■ Portfolio Analysis Report

Generated: 2026-02-09 21:38:20

□ Production Mode: Standard charts disabled
Set PORTFOLIO_LEGACY_CHARTS=true for equity/drawdown/distribution charts
Focus on console text insights for decision making

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======================================================================
[SEARCH] PORTFOLIO TYPE ANALYSIS (Rule-Based Classification)
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[DATE] REGIME DI MERCATO RILEVATO:
--------------------------------------------------
   [RED] Regime: Include Crisi Sistemica
   Periodo: 15.4 anni

   [DOWN] CRISI SISTEMICHE RILEVATE (con evidenza quantitativa):
      • Euro Crisis (2011-04-29 → 2011-10-03)
        Trigger: Post-hoc: PIIGS spread >500bps, S&P -19%
      • China Deval / Oil Crash (2015-08-17 → 2016-02-11)
        Trigger: Post-hoc: Yuan -3% in 2 giorni, WTI $26, S&P -14%
      • Q4 2018 Selloff (2018-10-03 → 2018-12-24)
        Trigger: Post-hoc: Fed hawkish, S&P -20% in Q4
      • COVID Crash (2020-02-19 → 2020-03-23)
        Trigger: Post-hoc: S&P -34% in 33 giorni, VIX 82.69
      • Rate Tightening 2022 (2022-01-03 → 2022-10-12)
        Trigger: Post-hoc: Fed +425bps, S&P -25%, bonds -13%

   [CONF] SOGLIE APPLICATE (Normale vs Regime Attuale):
      Metrica                   Normale       Regime
      --------------------------------------------
      Min Sharpe                   0.55         0.20
      Max Drawdown                 -30%         -55%

   [INFO] Le metriche osservate sono influenzate dalla presenza di regimi di stress sistemico (Euro Crisis, China Deval / Oil Crash, Q4 2018

[CHART] FASE 3: DECOMPOSIZIONE TEMPORALE
--------------------------------------------------

   [RED] PERFORMANCE DURANTE CRISI:
      Euro Crisis (2011-04-29 → 2011-10-03):
         Return:   -11.9%  Vol:  22.8%  MaxDD:   -15.7%
      China Deval / Oil Crash (2015-08-17 → 2016-02-11):
         Return:   -15.0%  Vol:  23.7%  MaxDD:   -16.8%
      Q4 2018 Selloff (2018-10-03 → 2018-12-24):
         Return:   -16.3%  Vol:  21.6%  MaxDD:   -16.3%
      COVID Crash (2020-02-19 → 2020-03-23):
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         Return:   -31.0%  Vol:  45.3%  MaxDD:   -31.0%
      Rate Tightening 2022 (2022-01-03 → 2022-10-12):
         Return:   -30.5%  Vol:  22.2%  MaxDD:   -30.5%

   [GREEN] PERFORMANCE IN EXPANSION:
      Periodo expansion: 13.5 anni
      CAGR expansion:    14.0%
      Volatility:    15.0%

   [CYCLE] RECOVERY ANALYSIS (Time-to-Recover):
      Post-Euro Crisis: 4 mesi per recuperare
         (Recovery CAGR:  54.0%)
      Post-China Deval / Oil Crash: 12 mesi per recuperare
         (Recovery CAGR:  28.7%)
      Post-Q4 2018 Selloff: 10 mesi per recuperare
         (Recovery CAGR:  29.0%)
      Post-COVID Crash: 4 mesi per recuperare
         (Recovery CAGR: 259.5%)
      Post-Rate Tightening 2022: 17 mesi per recuperare

         (Recovery CAGR:  31.9%)

   [UP] ROLLING METRICS (only if unstable):
      Sharpe 3Y: min=-0.06 (instability detected)

   [DOWN] WORST PERIODS:
      Worst 12M:   -30.2%  (ended 2022-11-04)
      Worst 24M:   -18.4%  (ended 2020-03-23)

[TARGET] ROBUSTNESS SCORE (comparative ranking tool):
--------------------------------------------------
   [################....] 80/100 (80%)
   [WARN] NOTA: Score per confronto RELATIVO tra portafogli, non giudizio assoluto.

