Bank of England

# Unintended Consequences of Holding Dollar Assets*

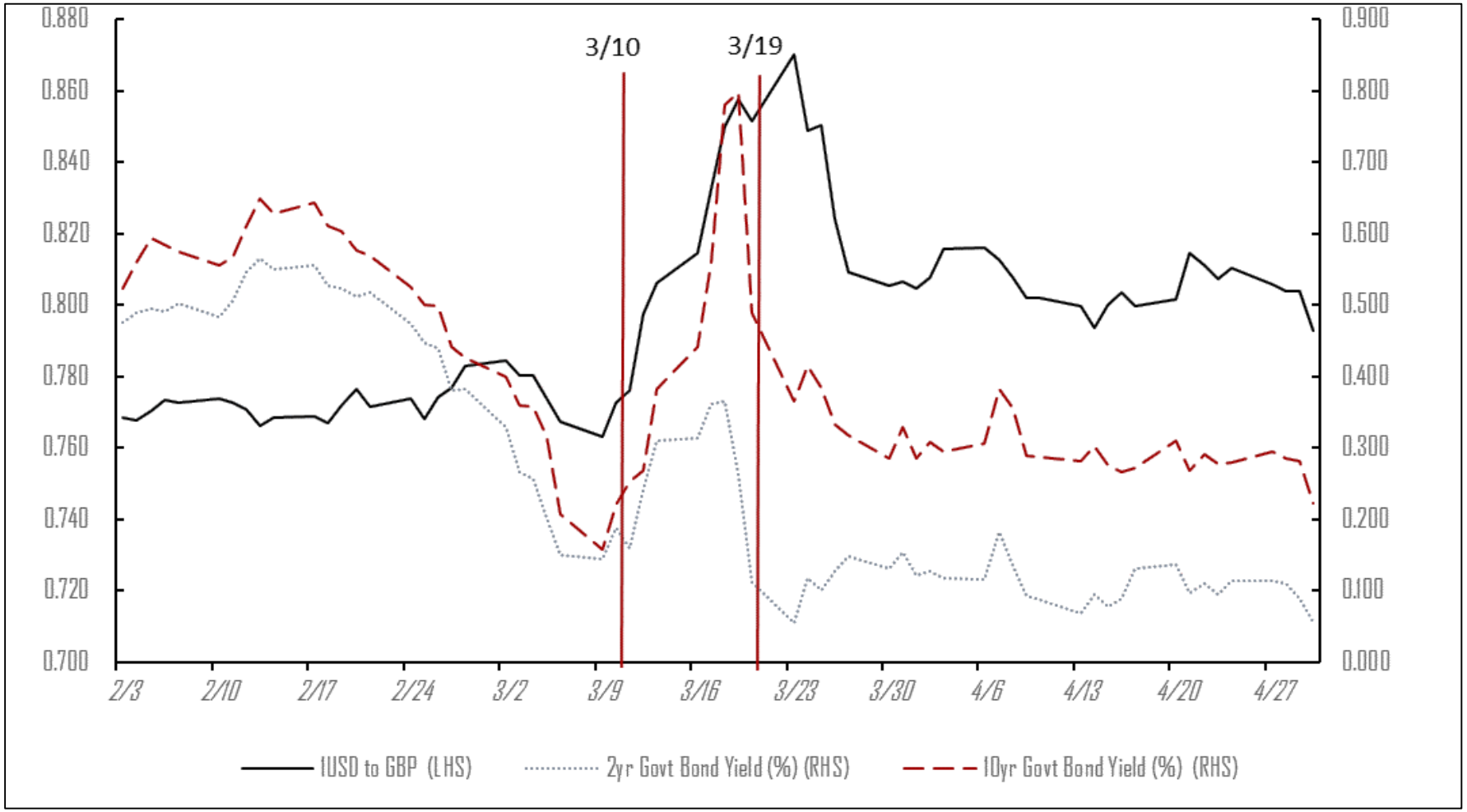
**Robert Czech (BoE), Shiyang Huang (HKU), Dong Lou (LSE), Tianyu Wang (Tsinghua)**

* The views expressed in this presentation are those of the authors, and not necessarily those of the Bank of England or its committees.

