



Society of Actuaries in Ireland

Investment Due Diligence

by

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Disclaimer

The views expressed in this presentation are those of the presenters and not necessarily of the Society of Actuaries in Ireland

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Agenda





Assumptions

Access to investment services

- Segregated account
- Collective investment vehicle (CIV)

Depth of due diligence

- Deep dive for higher risk strategies
- Less intensive approach for lower risk cases

Analysis of past performance

- Subject of an earlier paper by John Caslin entitled *Hedge Funds*



Why do investment due diligence?

3 Modest Aims

Detect Fraud

Ensure Good Fit

Reduce Probability
Of Material Flaws



Why do investment due diligence?

Legislative Requirements

Insurance
company

Article 132
Solvency II
Directive

Pension
fund

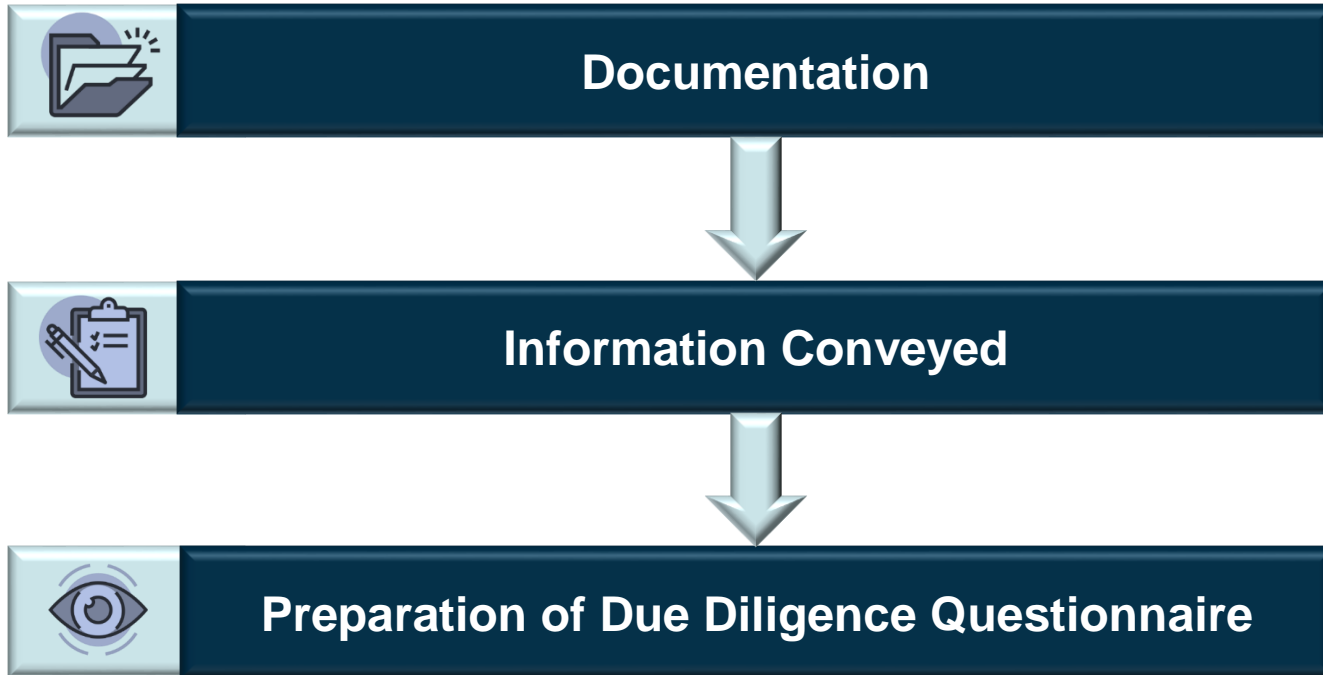
Occupational
Pension
Schemes
(Investment)
Regulations
2006

MiFID
firm

MiFID Directive
& MiFID
Regulation



Initial Due Diligence Phase





Documentation

Prospectus

Objectives, service providers, strict liability of depository, and segregation of asset management & NAV calculation