   Breakdown (criteri storici retrospettivi):
      • Recovery veloce: media 9 mesi (+25)
      • Rolling Sharpe 3Y modesto (min -0.06) (+15)
      • Worst 12M moderato (-30%) (+15)
      • CAGR solido (12.1%) attraverso i cicli (+25)

[MEASURE] RESILIENCE vs EFFICIENCY (Two-Axis Evaluation):
--------------------------------------------------
   EFFICIENZA:  [##########..........] 50/100 (HIGH)
   RESILIENZA:  [##############......] 70/100 (HIGH)

   Quadrante: [STAR] OPTIMAL
   Efficiente e Resiliente - raro, controllare se sostenibile

   Trade-off:
   Trade-off intrinseco: aumentare efficienza (più rischio) riduce tipicamente resilienza, e viceversa. La posizione ottimale dipende dagli

[TAG]  TIPO IDENTIFICATO: [WORLD] EQUITY GROWTH (Diversified)
   Multi-core regionale, rischio distribuito ✓
   Confidence: 85%
   Motivazione: Global core + 4 regional tilts (con overlap), max position 40%

[CHART] COMPOSIZIONE PORTAFOGLIO:
--------------------------------------------------
   Core Globale:        40.0%  (VT, VWCE, IWDA)
   Core Regionale:       0.0%  (IVV, EWJ, VGK...)
   --- Emerging Markets ---
     EM Broad:          15.0%  (EEM, VWO...)
   Altro Equity:        45.0%  (non classificato)
   Bond:                 0.0%
--------------------------------------------------
   TOTALE EQUITY:      100.0%

■ SOGLIE PER TIPO 'EQUITY_GROWTH_DIVERSIFIED':
--------------------------------------------------
   Max singola posizione:     45%
   Max top 3:                 70%
   Max satellite singolo:     15%
   Max satellite totale:      40%
   Max drawdown accettato:   -55%
   Min Sharpe atteso:        0.20
   → Equity Growth Diversified - multi-core regionale

[PIN] METRICHE PRIMARIE: cagr, sortino
   (Queste metriche sono critiche per tipo EQUITY_GROWTH_DIVERSIFIED)
   Secondarie: sharpe, max_drawdown

[WARN]  ATTENZIONE:
--------------------------------------------------
   • Top 3 posizioni = 85.0% > 70% (soglia tipo EQUITY_GROWTH_DIVERSIFIED).

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[INFO] VERDETTO: [OK] ROBUSTO (Score: 80/100)
   Strutturalmente robusto attraverso i cicli
   Evidenza: recovery veloce, rolling metrics consistenti, CAGR solido.
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          RISK INTENT ANALYSIS v3.1 (Framework Istituzionale)
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[INFO] RISK INTENT DICHIARATO: GROWTH
   Portafoglio orientato alla crescita, accetta volatilità di mercato
   Beta target: 0.8 - 1.0
   Beta min accettabile: 0.6
   Beta FAIL threshold: 0.4
   Benchmark: VT
   Max DD atteso: -35%

[TARGET] BETA GATING:
   Portfolio Beta: 0.58
   [WARN] INTENT WARNING: Beta 0.58 sopra fail gate (0.4) ma sotto minimum acceptable (0.6) per GROWTH. Struttura coerente ma obiettivo disa
   [WARN] NOTA: Questo è un problema di OBIETTIVO, non di STRUTTURA

[CHART] CONFIDENCE: 96/100 (HIGH)

[DOWN] DRAWDOWN ATTRIBUTION:
   Tipo: PARTIALLY_STRUCTURAL
   Osservato: -32.1%
   Atteso (β-adj): -19.7%
   Excess DD: 12.4% [WARN]
   → Drawdown moderatamente elevato - verificare concentrazione/correlazioni

✓ VERDETTI (5 regole valutate):
   [OK] [V1]  [OK] EFFICIENTE: Risk-adjusted return ≥ benchmark con trac
   [OK] [V2]  [OK] CCR BILANCIATO: Nessun asset con risk leverage > 1.5x
   [OK] [V3]  [OK] DIVERSIFICATO: Correlazione media 0.01 < 0.70 (matric
   [OK] [V4]  [OK] DD ECCELLENTE: Drawdown migliore dell'atteso per beta
   [WARN] [V5] [INTENT_MISMATCH] [WARN] INTENT WARNING: Beta 0.58 sopra fail gate (0.4) ma s

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              VERDETTO FINALE (Framework Istituzionale)
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   1. Risk Intent Dichiarato: GROWTH
   2. Coerenza Intent vs Dati: MISMATCH
   3. Coerenza Strutturale: OK

