HIDRA RESEARCH

The Conservative Formula in US equities

Historical adaptation and comparison with the original study

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Abstract

What results does an adaptation of the Conservative Formula produce with explicit data and rules, and how do they compare with SPY and the original study? We examine this combination of low volatility, momentum and net shareholder payouts through a reconstruction that traces selections, valuations and corporate events. The contribution is an assessment of the adaptation and the comparability of its results, rather than certification of an exact replication.

We reconstruct 99 quarterly portfolios of 100 stocks from 01/04/2002 to 27/10/2026. With implicit reinvestment of gross dividends, CAGR is 10.82%; after modelled commissions it is 10.77%, versus 10.02% for SPY. Maximum observed drawdown after commissions is -48.31%, versus -54.61% for SPY, using weekly observations and rebalance closes. The initial USD 1 million ends at USD 12.37 million for HIDRA and USD 10.47 million for SPY. This is neither a real account nor a return net of all costs.

The initial comparison with the original study's 15.1% mixed 1929–2016 with 2002–2026. Using Robeco's published aggregate monthly series and aligning dates, the May 2002–November 2024 comparison is 11.09% for Robeco against 10.56% for gross HIDRA: a difference of 0.52 annual percentage points, rather than almost five. In the common period ending in 2016, HIDRA is slightly ahead. Different windows explain much of the apparent gap, but do not identify the separate causes of the residual difference between implementations.

Outperformance against SPY is not uniform and does not establish an investable advantage. P123's Russell universe differs from the original study's CRSP universe; we add an explicit NPY definition and corporate-action rules, and have not certified historical fundamental-data availability issuer by issuer. These limitations constrain the conclusions.

Figures are truncated to a maximum of two decimal places. Calculations and differences use original precision before truncation.

1 The original idea and HIDRA's research question

In The Conservative Formula: Quantitative Investing made Easy (2018), Pim van Vliet and David Blitz describe a US portfolio of 100 stocks: start with the 1,000 largest stocks with sufficient history, retain the 500 least volatile, then select those ranked highest on momentum and net payout yield (NPY). The portfolio is equally weighted each quarter. CRSP is the US data source; the original results belong to the authors, not HIDRA. PDF pages 3–4 describe the data and rules; pages 18 and 21 contain the return tables. Original document and provenance [1].

A short rule can conceal material choices about the universe, data availability, timing and costs. Implementing it with another source helps examine how those choices affect interpretation, provided implementation differences remain distinct from results attributed to the original strategy.

Boudoukh, Michaely, Richardson and Roberts (2007) examine payout measures incorporating repurchases and issuances alongside dividends, documenting return information beyond dividend yield alone [3]. This motivates examining net payouts. It does not validate our 24-month share-count ratio or separately attribute the return of a portfolio combining several filters to that component.

This study asks what a verifiable US adaptation produces with our data and explicit rules, how its return and risk relative to SPY vary across periods, and how the published gap changes when the same metric and dates are compared. The contribution is a traceable implementation and a comparison of aligned windows with data and execution differences made explicit. We do not extend the history to 1929, simulate other regions or the short portfolio, or estimate causal factor attribution.

The design adopted the historical Russell 1000 proxy to focus on US equities and subsequently retained 499 valid NPY observations at four selection dates with one missing value. These are additional decisions for this adaptation. Supporting formulas, entry rules, transformations of corporate-action entitlements and cost conventions are HIDRA implementation choices identified in the protocols.

2 Adaptation methodology

Table 1. Rules of the HIDRA adaptation.

Item	Frozen rule for this adaptation
Universe	Portfolio123's historical Russell 1000 proxy. Neither a current list applied retrospectively nor certified official Russell membership.
Minimum history	37 monthly total-return levels to calculate 36 returns. Missing values are not filled with zero.
Conservative filter	500 lowest monthly volatilities; at four selection dates, the combined ranking uses the 499 stocks with valid NPY.
Momentum	Split-adjusted price return between t−12 and t−1; excludes the most recent month.
NPY HIDRA	365-day dividend yield classified as #Regular by P123 + 1 − latest shares / 24-month average shares, on comparable split-adjusted bases.
Ranking	Lowest sum of momentum and NPY ranks; stable tie-break by UID, the provider identifier used to track a security without relying solely on its ticker.
Entry	First SPY session close after the quarterly selection date. If a security no longer trades, select the next in the frozen ranking using only that availability, not subsequent returns.
Capital	Theoretical fractional index in USD, self-financing and unlevered. Each originating holding receives 1% at rebalancing; weights drift between rebalances. One million is initial capital, not a ceiling reset each quarter.
Valuation	Weekly observations plus exact rebalancing closes; adjusted total returns with explicit treatment of cash and corporate successors.
Benchmark	Total-return-adjusted SPY on the same dates as the HIDRA curve. It is not exactly the original study's market index.

