Social Media Analytics for Stock Market – An Actuary’s Perspective

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Social Media Analytics for Stock Market - An Actuary’s Perspective

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.
Businesses Undergoing Significant Change

Changing Customer Expectations

The Explosion of Data

Changing Risks

Transition in the Workforce

TECHNOLOGY AND LARGE VOLUMES OF DATA TRANSFORMING BUSINESS
Drivers of Change – Data Science and AI
Data Science and Analytics – A necessity

Experiment required → Hypothesis

A day in the life of a Data Scientist
Social Media – An Ocean of Unstructured Data
Social Media Analytics – Driving Insights
Understanding Market Sentiment
Market Sentiment Cycle
Emotional Analysis – Social Media Data

Source: Shawn Meachem, West Salem, Youtube
Twitter reveals Market Sentiments

According to a study released this month from Indiana University, it is actually possible to use Twitter to determine the public mood, which in turn can help predict the ebb and flow of the stock market.
Platforms following tweets vs stock correlation
Twitter Emotion and Sentiment Analysis

![Diagram of Twitter Emotion and Sentiment Analysis]

- Tweets
  - Naïve Classifier
    - +ve
      - Bullishness
      - Message Volume
      - Agreement
    - -ve
- DJIA + NASDAQ-100 + 13 Companies
  - Normalization
    - Returns
    - Volatility
    - Trading Volume
    - Index Close Price daily
- Analysis
  - Corr
    - Value of Pearson ‘r’
  - Granger
    - F-statistic: p-values
  - EMMS
    - R-square and MAPE
  - Forecast performance
    - R for different time windows.
The Z-scores of DJIA Index correlates with the Z – scores of Calm mood Twitter index observed for a period of 3 months in US

Source: Indiana University
Twitter Sentiment Analytics for Stock Market
Real life CASE study

Fintech firm in Australia uses Twitter Sentiment Index comparing with other stock selection metrics for Portfolio Management by Small Cap fund Managers
# Actuarial Analytics for Social Media

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Bringing Actuarial Knowledge to new domain
Actuaries as Data Scientists OR BUSINESS SCIENTISTS

Programming & data manipulation

Coding skills

Maths & Stats

Business Knowledge

Understanding Algorithms and Validation framework

Business Knowledge + company data
Are Actuaries Ready – The required Skillset

Programming & data manipulation

Understanding Algorithms and Validation framework

Let Machines do the coding
Actuaries collaborating with other professionals

Business Knowledge + company data

Coding skills
Maths & Stats
Business Knowledge
Transforming the Actuarial Profession - IFOA

• Curriculum change bringing it closer to Broader Data Science skillset
  • CT Series transformed to Core Business, Core Statistics and Core Modeling
  • R programming integral part of syllabus across all the Actuarial Associations

• Introduction of various roles for Actuaries besides Fellowship
  • Chartered Actuary (for Associates as Generalists)
  • Chartered Enterprise Risk Actuary (CERA- risk related roles)
  • Certified Actuarial Analysts (CAA - at entry level)
Initiatives of the Actuarial Associations Worldwide

- International Actuarial Association - Big Data Working Party
- Institute and Faculty of Actuaries - MAID Working Party
- Institute of Actuaries of India - Wider Area Working Party
- Actuarial Society of South Africa - Business Intelligence forum
- Canadian Institute of Actuaries - Predictive Modeling Committee
- Casualty Actuarial Society - New Qualification CSPA
- Institute of Actuaries of France - Big Data Committee
The Road Ahead

• Data Science, Artificial Intelligence, Machine Learning, Internet of things and Social Media represents a major opportunity for the actuarial profession

• Actuaries and aspiring actuaries should explore and venture into newer fields

• Co-operation between different actuarial associations will enable the profession to make the most of the opportunity otherwise we may become marginalized
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