RÉSUMÉ · CAREER RECORD

SANTA FEDERICO

The full chronological record — physics and systems, to global risk leadership, to decision systems

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NOTE ON THIS DOCUMENT

The long form: every role, in order, with what the work was. Not a résumé and not written for speed. Dates are given to the year; where sources conflict on a month, the month is not printed. Figures are given in their conservative form.

CHRONOLOGY

2025–	Founder — Kindynos Advisory · Bangkok
2022–2024	Head of Quantitative and AI Research — EngineAI (formerly Dystematic) · London / Thailand
2018–2022	Adviser, then Managing Director, Risk Management and Investment Advisory — Cowen Investment Management · New York
2014–2017	Chief Risk Officer; Head of New York Office — Silver Ridge Asset Management · New York / London
2012–2014	Outsourced Chief Risk Officer — long/short equity and private-equity fund · New York
2010–2012	Managing Director and Chief Risk Officer, Market and Counterparty Credit Risk — Ally Financial · New York
2009–2010	Independent and outsourced Chief Risk Officer — broker-dealer · global macro fund · discretionary equity fund
2008	President and Chief Investment Officer — WR Completion Fund (WR Capital) · Connecticut
2005–2008	Managing Director, Chief Risk Officer — Perry Capital · New York
2004–2005	Managing Director, Strategic Risk Management — Credit Suisse First Boston · New York
1994–2001	Managing Director, Global Head of Market Risk; then Co-Head, Japan Equity Derivatives — Smith Barney / Salomon Smith Barney / Citigroup; Nikko Salomon Smith Barney · New York / Tokyo
1991–1994	Vice President, Listed Derivatives — Credit Suisse First Boston · New York
1989–1991	Vice President, Senior Portfolio Manager — Western Asset Management · Los Angeles
1987–1989	Vice President, Financial Strategies; International Monetary Markets — Security Pacific Merchant Bank · New York / Los Angeles
1986–1987	Vice President, Quantitative Trading and Risk Management — Merrill Lynch Capital Markets · New York
1984–1985	Member of Technical Staff, applied physics research — AT&T Bell Laboratories · New Jersey

THE RECORD, IN DETAIL

Kindynos Advisory · Bangkok 2025–

Founder

- Founded Kindynos to build event intelligence: formal descriptions of industries and systems, models of how events propagate through them, and tools for risk assessment, decision support and forensic analysis — across markets, cyber, climate, DeFi and supply chain, with modelled ecosystems in insurance, housing and mortgage finance, and global investments.
- Conceived and directed **EVA**, an event-intelligence and decision-support platform modelling how events propagate through assets, stakeholders and financial positions. Extensively developed and pre-commercial; not a customer-deployed service.
- For difference-valued consequences on the verified firing path, the governing model is evaluated against frozen pre-event and post-event states and the reported consequence is the difference. On the tested deterministic path, complete firings replay byte-identically under the verified configuration.
- Where an input is absent the engine returns UNVALUED and refuses rather than produce a number. Every result carries a completeness verdict, an execution verdict and a reliance stamp, with a typed reason code on failure. An assigned zero is a value; a missing value is never coerced to zero.
- Current evidence is strongest on bounded deterministic and refusal paths. Integration, conformance and maturity vary across the wider estate.
- **EOS**, the smaller successor core extracted from EVA, compiles worlds through a canonical intermediate representation, pins model versions so that an unavailable version refuses by name rather than substituting, and runs models under process isolation. A bounded successor core was extracted and exercised on a second machine under a defined verification protocol; verification artefacts are available for technical diligence.
- Execution records carry the model, its version, the inputs, the pre and post values and the derivation. Model versions are pinned and fail closed rather than substituting.
- **Method.** Two structurally separated lanes — authoring and verification, and building — never occupied by the same agent in one session. One work order, one decisive number producible only if the whole feature is correct. Literal, checkable acceptance items. Per-item completion gates requiring "built, check passes" or "not done — reason." Verification by running the artefact, never by reading the build report.
- **Current quantitative work.** Hawkes-process maximum-likelihood estimation with spectral-radius stability projection; copula calibration by Kendall-τ inversion with PSD projection; closed-form t-copula tail dependence; Monte Carlo VaR and CVaR; ridge factor models; MSR cashflow mathematics; online Bayesian updating; Louvain and Leiden community detection.
- **Physics.** A 3+1D computational study of the graceful-exit problem in inflationary cosmology, with a numerical percolation-threshold result, connecting back to the Princeton thesis under Peebles.

