

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

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## Abstract

The outbreak of the COVID-19 pandemic caused some of the largest — and fastest — market dislocations in modern history. During the outbreak, liquidity quickly evaporated in a coordinated fashion across global markets. We show a sudden increase in margin requirements during the pandemic is correlated with the withdrawal of global liquidity suppliers, driving a pro-cyclical downwards liquidity spiral. These effects are concentrated in securities most exposed to high frequency market makers, 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*?

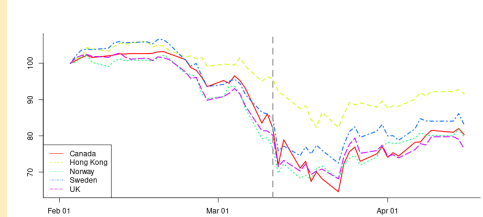
- What happened?
- Implications for stock market *functioning*?

### Large western stock markets

- Canada
- Hong Kong
- Scandinavia (Nor, Swe)
- UK

### Covid-19 across the western world, early 2020

#### Stock Market Evolution



### 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*.

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

- Dynamic margin changes → Liquidity spirals
- Differential exposure to margin usage

### Liquidity differences in the crosssection

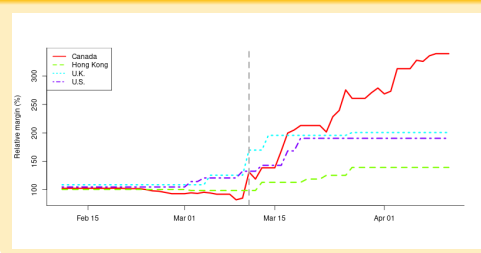
- Differential changes in margin across assets lead to differences in liquidity.
- Effect on stock market liquidity vary with the degree of leveraging/derivatives use.
- As ELP rely on hedging their trading, increased margins makes ELP more expensive.

### Crosssectional 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.

### Margin evolution - some examples



### 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.

### Liquidity Spirals



Brunnermeier and Pedersen (2009)  
Higher margin → lower liquidity → even higher margin → ...

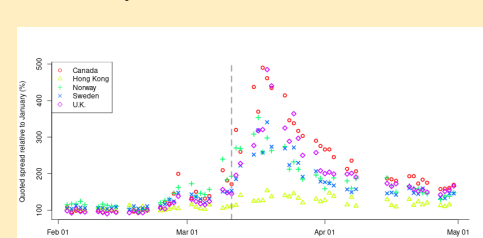
### Conclusion

The Covid-19 pandemic

- Differences in margin linked to differences in liquidity (SPY trading in the UK vs US.)
- Negative shock to stock market liquidity. Shock was worst for the most liquid stocks
  - ... which are stocks with largest Electronic Limit Order participation in trading.

### What happened to liquidity?

#### Effective spreads



### 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

