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The Floor Beneath the Book

The Machine States · Paper III · Immunity

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ABOUT THIS SERIES

The Machine States is a sub-series of the Public Doctrine Series. It sets out how the houses charter a trading machine, name the conditions of its book, and govern when income may leave it. It describes internal doctrine applied to the houses' own capital. The case in Section VI is an illustration built from operating data. Its figures have been altered and it reports no account's results.

I. A state that belongs to the positions

Paper I of this series defined Immunity in one line: a book is in Immunity when its balance, less the risk at its stops, stands at or above its Chartered Capital. Were every open position to close at its stop, the capital would remain whole. Paper II described the ground below it, where a young book floats Under Carry and works its way to Cover. This paper concerns the second rung: what the floor of a book is, how it is measured, how it moves, and by what routes a book reaches the state in which the market can no longer reach its capital.

Immunity differs in character from the states on either side of it. Cover is a property of the market's present prices, and it can be gained and lost within an hour. Immortality, as Paper IV will set out, is a property of the law alone. Immunity sits between them. It is a property of the positions now open and of the stops they carry, and it changes only when those positions or those stops change. That is why it deserves a paper of its own: it is the first state whose movement the machine itself governs.

II. Three readings of one book

A book can be read at three levels, and the houses read all three together as a triangle. The balance is the banked reading: what the machine has realised, net of its losses and costs. The equity is the marked reading: what the book would be worth were everything closed at this minute's prices. The floor is the third: what the book would be worth were every open position to close at its stop.

Table 1. The triangle of readings

Reading	Definition	The question it answers
Banked	The balance	What has the machine realised?
Marked	The equity	What is the book worth at today's prices?
Floor	The balance less the risk at the stops	What is the book worth if every open position dies?

The risk at the stops is the sum, over open positions, of the loss each would realise at its own stop, measured from its entry. A position whose stop has passed its entry contributes a locked gain, which raises the floor.

Each reading misleads alone. The equity is too fragile a measure: it swings with every price and tells a reader nothing about what the open book could cost. The balance is too comfortable: it records only what has been closed and ignores what is still at risk. The floor completes the picture because it is the

strict lower bound of the book on its own law. It takes every position at its own worst under its own exit, nets nothing between positions, and needs no forecast of prices at all.

There is a quiet advantage in that last property. The floor already assumes that every open position fails together. A cluster of correlated positions, the usual cause of a bad day, cannot take a book below its floor, because the floor has counted them all as lost already. What it cannot survive is a stop that is not honoured, and the paper returns to that limit below.

III. The Immunity Ratio

Write H for the Retained Harvest, the balance in excess of Chartered Capital, and R for the risk at the stops. The floor is the balance less R, so the condition for Immunity reduces to a comparison of two quantities the account reports directly:

$$\textit{Immunity holds when } H \geq R. \qquad \textit{Immunity Ratio } \iota = H / R. \qquad \textit{Immunity Distance} = R - H.$$

The Immunity Ratio is the harvest expressed in units of the risk the open book carries. A ratio of one is the threshold; a ratio of one half says the harvest would pay for half the book's deaths. The Immunity Distance is the shortfall in money, and like Recovery Debt in Paper II it can be expressed in days of banking at the rate observed, as a proportion that can be felt and not as a date.

The ratio belongs to a family. The three ratios of the series share a numerator, the Retained Harvest, and differ only in what they set it against.

Table 2. One numerator, three denominators

State	Ratio	The harvest is set against	Threshold
Cover	Cover Ratio	The floating loss of the open book	1
Immunity	Immunity Ratio	The risk at the stops of the open book	1
Immortality	Immortality Multiple	The most the law permits at risk, K × c / (1 − c)	1

K is Chartered Capital and c the commitment ceiling, as defined in Paper I.

The denominators are ordered. A position cannot ordinarily lose more than the distance to its stop, so the floating loss cannot exceed the risk at the stops, and the ceiling bounds the risk at the stops in turn. Each state therefore asks the harvest to cover a larger quantity than the one before, and that is the nesting result of Paper I seen from the side of the measures.

IV. The floor is a ratchet

The central result of this paper concerns how the floor moves. Take a design in which every position carries a stop from its birth and in which a stop, once set, moves only in the position's favour. Then the floor responds to the events of trading as Table 3 shows.

Table 3. What each event does to the floor

Event	Effect on the floor	Why
A position banks	Rises	The balance gains the profit and the position's risk leaves the sum. Even a position whose stop had locked a gain banks at least that gain.

Event	Effect on the floor	Why
A stop moves in the position's favour	Rises	The loss the position would realise at its stop falls, or turns into a locked gain.
A position dies at its stop	Unchanged	The balance falls by exactly the loss the floor had already counted.
The market moves	Unchanged	The floor is measured at the stops, not at prices.
A new position is born	Falls	Its risk at the stop joins the sum.
Swap, financing or commission is charged	Falls	The balance is reduced by a cost the floor did not count.
A stop is filled beyond its price	Falls	The loss exceeds what the floor had counted, by the slippage.
Harvest is withdrawn	Falls	The balance falls with nothing at risk released.