The NPY base correction [7], the 499-observation coverage decision [7], the gross-return economic protocol [7] and the corporate-action scenarios [7] were defined before the complete curve was calculated. The IBKR scenario [7] was defined before calculating results after commissions. Selections are not changed after viewing the curve to bring it closer to the original study.

Before reading the results, the cost scenario needs to be explicit: IBKR Pro Tiered and NYSE Arca commissions archived in September 2026 are applied retrospectively to net changes by security and deducted from wealth. Spreads, slippage, impact, taxes, financing and reinvestment costs are excluded. Section 4 details this scenario [5–7].

Differences in the eligible universe

The original 98 cutoffs contain 949–1,000 members and 860–957 eligible stocks with sufficient history. September 2026 adds 935 eligible stocks: the 500 least volatile are filtered, their factors checked and 100 selected. The universe is not artificially enlarged and the 499-NPY exception is not generalised. The filter does not retain exactly half of the original universe.

This specific difference is documented in the archived selection summary [7]. Its effect on returns has not been isolated. Attributing the remaining 0.52 percentage points to it would require a separate test with comparable data and universes.

Fundamental-data lineage and historical availability

The original archive reconciles 9,800 position decisions across 98 quarterly portfolios from 330 monthly snapshots. This counts portfolio slots, not distinct companies. Market capitalisation, normalised shares, the 24-month average, normalised annual dividends, dividend yield, the repurchase proxy, NPY and momentum reconcile; 400 volatilities omitted from the export were completed for inspection without changing selections. The extension adds one portfolio of 100 positions, taking the full window to 99 portfolios. Its factors and results are identified separately in Appendix E.

Example: DLX, selection date 31/03/2002. Latest shares: 64.27 million; 24-month average: 70.09 million. Buyback proxy: 1 − 64.27 / 70.09 ≈ 8.31%. Dividend yield: 3.19%. HIDRA NPY: 11.51%. Original components and references are in fundamental_lineage.csv [7].

This does not establish when each observation originally became known. A provider's historical date alone does not verify the issuer's publication date, subsequent revisions or the delay before incorporation. Point-in-time availability remains uncertified.

3 Dividends and securities affected by corporate actions

For an ordinary holding without a terminal event, we use:

$$Padj(t) = Praw(t) / F(t)$$

F(t) is the provider's FutureDivSplitFactor; Padj is the adjusted price and Praw is the close before that adjustment.

$$Vrel(t) = Padj(t) / Padj(entry)$$

This adjustment incorporates splits and total return with implicit reinvestment of gross dividends. Those dividends are not added again as cash. Dividend yield is a selection factor, not an additional portfolio cash flow. SPY also uses total return.

DLX illustrates this between 01/04 and 01/07/2002: the raw close falls from USD 46.05 to USD 37.97, a decline of 17.54%. After adjustment, the prices are USD 17.23 and USD 14.32, a decline of 16.87%. The 0.66-percentage-point difference is included in its contribution. Example and audit limitations [7].

When a stock disappears, a repeated numeric price does not mean that it is still trading. The position is converted into documented entitlements: cash, successor shares or both. This also applies to outgoing portfolios at rebalancing. There are 69 position-quarter records requiring corporate-action treatment and 16 substitutions for securities extinguished before the entry session.

The share basis matters. Each Progress share receives approximately 0.87 Duke shares after a 1-for-3 reverse split: that ratio must not be multiplied by an earlier close expressed on a different share basis. Daily series for some successors are normalized to the raw close on the event date when no weekly series is available. The source and transformation are retained for each contribution; agreement with a second provider is not claimed.

The calculations and archived files reconcile, but not every ordinary dividend, ex-date and adjustment factor has been checked against the issuer or a second source. We also do not model withholding taxes, payment delays or reinvestment commissions. This is the provider's gross total return, not the net dividend income of a real account.

