Mira v1 risk engine: 32-asset test, 2000-2026

Official report and test declaration. Frozen v1 model, no changes. Generated 2026-10-16 13:00, run time 17 seconds. Research only. Not investment advice.

1. Result in short

> **Across 32 assets (each tested on its own price history), the v1 chain gave a shallower worst fall than a fixed 60% mix in 32 of 32 assets** and the v1 gate in 31 of 32. The median asset gave up -0.8% of growth a year and its worst fall changed by +22.8 points.

Declared success rule, against fixed 60%	PASS	FAIL	INCONCLUSIVE
v1 chain	11	20	1
v1 gate	11	20	1

Rule: worst fall at least 30% shallower, growth no more than 2 points lower, Sharpe not lower. INCONCLUSIVE when the fixed mix never fell 5%. Most helped: **NVDA** (-68% to -9%). Least helped: **SHY** (-4% to -2%).

> **What this is.** A mechanical stress test of the frozen rule on 32 very different price paths. It is not a portfolio of real products: prices are closes (no dividends or interest, futures roll effects not modelled), and VIX and the 10-year yield index are gauges you cannot buy. Read it as "does the rule behave sensibly across assets", not as returns anyone earned.

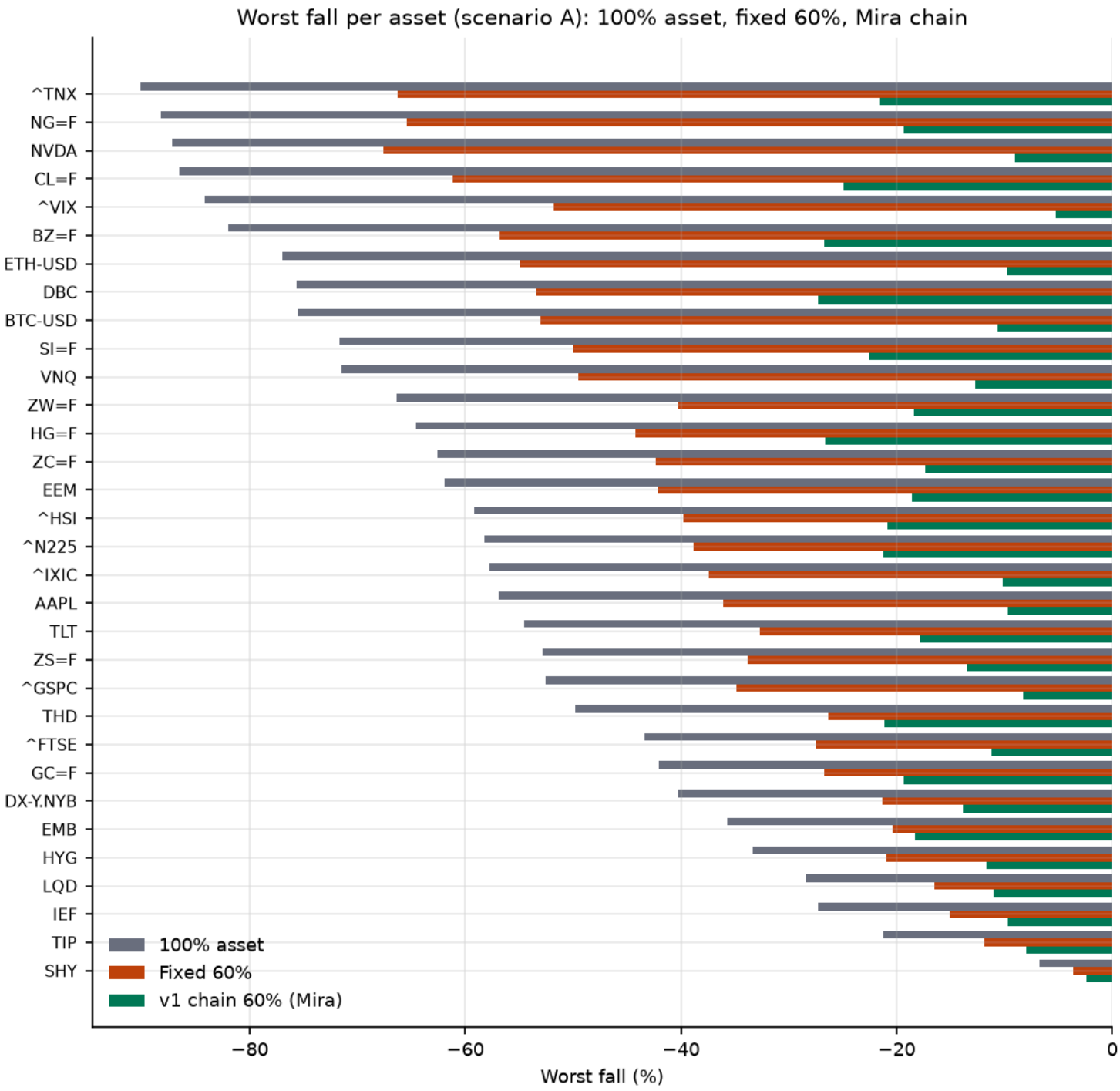
2. Declaration: how this test was done

Item	Declared procedure
Model	v1, frozen. Code imported unchanged from mira_invest.py (file hash d090dc22ec92eaa0); forward-test rule hash, declared vs code now: match
Universe	all 32 daily series in the project cache (stocks, indices, bonds, commodity futures, dollar index, crypto, volatility, rates); 32 have at least 24 monthly decisions
Period	2000 to 2026; each asset starts when it has 252 trading days of history; last decision month 2026-09
Per asset	that asset's own daily price drives the three alarms; the asset is the risky sleeve; the other side is the 3-month T-bill
Decision timing	month end, from data to that day only; the position earns the next month's return
Variants	100% asset; fixed 60% (monthly rebalanced); v1 gate 60%; v1 chain 60%
Costs	A: 0.10% per unit traded. B: 0.30% per unit traded plus 0.20% a year platform fee. Assumptions, not verified broker rates. Taxes and currency conversion not modelled.
Information limit	signal functions slice their input to the decision day; poison test on every asset: **64 of 64** decisions unchanged when all later prices are replaced with garbage
Nothing tuned	thresholds, gate, risk budget and cost scenarios were fixed before this run; no parameter was changed for any asset
Success rule	declared above; applied to every asset, results not selected
Contamination	the rules were designed with S&P 500 results in view. The other 31 assets were not used in design, so they are a fairer check. No year is unseen by the authors for the S&P. The forward ledger is the only unseen evidence.
Reproduce	`python -E mira_32_assets.py` (script hash 2fdce87372f41231); full table in mira_32_assets_results.csv

