



PREDICT STOCK MARKET DELISTING IN INDIA

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INTRODUCTION



MOTIVATION

- An epidemic in emerging economies
- Investor and Mutual Fund Perspective
- Lack of stringent regulation
- Emerging market volatility

REASONS FOR DELISTING

- Bankruptcy/Financial Distress
- Failure to comply with Regulations
- Possible Fraud (shell companies)
- Privatize to retain profits



**BSE delists 222 companies from today, 4 July 2018;
check full list here**



By: FE Online | Published: July 4, 2018 9:29 AM

BSE 222 companies delisting: India's biggest stock exchange in terms of total listed companies BSE (Bombay Stock Exchange) has delisted as many as 222 companies from its platform with effect from today, 4 July 2018.

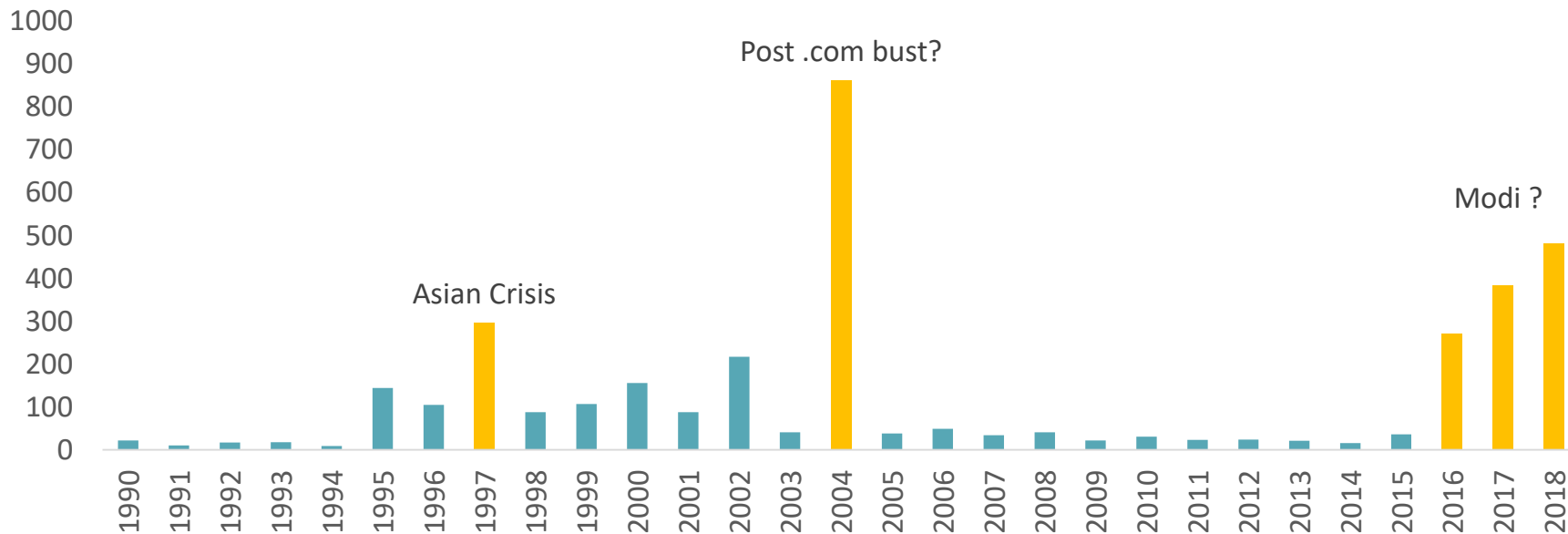
Advertisement



~ 8000 listings in total
~ 4200 currently listed
~ 1000 delisted in last 3 years
Data not available for all delisted
company

DELISTING PATTERN

Number of companies that delist each year?



DATA



Source

Constructed Dataset

Prowess Dx, India

Companies from NSE,
BSE

Features

Financial Statement

Net Income, sales, assets,
liabilities ...

Stock Market Data

Market Capitalization
Earnings per share ...