4 Full-window results and IBKR commissions

Period: 01/04/2002–27/10/2026. Initial capital: USD 1,000,000.

Table 2. Full period through 27/10/2026. Initial capital USD 1 million.

Series	Final USD	CAGR	Annual vol.	Observed DD
HIDRA · gross	12493693.22	10.82%	16.32%	-48.27%
HIDRA · after commissions	12372303.02	10.77%	16.32%	-48.31%
SPY · gross	10471629.39	10.02%	17.31%	-54.61%
SPY · after initial commission	10471180.99	10.02%	17.31%	-54.61%

Volatility uses complete weekly closes; drawdown uses 1,365 observations, including rebalances and the final partial-week close. These are not daily metrics. H denotes HIDRA.

CAGR relates the initial million, before the first commission, to final wealth; years equal calendar days / (365 + 97/400). Drawdown is measured from the previous peak and includes initial capital. HIDRA has a higher CAGR and lower observed volatility and maximum drawdown than SPY over this window. After commissions, drawdowns are -48.31% and -54.61%, respectively; the smaller drawdown still represents a substantial loss. Annualised gross weekly volatility is 16.32% for HIDRA and 17.31% for SPY. The 27 October close completes final wealth, not an additional full week. Appendix A shows both paths; section 6 examines the stability of this comparison.

The scenario uses IBKR Pro Tiered and ARCA closing charges, with the fee schedule checked on 30/09/2026 and applied retrospectively. Weight changes are aggregated by UID: retained holdings are not artificially sold and repurchased. We include monthly tiers, minimums/maximums and market, clearing and regulatory charges. The session's raw close provides the equivalent share quantities used for fees. The fractional index is retained to isolate commissions; it does not simulate an exact whole-share account or fractional-share billing.

The new 01/10/2026 rebalance deducts USD 637.93 in fees. Over the full period, the final difference between gross and after-fee HIDRA is USD 121390.20. The CAGR difference is 4.40 basis points per year. This wealth difference includes compounding, rather than only nominal charges.

Bid–ask spreads, slippage, market impact, taxes, data subscriptions, DRIP, corporate-action services and financing are excluded. SPY pays only for its initial purchase; neither portfolio is sold at the end. The IBKR [5] and ARCA [6] schedules, the protocol and historical detailed orders [7] support an audit of the scenario. After commissions does not mean net of all costs.

5 Comparison with the original results

Use the same metric

Analysis retained at 25/09/2026. The original study reports approximately 15.1% compound growth for 1929–2016. It also reports a 15.5% annualized arithmetic average. These are not interchangeable CAGRs: comparing 15.5% with our CAGR after commissions would create an apparent gap of 4.83 percentage points, already including 0.4 points from mixing metrics. The correct comparison with 15.1% compound growth gives 4.39 points against gross HIDRA and 4.43 against HIDRA after commissions.

Use the same dates

Robeco publishes an aggregate monthly series for the formula [2]. We use the archived 2025 XLSX edition: 1,152 returns from January 1929 to December 2024, sheet Conservative Formula 2025, column M. The January 2025 row is blank and is not replaced with zero. The file does not provide the 2018 constituent ledger, and the two editions are not assumed to be identical.

Recompounding the series produces a CAGR of 15.05% for 1929–2016, consistent with the original study's rounded 15.1%. To avoid interpolating our weekly curve, the protocol chooses the first and last actual SPY month-end closes present exactly in both HIDRA curves: 31/05/2002 and 29/11/2024. The December 2016 close is 30/12/2016, although the XLSX's nominal date is 31/12. Endpoints were chosen by availability, not performance.

Table 3. Date-aligned comparison with Robeco, using the same monthly annualization basis.

Close-to-close window; months included	Robeco gross	HIDRA gross	HIDRA after commissions	Robeco minus gross HIDRA
31/05/2002–30/12/2016; June 2002–December 2016	9.67%	9.86%	9.81%	-0.19 pp
31/05/2002–29/11/2024; June 2002–November 2024	11.09%	10.56%	10.52%	+0.52 pp
30/12/2016–29/11/2024; January 2017–November 2024	13.75%	11.87%	11.83%	+1.88 pp

Every CAGR in this table uses the number of months / 12, consistently across all three series. The CSV also provides HIDRA's calendar-day convention, making small annualization differences visible. The first Robeco return is for the month following the initial close; May's return is not added to a portfolio starting at the end of May. Dates, levels and calculations [7].

