Contagious Margin Calls: How COVID-19 threathened global stock market liquidity

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Abstract

The COVID-19 pandemic has caused some of the largest — and fastest — market dislocations in modern history. Contemporaneous with the significant fall in equity market values is the evaporation of market liquidity. We show that transactions costs increase sharply in a coordinated fashion across global markets, with depth drying up almost overnight. The withdrawal of global liquidity suppliers is correlated with the increase of over 400% in margin requirements, driving a pro-cyclical downwards liquidity spiral. These effects are shown to be concentrated in securities most exposed to electronic liquidity provides, consistent with the binding nature of increased capital constraints.

Introduction

The Covid-19 crisis: Huge effect on the *level* of stock prices.
What about stock market *liquidity*?

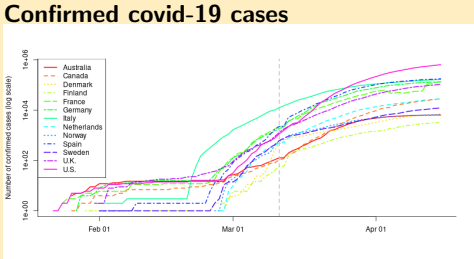
- What happened?
- Implications for stock market *functioning*?

Large western stock markets

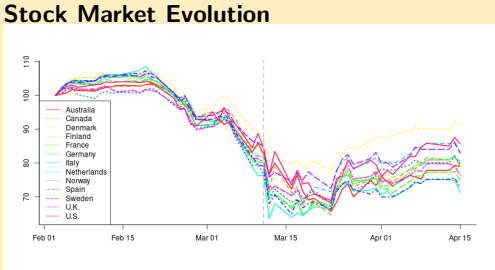
- Australia
- Canada
- Scandinavia (Den, Fin, Nor, Swe)
- Large EU countries (Ger, Fra, Ita, Spa, UK)

Covid-19 across the western world, early 2020

Confirmed covid-19 cases



Stock Market Evolution



Background - Financial Markets

- Economic importance of financial markets
  - Finance: Source of capital.
- What has happened to the worlds equity markets?
  - From manual markets to electronic markets.
  - Reliance on a few large "electronic liquidity providers" – (Virtuu, Citadel)

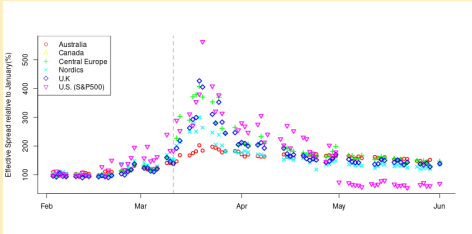
Background - Electronic Liquidity Providers

- Business Model:
  - "Earn the spread" – Brokerage.
  - "Arbitrage" – differences across markets.
  - "Scale" – be a large player in many markets.
  - "Hedge" – use derivatives markets offset risk.
- Method: Electronic *High Frequency Trading*
  - leave much of the decisions to *Algorithms*.
- Today: The world's financial markets rely on a few large ELP's.

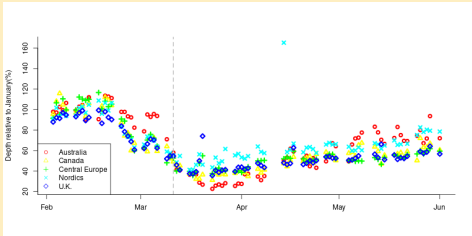
Is this a problem?

What happened to liquidity?

Effective spreads



Depths

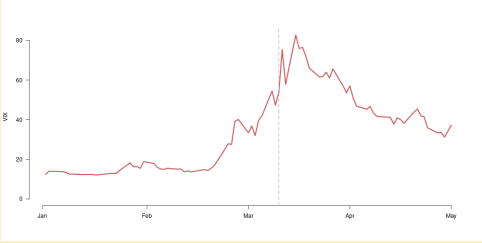


Potential causes of liquidity shock

The Four Horsepersons of the Financial Apocalypse

- **Death** – The number of cases of COVID-19.
- **Pandemic** – The March 11 declaration of a world-wide pandemic by the WHO.
- **Fear** – Volatility increases.
- **Regulation** Changes to regulatory costs for financial intermediaries – Margins.

Fear - Evolution of VIX



Liquidity differences in the crossection

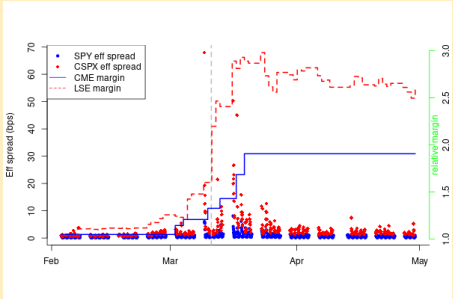
Of the four only *regulation* (margin change) has crossectional implications:

- Effect on stock market liquidity vary with the degree of leveraging/derivatives use.
- As ELP rely on hedging their trading, increased margins makes ELP more expensive.

→ look for link stock market liquidity and ELP presence.

Margin increase and liquidity of derivatives

- US Futures contract SPY also traded in the UK (CSPX).
- When UK margins worsen relative to US, liquidity of UK contract worsen



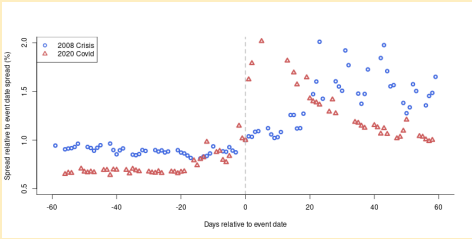
Crossectional investigation of equity liquidity

Testing the prediction: Liquidity should worsen relatively *more* for stocks with high ELP participation.

- Compare stocks in a country's primary index with non-index stocks.
- Difference-in-Difference.
- Result: Significant difference between index and non-index stocks.
- Consistent with margin requirements forcing ELP firms to pull back on liquidity provision.

Comparing COVID-19 to the 2008 crisis

Effective spread



Conclusion

The Covid-19 pandemic

- Negative shock to stock market liquidity
- Shock was largest for the most liquid stocks
  - Which are stocks with largest Electronic Limit Order participation in trading.
- Shock to liquidity much shorter than that of the 2008 Financial Crisis, in spite of stock prices not recovering as quickly.