   Scores:
      Data Integrity:          96/100
      Structural Coherence:   100/100
      Efficiency:             100/100
      Tail Risk:               60/100
      -----------------------------
      AGGREGATE:               91/100

   4. VERDETTO: [WARN] INTENT MISALIGNED - Struttura coerente ma obiettivo errato
      → Verifica Risk Intent dichiarato vs struttura portafoglio

   Riepilogo: 4 OK, 0 Warning, 0 Structural, 1 Intent Mismatch
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        INVESTMENT COMMITTEE VALIDATOR (Gate System v4.3)
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[INFO] GATE STATUS:
--------------------------------------------------
   [OK] Data Integrity Gate: PASS
   [BLOCK] Intent Gate: SOFT_FAIL
   [OK] Structural Gate: PASS (no causal fragility detected)
   [i] Structure Type: EQUITY_DIVERSIFIED_MIXED (55% confidence)
   [i] Benchmark Gate: OPPORTUNITY_COST
   [i] Final Verdict: INTENT_MISALIGNED_STRUCTURE_OK
   [i] Prescriptive Actions: 1
   [i] CCR Warnings (Diagnostic): 0

[CHART] DATA INTEGRITY GATE:
   [OK] DATA_INTEGRITY: PASS (NaN ratio 0% ≤ 20%)

[TARGET] RISK INTENT GATE (3-state beta gating):
   [WARN] INTENT_WARNING: Beta 0.58 sotto min 0.6 per GROWTH. Struttura coerente ma obiettivo disallineato.
   Beta state: ■ SOFT FAIL (0.4 ≤ beta < 0.6)
   Beta window: 15.4y → Intent verdict: VALID

   ■ AZIONI SUGGERITE (beta 0.58 < target 0.6):
      Opzione A: Abbassa Risk Intent → BALANCED o MODERATE
      Opzione B: Aumenta beta → +US Growth, -EM Value, -Small Global
      Opzione C: Aggiungi leva moderata (1.1-1.2x)

[PACKAGE] PORTFOLIO CLASSIFICATION (5-bucket):
   Core Global (world):           40.0%
   Core Regional (US/EU/EM...):   15.0%
   Satellite (classified):         0.0%
   Unclassified Equity:           45.0%
   Defensive (bond/gold):          0.0%
   ------------------------------------
   TOTAL:                        100.0%

   [TAG]  PORTFOLIO LABEL: Equity Portfolio (Low-Beta)

   ■■  STRUCTURE TYPE: EQUITY_DIVERSIFIED_MIXED (55% confidence)
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      Diversified equity with 45% unclassified, but stable correlation structure. Not timing-based, lacks dominant core pattern.
   [OK] Same-category benchmark: ALLOWED (≥95% equity, no tilts)

[UP] BENCHMARK GATE:
   [BLOCK] BENCHMARK_GATE: Critica 'complessità' BLOCCATA (prerequisiti non soddisfatti)

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                    PRESCRIPTIVE ACTIONS
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   ■ MEDIUM [INTENT_MISMATCH_SOFT]
   Confidence: [########..] 85%
   Portfolio beta 0.58 below minimum 0.6 for GROWTH
   → Actions:

      • OPTION A: Downgrade RISK_INTENT to BALANCED (better fit)
      • OPTION B: Increase beta by 0.02 via:
      •    - Tilt US large-cap +5-10%
      •    - Reduce defensive/low-vol positions
      • OPTION C: Accept current structure as 'controlled-growth' portfolio
   [BLOCK] Blocks if not addressed: Structural fragile verdict

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                      FINAL VERDICT
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   [WARN] INTENT WARNING - Struttura OK, beta sotto target

   [PIN] Why this verdict is not contradictory:
   Struttura coerente ma beta leggermente sotto il minimo per Risk Intent dichiarato. Non 'fragile' perché è un problema di calibrazione obi

   [INFO] AZIONI CONSENTITE:
   [OK] Tutte le azioni di portafoglio consentite
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                      PORTFOLIO ANALYSIS REPORT
                   (Professional Diagnostic v3.1)
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[WARN]  METODOLOGIA E ASSUNZIONI
--------------------------------------------------
   • Metriche STORICHE: descrivono il passato, non predicono futuro
   • Returns finanziari: fat tails, volatility clustering
   • VaR/CVaR: storico (non parametrico), scaling annuale indicativo
   • Range plausibile*: variabilità campionaria (bootstrap)
   • Correlazioni: osservate, possono convergere in crisi
   • Monte Carlo: scenari ipotetici, non previsioni