3. Results per asset (scenario A, 60% base)

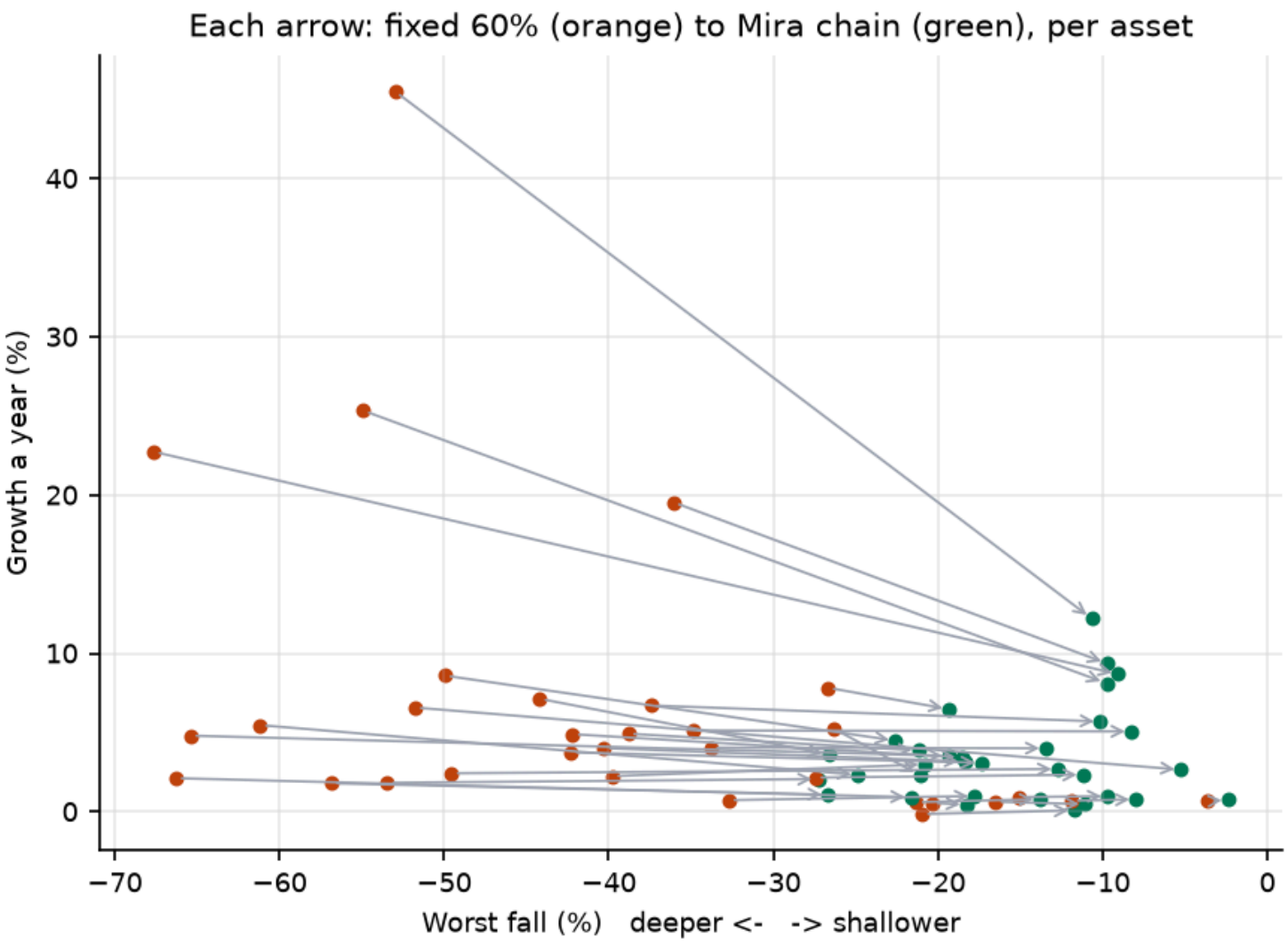
Asset	Class	Start	Months	100% asset growth / fall		Fixed 60% growth / fall		v1 gate growth / fall		v1 chain growth / fall		Chain Sharpe	Rule: chain	Rule: gate
EMB	bonds	2009-01	213	-0.2%	-36%	+0.5%	-20%	+0.5%	-17%	+0.4%	-18%	-0.19	FAIL	FAIL
HYG	bonds	2008-05	221	-1.4%	-33%	-0.2%	-21%	+0.3%	-11%	+0.1%	-12%	-0.39	FAIL	FAIL
IEF	bonds	2003-08	278	+0.3%	-27%	+0.9%	-15%	+1.0%	-10%	+1.0%	-10%	-0.21	FAIL	FAIL
LQD	bonds	2003-08	278	-0.2%	-28%	+0.6%	-17%	+0.7%	-10%	+0.5%	-11%	-0.34	FAIL	FAIL
SHY	bonds	2003-08	278	-0.1%	-7%	+0.7%	-4%	+0.8%	-2%	+0.8%	-2%	-1.21	INCONCLUSIVE	INCONCLUSIVE
TIP	bonds	2005-01	261	-0.1%	-21%	+0.7%	-12%	+0.8%	-8%	+0.8%	-8%	-0.34	FAIL	FAIL
TLT	bonds	2003-08	278	-0.3%	-55%	+0.7%	-33%	+0.8%	-22%	+1.0%	-18%	-0.10	FAIL	FAIL
BZ=F	commodities	2008-08	218	-1.0%	-82%	+1.8%	-57%	+2.9%	-39%	+1.1%	-27%	-0.01	FAIL	PASS
CL=F	commodities	2001-09	301	+4.9%	-87%	+5.5%	-61%	+5.1%	-38%	+2.3%	-25%	0.12	FAIL	PASS
DBC	commodities	2007-03	235	+1.3%	-76%	+1.8%	-53%	+2.7%	-35%	+2.1%	-27%	0.11	PASS	PASS
