure, in currency, decided before any position exists and independent of the strategy's characteristics. This is exogenous. It comes from the portfolio's obligations, not from the manager's confidence.

The worst plausible outcome of the sleeve. Not the historical worst, which is a sample of one path. A shock grid that prices the book across a range of simultaneous price and volatility moves, and reads the worst cell.

The collateral behaviour of that worst cell. A mark-to-market loss and a collateral call are different events. A portfolio can survive the first and be destroyed by the second, because the second forces transactions and the first does not.

Allocation is then the largest sleeve whose worst cell, plus its collateral expansion at that cell, sits inside the maximum tolerable loss. Note the direction of the derivation: the sleeve adjusts to the constraint. The constraint never adjusts to accommodate a desired sleeve size, and an allocation process that permits the reverse has no constraint at all.

3 Why the correlation number misleads

Market-neutral strategies typically show low correlation to equity indices measured over ordinary periods. The figure is real and it is close to useless for allocation, for a structural reason rather than a measurement one.

Correlation is estimated over the whole sample, and the whole sample is dominated by ordinary conditions. In ordinary conditions the strategy genuinely is close to independent. The allocator does not need diversification in ordinary conditions. They need it in the tail, and in the tail the correlation of a short-volatility book to equities rises sharply, because the same event drives both.

An average correlation across all conditions therefore reports the strategy's behaviour when its behaviour does not matter, and averages away its behaviour when it does. The number is not wrong. It is answering a question nobody should be asking.

The useful substitute is conditional. What does this sleeve do in the worst decile of equity outcomes? That figure is worse, less flattering, harder to estimate, and is the only one with a bearing on whether the allocation survives contact with a bad quarter.

4 What an allocator should require

Five requirements, each of which can be checked before capital moves, and none of which depends on trusting a track record.

1. **A stated worst cell.** The manager should be able to produce, on request, the loss the book takes under a specified simultaneous price and volatility shock. If that number does not exist, the risk has not been measured, whatever the reporting suggests.
2. **Collateral behaviour under that shock.** Specifically whether the requirement is fixed by construction or expands with volatility, and by how much. These are different businesses.
3. **The reserve, stated as a policy rather than a residual.** Undeployed capital held against the shock, sized before positions are written

rather than whatever remains after them.

4. **The conditions under which nothing is written.** A strategy that writes in all conditions is not applying a threshold, and a strategy without a threshold is selling insurance at whatever price is offered.
5. **An explicit account of what breaks it.** A manager who cannot describe the environment that would end the strategy has either not thought about it or is not saying.

Every one of these is answerable in advance. None of them requires a single performance figure, which is what makes them worth asking.

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5 The case against this framework

Three honest objections, and they are not weak.

The reserve is a drag. Capital held against a shock is capital not earning. Over a long enough period in which no shock arrives, a reserved book underperforms an unreserved one, and the difference compounds. The counterargument is not that the drag is imaginary. It is that the unreserved comparison contains a probability of total loss which its return figure does not report, and that a return series which omits the paths where it ended is not a return series.

Shock grids are only as good as their range. A worst cell is the worst cell *of the grid*. Events have repeatedly exceeded the ranges practitioners considered generous beforehand. This is a real limitation and the correct response is not more confidence in the grid but explicit protection against the region beyond it, purchased in advance, with the understanding that such protection may not be convertible on the day.

Conditional correlation is hard to estimate. Tail observations are, by construction, scarce. Estimating behaviour in the worst decile from a handful of episodes is statistically weak, and a framework that leans on it is leaning on thin evidence. The defence is modest: a weak estimate of the right quantity is more useful than a precise estimate of the wrong one, and the framework is designed to be robust to the estimate being wrong rather than to depend on it being right.

6 What would have to be true

The framework rests on one assumption that an allocator should test rather than accept: that the compensation for carrying volatility risk is structural rather than incidental, and therefore persists.

The structural argument is that a large and persistent population of buyers has non-economic reasons to purchase protection, mandate constraints, career risk, and the simple inability to tolerate a drawdown, and that this population is willing to pay more than the risk is worth to a diversified holder. If that is right, the compensation continues.

If instead the compensation was a temporary feature of a particular period, competed away as capital arrived, then the framework describes a discipline for harvesting something that is no longer there. That is the question worth sitting with, and it is not settled by any backtest, because the backtest is drawn from the period in question.

The framework's answer is deliberately narrow. It does not claim the premium is durable. It claims that if you are going to carry this risk at all, the order of operations is reserves, standards, price, then protection, and that this order is worth following whether the premium turns out to be generous or thin.

IMPORTANT INFORMATION

This paper is general information and education only. It is not financial product advice, it is not a recommendation to buy or sell any instrument or strategy, and it does not take into account your objectives, financial situation or needs.

Strategies described here involve the sale of options. Losses from selling options can substantially exceed the premium received and, in some configurations, can exceed the capital committed. Past performance is not a reliable indicator of future performance.

No return figure, target or expected outcome is stated or implied anywhere in this paper. Any tables are illustrative and are provided to show a mechanism, not to describe a result.

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