2020 Citi Global Markets Challenge

Perth Power Brokers

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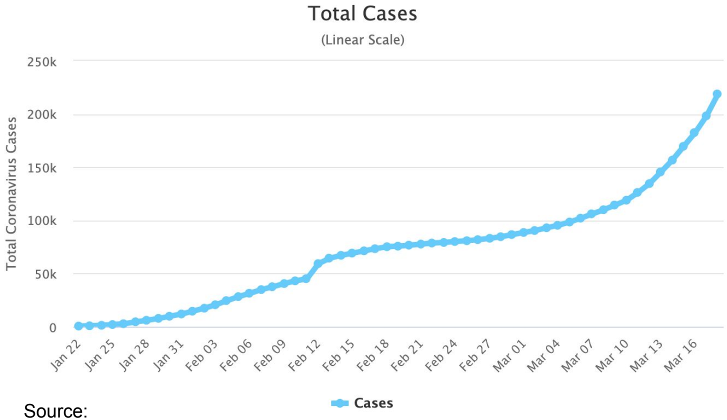
Diversity

- Different Learning Styles: Kinesthetic, Visual, Auditory
- Degrees: Software, Chemical and Mechanical Engineering, as well as Finance & Economics degrees allow our group to have a broad knowledge base.
  - Economics students allow to determine macro and micro factors whilst finance students could complement this with security analysis.
  - Engineering backgrounds help provide a logical and mathematical approach to viewing the market.

Market Conditions

- COVID-19's rapid spread across the globe has shocked global markets into a swift downturn, causing public panic and crippling markets.
- Reserve Banks and Governments raced to combat the falling market with monetary and fiscal policy stimulus packages.
- Fundamentally, the virus has kept the workforce at home, as well as putting immense strain on the health systems.
    - It is for these reasons, as well as the snowballing panic, that we believe the market is taking such a big hit.
- Therefore, the speed of a market rebound will depend on how quickly workforces can be back at full capacity and how effectively we are able to treat the virus heading forwards.

Global COVID-19 Cases Over Time



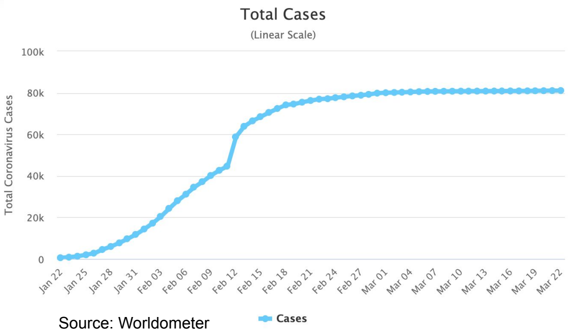
Source: https://www.worldometers.info/coronavirus/coronavirus-cases/

Business Cycle

- Many economic indicators are lagging indicators ar are not yet applicable (e.g. economic growth & labo force statistics).
- Equity markets are a leading indicator and will represent the damage to the economy that will be revealed in time, to a certain extent.
  - Panic, among other factors, can cause the equity markets to overreact.
- We believe the global economy is in the early recession stage, due to lagging indicators (e.g. economic growth, unemployment) still showing economic growth.
  - Economic downturn will be swift, true economic recovery slow.

Market Rebound

- COVID-19 infection rates have plateaued throughout China and south-east Asia, indicating these economies are past the worst phase of the pandemic.
    - Note: the accuracy of the statistics can be in question due to the nature of the Chinese Political Environment.



Source: Worldometer

- Canadian scientists could possibly be on the verge of a breakthrough as they go through preliminary testing phases for a COVID-19 cure.

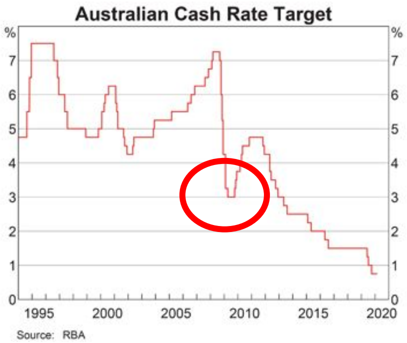
- The above two factors could well be catalysts for a swift market rebound, however rely on the accuracy of the reports, the results of the cure testing and the existing damage to markets.