GC=F	commodities	2001-09	301	+11.5%	-42%	+7.8%	-27%	+7.1%	-24%	+6.5%	-19%	0.71	FAIL	FAIL
HG=F	commodities	2001-09	301	+9.5%	-65%	+7.1%	-44%	+5.9%	-34%	+3.6%	-27%	0.30	FAIL	FAIL
NG=F	commodities	2001-09	301	+1.0%	-88%	+4.8%	-65%	+4.8%	-48%	+3.5%	-19%	0.32	PASS	FAIL
SI=F	commodities	2001-09	301	+11.2%	-72%	+8.6%	-50%	+7.6%	-39%	+4.5%	-23%	0.42	FAIL	FAIL
ZC=F	commodities	2001-09	301	+3.4%	-63%	+3.7%	-42%	+3.2%	-40%	+3.1%	-17%	0.24	PASS	FAIL
ZS=F	commodities	2001-10	300	+4.2%	-53%	+4.0%	-34%	+3.8%	-28%	+4.0%	-13%	0.34	PASS	FAIL
ZW=F	commodities	2001-09	301	+3.7%	-66%	+4.0%	-40%	+3.4%	-35%	+3.2%	-18%	0.27	PASS	FAIL
BTC-USD	crypto	2015-06	136	+68.2%	-76%	+45.5%	-53%	+36.6%	-39%	+12.2%	-11%	1.02	FAIL	FAIL
ETH-USD	crypto	2018-08	98	+25.0%	-77%	+25.3%	-55%	+23.1%	-38%	+8.1%	-10%	0.66	FAIL	FAIL
DX-Y.NYB	currencies	2001-01	309	-0.3%	-40%	+0.6%	-21%	+0.8%	-14%	+0.8%	-14%	-0.25	FAIL	FAIL
^TNX	rates	2001-02	308	+0.1%	-90%	+2.1%	-66%	+1.7%	-47%	+0.9%	-22%	-0.11	FAIL	FAIL
VNQ	real estate	2005-10	252	+1.9%	-71%	+2.4%	-50%	+3.0%	-25%	+2.7%	-13%	0.18	PASS	PASS

