Finding your *Golden* Opportunity in Australia

AlphaGold.

TEAM

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EXECUTIVE SUMMARY

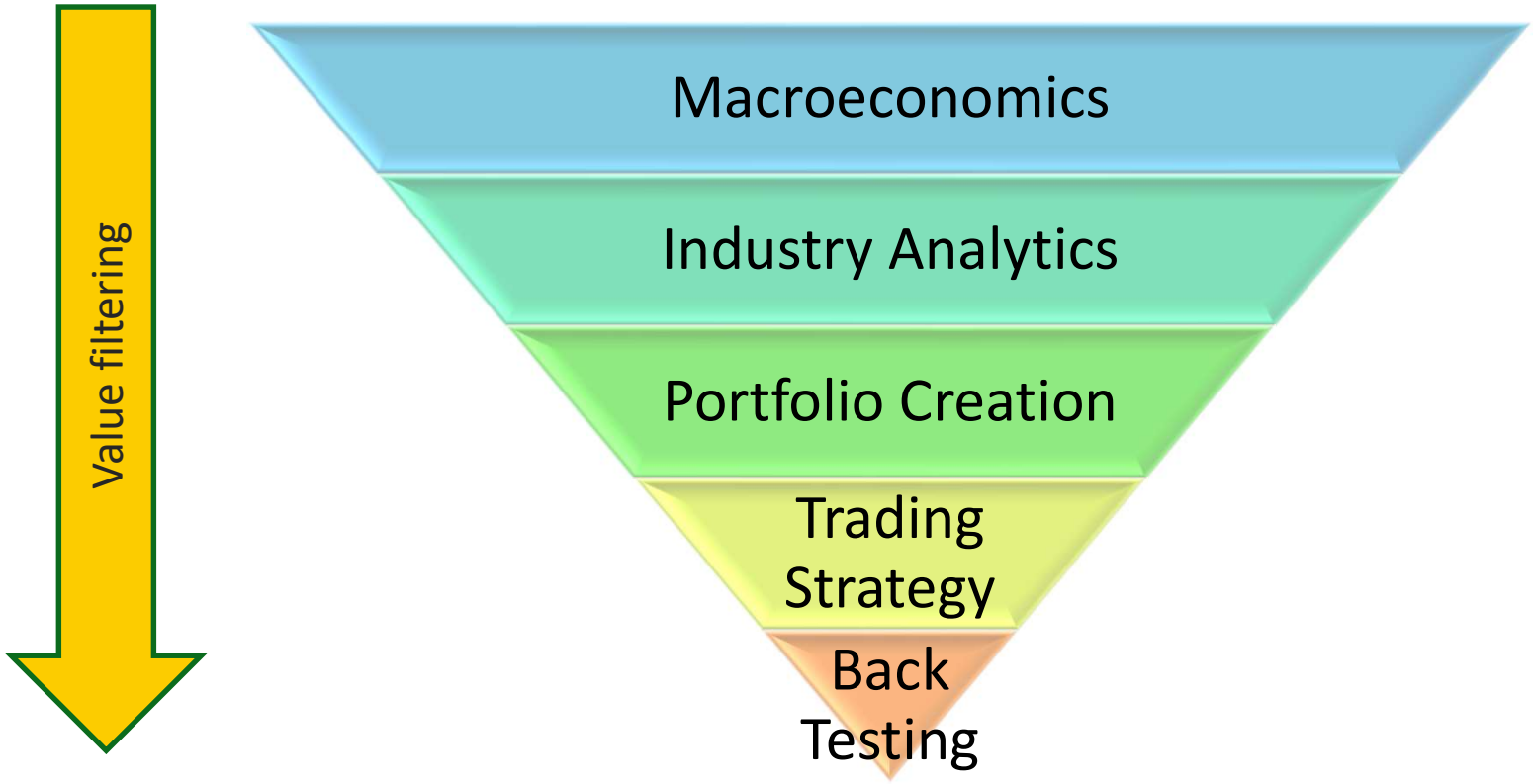
" AlphaGold Team has looked at Australia from macroeconomics to back tested investment strategy"

" LEARNT AUSTRALIAN GOLD!!"