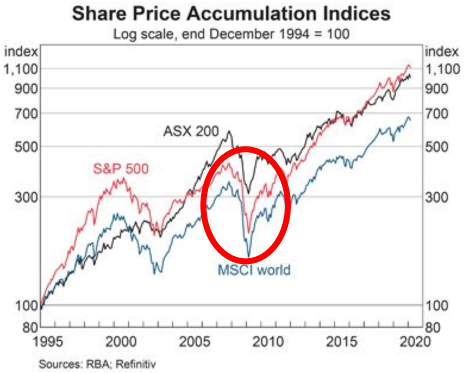
Central Banks' Response

US Federal Reserve Cash Rate Targets

Date	Increase	Decrease	Level (%)
March 16	0	100	0-0.25
March 3	0	50	1.00-1.25

Source: US Federal Reserve





- Monetary stimulus contributed to the global market rebound after the GFC.

- Central banks across the globe have cut cash rates in an attempt to stimulate the economy.
  - Australia: Recent rate cut to target 0.25%.
  - USA: Target range 0-0.25%
  - China: Cut bank reserve requirements, freeing up more liquidity for banks.
  - EU: Remains at a target 0%.
  - Japan: Target -0.10%.
  - India: Remains at 5.15%, no cut made.
- Bank action between USA, Canada, EU, Japan, England and Switzerland to increase US dollar liquidity.

Our Outlook

- Some way to go before it reaches its trough.
- Initial, sudden rebound, sustainability in question.
  - Very high volatility we think is the result of investors looking for a market rebound and ready to try and capitalise.
  - NYSE composite index shows 5 year low as investors withdraw capital from the market.
- China's economy can be used to illustrate this idea.

NYSE Composite index (5 Yr)

Source: Yahoo Finance

Strategy

Due to such extreme economic conditions, our market analysis will primarily focus on macroeconomic factors, as we feel the market conditions throughout the next six months will be determined by the impact of COVID-19 on the global economy.

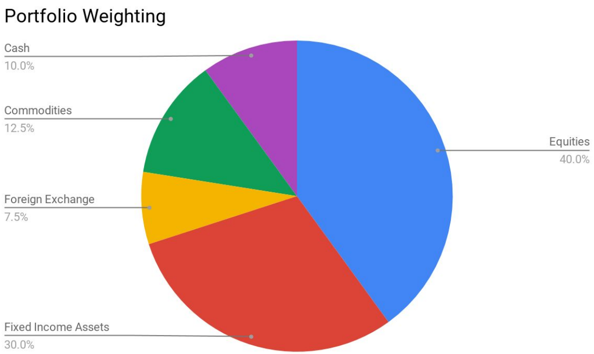
1. Purchase capital over the next two months using a dollar-cost averaging scheme.

2. Hold our position, with rebalancing, over the next three months.

3. Gradually sell our short positions and partially sell long positions over the remaining month, as a way to mitigate risk of trying to pick the market peak. This will leave us in a greater cash position as we believe we will be faced with a long term recession.

Portfolio Breakdown

Asset Class	Specifics	Weighting
Equities (40%)	1. VOO ETF(S&P 500) 2. IWN ETF(Russell 2000) 3. Nikkei 225 ETF 4. Harvest CSI 300 ETF 5. IGV Tech Index 6. Dolby Laboratories (DLB) 7. Walt Disney Co. (DIS)	1. 10% 2. 5% 3. 7.5% 4. (10%) 5. 2.5% 6. 2% 7. 3%
Fixed Incomes (30%)	1. US Treasury Bonds 2. Philippines Govt. Bonds 3. Portugal Govt. Bonds	1. 17.5% 2. 7.5% 3. 5%
Cash	Cash at Bank	10%
Foreign Exchange	Long Czech Koruna	7.5%
Commodities	Short Oil	(12.5%)



Fixed Income: Emerging Markets

Sovereign bonds

- relatively low risk
- chosen countries displaying low chances of default
- diversified to mitigate this risk.