The interpretation depends on the common window: through 2016, gross HIDRA is 0.19 percentage points above Robeco; over May 2002–November 2024, it is 0.52 points below. In the January 2017–November 2024 subperiod, Robeco exceeds gross HIDRA by 1.88 points per year. The three comparisons overlap and are not independent tests. They locate the discrepancy in time but do not establish its cause. Appendix B plots these same windows.

A numerical bridge rather than causal attribution

Analysis retained at 25/09/2026. The following bridge is calculated at full precision and explains the 4.43-percentage-point difference between the published 15.1% and our 10.66% after commissions. Each row subtracts the next CAGR from the preceding one; a negative sign offsets part of the gap.

Table 4. Descriptive decomposition of the published gap, without causal attribution.

Step	Change of reference	Contribution to gap, annual pp
1	Published 15.1% → 15.05% from the Robeco 2025 edition over 1929–2016	+0.04
2	Robeco 1929–2016 → Robeco over the common May 2002–November 2024 window	+3.96
3	Robeco → gross HIDRA over the same window	+0.52
4	Gross HIDRA over the common window → gross HIDRA over April 2002–September 2026	-0.13
5	Gross HIDRA → HIDRA after commissions over the full window	+0.04
Total	Published return minus HIDRA after commissions	+4.43

Exact values are in gap_bridge.csv [7]. Step 1 retains edition and rounding differences; it does not prove that the entire difference is rounding. Step 2 shows how much the figure changes within the same aggregate series when the window changes. Step 4 combines the extension of dates with the annualization convention used for the full window. These steps are not independent causal effects or an experiment holding everything else constant.

Comparing different periods explains much of the apparent gap. Dividends are included, and estimated commissions do not explain five percentage points of CAGR.

We cannot determine how much of the 0.52-percentage-point aligned gap comes from the universe, NPY, prices/corporate actions or historical data availability. Documented differences may contribute, but no experiment isolates each one:

A Russell universe and history filter that differ from the original CRSP implementation.

HIDRA NPY uses a share-count ratio and the provider's #Regular classification. That classification does not guarantee exclusion of every special dividend: the ALX case remains documented and was not removed after viewing the curve.

Entry after the selection date, four filters with 499 valid NPY observations and entry substitutions based only on availability known at entry.

P123 data and revisions, treatment of corporate-action entitlements, and a Robeco series from a different edition, without the original constituent ledger for security-by-security matching.

A timing error in 12–1 momentum has not been demonstrated. Subtracting or not subtracting a constant of 1 from every NPY value also leaves its ranking unchanged and cannot explain the gap. Weekly observations may understate intermediate drawdowns, but do not change CAGR between identical endpoints. These rules are not adjusted to pursue the published result.

6 Performance against SPY varies by period

Analysis retained at 25/09/2026. Table 5. Descriptive subperiods of the gross curves. Observed drawdowns, not daily drawdowns.

Gross subperiod	CAGR H	CAGR SPY	Vol. H	Vol. SPY	DD H	DD SPY
2002–2016	10.05%	6.72%	15.16%	17.40%	-48.27%	-54.61%
2017–2021	11.85%	18.20%	20.74%	17.97%	-40.41%	-31.82%
2022–2026 partial	11.44%	12.16%	14.67%	16.43%	-18.05%	-24.36%

These windows, retained in windows.csv [7], are descriptive, not an untouched out-of-sample validation. The last two start at the first January close shown, not the preceding December close; they therefore cannot be substituted for the earlier monthly-comparison dates.

Accumulated outperformance against SPY comes mainly from the first period. In 2017–2021, HIDRA grows less and falls more; in 2022–2026, it falls less but also grows less. Conservative describes the filter, not contractual protection or a guarantee of smaller drawdowns in every crisis. We do not attribute results to sectors or factors without measuring their contributions.

7 Sensitivity and limitations

Analysis retained at 25/09/2026. Five corporate assumptions remain for Conectiv, Chelsea, Jefferson-Pilot, Arden and American Capital, as described in Appendix C. The 12 predefined scenarios change one issue at a time: gross CAGR ranges from 10.70% to 10.71%, and the largest pointwise separation between scenarios is 0.24%, normalised by the baseline level. The measured individual effect is small in this exercise; a joint combination of all errors is not assessed. This is neither a confidence interval nor proof that the baseline was the actual allocation. The issues annex [7] retains the evidence and conditions needed to resolve each case.