AAPL	stocks	2001-02	308	+30.1%	-57%	+19.5%	-36%	+17.5%	-30%	+9.3%	-10%	1.01	FAIL	FAIL
EEM	stocks	2004-05	269	+6.1%	-62%	+4.9%	-42%	+4.8%	-25%	+3.4%	-19%	0.30	FAIL	PASS
NVDA	stocks	2001-02	308	+31.2%	-87%	+22.7%	-68%	+21.2%	-46%	+8.7%	-9%	0.88	FAIL	PASS
THD	stocks	2009-04	210	+6.8%	-50%	+5.2%	-26%	+4.1%	-24%	+2.3%	-21%	0.17	FAIL	FAIL
^FTSE	stocks	2001-02	308	+2.0%	-43%	+2.1%	-27%	+2.5%	-16%	+2.3%	-11%	0.13	PASS	PASS
^GSPC	stocks	2001-02	308	+6.9%	-53%	+5.1%	-35%	+5.7%	-18%	+5.1%	-8%	0.61	PASS	PASS
^HSI	stocks	2001-02	308	+1.7%	-59%	+2.2%	-40%	+3.0%	-26%	+3.0%	-21%	0.22	PASS	PASS
^IXIC	stocks	2001-02	308	+9.2%	-58%	+6.7%	-37%	+7.1%	-21%	+5.7%	-10%	0.65	PASS	PASS
^N225	stocks	2001-02	308	+6.3%	-58%	+4.9%	-39%	+4.5%	-27%	+3.9%	-21%	0.34	PASS	PASS
^VIX	volatility	2001-02	308	-1.2%	-84%	+6.6%	-52%	+1.7%	-52%	+2.6%	-5%	0.27	FAIL	FAIL



Worst fall per asset. Shorter bars are shallower falls.