Futures to curb FX risk

Short term length

Philippines and Portugal

- Strong growth and high yields
- Likely improvement in credit ratings

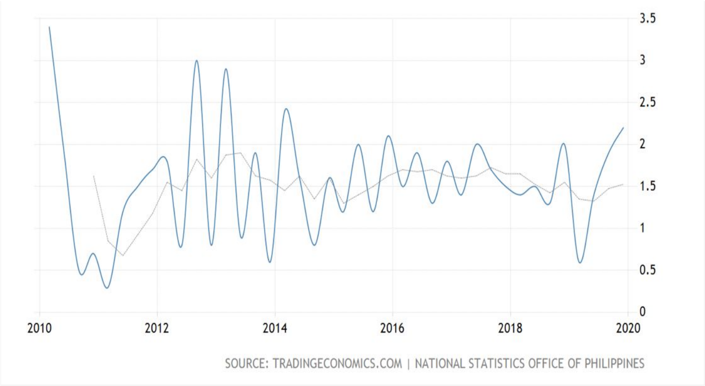
Fixed Income: Emerging Market Bonds

Chosen countries without a major political risks and hidden debt issues

Analysed

- Government debt
- GDP growth

Philippines GDP Growth



Portugal GDP Growth

Fixed Income: Developed Markets

- Dovish
- interest rate cuts, steepening the yield curve and increasing the spread
- initial recession → future strong economic growth
- Look to hold for next 3 to 6 months whilst interest rates remain/drop.

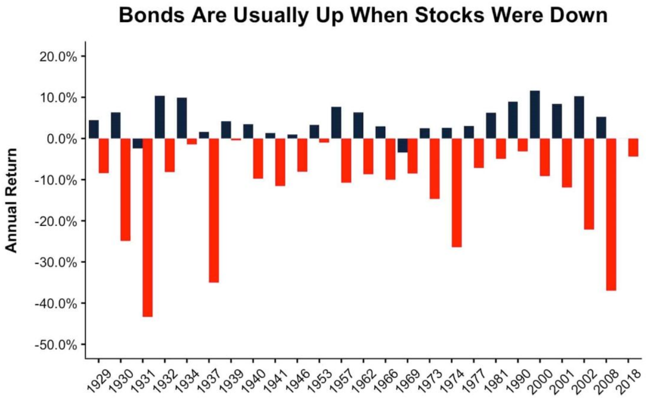
Strategy (6 Months) - iShares Short Treasury Bond ETF

- DCA to staggered maturity: improved liquidity, reduced interest rate risk.
- 30% bond position whilst interest rates are cut further/remain low
- Purchase shares in the future if there is a change in market sentiment.
- Futures to curb FX risk

Fixed Income: Developed Market Bonds

Bond's tend to perform well during periods of corrections

Government stimulus increasing bond price



Technology Index

Technologies Indexes have outperformed the market as of late

We believe it will continue to be the case:

- Tax cuts and subsidies will encourage more growth in this rapidly evolving sector
- Software side of tech will remain less affected by Covid-19, doesn't rely as heavily on manufacturing
- These stocks are trading at a discount and will return bullish sooner than other sectors
- Therefore we have gained a long position in iShares Expanded Tech-Software Sector ETF (IGV)

Global ETF's

- Long position in Xtrackers Nikkei 225 (NI225) on the Japan Exchange Group.
  - Track the largest 225 Japanese companies, giving us exposure to the japanese market, a developed market with sufficient funds, we see as a high chance of a short term rebound.
- Short position in the Xtrackers Harvest CSI 300 (ASHR) on the NYSE.
  - Tracks the Shanghai composite index, giving us exposure to the largest companies on the Shanghai Stock Exchange.
  - Shorting as we believe the Chinese market has already experienced the initial rebound and is now in a long term recession phase.
    - Leading indicator for the global economies.

NI225 (6 Months)

Source: Yahoo Finance

ASHR (6 months)

Source: Yahoo Finance

US ETF's

We have chosen ETF's which encompass a vast section of the US economy, as our strategy is almost entirely based on conditions in the economy as a whole.

1. Vanguard S&P 500 (VOO) on the NYSE, tracks the top 500 valued companies on US exchanges.

2. iShares Russell 2000 (IWM) on the NYSE, tracks 2000 smaller market cap stocks on the US exchanges, giving us exposure to the more volatile section of the market, which may experience the biggest initial rebound.