Historical fundamental-data availability, official constituents/share classes and factor/execution definitions identical to the original matter more for an exact replication. The sensitivity of the five smaller issues does not bound these problems. Nor does it replace a real account with taxes, liquidity, reinvestment and daily prices.

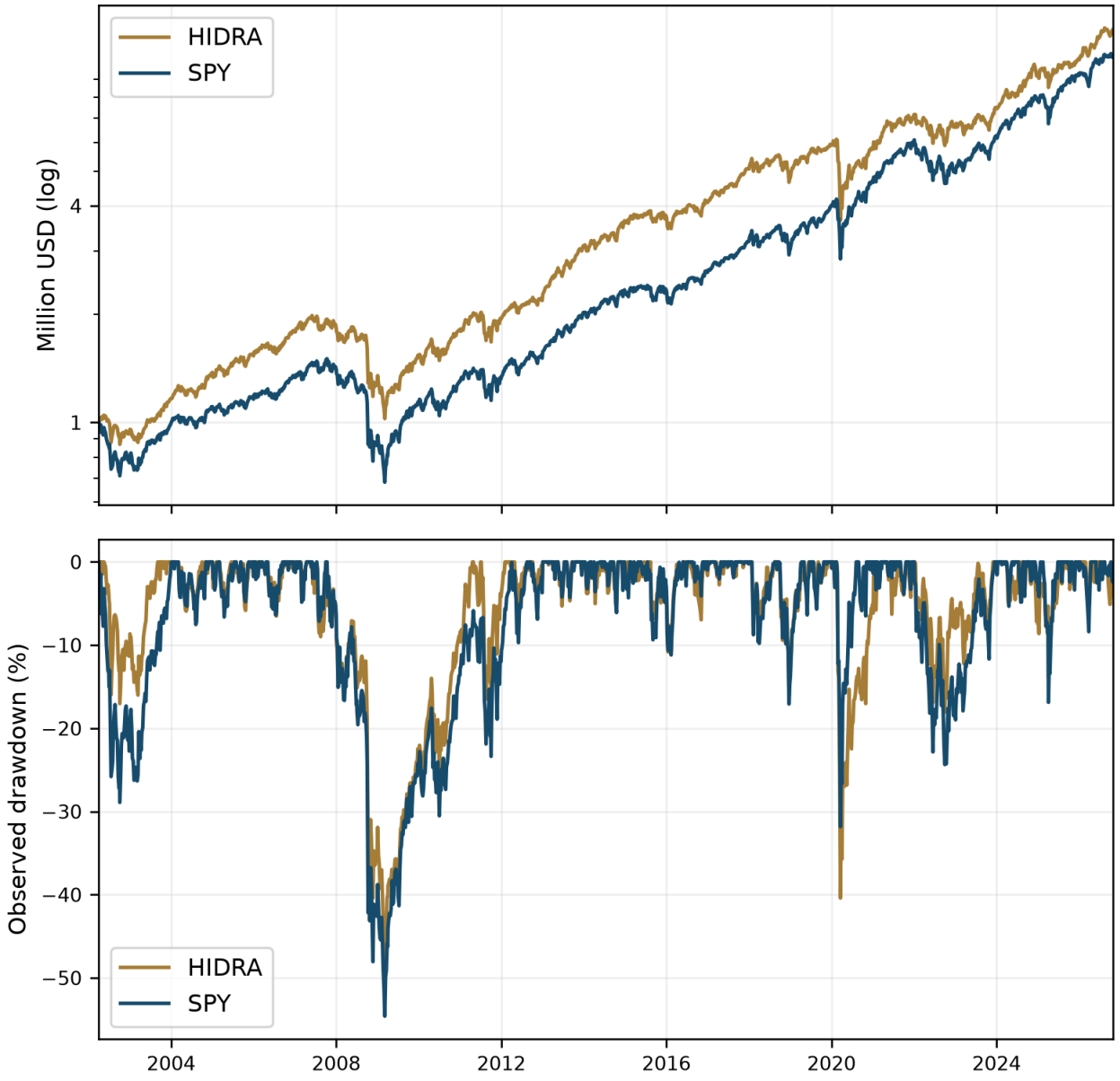
8 Conclusions

The adaptation achieves a higher compound return, lower weekly volatility and a smaller observed maximum drawdown than SPY over the full period. The answer changes across subperiods: in 2017–2021, HIDRA grows less and falls more; in 2022–2026, it grows less but also falls less. The conservative filter therefore does not produce uniform superiority, and the full window does not establish a persistent advantage or protection in every crisis.