Annual Reports & Filings

Audit, list of investments, fees, and related parties

Marketing Materials

More details on current investment strategy

KIID

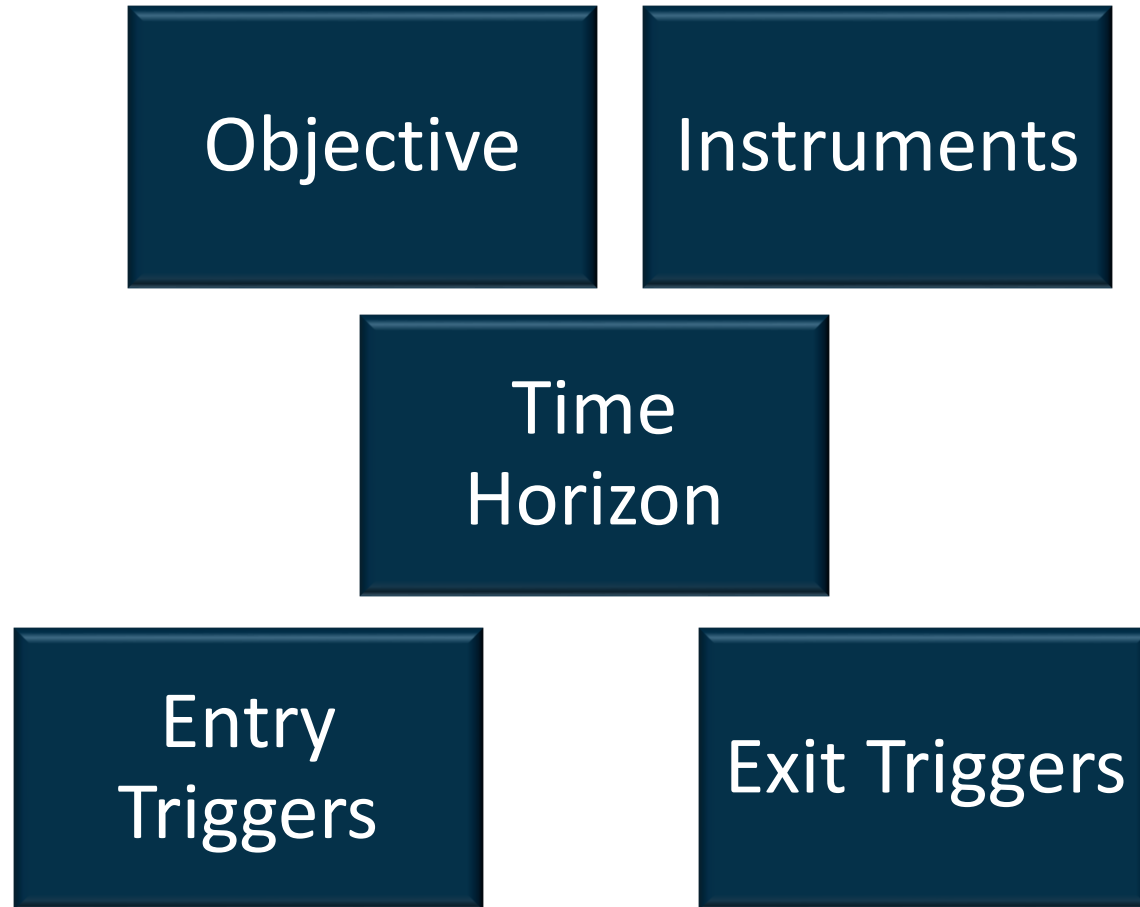
Information on calendar year performances and fees

DDQ

Questions posed, quality of responses, and transparency regarding key risks



Investment Strategy





Risk Management

- Diversification
- Target risk level

Unfavourable and
Favourable Market
Conditions



Investment Strategy



$$[\text{Sharpe Ratio}]_{NS} > [\text{Sharpe Ratio}]_{EP} * \rho_{(NS,EP)}$$



Systematic Trading Strategies

Example

$$\begin{aligned} &P(\text{at least one significant result}) \\ &= 1 - P(\text{no significant results}) = 1 - (1 - 0.05)^{20} \\ &= 0.64 \end{aligned}$$