Structure

Listed Companies

2017 data

Delisted Companies

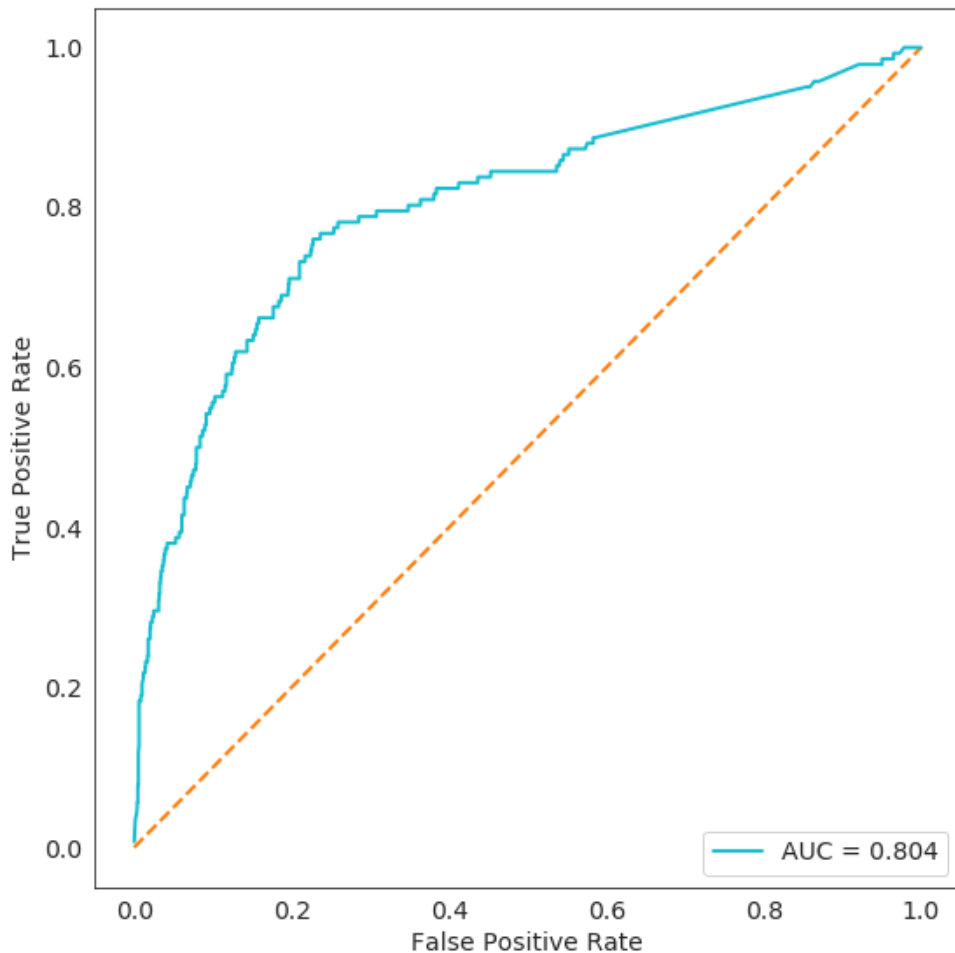
2015 onwards

Last known data before
delisting

92 Features



■ Delisted ■ Listed



BEST MODEL

Train-test-split

Impute - Mean

Balance Data - SMOTE

Scaler - No

Principle Component Analysis- No

Random Forest

N-Estimator = 25

Max Leaf Node = 41

Max Depth = 7

ASSIST IN PICKING SAFE STOCK

- Threshold = 0.15
- Precision Listed = 97%
- Recall Delisted = 80%

	Precision	Recall
Listed (0)	97%	67%
Delisted (1)	21%	80%

Created a Flask Application using 2018 data to predict the future

RESULTS

The screenshot shows a web browser window with the title 'Crystalball'. The address bar displays '127.0.0.1:5000'. The page content is titled 'View delisting prediction for Companies'. Below the title, there is a text input field labeled 'Company name' and a blue 'Submit' button. Underneath the input field, there is a table with three columns: 'Company Name', 'Delist prediction', and 'Probability of delisting'. The table is currently empty.

MARKET RESEARCH

Company Name

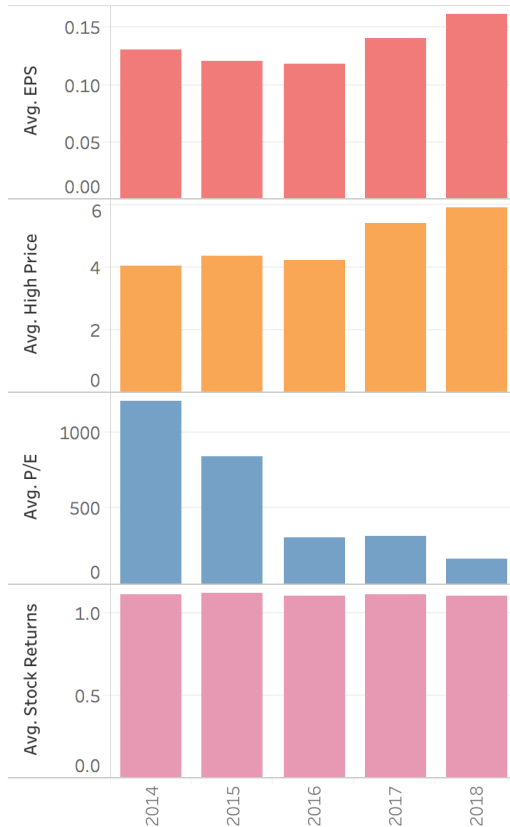
INFOSYS LTD.

TABLEAU DASHBOARD

INFOSYS LTD.



MARKET AVERAGE



CONCLUSION



FUTURE WORK

Other Stock Exchanges

Add Macro-economic features

Model different reasons for delisting separately

Altman's Z-Score Predictor

The background of the image is a dark blue grid filled with white financial data, including stock prices and indices. A white line graph with square markers is overlaid on the data. An orange rectangular box with a slight drop shadow is positioned on the right side of the image, containing the text 'THANK YOU' in white, bold, sans-serif capital letters.

THANK YOU

TOOLS



Pandas, Sklearn, Matplotlib, SMOTE, PCA,
imblearn

Tableau, Jupyter Notebooks, Atom, PowerPoint

Flask, JavaScript, AJAX, HTML

METRICS AT THRESHOLD = 0.5



Confusion Matrix

	Predicted (0)	Predicted (1)
Actual (0)	1153	136
Actual (1)	64	78

Classification Report

	Precision	Recall	F1-score	Support
Listed (0)	95%	89%	92%	1289
Delisted (1)	36%	55%	44%	1431

METRICS AT THRESHOLD = 0.15



Confusion Matrix

	Predicted (0)	Predicted(1)
Actual (0)	860	429
Actual(1)	28	114

Classification Report

	Precision	Recall	F1-score	Support
Listed (0)	97%	67%	79%	1289
Delisted (1)	21%	80%	33%	1431