4. Growth and falls together



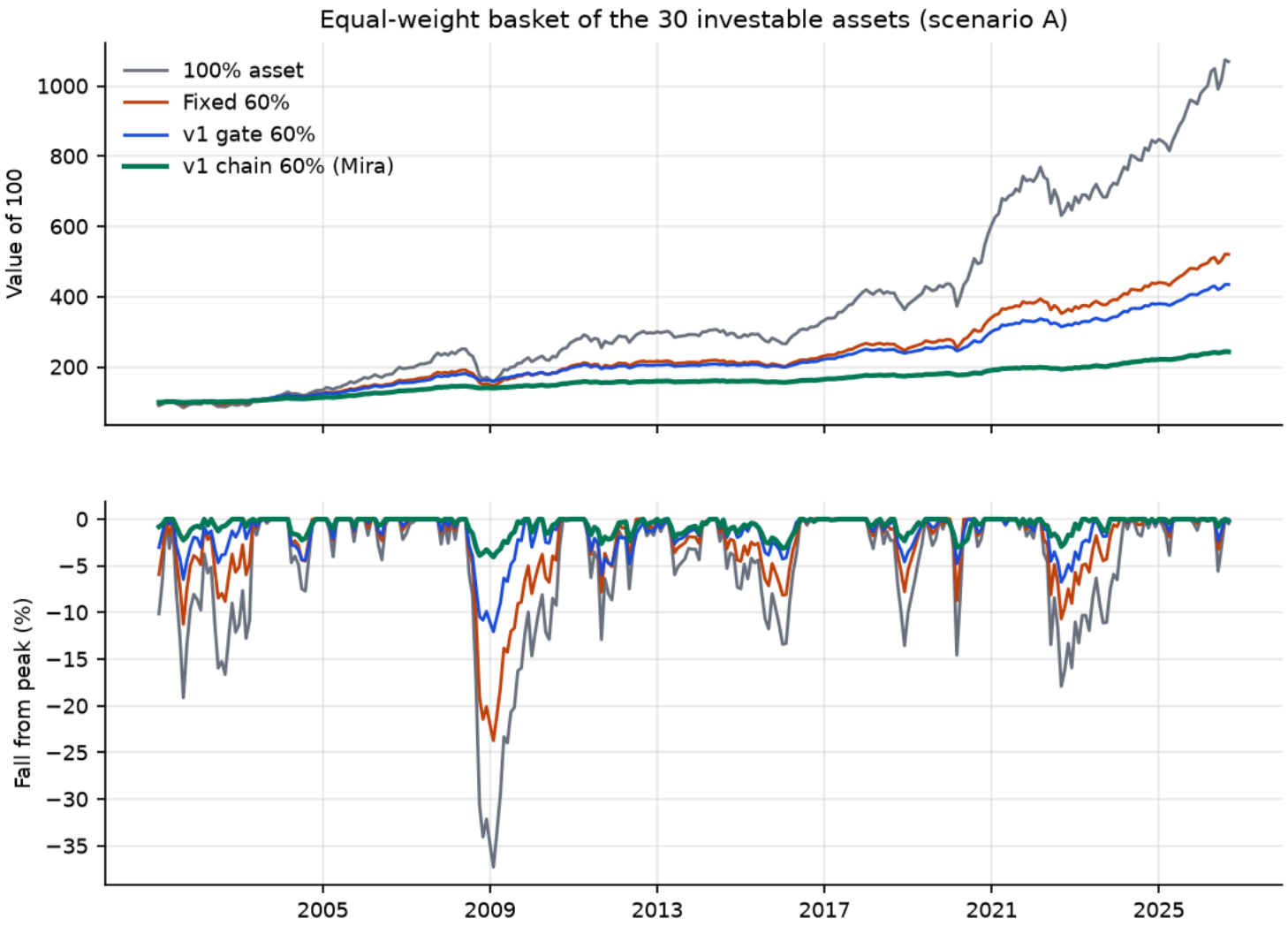
Each arrow moves from the fixed mix to the Mira chain. Moving right means a shallower fall; moving down means less growth.

Class	Assets	Median worst fall, fixed	Median worst fall, chain	Median growth change	Chain PASS
bonds	7	-17%	-11%	+0.1%	0
commodities	10	-47%	-21%	-1.1%	5
crypto	2	-54%	-10%	-25.3%	0
currencies	1	-21%	-14%	+0.2%	0
rates	1	-66%	-22%	-1.2%	0
real estate	1	-50%	-13%	+0.3%	1
stocks	9	-37%	-11%	-1.1%	5
volatility	1	-52%	-5%	-3.9%	0

Scenario	Version	Median growth a year	Median worst fall
A backtest default	100% asset	+2.7%	-59%
A backtest default	Fixed 60%	+4.0%	-39%
A backtest default	v1 gate 60%	+3.3%	-26%

A backtest default	v1 chain 60% (Mira)	+2.8%	-16%
B retail estimate	100% asset	+2.5%	-59%
B retail estimate	Fixed 60%	+3.8%	-40%
B retail estimate	v1 gate 60%	+3.0%	-28%
B retail estimate	v1 chain 60% (Mira)	+2.5%	-17%

5. Equal-weight basket of the 30 investable assets



Equal-weight basket: all months with at least five assets available.

Scenario	Version	Growth a year	Worst fall	Sharpe
A backtest default	100% asset	+9.7%	-37.3%	0.66
A backtest default	Fixed 60%	+6.6%	-23.7%	0.66
A backtest default	v1 gate 60%	+5.9%	-12.1%	0.82
A backtest default	v1 chain 60% (Mira)	+3.5%	-4.1%	0.69
B retail estimate	100% asset	+9.4%	-37.4%	0.64
B retail estimate	Fixed 60%	+6.4%	-23.9%	0.63
B retail estimate	v1 gate 60%	+5.5%	-12.3%	0.75
B retail estimate	v1 chain 60% (Mira)	+3.2%	-4.3%	0.55

6. Limits

- Prices are closes: bond ETFs, stock ETFs and indices exclude dividends and interest; futures series ignore roll costs.
- VIX and the 10-year yield index are gauges, not investable; they are in the table but excluded from the basket.
- The signals were built for equity markets; on gold, crypto or volatility they may not mean the same thing.
- Few independent crises, and many assets share them, so the 32 results are not 32 independent proofs.
- Costs are assumptions. No tax, no currency conversion, no slippage.
- Not claimed: price prediction, crash prediction, market-beating returns, advice.