US securities

Disney

Down 18% this year, 32% in the last month

Beta of 1.04

Change of CEO

Disney+

P/E 16.8, a fall from 24.7

Currently valued at $94, but we expect it to be worth $150 (using DCF)

Dolby

Down 23% this year, 31% in the last month

Strong growth rates

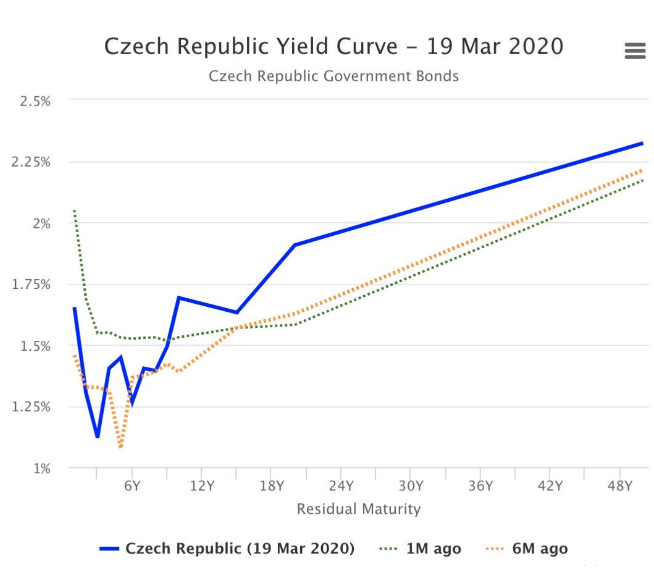
P/E of 24

Current Ratio of 4.77

Currently valued at $50, but we expect it to be worth $75 (using DCF)

Czech Koruna

- Long position in Czech Koruna against the USD.
- Yield curve for government bonds (A-rated) are inverted in short term, however in the long term the yield curve displays normal convexity.
  - We believe this could indicate the market is shifting for Czech government bonds, drawing in FDI and causing an appreciation in the Czech Koruna.
  - Central bank recently lowered rates to a target 1.75%, however still higher than many developed nations.



Source: http://www.worldgovernmentbonds.com/country/czech-republic/

Commodities – Oil

- We have decided to short Oil prices.
  - We see significant economic damage, specifically to the manufacturing sector in this case, which will lead to a decrease in demand for oil over the short term.
  - Saudi Arabian and Russian Oil suppliers continue to bolster supplies, which we cannot see changing in the short term, further pushing Oil prices downwards.

Oil Prices (YTD)

Source: Yahoo Finance

Risk Mitigation

- Long/Short position to hedge market risk
- Diversification across
  - Markets: Investing across US, AUS, Chinese, global markets and Japanese markets
  - Sectors: Exposure to index tracking funds for these major markets, meaning we have some exposure to a large diversity of industries. The Russell 2000 ETF gives us exposure to small-cap companies, giving us greater exposure to an even broader range of industries.
  - Asset Classes: Portfolio
- Intermittent rebalancing of Portfolio

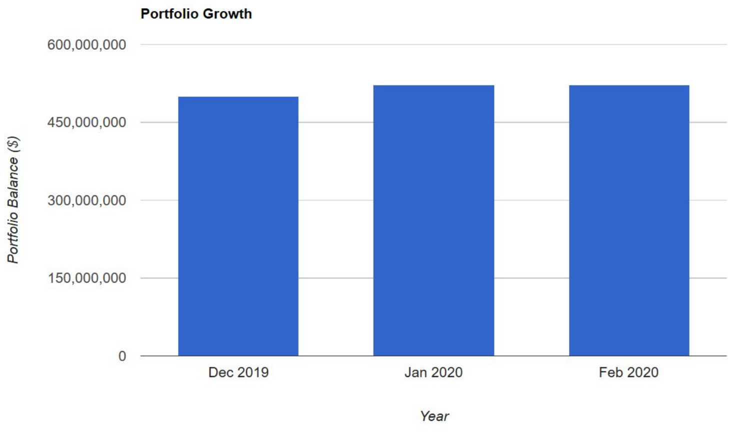
Portfolio Rebalancing

- Threshold-based rebalancing
- Rebalance to our weightings every 2% divergent change from weightings
- Due to the volatile nature of the current market
- Excess cash is also available for rebalancing the portfolio whenever necessary.

