



Advanced Logic Analytics

Emotional Finance proof of concept: predicting firm expected returns and cost of capital using emotional finance

Outline

Emotional Finance is an emerging field which combines finance, psychology and statistics to provide unique insights into market and investor behaviour by understanding the powerful unconscious processes and wish-fulfilling fantasies that play a key role in driving all financial decisions.

Emotional Finance shows how investors have a (largely unconscious) emotional relationship with the stocks they invest in which helps drive, *inter alia*, their cost of capital (future expected return), and market valuations more generally. Drawing on this important understanding many years of research at Warwick Business School, Edinburgh University and elsewhere has resulted in algorithms and statistical models which can be used to forecast and explain asset prices and market dynamics.

Objectives

The purpose of this proof of concept is to demonstrate how the emotions stocks evoke with investors, both conscious and unconscious, can be unobtrusively measured using big data analytics and employed to help predict firms' cost of capital in a particular sector. Particular focus will be placed on identifying mispriced "concept" stocks.

There will be a consolidation of relevant news and other data sources, and the application and tuning of the Emotional Finance algorithms and predictive models using historical data. After back-testing, the models will be applied for forwards predictive capability in a live trial.

Visualisations will be produced to show the changes in emotional dimensions over time and how these signals relate to future cost of capital, market pricing and underlying fair value.

Project outline

- Week 1: Scoping and statement of work, selecting target sector and companies
- Weeks 2-3: Sourcing and consolidation of news and other relevant data
- Weeks 4-8: Application and tuning of existing algorithms and predictive models
- Weeks 9-10: Back-testing and further tuning
- Weeks 11-12: Forward testing of final model and presentation of results with visualisations

Working team: Dr Vineet Agarwal, Dr Arman Eshraghi, Professor Richard Taffler and a data scientist

Indicative timescale: 3 months

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