EngineAI (formerly Dystematic) · London / Thailand 2022–2024

Head of Quantitative and AI Research

- Developed models and technology — early-warning systems — to alert financial regulators to potential banking crises, and comparable technology to anticipate disruption in commodity supply. Led explainable-AI work to bring modern machine learning into portfolio and risk tooling while preserving transparency for executives and clients.
- **Early Warning Monitor.** Identified developing distress in individual institutions and in a national financial sector from public market and industry data. From equity prices, the variance of a representative bank portfolio was decomposed into risk common to the sector and risk unique to each institution; the systematic share rose sharply in the years before 2007–08, read as falling diversification raising susceptibility to shock. Institutions were also represented as a graph with edges weighted by return correlation, clustering by business similarity, with the evolution of that structure tracked over time as a signal in itself.

- **Supply-chain risk prototype, 2024.** A working prototype for oil-supply risk analytics built in one month on S&P trade data — HS Code 2709, 110 reporting countries, monthly, 1990–2024, exporter by importer. Entropy-based directional concentration measurement, computed on sellers for a buyer's view and on buyers for a seller's, showing that while more than fifty countries report oil supply there are effectively about ten. PCA factor modelling separating systematic from idiosyncratic supply components, where idiosyncratic variance tracks price when total variance does not, and idiosyncratic kurtosis spiked well before the 2008 price spike. A supply-VaR construction off the covariance matrix. Disruption identification by repurposing a drawdown-detection tool. Logistic-regression early-warning indicators with feature selection and traffic-light presentation. A macroeconomic overlay connecting rates, FX and credit data to supply dependencies.

Cowen Investment Management · New York 2018–2022
Managing Director, Risk Management and Investment Advisory

- Brought into the firm by the head of the investment division to review a portion of its hedge-fund investments.
- Introduced and implemented quantitative methods for performance and risk assessment and attribution across the firm's hedge-fund investments; advised on manager, strategy and portfolio-construction choices under a disciplined quantitative lens.
- Advised the enterprise on the framework, methodologies and analytics supporting investment management, risk management and capital allocation. Having established credibility on fund investment, upgraded the firm's own risk management and implemented strategies for proactive hedging.
- Designed and implemented risk-based dynamic margining for prime-brokerage operations, and created statistical, AI-based technology for early warning of potential counterparty risk.

Silver Ridge Asset Management · New York / London 2014–2017
Chief Risk Officer; Head of New York Office

- Built an institutional-quality risk-management effort from nothing for a start-up global discretionary macro fund with offices in New York and London. Investment activity encompassed all major developed and emerging markets and all asset classes — FX, rates, credit, equities, commodities — in cash and derivative products.
- Architected and implemented every component: risk systems, models, technology, reporting, policies, limits and control, portfolio construction and optimal risk allocation, risk and performance attribution, quantitative support for trading, investor-facing material, and proprietary method development.
- Coverage across market, counterparty, operational and liquidity risk. Global Head of Risk, responsible for all aspects of risk management globally.
- Chaired the Risk Committee; primary executive for regulatory matters in New York; liaison and adviser to the fund seeder and to prime brokers; built and managed the New York office.

Long/short equity and private-equity fund · New York 2012–2014
Outsourced Chief Risk Officer

- Outsourced risk management in the absence of a CRO for a long/short equity and private-equity fund: risk assessment and valuation methodologies, risk-report design and build, systems implementation, and liaison across portfolio managers, traders, IT, vendors, accounting and operations, sell-side coverage, research and prime brokerage. The fourth such mandate.

Ally Financial · New York 2010–2012
Managing Director and Chief Risk Officer, Market and Counterparty Credit Risk

- Recruited to strengthen enterprise risk and its alignment with the lines of business — the part of the job that determines whether risk analysis is used rather than filed.
- Rebuilt and managed a risk department covering all of the firm's businesses: the residential-mortgage origination pipeline, the broker-dealer, the bank, auto-loan origination, and in-house

asset management — including mortgage servicing rights, fixed income, equity and foreign exchange.