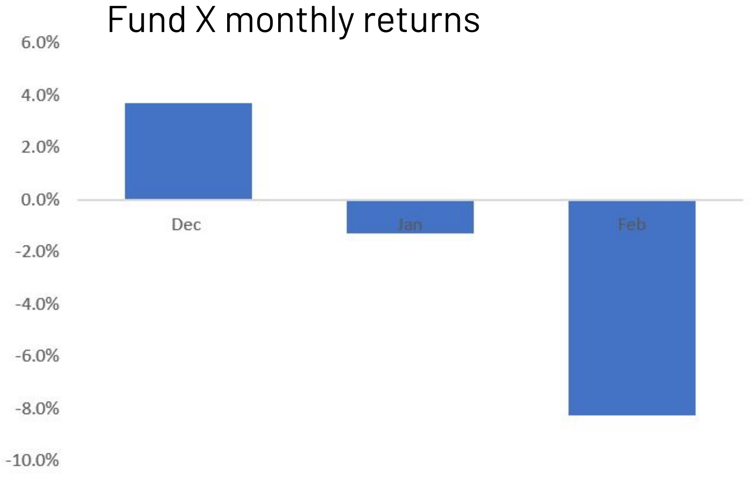
Portfolio Performance

Backtest strategy

- YTD, as our portfolio relies on the current market conditions. Fund X had a -20% return YTD, whilst our portfolio has seen a 4.41% return over the same period



Initial Balance	Final Balance	Return
$500,000,000	$522,044,569	4.41%




Busi
Biggest riser
NMC Health
1557½p
Dow Jones
FTSE 250
FTSE All Share

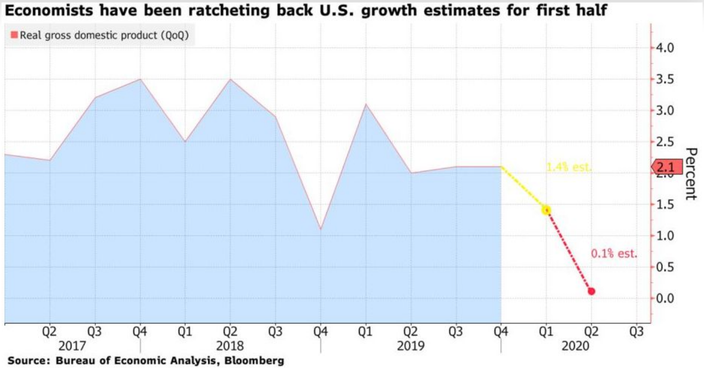
Appendix

Key Assumptions

1. CPI remains fairly constant ~2%.
2. Stock Exchanges will continue to trade through virus.

US Economic Growth

- Model shows prediction for future US growth, taking the economic growth lagging indicator and creating a prediction for the present and future.



Peoples Bank of China Response

Source: http://www.pbc.gov.cn/en/3688110/3688172/3990507/index.html (People's Bank of China)

- Required reserve ratio (RRR) to be cut by RMB550 billion.
  - Intended to lower actual lending rates for small to moderate sized businesses.

PBC RRR (1 Year) Note: Updated Monthly

Chinese Interest Rates (1 Year)

US Dollar Liquidity

- EU, USA, Canada, Switzerland, Japan, England combined to increase US dollar liquidity.
- All central banks to offer weekly US dollar operations with 84-day maturity.
  - Effective March 16.
  - Up from existing one-week maturity operations.
- Lower swap rates (to overnight index swap rate (OIS) + 25bps).

Source: European Central Bank, Federal Reserve.