Relative to the original study, aligning the metric and dates reduces the apparent gap of almost five points to 0.52 percentage points per year against the Robeco series in the longest common window. This residual is quantified, but its causes have not been isolated. The contribution is an auditable retrospective adaptation and a more carefully delimited comparison, rather than a certified replication. Data availability through time, the universe and the NPY definition continue to qualify the interpretation. Weekly observations can miss intervening losses, and the scenario excludes material real-world costs. The study does not estimate persistent alpha or turn its historical results into an actual investment record.

Appendix A Equity and observed risk

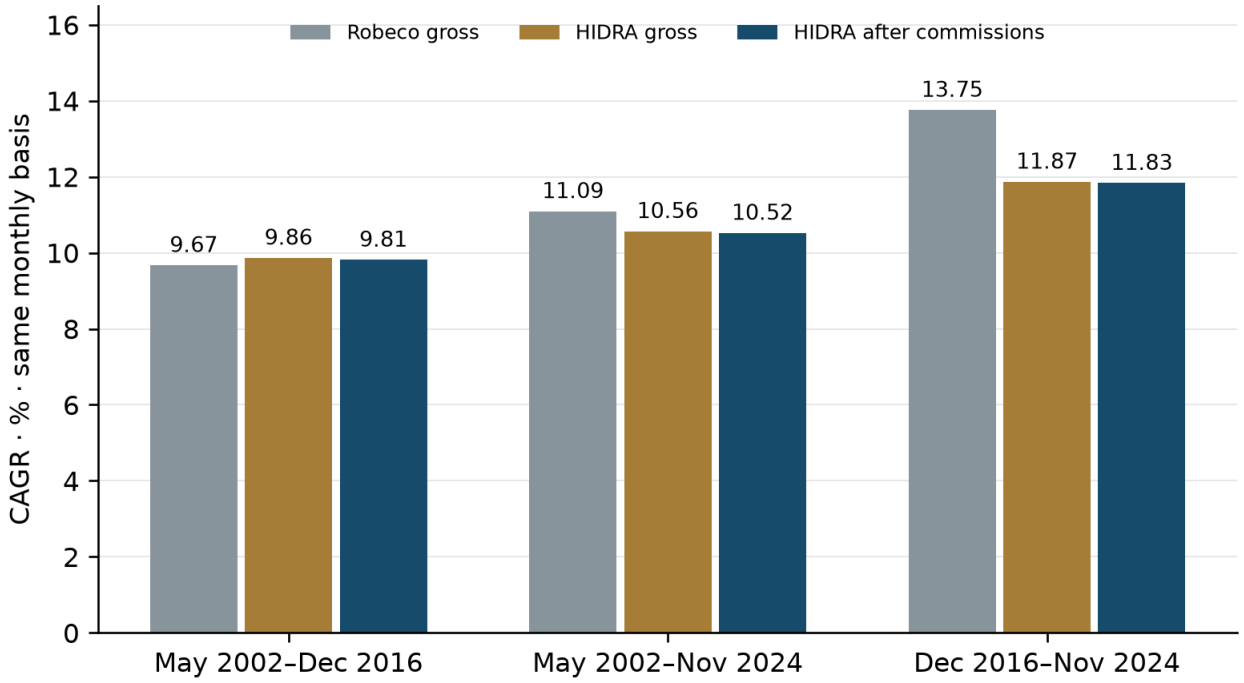
Figure 1. 01/04/2002–27/10/2026. HIDRA and SPY after modelled fees, with USD 1 million initial wealth. Logarithmic wealth and drawdowns at available observations; not a daily path.



Source: cf_equity.csv, extension dated 28/10/2026. Lines connect weekly closes, rebalances and the latest close, without reconstructing missing days. Dividends are included once; modelled fees do not represent all real-world costs.

Appendix B Comparable windows

Figure 2. Compound annual growth rates over three overlapping date ranges. Endpoints and included months are detailed in Table 3.