Type 1 Error

Particularly prevalent at undemanding significance levels



Systematic Trading Strategies

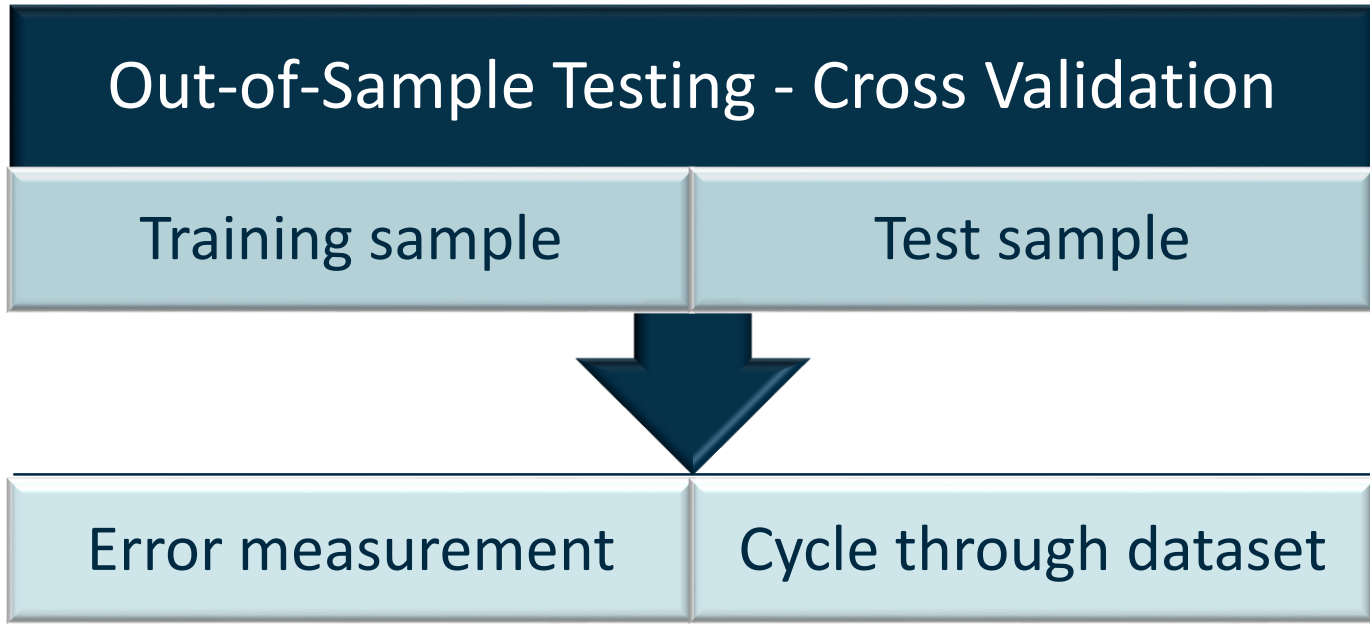
Data and Model Issues

Data cleaning

Model complexity



Systematic Trading Strategies



Model Training Data

Test
Data



Index Tracking Funds

HSBC UK Survey¹

- 90% questioned invest in passive funds
- 30% no special due diligence

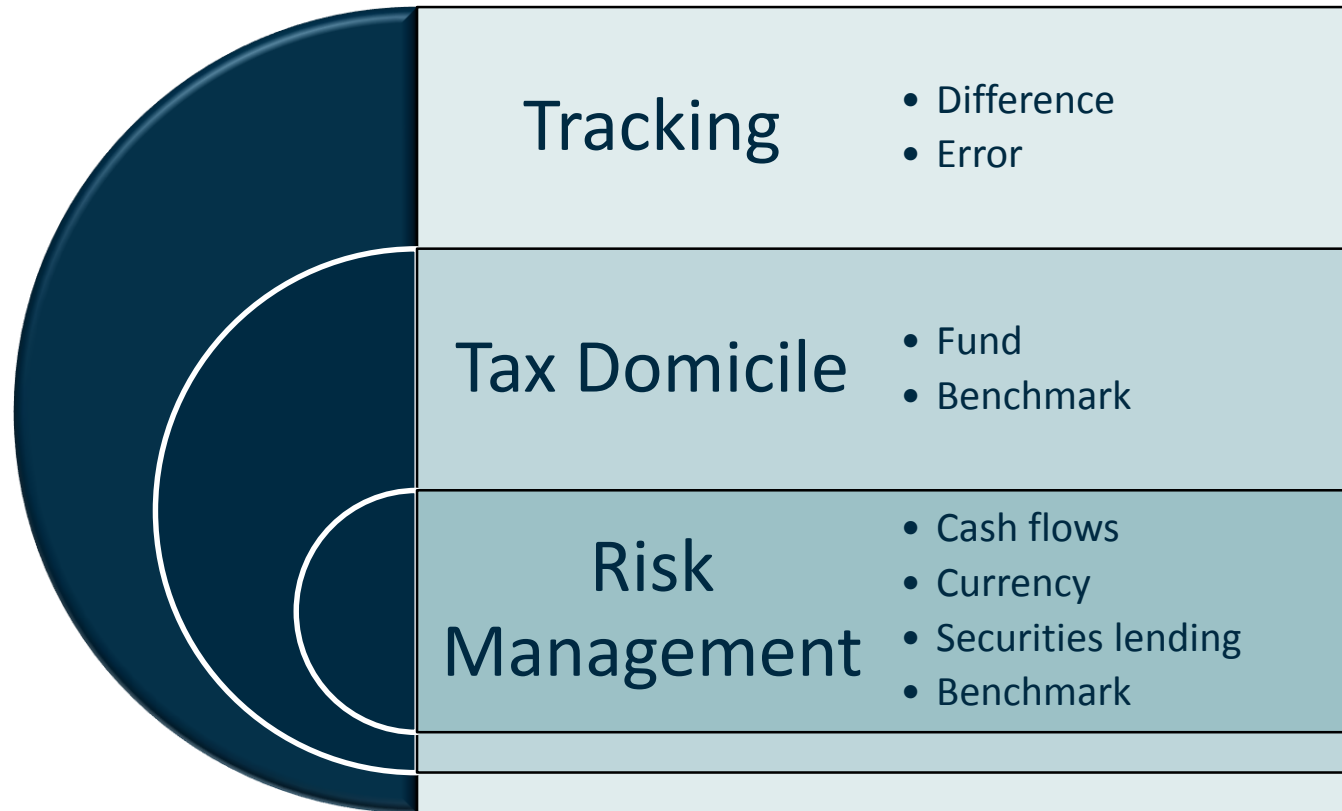
Focus on Replication Method

- Full physical replication
- Physical stratified sampling
- Using derivatives

¹"Importance of Due Diligence for Index Tracker Funds" – HSBC GAM, 2015



Index Tracking Funds





Cyber Security

Cyber Security

Gemalto Breach Level Index 2015/16
Cyber Fraud in a Digital Age – UCC Conference Jan. 2018
Firm wide area of focus

Robust procedures & controls
Regular review & testing for existing / emerging threats
People to meet at on-site

Information technology & physical environments
Independent Validation: ISO 27001 and 27005
Third party consultation



Derivatives

Market Risk