[UP] PERFORMANCE
--------------------------------------------------
  Total ROI:                  483.52%
  CAGR (geometric):            12.13%
    Range plausibile*:    [4.04%, 21.84%]
  Volatility (ann.):           16.62%

[CHART] RISK-ADJUSTED METRICS
--------------------------------------------------
  Sharpe Ratio:                  0.65
    Range plausibile*:    [0.21, 1.17]
    Precision:            ±0.25 (15.4 yrs)
  Sortino Ratio:                 0.91
  Calmar Ratio:                  0.38
  Profit Factor:                 1.15
  Gain/Loss Ratio:               0.99

[DOWN] DRAWDOWN ANALYSIS
--------------------------------------------------
  Max Drawdown:               -32.06%
    Worst plausibile*:    [-55.6%, -20.4%]
    Peak Date:               2021-11-19
    Trough Date:             2022-10-13
  Avg Drawdown:                -5.74%
  Current Drawdown:            -1.64%

[WARN]  TAIL RISK (VaR storico, 95% confidence)
--------------------------------------------------
  VaR (daily):                  1.72%
  CVaR (daily):                 2.48%
  VaR (annual, indicative):    27.26%
  CVaR (annual, indicative):   39.33%
  [i]  Scaling annuale: sqrt(T), può sottostimare rischio ~20-40%

[DATE] MONTHLY STATISTICS
--------------------------------------------------
  Months Up:                  117 / 186 (62.9%)
  Months Down:                 69 / 186
  Best Month:                  10.14%
  Worst Month:                 -9.47%
  Avg Month:                    1.03%

■ YEARLY STATISTICS
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Years Up:	14 / 17
Years Down:	3 / 17
Best Year:	35.93%
Worst Year:	-25.13%

[PIN] DAILY STATISTICS

Days Up:	2104 / 3918 (53.7%)
Days Down:	1814 / 3918
Best Day:	8.01%
Worst Day:	-9.97%

RISK CONTRIBUTION (Component Contribution to Risk)

Ticker	Weight	MCR	CCR	CCR%
VWCE.DE	40.00%	0.2070	0.0828	46.23%
CNDX.L	30.00%	0.1594	0.0478	26.70%
IWQU.L	15.00%	0.1621	0.0243	13.58%
EMIM.L	15.00%	0.1610	0.0242	13.49%
TOTAL	100.00%		0.1791	100.00%

[CHART] CCR% NORMALE vs CRISI (come cambia in stress)

Ticker	Normale	Crisi	Delta	Note
VWCE.DE	47.5%	33.5%	-14.0%	✓ -rischio
CNDX.L	26.2%	36.5%	+10.3%	[WARN] +rischio
IWQU.L	13.4%	14.5%	+1.1%	≈ stabile
EMIM.L	12.9%	15.5%	+2.6%	≈ stabile

Giorni normali: 1541
Giorni crisi: 49

INDIVIDUAL ASSET METRICS (annualized)

	Weight	CAGR	Vol	RiskContrib%
VWCE.DE	0.4000	0.0967	0.1773	0.4623
CNDX.L	0.3000	0.1753	0.2211	0.2670
IWQU.L	0.1500	0.1057	0.1765	0.1358
EMIM.L	0.1500	0.0461	0.1965	0.1349

CORRELATION MATRIX (Observed, RAW)

[WARN] SHRINKAGE MOLTO ALTO (98%)
La matrice REGULARIZED è quasi-identità (costruzione numerica).
Usare SOLO la matrice RAW per interpretare relazioni tra asset.
La REG serve esclusivamente per stabilizzare calcoli di rischio.

[i] Shrinkage intensity 98% → correlazioni regolarizzate
non informative per diagnosi. Matrice RAW mostrata sotto.
(REG usata internamente solo per calcoli numerici)

[CHART] CORRELAZIONI OSSERVATE (RAW, usate per diagnosi):

Ticker Ticker	CNDX.L	EMIM.L	IWQU.L	VWCE.DE
CNDX.L	1.00	0.58	0.90	0.80
EMIM.L	0.58	1.00	0.61	0.72
IWQU.L	0.90	0.61	1.00	0.85
VWCE.DE	0.80	0.72	0.85	1.00

[RANDOM] MONTE CARLO STRESS TEST

[CHART] SCENARIO NORMALE (distribuzione storica):