The Robeco source is the 2025 edition of its aggregate monthly series. Comparing it with gross HIDRA avoids mixing commission treatments; HIDRA after commissions is shown as an additional scenario. The first window is not an out-of-sample validation, and all three overlap. Changes between them locate the discrepancy but do not establish its cause.

Source: common_windows.csv. The first return is for the month following the initial close. The HIDRA curve is not interpolated and missing months are not treated as zero returns.

Appendix C Outstanding corporate-action issues

The following assumptions remain unresolved. They are included so the paper can be read without consulting other files. Their individual sensitivities have been measured; the base scenario is not a certified historical allocation.

Conectiv UID 39185 in 2002

Base treatment: common-share proxy; approximate aggregate allocation of USD 12.50 plus 0.64 PHI shares per share.

Unresolved: the UID's share class/CUSIP and the final allocation to a non-electing holder. Share counts by class and aggregate SEC allocation figures do not establish that individual entitlement.

Chelsea preferred SPG Series I in 2004

Base treatment: USD 36 plus 0.29 SPG common shares and 0.3 preferred shares; each preferred share is valued at an assumed USD 50, with a contractual 6% coupon accrued linearly on an ACT/365 basis.

Unresolved: the preferred share's historical quote and actual treatment of coupons, fractions and sale. Conversion into common shares is conditional, not automatic.

Jefferson-Pilot in the outgoing portfolio in 2006

Base treatment: USD 55.96 in cash.

Unresolved: individual election/proration; alternative consideration of 1.09 LNC shares. No purchase is made after the security is extinguished: the case concerns only an entitlement already held.

Arden in 2006

Base treatment: USD 45.42 per share, based on the issuer's estimate.

Unresolved: final proration; sensitivities of USD 45.25 and USD 45.75.

American Capital in 2017

Base treatment: USD 10.13 plus 0.48 ARCC shares; part of the cash amount is approximate in the document.

Unresolved: precision of the final amount; alternatives of USD 10.12 and USD 10.14.

Analysis retained at 25/09/2026. Individual scenarios produce gross CAGRs from 10.70% to 10.71%. The maximum pointwise separation between scenarios, divided by the base level, is 0.24%. This is neither a confidence interval nor a joint uncertainty bound; it does not cover possible universe or point-in-time availability errors.

Appendix D Files and reproduction

The original archive, closed at 25/09/2026, is organised within the CF18-01 dossier. The paths and counts below refer to that archive and are relative to its Resultados folder. Appendix E identifies the outputs extending it through 27/10/2026; their counts must not be conflated. The guides locate the cited evidence without relying on the web viewer.

Backtest-semanal-v01/compositions.csv

9,800 positions with selection date, entry, market capitalization and factors.

Comisiones-IBKR-v02/fundamental_lineage.csv

Original components, transformations and lineage for the same 9,800 positions.

Backtest-semanal-v01/contributions.csv

145,600 contributions with price, source and corporate-action entitlement.

Backtest-semanal-v01/events.json

Corporate-action treatments and references to supporting evidence.

Comisiones-IBKR-v02/equity_fees.csv

1,359 equity observations, gross and after commissions.

Comisiones-IBKR-v02/orders_fees.csv

13,357 orders in total: 13,356 for HIDRA and SPY's initial purchase, with net changes and commission components.

Comparacion-paper-v03/common_windows.csv

Endpoints, levels and compounded returns for the three common windows.

Comparacion-paper-v03/gap_bridge.csv

Five steps bridging the original study and the HIDRA result.

To reproduce the study, install 64-bit Python 3.12, extract the ZIP and run REPRODUCIR.cmd. The program installs the required libraries and calculates without querying external services. Read LEEME.txt; when finished, open RESUMEN.txt in the run folder under resultados. Any discrepancy fails verification.

The shared cost module changed after CF18 was completed to incorporate another research scenario. The isolated verifier retrieves its archived original, checks the frozen SHA-256 hash and reproduces commissions without modifying the current shared code or relaxing the manifest. This distinction prevents a later dependency from being mistaken for the engine used in the study.

Data and code: https://hidraresearch.com/research/CF18_reproducible.zip. Includes the archived inputs and a guide. Reproduction requires no accounts or provider requests and was tested in an independent Python environment on the same Windows PC. Source attribution and study limitations remain unchanged.