PROBLEM

Investing is not Myopic – we need to look at the big picture first

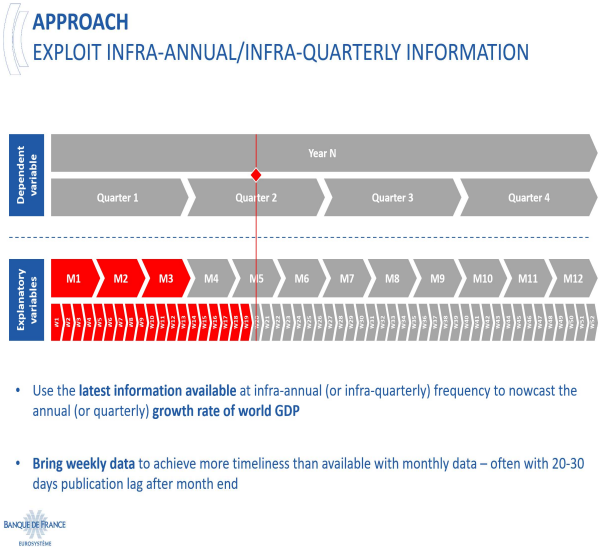
End To End Approach



Macroeconomics

Nowcasting

- Nowcasting in economics is the prediction of the present, the very near future, and the very recent past state of an economic indicator.
- The term is a contraction of "now" and "forecasting" and originates in meteorology.
- It has recently become popular in economics as typical measures used to assess the state of an economy (e.g., gross domestic product (GDP)), are only determined after a long delay and are subject to revision.
- Nowcasting models have been applied most notably in Central Banks, who use the estimates to monitor the state of the economy in real-time as a proxy for official measures.



Nowcasting Example

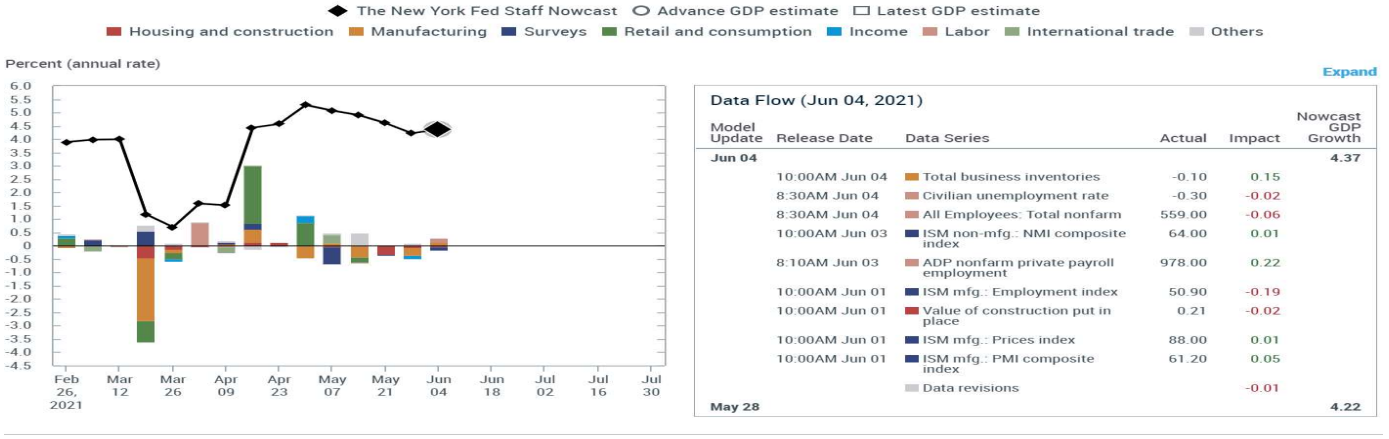
Jun 04, 2021: New York Fed Staff Nowcast

- The New York Fed Staff Nowcast stands at 4.4% for 2021:Q2 and 5.4% for 2021:Q3.
- News from this week's data releases increased the nowcast for 2021:Q2 by 0.2 percentage point and increased the nowcast for 2021:Q3 by 0.2 percentage point.
- Positive surprises from ADP employment and business inventories data accounted for most of the increase in both quarters.