The table yields a proposition that I regard as the most useful property of the state. In ordinary trading the market cannot lower the floor. A death leaves it where it was and a bank raises it; adverse prices do not touch it at all. The floor falls only by the machine's own admissions of new risk, by the costs of carrying positions, by a gap through a stop, or by a withdrawal. The market can take a book out of Cover in an afternoon. Only the machine's own acts, and the failures of venues, can take it out of Immunity.

It follows that a book in Immunity that admits no new risk stays in Immunity until its costs erode the margin, whatever the market does. It follows too that a book that reaches Immunity and then loses it has, in nearly every case, done so by opening positions. Immunity is lost by growth, not by loss.

V. Three routes to Immunity

The proposition identifies the routes. The first is the harvest. Each bank raises the floor by more than its profit, because the position's risk leaves the sum at the same moment. The second is the stop. A position whose stop passes its entry is immortal on its own account; the risk it carried becomes a locked gain, and the floor rises by both. For a book whose largest positions are slow, this route can be worth more than weeks of banking, because a single lock releases the whole risk of the largest positions at once. The third is restraint: a book admitting fewer new positions than it banks or locks will rise toward Immunity even with a modest harvest.

The third route reveals a tension that the doctrine must state rather than resolve. A machine built to put its capital to work admits new positions whenever its law allows, and every admission lowers its own floor. Growth and Immunity pull against each other. The commitment ceiling bounds how far the pull can go, and that is its purpose. But no Machine State gives a reason to refuse a position. As Paper I put it, a state confers no authority over any position: it is a reading of the book, not a gate on it. A house that wished to hold a book in Immunity would do so by its capital law, openly and as a separate decision, not by letting a measurement acquire a veto.

VI. The Case

The following case is an illustration built from operating data. The figures have been altered and it reports no account's results.

The book of Papers I and II is chartered at 100 units under a ceiling of one quarter. At its first reading its balance is 100.4 and its risk at the stops 9, so its floor is 91.4, nine-tenths of what it has banked. Its Retained Harvest of 0.4 against a risk of 9 gives an Immunity Ratio of 0.044 and an Immunity Distance of 8.6. At a harvest of 0.25 units a day that distance is some 34 days of banking, a proportion and not a date.

Some days later the book is read again. It has banked positions worth 1.2 units whose stops had carried 1.5 units of risk. Three of its long-horizon positions have moved their stops past entry, releasing 4 units of risk and locking 0.5 units of gain. It has admitted new positions carrying 2 units of risk, and it has paid 0.1 in carrying costs. Its harvest has risen by only 1.1 units, to 1.5. Its floor has risen by 5.1 units, to 96.5. The Immunity Ratio stands at 0.30 and the distance at 3.5.

Table 4. The case: where the floor's 5.1 units came from

Event	Effect on the floor
Banks: profit 1.2, risk released 1.5	+2.7
Stops locked past entry: risk released 4.0, gain locked 0.5	+4.5
New positions admitted	−2.0
Carrying costs	−0.1
Net change in the floor	+5.1

Altered figures. The largest contribution came from stops, not from banking.

The lesson of the case is in its largest line. The stops did more for the book's standing than the harvest did. A reader watching the balance alone would have seen a gain of 1.1 units and concluded that Immunity was distant. A reader watching the floor would have seen the book cover three-fifths of the remaining distance in a few days.

VII. How the floor can mislead

The floor is only as true as the stops beneath it. It assumes that each stop fills at its price. A market that gaps through a stop, a venue that halts, or an instrument that offers no bid will realise a loss the floor did not count, and the floor overstates the book by the slippage. A position with no stop at all has no floor: its risk is unbounded and it must be flagged as such, never counted as zero.

The floor also ignores time. It counts the risk at the stops but not the carrying costs that will be charged while positions remain open, so a book long held near its threshold can drift out of Immunity by costs alone. And Immunity protects the capital, not the harvest. A book in Immunity can lose nearly all that it has banked and remain in the state, because the state asks only that the capital survive. It is a floor, not a guarantee of earnings, and it should be read beside the rate of banking, never instead of it.

VIII. What would falsify this reading

The account given here would be wrong if a book's floor were found to fall in ordinary trading without a new position, a cost, a gap or a withdrawal; the ratchet proposition would then be false. It would be wrong if deaths in ordinary markets routinely realised more than their stops, for the floor would then overstate every book. And it would be wrong if books that reach Immunity routinely lost it by deaths

rather than by admissions, for the claim that Immunity is lost by growth and not by loss would fail. Each of these can be checked against the ledger of a book, entry by entry.

RELATED IN THE PUBLIC DOCTRINE SERIES

A Machine With a Charter: The Machine States, Paper I, which defines the states and the capital against which they are measured.

What the Open Book Carries: The Machine States, Paper II, on the ground between Under Carry and Cover.

The Measurement Canon: the instruments by which a trading system is read as a population of positions.

ABOUT THE AUTHOR

Dr. Glen Brown is President & CEO of Global Financial Engineering, Inc. and Global Accountancy Institute, Inc. He is the architect of the GCPIAUT framework and the broader GATS-native proprietary capital doctrine. His work focuses on sovereign capital governance, algorithmic trading architecture, reserve-first compounding systems, and institutional financial engineering within closed proprietary environments.

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