References

[1] Van Vliet, P. and Blitz, D. (2018). The Conservative Formula: Quantitative Investing made Easy. SSRN 3145152. https://ssrn.com/abstract=3145152 . Supplied 21-page PDF; methodology pp. 3–4, results pp. 18 and 21.

[2] Robeco (2025). Data sets – Volatility-sorted portfolios. Sheet Conservative Formula 2025, columns M:N, rows 4:1155. https://www.robeco.com/en-int/insights/2022/04/data-sets-volatility-sorted-portfolios . Edition archived on 27-09-2026; 1,152 months, 1929–2024.

[3] Boudoukh, J., Michaely, R., Richardson, M. and Roberts, M. R. (2007). On the Importance of Measuring Payout Yield: Implications for Empirical Asset Pricing. The Journal of Finance, 62(2), 877–915. https://doi.org/10.1111/j.1540-6261.2007.01226.x. Conceptual reference for NPY; it does not validate HIDRA's exact transformation.

[4] Portfolio123. Historical Russell 1000 proxy panels, prices, adjustment factors, shares and dividends archived in the CF18-01 research folder. The provider's historical date alone does not certify the original publication date. Position-level lineage is retained in fundamental_lineage.csv.

[5] Interactive Brokers. US equity commissions, IBKR Pro Tiered. https://www.interactivebrokers.com/en/pricing/commissions-stocks.php?re=amer . Scenario checked and archived on 30-09-2026, applied retrospectively; not historical invoices.

[6] Interactive Brokers. NYSE Arca fees. https://www.interactivebrokers.com/en/accounts/fees/ARCAstkfee.php?nhf=T . Closing charge used: 0.12 US cents per share. Same date and scenario status as [5].

[7] HIDRA Research (2026). CF18-01 research folder, study v03 and dated protocols for NPY, coverage, entry, corporate actions, costs and comparison. Event-specific SEC sources are in events.json; matrices, manifests, verifications and the file guide are described in Appendix D. The required materials are included in the public download listed in this appendix.

Edition of 5 November 2026. Main results through 27/10/2026; comparisons and sensitivities retain their stated windows. Not deposited on SSRN. HIDRA Research.

Appendix E Update and traceability

The extension retains the original 98 portfolios and adds the 01/10/2026 entry without restarting wealth. The 935 eligible stocks, 500 factor records and final 100 holdings are verified. The outgoing portfolio is valued at the same close before computing net orders and fees. Six observations are added; the final cutoff does not turn the series into daily history.

Sources: cf_equity.csv, cf_metrics.json, cf_factors.csv, cf_selected.csv, cf_positions.csv and cf_rebalance.json under outputs/studies-extension-20261028. manifest.json and verification.json identify inputs and reconciliation. This extension uses frozen historical P123 archives. Prospective valuation and new selections are documented separately and are not part of these results.

The aligned Robeco comparison retains the common endpoints in Table 3; its series is not extrapolated. The bridge in Table 4, periods in Table 5 and sensitivities retain the 25/09/2026 cutoff. Appendix D describes the original archive; the new outputs are identified here. These results are retrospective and remain separate from any prospective tracking, which has its own start and rules.

The original verification passed 59 tests and reproduced ten gross economic outputs, six commission outputs and four comparison outputs offline, with identical manifests. The comparison was also reconciled by reading the XLSX as XML. The manifests check 207 inputs in v01, 308 in v02 and nine in v03; they overlap and are not independent sources. This retained evidence verifies calculations on those files, not the historical quality of every datum. The extension has its own verification in the files identified at the start of this appendix.

The 5 November 2026 edition revises the question, background, interpretation and traceability of the 28 October edition. All figures, tables, equations and charts are retained, with no new experiments or data changes. The implementation history and dated decisions remain in the dossier protocols.

Original dossier guides, from the HIDRA root: Articulos/Recursos/Actualizacion-estudios-20261028/LEEME.md and verify.py. For the original archive, relative to CF18-01: Resultados/Backtest-semanal-v01/LEEME_AUDITORIA_V01.md; Resultados/Comisiones-IBKR-v02/LEEME_AUDITORIA_COSTES_V02.md; Resultados/Comparacion-paper-v03/LEEME_COMPARACION_V03.md; Materiales/ORIGEN.md; Articulo/ANEXO_INCIDENCIAS_PENDIENTES.md.