- Daily mark-to-market
- Stress testing
- Cash flow forecasting
- VaR and C-VaR measures

Counterparty Risk

- Current exposure
- Potential exposure



Credit Risk Management

Debt securities

Counterparties



Credit risk – Credit analysts & jurisdiction

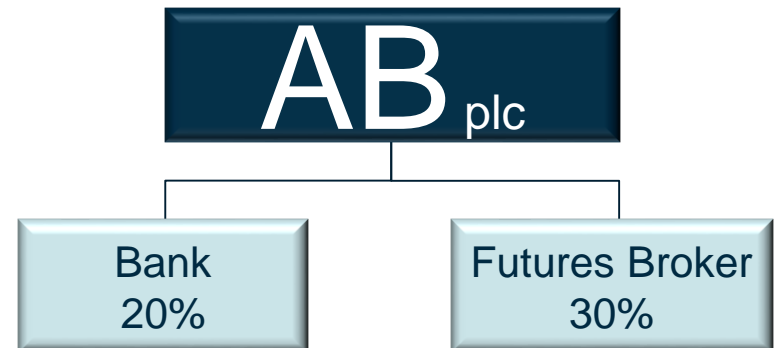
- 25% probability credit research analysts will make an incorrect judgement
- Loss given default for a Chilean counterparty is assumed to be 50%
- Limit the impact of default to 0.25% of the NAV
- **Maximum exposure**
 - Chilean counterparty: 2% of NAV





UCITS Counterparty Risk

- Diversification of credit risk
- Exposure limits a function of counterparty and instrument
 - Highest limit: 20% of NAV
 - Limit applies to a group of counterparties under common control
- Exposures that don't count
 - Exchange traded derivatives
 - Omnibus v Segregated account





Credit Risk Monitoring





Conclusion





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Thank you for your attention

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