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Risk, finance and applied economic research

M.A. Actuarial Economics · Madras School of Economics · Class of 2028
Summer 2027 internships · Seven research studies with source-linked evidence

The portfolio connects data controls and model comparisons to decisions. Each study includes a technical report, a decision memo and an evidence browser. Historical tests and hypothetical scenarios keep their stated boundaries.

1. Credit risk and model validation

300,000 mortgages and 20.15 million monthly records. Chronological SQL snapshots, censored outcomes, fixed models and economic-stress validation. Better held-out discrimination did not justify unchanged probabilities: calibration failures are disclosed.

Credit risk, model validation, risk analytics
[Code and research](#) · [Evidence browser](#)

2. Insurance pricing and reserve uncertainty

French motor pricing and a separate US auto-reserving study. Fixed pricing comparisons and reserve interval scores expose conditional-calibration and coverage failures. The two populations are not joined.

Actuarial analytics, insurance risk, uncertainty modelling
[Code and research](#) · [Evidence browser](#)

3. Causal customer decisions

A 64,000-customer, three-arm randomized experiment. Frozen policies and doubly robust evaluation did not establish that personalized targeting beats the selected simple campaign. Explicit margin and contact costs are scenarios.

Product analytics, experimentation, causal inference
[Code and research](#) · [Evidence browser](#)

4. Treasury ALM and liquidity

Interest-rate hedging, published Treasury curves and hypothetical benefit cash flows. Four hedge policies, 56 rate stresses and 108 liquidity-runoff cases. Independent Decimal and formula-workbook reconciliations support the modelling.

Treasury, ALM, financial risk
[Code and research](#) · [Evidence browser](#)

Research portfolio

5. Demand, capital and inventory

210 historical M5 item-store series link probabilistic forecasts to replenishment under common capital/capacity constraints. Fifteen final weekly origins and overlapping horizons limit inference. Operating effects are simulations, not observed retailer savings.

Business analytics, forecasting, operations and working capital

[Code and research](#) · [Evidence browser](#)

6. Indian inflation release vintages

48 official releases and 144 vintage observations. An 18-release final check retains persistence: RMSE 0.8185 pp versus 1.6901 for fixed AR(1). Release dates and the later base revision remain separate. No current inflation forecast is claimed.

Economic research, time series, publication-aware data

[Code and research](#) · [Evidence browser](#)

7. Corporate Finance Decision Lab

Nine issuer reports, a traced financial spread and a funded-growth policy model. Final extraction: 33 supported correct /36 financial targets for both methods, three justified abstentions. 519 independent valuation checks and a reconciled formula workbook.

Corporate finance, FP&A, financial research and finance data

[Code and research](#) · [Evidence browser](#)

Choose a starting point

Credit/model risk: studies 1 and 4. Insurance: 2 and 4. Corporate finance/FP&A: 7 and 6. Product/business analytics: 3 and 5. Economic research: 6 and 3. The shared standard is traceable source data, explicit information timing, appropriate uncertainty and a decision that follows the evidence.

[Open the seven-study portfolio](#) · [GitHub](#) · [LinkedIn](#)