- Oversaw all businesses with market and counterparty exposure globally, and oversaw trading and macro hedging of the firm’s own interest-rate, FX and equity exposure. Managed the MSR portfolio’s risk and counterparty risk assessment.
- Managed a successful Federal Reserve market-risk examination as primary regulatory liaison, and led the capital-adequacy market-risk review. Supervised CCAR, Basel and Basel 2.5, Market Risk Rule compliance, model validation and risk-systems compliance.

Major broker-dealer · New York / London 2009–2010

Strategic consultant to executive management, retained by the chief executive

- Retained by the chief executive to review and advise on the firm’s credit and market risk management practices and operations, and to recommend corrections. The engagement is governed by confidentiality; I describe the work rather than the client, and do not publish the findings.

Global macro fund · discretionary equity fund · New York 2009–2010

Outsourced Chief Risk Officer

- Outsourced risk leadership in the absence of a CRO. Scope typical of the practice: risk assessment and valuation methodology, risk-report design and build, systems implementation, and cross-functional liaison.

WR Completion Fund (WR Capital) · Connecticut 2008

President and Chief Investment Officer

- Founded a fund-of-funds emphasising completion strategies for institutional clients with existing hedge-fund allocations — investment solutions offering complementary risk and performance characteristics. Manager selection combined quantitative and fundamental methods on a managed-account platform, together with hedge-fund replication techniques.
- On a pro-forma basis the strategy produced approximately 25% gross in 2008, net of underlying hedge-fund fees, on both a risk-adjusted and an absolute basis. The fund did not launch: the promised funding was withdrawn in the wake of the 2008 crisis, and the performance is pro-forma.

Perry Capital · New York 2005–2008

Managing Director, Chief Risk Officer

- Built risk management for a $15 billion multi-strategy fund — long/short equity, event-driven, special situations, credit and private equity. The mandate was to integrate quantitative risk and portfolio-management technique into a discretionary, fundamentals-driven investment culture.
- Applied risk-factor modelling, portfolio optimisation, factor-mimicking baskets and portfolio hedges; implemented a risk-factor-based performance and risk-attribution framework that clarified true alpha versus beta; designed capital allocation, risk assessment, control and reporting procedures; managed risk-infrastructure development including in-house applications and vendor integration.
- Built quantitative models and supplied valuation and hedging advice across credit and equity derivatives, convertible bonds, asset-backed securities, capital-structure arbitrage and private equity.
- Managed a profitable, actively traded macro overlay to control risk exposures and enhance returns, for the firm and for individual portfolio managers. Advised the CIO and partners throughout the 2008 dislocations.

Credit Suisse First Boston · New York 2004–2005

Managing Director, Strategic Risk Management

- Hired by the global CFO to give the chief executive clearer insight into trading activity. The firm had sophisticated infrastructure for assessing regulatory and risk-capital requirements, but the risk exposures of the trading operation were not transparent to management. I revamped the firm's market-risk management practice and sharpened the risk organisation's ability to understand, analyse, communicate and advise on those exposures.

- Advised the Executive Risk Committee on risk limits, controls, appetite, suitability and risk-capital allocation across lines of business globally.
- Aligned and oversaw a global organisation of more than one hundred risk professionals, and modernised the reporting and analytics stack.
- Provided executive oversight of firm-wide valuation models. Member of the Mortgage Steering Committee, overseeing the revamp of risk assessment and control for the mortgage origination and trading platform. Managed risk oversight of mortgage trading, credit derivatives and exotic derivatives. Served as liaison to regulators.