# Motivation

- Government bonds are often viewed as safe and liquid financial assets
- Traditionally large buying demand in stress periods → "**flight to safety**"
- However, unprecedented global sell-off of liquid & safe financial assets during COVID-19 crisis in March 2020 → "**dash for cash**"
- UK government bond (gilt) yields increased by more than **50 bps** between March 10-18, accompanied by heavy selling of three investor groups:
  - i) DMO; ii) mutual funds; iii) **insurers and pension funds** (our focus)

# Motivation


0.880
0.860
0.840
0.820
0.800
0.780
0.760
0.740
0.720
0.700
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
3/10
3/19
2/3
2/10
2/17
2/24
3/2
3/9
3/16
3/23
3/30
4/6
4/13
4/20
4/27
1USD to GBP (LHS)
2yr Govt Bond Yield (%) (RHS)
10yr Govt Bond Yield (%) (RHS)

# This Paper

- We examine trading behaviour and return patterns in the UK gilt market during COVID, focusing on **USD holdings & FX hedging positions** in ICPF sector
  - Most other studies focus on US treasury market, and particularly the role of dealer banks (Duffie 2020; He et al., 2021) and mutual funds (Huang et al., 2020; Ma et al., 2021)

- Our empirical setting offers two main advantages:

1. We use granular, investor-level data on asset & derivative holdings, bond & repo transactions, and estimated variation margin (VM) demands
2. We offer important insights for government bond markets in all non-US countries

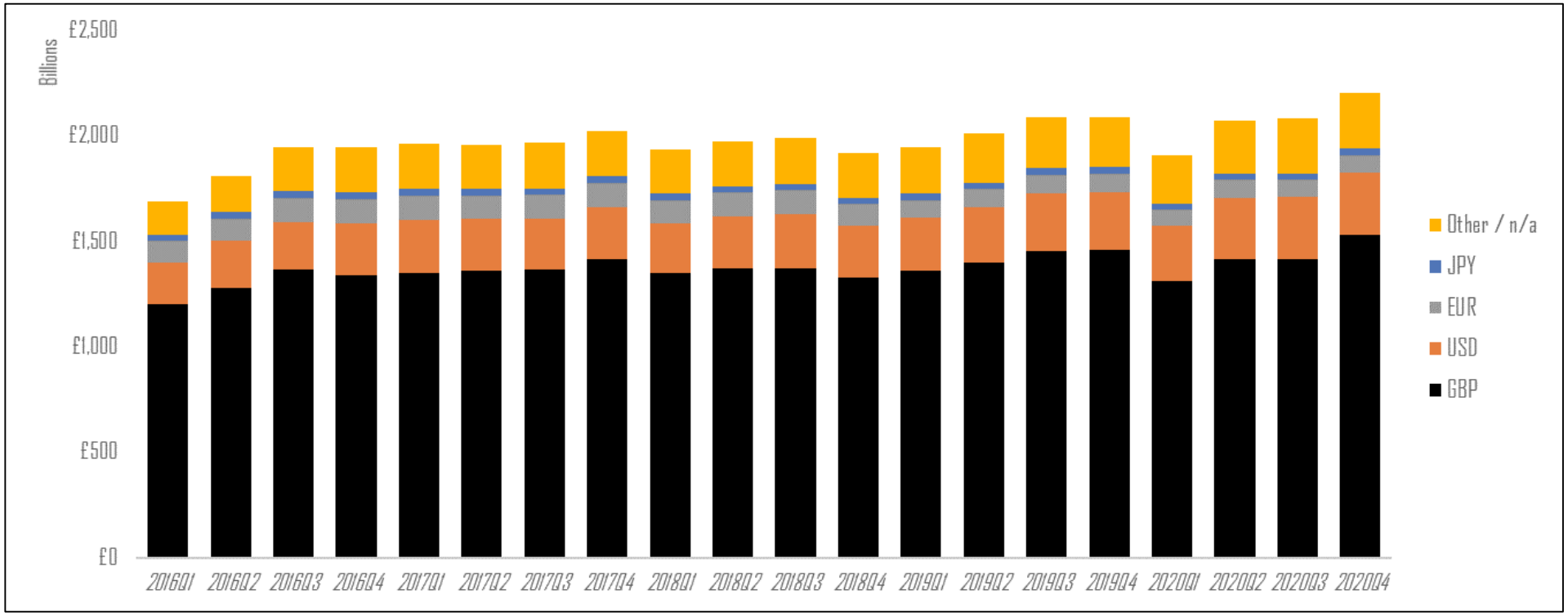
➢ We reveal a novel mechanism through which the **reserve currency status** of the US dollar can have a large impact on **non-US safe-asset yields**