Median return 1Y:	10.8%
Worst case 5%:	-23.8%

[WARN] SCENARIO STRESS (crisi strutturale):

Median return 1Y:	-28.1%
Worst case 5%:	-56.3%

■ TAKEAWAY:
Stress peggior caso: -56% vs normale -24% (delta 32%)

[CHART] BENCHMARK COMPARISON (vs alternative passive)

[CONF] METODOLOGIA: BENCHMARK_COMPARISON
Confronto vs alternative passive. Distingue same-category vs opportunity-cost.
[INFO] Rule 8 Parameters:

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      Defensive allocation: 0.0%
      Has sector tilts: True

   vs Global Equity (VT) [[CHART] OPPORTUNITY-COST]:
--------------------------------------------------
      [i] Rule 8: Portfolio has sector tilts (Rule 8)
      Benchmark CAGR:      10.31%
      Benchmark Vol:       17.16%
      Benchmark Sharpe:      0.54

      Benchmark MaxDD:     -34.2%

      Excess Return:       +1.82%
      Tracking Error:      15.24%
      Information Ratio:     0.12
      Beta:                  0.58
      Alpha (Jensen):      +5.32%

      Verdict: HIGHER_RISK_ADJUSTED
      Portfolio ha Sharpe migliore di Global Equity (VT) (strategia diversa).

      Nota: "Global Equity (VT) rappresenta opportunity cost, non confronto diretto same-category."
            "Portfolio ha caratteristiche che modificano il profilo di rischio."

   vs S&P 500 (SPY) [[CHART] OPPORTUNITY-COST]:
--------------------------------------------------
      [i] Rule 8: Portfolio has sector tilts (Rule 8)
      Benchmark CAGR:      14.08%
      Benchmark Vol:       17.05%
      Benchmark Sharpe:      0.74
      Benchmark MaxDD:     -33.7%

      Excess Return:       -1.95%
      Tracking Error:      15.71%
      Information Ratio:    -0.12
      Beta:                  0.56
      Alpha (Jensen):      +3.42%

      Verdict: ALTERNATIVE_STRATEGY
      S&P 500 (SPY) ha dato rendimento maggiore - ma è strategia diversa, non errore.

      Nota: "S&P 500 (SPY) rappresenta opportunity cost, non confronto diretto same-category."
            "Portfolio ha caratteristiche che modificano il profilo di rischio."

   vs 60/40 Portfolio [[CHART] OPPORTUNITY-COST]:
--------------------------------------------------
      Benchmark CAGR:       9.76%
      Benchmark Vol:       10.47%
      Benchmark Sharpe:      0.75
      Benchmark MaxDD:     -21.8%

      Excess Return:       +2.37%
      Tracking Error:      13.91%
      Information Ratio:     0.17
      Beta:                  0.89
      Alpha (Jensen):      +3.22%

      Verdict: HIGHER_ABSOLUTE_RETURN
      Portfolio rende di più ma con più volatilità (scelta growth).

   [INFO] VERDETTO COMPLESSIVO (solo same-category): NO_SAME_CATEGORY_BENCHMARK
   Nessun benchmark same-category disponibile per confronto.

   ■ PROXY BENCHMARK SUGGESTION (non-official):
   Nessun benchmark same-category disponibile per questo portfolio.
   Considera come proxy di riferimento:
      • Global Equity (VT) (Global Equity) - opportunità costo base equity
   Nota: Questi benchmark NON sono comparabili direttamente (strategie diverse),
         ma utili per valutare opportunity cost e posizionamento relativo.

======================================================================
                SECTOR ALLOCATION & TOP HOLDINGS
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[PIN] SETTORI (allocazione portafoglio)
--------------------------------------------------
  technology             35.3%
  financial_services     12.6%
  consumer_cyclical      11.4%
  communication_services   11.4%
  industrials             7.7%
  healthcare              7.4%
  Other                   6.2%
  consumer_defensive      4.7%
  basic_materials         3.4%

[PIN] TOP HOLDINGS (Top 10 per ETF)
--------------------------------------------------

  VWCE.DE
      4.62%  NVDA - NVIDIA Corp
      4.20%  AAPL - Apple Inc
      3.80%  MSFT - Microsoft Corp
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      2.34%  AMZN - Amazon.com Inc
      1.94%  GOOGL - Alphabet Inc Class A
      1.69%  AVGO - Broadcom Inc
      1.56%  GOOG - Alphabet Inc Class C
      1.53%  META - Meta Platforms Inc Class A
      1.34%  TSLA - Tesla Inc
      1.27%  2330.TW - Taiwan Semiconductor Manufacturing Co Ltd