Smith Barney → Salomon Smith Barney → Citigroup; Nikko Salomon Smith Barney · New York, then Tokyo 1994–2001
Managing Director, Global Head of Market Risk; then Co-Head, Japan Equity Derivatives

- I joined Smith Barney; the entity name changed three times without a change of seat. Initially hired to build risk management for the derivatives businesses globally — install risk managers, hire quants, build the trading and risk models, systems, reporting and controls — and, on the success of that effort, tapped by the chief executive to build risk management for the firm globally.
- **The function.** Built the firm-wide market-risk function and established its enterprise risk-management capability. Ran the quant group for global derivatives trading. Continued as head of market risk throughout the merger with Salomon Brothers, managing risk managers globally, and assumed global responsibility for model validation.
- **The executive seat.** Primary liaison between executive management and the trading businesses considered complex or high-risk; briefed the executive committee. As a close adviser to the chief executive and executive management, navigated the firm through turbulent mergers and financial crises. Managed the fixed-income derivatives desk through a management transition.
- **The proprietary-trading assessment.** Assigned as primary liaison to Salomon's trading businesses, including oversight of the Proprietary Trading Division, I assessed potential exposure at upwards of $1 billion against the division's own estimate of $50 million — a factor of about twenty — and presented that assessment to the executive board over the division management's objection. The division subsequently lost in excess of $1 billion during the LTCM crisis. I oversaw the unwind and liquidation and remained a trusted adviser to the chief executive.
- **LTCM.** Assigned as the firm's liaison to Long-Term Capital Management during the crisis, and supervised the unwind of the firm's exposures, ensuring the firm avoided contagion.
- **Tokyo, 2000–2001.** Sent to Tokyo by executive corporate and trading management to restore management discipline and controls in a stressed cross-border joint venture, with a mandate covering compliance and risk. Co-managed the Japanese equity-derivatives trading, sales and structured-products business of the Salomon Smith Barney / Nikko Securities joint venture, with about thirty-five American and Japanese staff across three corporate cultures. The business produced revenue of approximately $90 million in 2000.

Credit Suisse First Boston · New York 1991–1994
Vice President, Listed Derivatives / Mortgage Research

- Built quantitative research and marketing for the listed-derivatives business; developed and marketed trade ideas; provided risk-management advice to clients and executed transactions for them; covered quantitative accounts; contributed commentary to the firm's mortgage-research publication. The firm hired me twice — here as a vice president, and thirteen years later as a managing director.

Western Asset Management · Los Angeles 1989–1991
Vice President, Senior Portfolio Manager

- One of four senior portfolio managers co-managing roughly $8 billion in fixed-income assets, with responsibility for structured portfolios.

- Initiated and managed the firm's investment in CMOs, mortgages and derivatives, with a specialisation in mortgage-backed securities and derivatives.
- Deployed quantitative and derivative overlays balancing convexity, carry and tail risk; developed quantitative research, early portfolio risk tools and reporting; led client-facing risk communication. Hands-on responsibility for P&L, liquidity and risk.

Security Pacific Merchant Bank · New York, then Los Angeles 1987–1989
Vice President, Financial Strategies; then International Monetary Markets

- Recruited by former Merrill management to create a fixed-income research department from nothing. Created the fixed-income research and risk-management department, managed trading-desk risk managers, and ran the client research publication series.
- Developed risk systems, valuation models and trading tools for the MBS, fixed-income, derivatives and FX businesses, built on SUN workstations with an X Windows interface — innovative technology for the period.
- With the International Monetary Markets division in Los Angeles, built all analytics and systems for the division, ran the interest-rate swaps book, and managed fixed-income research and FX analytics.

Merrill Lynch Capital Markets · New York 1986–1987
Vice President, Hedging and Arbitrage — Quantitative Trading and Risk Management

- Recruited out of Bell Laboratories into the financial industry as a quant supporting proprietary trading, in an early trading-floor risk-management role.
- Designed a firm-wide global risk report and some of the firm's first trading-floor risk systems for FX and Treasury options, and built MBS-option and FX-option systems.
- Assumed management of derivative books — FX and OTC bond options — under stressed conditions. Traded and provided quantitative support for the cross-markets arbitrage desk.
- Created and led a quantitative research effort at the firm and recruited Jan Dash out of Bell Laboratories to build it out; Dash arrived in 1987. His book credits me with the question behind his subsequent path-integral work in finance.
- Promoted from senior analyst to vice president during the first year in the industry.