2021:Q3 | **2021:Q2** | 2021:Q1 | 2020:Q4

Last Release 11:15am EST Jun 04, 2021

ARCHIVE DOWNLOADS LAYOUT



Expand

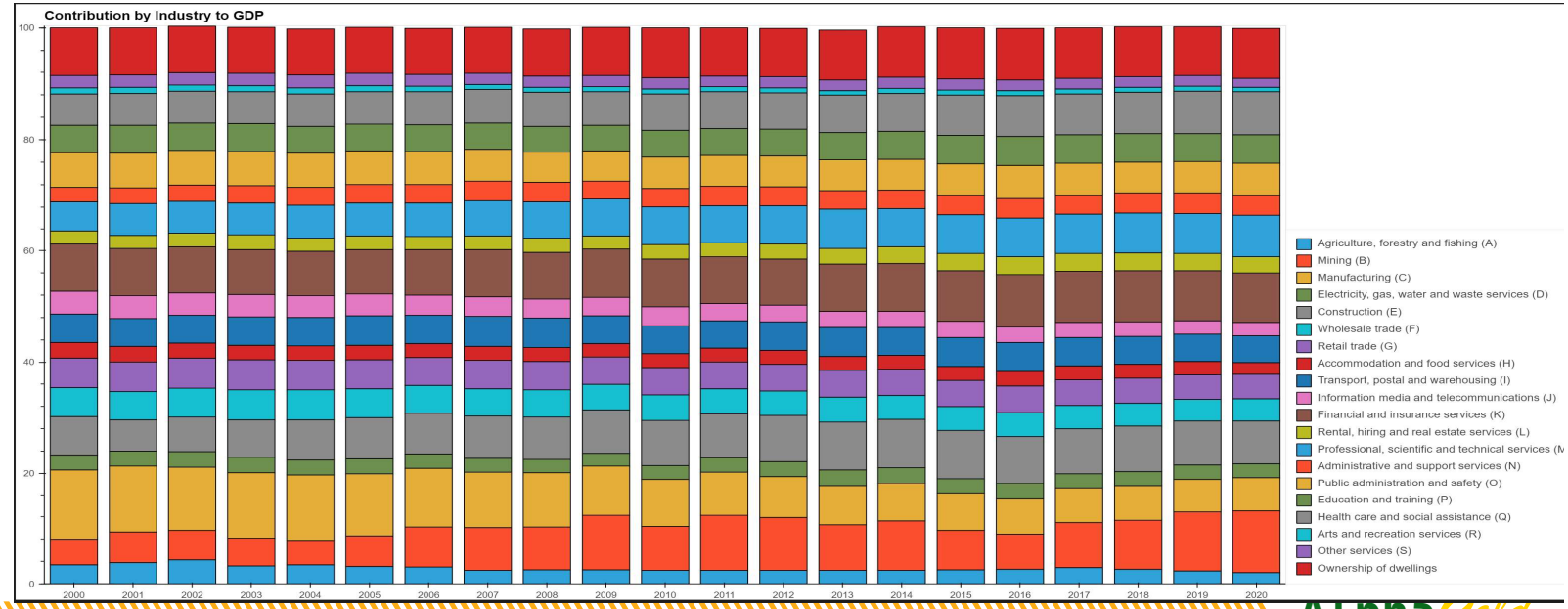
Data Flow (Jun 04, 2021)

Model Update	Release Date	Data Series	Actual	Impact	Nowcast GDP Growth
Jun 04					**4.37**
	10:00AM Jun 04	Total business inventories	-0.10	0.15	
	8:30AM Jun 04	Civilian unemployment rate	-0.30	-0.02	
	8:30AM Jun 04	All Employees: Total nonfarm	559.00	-0.06	
	10:00AM Jun 03	ISM non-mfg.: NMI composite index	64.00	0.01	
	8:10AM Jun 03	ADP nonfarm private payroll employment	978.00	0.22	
	10:00AM Jun 01	ISM mfg.: Employment index	50.90	-0.19	
	10:00AM Jun 01	Value of construction put in place	0.21	-0.02	
	10:00AM Jun 01	ISM mfg.: Prices index	88.00	0.01	
	10:00AM Jun 01	ISM mfg.: PMI composite index	61.20	0.05	
		Data revisions		-0.01	
May 28					**4.22**

https://www.newyorkfed.org/research/policy/nowcast

Industry Analytics

Having looked at the GDP, we know look at each industry contribution to the GDP and shortlist higher impact industries. This also assists in economic downturn impact analysis . These industries are mapped to the sector in ASX50 and the stocks are grouped.



Portfolio Creation

There are multiple portfolio stock selection strategies, but we have focused on two

Clustering algorithm based to ensure that all eggs are not in one basket.

Kmeans based Heuristic model

Ratio-Based selection of stocks based on the top industry ratios

- Sharpe
- Common Sense Ratio
- Conditional Value At Risk
- Expected Return
- Kelly Criterion
- Kurtosis
- Volatility
- Avg Return
- Risk Ruin
- Sortino
- Volatility
- Profit Factor