  CNDX.L
      9.01%  NVDA - NVIDIA Corp
      7.99%  AAPL - Apple Inc
      7.15%  MSFT - Microsoft Corp
      4.91%  AMZN - Amazon.com Inc
      3.96%  TSLA - Tesla Inc
      3.86%  META - Meta Platforms Inc Class A
      3.62%  GOOGL - Alphabet Inc Class A
      3.37%  GOOG - Alphabet Inc Class C
      3.25%  AVGO - Broadcom Inc
      2.23%  PLTR - Palantir Technologies Inc Ordinary Shares - Class A

  IWQU.L
      5.24%  AAPL - Apple Inc
      5.07%  NVDA - NVIDIA Corp
      4.99%  MSFT - Microsoft Corp
      3.76%  V - Visa Inc Class A
      3.56%  META - Meta Platforms Inc Class A
      2.45%  LLY - Eli Lilly and Co
      2.32%  ASML.AS - ASML Holding NV
      2.15%  MA - Mastercard Inc Class A
      1.95%  GOOGL - Alphabet Inc Class A
      1.93%  TJX - TJX Companies Inc

  EMIM.L
     10.29%  2330.TW - Taiwan Semiconductor Manufacturing Co Ltd
      4.17%  0700.HK - Tencent Holdings Ltd
      3.32%  005930.KS - Samsung Electronics Co Ltd
      2.67%  9988.HK - Alibaba Group Holding Ltd Ordinary Shares

      2.08%  000660.KS - SK Hynix Inc
      1.06%  HDFCBANK.NS - HDFC Bank Ltd
      0.89%  RELIANCE.NS - Reliance Industries Ltd
      0.80%  00939 - China Construction Bank Corp Class H
      0.78%  2317.TW - Hon Hai Precision Industry Co Ltd
      0.73%  1810.HK - Xiaomi Corp Class B

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         TOP HOLDINGS AGGREGATE (pesate per peso ETF)
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  NVDA           5.31%  NVIDIA Corp
  AAPL           4.86%  Apple Inc
  MSFT           4.41%  Microsoft Corp
  AMZN           2.41%  Amazon.com Inc
  META           2.30%  Meta Platforms Inc Class A
  GOOGL          2.15%  Alphabet Inc Class A
  2330.TW        2.05%  Taiwan Semiconductor Manufacturing Co Ltd
  TSLA           1.72%  Tesla Inc
  AVGO           1.65%  Broadcom Inc
  GOOG           1.64%  Alphabet Inc Class C

======================================================================
[INST]  SENIOR PORTFOLIO ARCHITECT ANALYSIS
    Framework Istituzionale (Vanguard Style)
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[TAG]  CLASSIFICAZIONE ETF (deterministica, no metriche)
--------------------------------------------------
   VWCE.DE      40.0%  EQUITY_UNKNOWN       risk=UNKNOWN    (DEFAULT)
   CNDX.L       30.0%  EQUITY_UNKNOWN       risk=UNKNOWN    (DEFAULT)
   IWQU.L       15.0%  EQUITY_UNKNOWN       risk=UNKNOWN    (DEFAULT)
   EMIM.L       15.0%  EQUITY_EMERGING      risk=HIGH       (KEYWORD:EMERGING)

[WORLD] ESPOSIZIONE GEOGRAFICA EFFETTIVA:
--------------------------------------------------
   (Calcolata considerando composizione interna ETF)

   [US] USA              64.8%  ################################
   [ASIA] Emergenti         19.8%  #######
   [EU] Europa            8.4%  ###
   [GLOBAL] Altri DM           3.7%  #
   [JP] Giappone          3.3%  #
--------------------------------------------------
   Totale:                   100.0%

   [i] Bias USA moderato (65%) - comune per portafogli growth


[CONF]  ESPOSIZIONE PER FUNZIONE ECONOMICA:
--------------------------------------------------
   [UP] Core Growth (rendimento principale)     85.0%  #############################
   [ASIA] Esposizione Emergenti                   15.0%  #####


[RESEARCH] ANALISI CONCENTRAZIONE E OVERLAP:
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--------------------------------------------------
   Max posizione singola:     40.0%
   Top 3 posizioni:           85.0%
   Top 5 posizioni:          100.0%
   HHI (concentrazione):      0.295  (più basso = più diversificato)