AT&T Bell Laboratories · New Jersey 1984–1985
Member of Technical Staff — applied physics research

- Started my career as a physicist, hired into a PhD-level position to model the effects of nuclear events on the national communications infrastructure.
- Developed methods and custom statistical software in C on UNIX to analyse transient electromagnetic radiation from effects testing, and modelled infrastructure resilience. Published on the electromagnetic shielding characteristics of structures.
- Concurrently, while consulting to a commodity trading adviser, implemented and traded models built on a statistical pattern-recognition system out of Carnegie Mellon.

FORMATION

Princeton University, 1978–1982 A.B., Physics, 1982. Undergraduate thesis under P. J. E. Peebles, subsequently Nobel laureate in physical cosmology.

École Centrale de Paris, 1982–1983 Final year of the Diplôme d'Ingénieur (M.S. equivalent), physics. High-energy physics research at the Atomic Energy Commission of France, C.E.A. Saclay.

PUBLICATION AND RECOGNITION

- Four chapters in *Credit Derivative Strategies: New Thinking on Managing Risk and Return*, ed. Rohan Douglas, Bloomberg Press, 2007 — *Risk Management of Credit Derivatives*, *Four Synthetic CDO Trading Strategies*, *CDS Valuation*, *CDO Valuation*.

- *Nuclear Weapons Effects Studies for the 5ESS Switch, Volume 2: EM Shielding Characteristics of Structures* — AT&T Bell Laboratories.
- A five-part series on trustworthy AI architecture in regulated decision systems, 2026: *Highways and Train Tracks · The Value of Information · Trust Before Verification · Provenance Over Persuasion · Five Worlds*. A sixth, on model-risk governance, in preparation. EVA technical whitepaper, 2026.
- Named at several points in Jan Dash, *Quantitative Finance and Risk Management: A Physicist's Approach*, World Scientific, 2004 — for bringing Prony analysis to his attention at Bell Laboratories, for the question behind his path-integral work in finance, and for ideas on firm-wide economic capital.
- Guest lecturer in quantitative finance at the NYU Courant Institute of Mathematical Sciences — credit derivatives, risk management and hedge-fund strategies, at graduate level.

EXECUTIVE COUNTERPARTIES, BY SEAT

A global head of market risk briefs the chief executive, the chief financial officer, the chief operating officer and the heads of the trading businesses, and that was the seat for seven years. Across the record I have advised chief executives at four institutions on risk management, been engaged directly by a chief executive to review a firm's risk practice, and been hired twice by the same chief financial officer at two different institutions.

SKILLS

Risk management	Enterprise · market · credit and counterparty · liquidity · operational · model risk and validation · appetite, limits and controls · risk and performance attribution · portfolio optimisation · stress testing · crisis management · independent challenge · risk-committee governance · outsourced and fractional CRO delivery
Regulatory	Federal Reserve examination · CCAR · Basel and Basel 2.5 · Market Risk Rule · capital-adequacy review · model validation and governance · UK and Japanese supervisory regimes · regulatory liaison at four institutions
Products	Credit derivatives (CDS, CDO, synthetic CDO) · equity derivatives · FX and FX options · interest-rate swaps · OTC bond options · MBS, CMOs and mortgage derivatives · mortgage servicing rights · asset-backed securities · convertible bonds · capital-structure arbitrage · private equity · commodities · structured products
Quantitative	Factor modelling · portfolio construction and optimisation · Monte Carlo VaR and CVaR · copula calibration and tail dependence · Hawkes processes · Bayesian updating · PCA · entropy-based concentration measurement · network and graph analysis and community detection · anomaly and regime detection · statistical pattern recognition
Machine learning	Claimed: supervised learning (logistic regression, feature selection) · unsupervised learning (PCA, clustering, community detection) · graph learning · anomaly and regime detection · statistical pattern recognition. Not claimed: deep-learning engineering · frontier-model research · MLOps.
Technology	Systems and platform architecture · formal language and compiler design · Python-based quantitative and system development · AI-directed engineering and verification · FORTRAN · C on UNIX · APL · R
Management	Organisation building · global organisation build and turnaround · crisis management · committee chairing · board and regulator reporting · P&L ownership · cross-border and cross-cultural leadership
Geography and languages	New York · Tokyo · London · Los Angeles · Bangkok. English (native) · Japanese and French (limited working) · Spanish and Thai (elementary)