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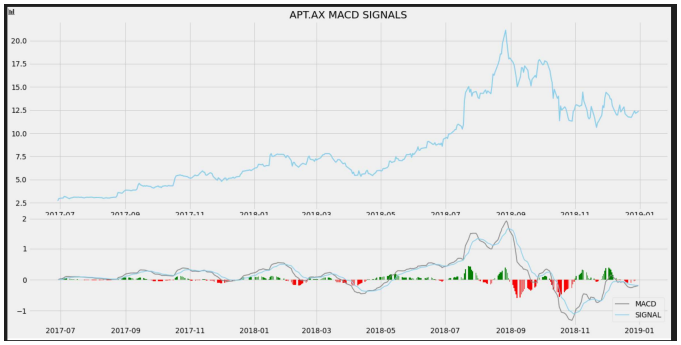
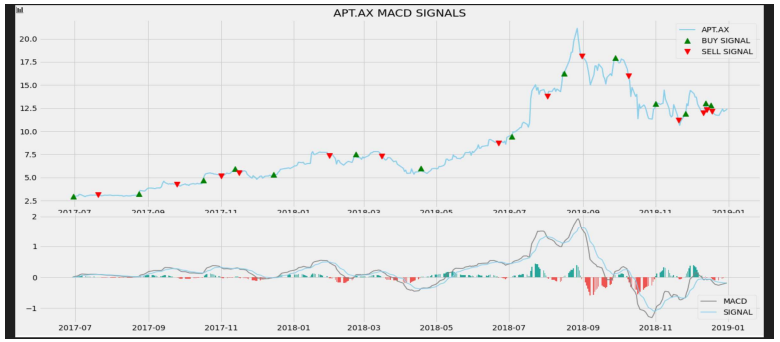
Trading Strategy

The strategy is to buy – or close a short position – when the MACD crosses above the zero line, and sell – or close a long position – when the MACD crosses below the zero line. This method should be used carefully, as the delayed nature means that fast, choppy markets would often see the signals issued too late.

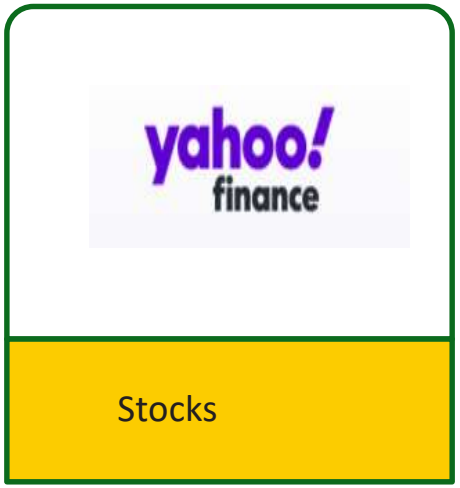




Data Used


OECD
Macroeconomics


AUSTRALIA
Australian Bureau of Statistics
Industry


yahoo! finance
Stocks

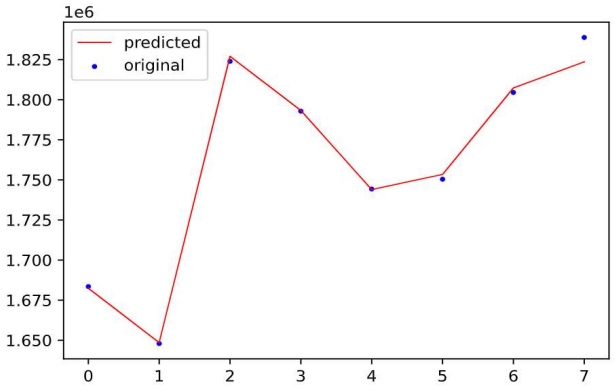
Machine Learning

- We tried multiple models and GDP forecasting was the toughest.
- We found KNN to fit well based on the macroeconomics information but it requires a load of all the X parameters which in macroeconomics come with varying timeframes
- We thus settled for DynamicFactorMQ model

- We Kmeans to cluster stocks.
- We did not have to estimate the centroid as we know that an optimal portfolio includes a maximum of 8 stocks (8 clusters)

Conclusion

- Difficulties
  - Volume of data
  - Metadata and data separate – requiring cross referencing
  - Data with different metrics and release frequency
  - Trial and Error on models and fit
  - Stock data needed cleaning as BNPL stocks listed later
  - We looked at Neural Network based trading agents but were consumed by the complexity
- Limitations
  - Pytorch and Cuda crash the machine
  - We tried FB prophet but library dependencies caused other code to not work
- The good
  - Google colab helped with GDP model trials
  - A lot of in depth understanding of our country



KNN did predict well! - but for next prediction needs all indicators which are released differently

OECD Main Economic Indicators (MEI)

Get real-time data

Our data are updated on a daily basis.

- Balance of payments
- Business tendency and consumer opinion surveys
- Composite leading indicators (updated once a month: release dates)
- Financial statistics (exchange rates, interest rates, monetary aggregates,...)
- Industry (orders, production, sales, work started,...)
- International trade (imports, exports, trade balance)
- Labour market statistics (unemployment rate, employment, active population by age,...)
- Consumer price indices (inflation rate, ...)
- Producer price indices
- Purchasing power parities (PPP)
- Comparative price level (updated once a month: release dates)
- Quarterly national accounts (GDP, GDP growth rates,...)

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