   N. effettivo posizioni:      3.4  (vs 4 nominali)

   ✓ Nessuna falsa diversificazione significativa rilevata


[STRONG] PUNTI DI FORZA STRUTTURALI:
--------------------------------------------------
   1. Esposizione USA bilanciata (65%), non eccessivamente concentrato né sottopesato
   2. Esposizione EM adeguata (20%) per catturare crescita mercati emergenti
   3. Sortino Ratio 0.91 → gestione efficiente del downside risk
   4. CAGR 12.1% → rendimento composto competitivo nel lungo periodo

======================================================================
[INFO] VERDETTO FINALE: [WARN] INTENT_MISALIGNED_STRUCTURE_OK
   [WARN] INTENT WARNING - Struttura OK, beta sotto target

   [PIN] Struttura coerente ma beta leggermente sotto il minimo per Risk Intent dichiarat...

   Motivazioni:
   • Portafoglio classificato come EQUITY_GROWTH_DIVERSIFIED con struttura coerente rispetto agli obiettivi impliciti
   • Esposizione USA bilanciata (65%), non eccessivamente concentrato né sottopesato
   • Trade-off identificato: Top 3 posizioni = 85.0% > 70% (soglia tipo EQUITY_GROWTH_DIVERSIFIED)....
   • Metriche di lungo periodo: CAGR 12.1%, Sortino 0.91, Max DD -32%
   • Costruzione solida con trade-off consapevoli e documentati

----------------------------------------------------------------------
   Analisi condotta secondo framework Senior Portfolio Architect
   Standard: Vanguard/BlackRock Institutional Guidelines
======================================================================

======================================================================
                        DATA QUALITY
======================================================================
FX converted: ['EMIM.L', 'VWCE.DE']
Survivorship confidence: LOW (45%)
Survivorship warning: Survivorship bias: confidenza LOW (45%). Red flags: 4. ATTENZIONE: dati potenzialmente distorti da survivorship bias.
Correlation shrinkage intensity: 98.2%

======================================================================
                  OPTIMIZATION ANALYSIS (Markowitz)
======================================================================
Current Sharpe:        0.965
Current Volatility:    11.43%
Current Exp. Return:   13.02%
Efficiency score vs. optimal: 88.7%
Sharpe gap: 0.123
Volatility gap: 1.71%

Suggestions:
- Sharpe migliorabile: 0.96 vs 1.09 (gap 0.12)

Key portfolios (CAGR/Vol/MaxDD/Sharpe | weights):
  min_variance CAGR=10.42%
    Vol=17.06% MaxDD=-32.07% Sharpe=0.57 | VWCE.DE:18.1%, CNDX.L:24.3%, IWQU.L:28.9%, EMIM.L:28.7%
  max_sharpe   CAGR=11.98%
    Vol=17.72% MaxDD=-31.65% Sharpe=0.63 | VWCE.DE:30.8%, CNDX.L:12.4%, IWQU.L:29.5%, EMIM.L:27.2%
  max_return   CAGR=14.13%
    Vol=19.37% MaxDD=-30.70% Sharpe=0.70 | VWCE.DE:50.0%, CNDX.L:0.0%, IWQU.L:49.5%, EMIM.L:0.5%
  risk_parity  CAGR=10.68%
    Vol=17.19% MaxDD=-31.89% Sharpe=0.58 | VWCE.DE:21.6%, CNDX.L:24.4%, IWQU.L:27.1%, EMIM.L:26.9%

Frontier points: 1444 successful

======================================================================
                     INTEGRATION TEST RESULTS
======================================================================
Status: FAIL
Summary: exit_code=4
Duration: 0.28s

stdout (tail):
  ============================= test session starts ==============================
  platform linux -- Python 3.14.2, pytest-9.0.2, pluggy-1.6.0 -- /usr/bin/python3
  cachedir: .pytest_cache
  rootdir: /home/nic/Desktop/Developer/GitHub/analisiPortafogli
  configfile: pyproject.toml
  plugins: cov-7.0.0, anyio-4.12.1
  collecting ... collected 0 items
  ============================ no tests ran in 0.01s =============================

stderr (tail):
  ERROR: file or directory not found: tests/integration

[CHART] Placeholder grafico salvato: output/portfolio_analysis.png (legacy charts disabled)
```