Volatility

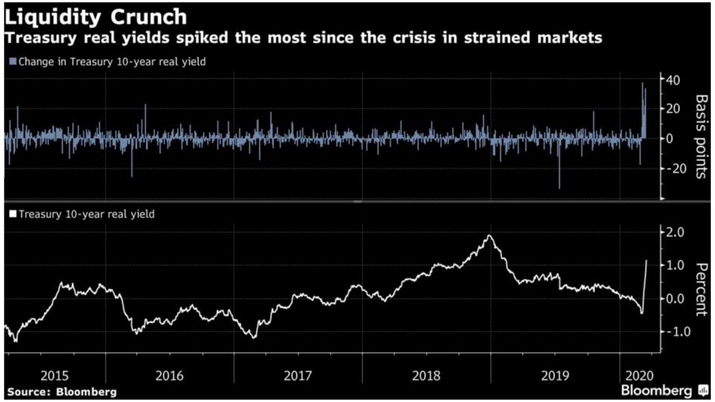
Volatility indexes on Chicago Board Options Exchange.

S&P 500: (3 Months)

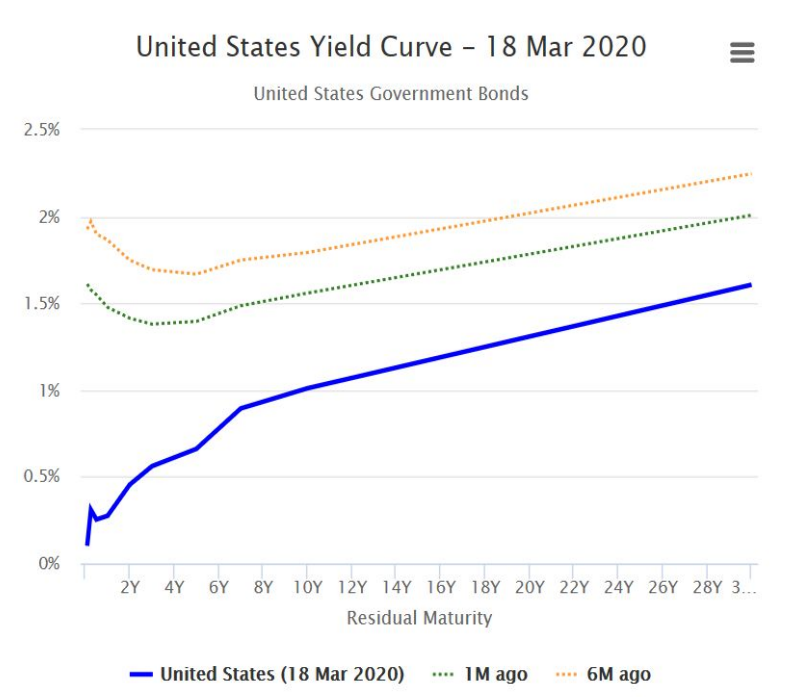
- Aggregates weighted prices of the S&P 500 and uses midpoints of real-time prices.
- Increase from ~ 14 in mid-Feb to ~83 as of mid-March.

Fixed Income: Developed Market Bonds (Appendix)

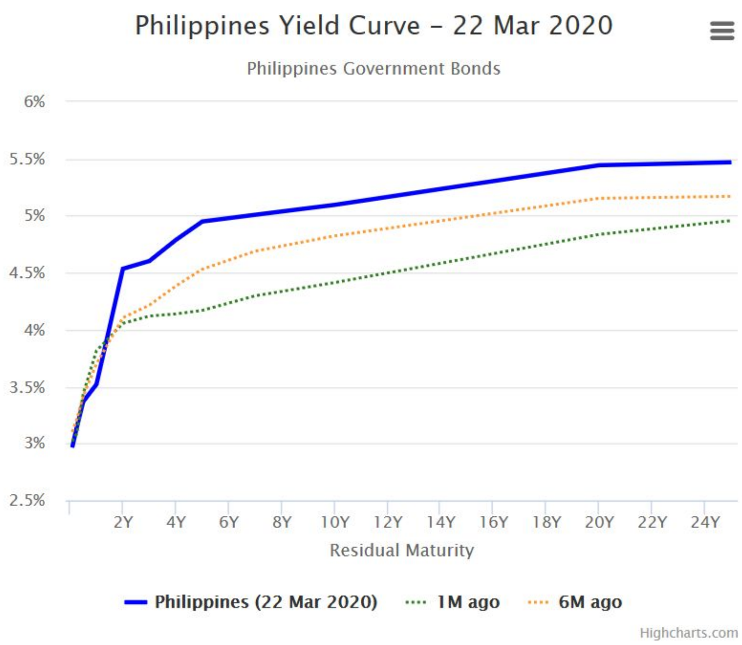
Expectations of government spending packages have driven yields higher

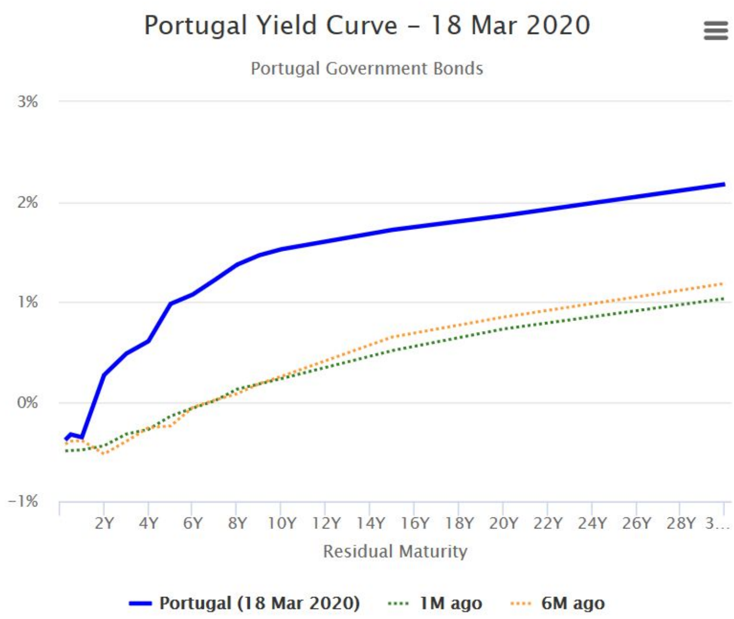


United States Yield Curves

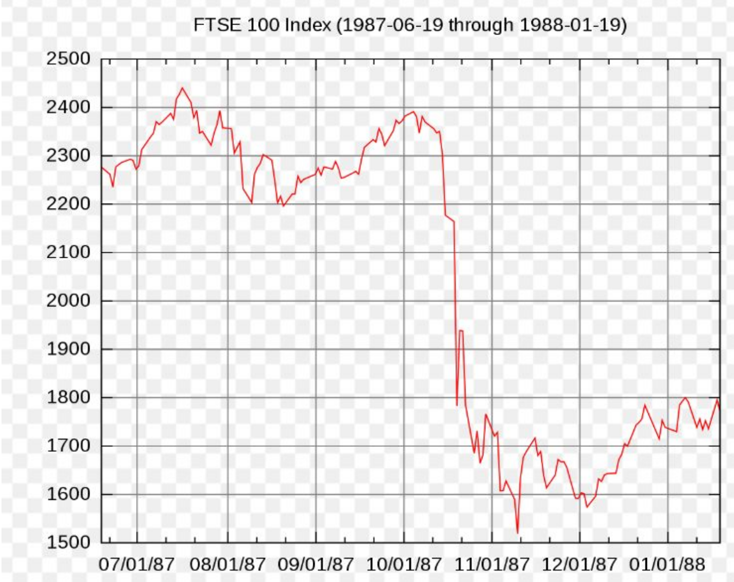


Portugal and Philippines Yield Curves

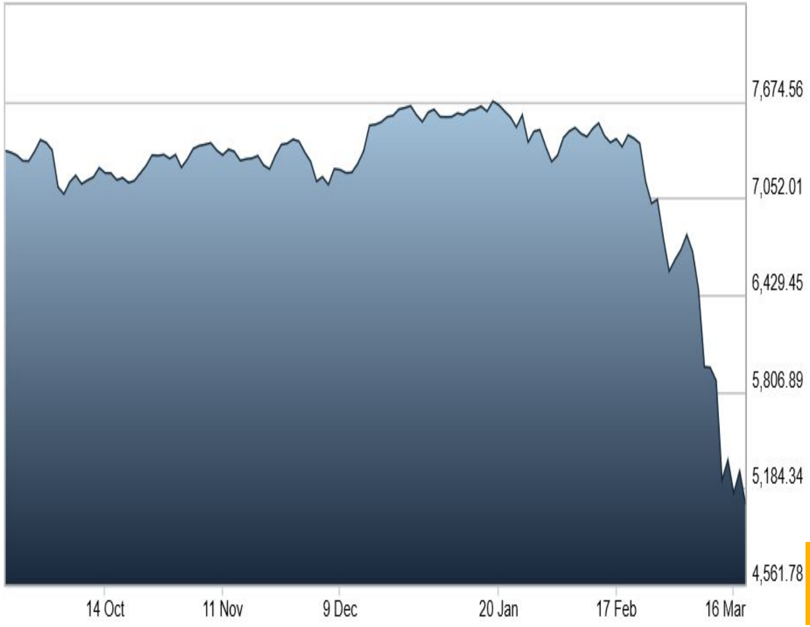




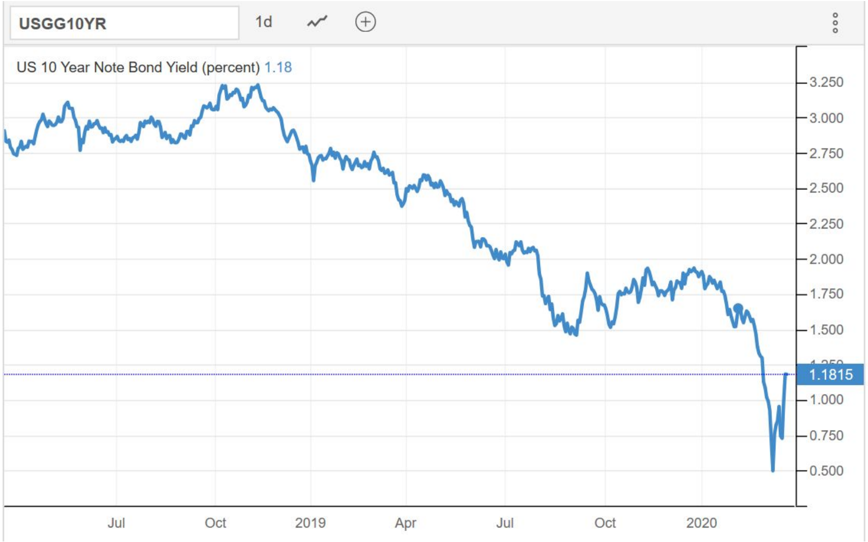
1987 Crash Similarity



FTSE 100 Index (Trailing 6 months)



US 10 Year Treasury Bond Yield



The United States Government Bond 10Y is expected to trade at 1.29 percent by the end of this quarter, according to Trading Economics global macro models and analysts expectations. Looking forward, we estimate it to trade at 1.42 in 12 months time.

Developed Market Bonds Outperform Emerging

Exhibit 1: Medium-Term Expected Real Returns for Liquid Asset Classes

Source: AQR, Consensus Economics, Bloomberg and Barclays. Estimates as of December 31,

Non-US Sovereign Bonds to see a negative return

Backtesting US Securities

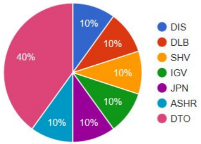
Assuming equal index weighting:

https://www.portfoliovisualizer.com/backtest-portfolio#analysisResults

Portfolio Allocations

Portfolio 1

Ticker	Name	Allocation
DIS	Walt Disney Company	10.00%
DLB	Dolby Laboratories	10.00%
SHV	iShares Short Treasury Bond ETF	10.00%
IGV	iShares Expanded Tech-Software Sect ETF	10.00%
JPN	Xtrackers Japan JPX-Nikkei 400 Eq ETF	10.00%
ASHR	Xtrackers Harvest CSI 300 China A ETF	10.00%
DTO	DB Crude Oil Double Short ETN	40.00%



Save portfolio »

Portfolio Returns

Portfolio	Initial Balance	Final Balance	CAGR	Stdev	Best Year	Worst Year	Max. Drawdown	Sharpe Ratio	Sortino Ratio	US Mkt Correlation
Portfolio 1	$500,000,000	$548,455,864	2.24%	19.63%	17.81%	-13.92%	-26.59%	0.14	0.23	-0.35