# Data Sources

1. Supervisory data on asset and derivative holdings of UK insurers subject to the **Solvency II** Directive, on a quarterly basis
2. Transaction-level data on government bond trades from the **MiFID II** database, incl. counterparty identifiers
3. Transaction-level data on repo trades from the Sterling Money Market Database (**SMMD**), incl. counterparty identifiers
4. Estimated VM calls based on derivatives data from the **EMIR Trade Repository** Data, for ICPFs / mutual funds / hedge funds

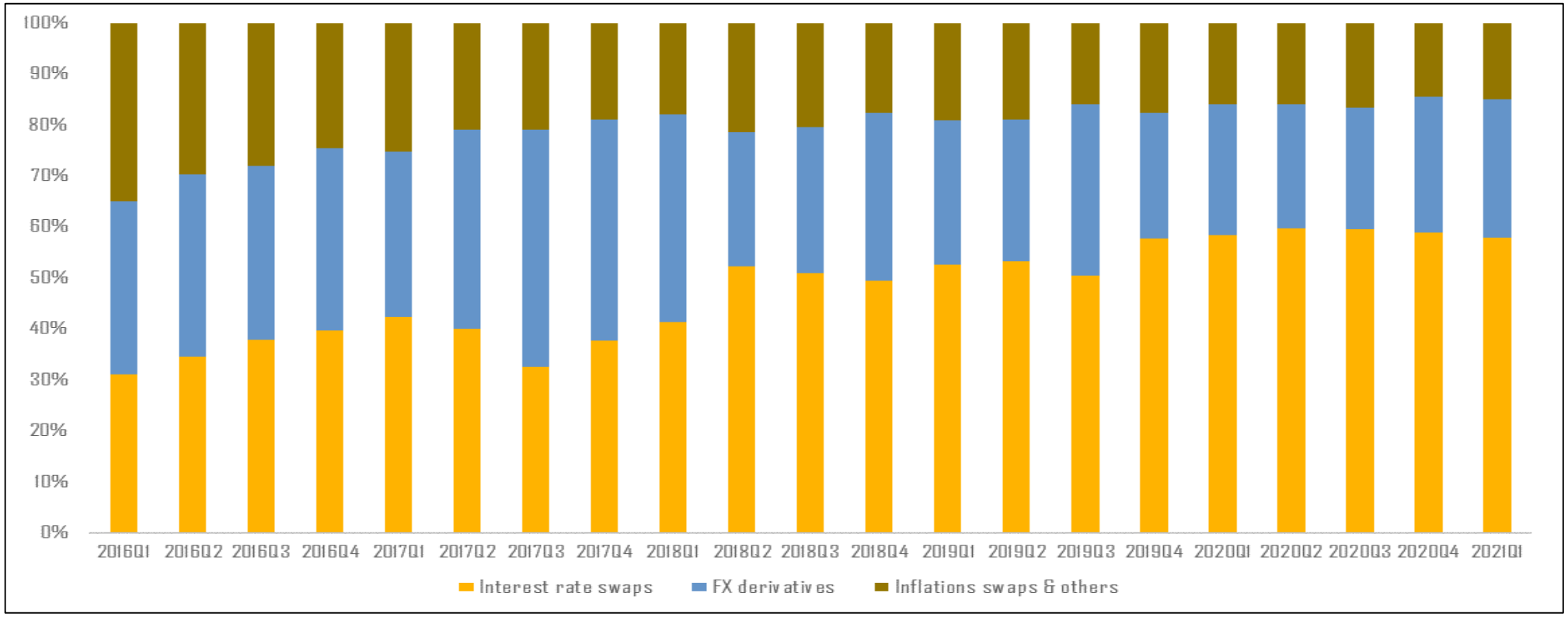
   (based on methodology of Bardoscia et al., 2021)

# UK Insurers' Asset Holdings




- UK insurers had total capital of approx. £2tn end-2019; **~£250bn** invested in dollar assets

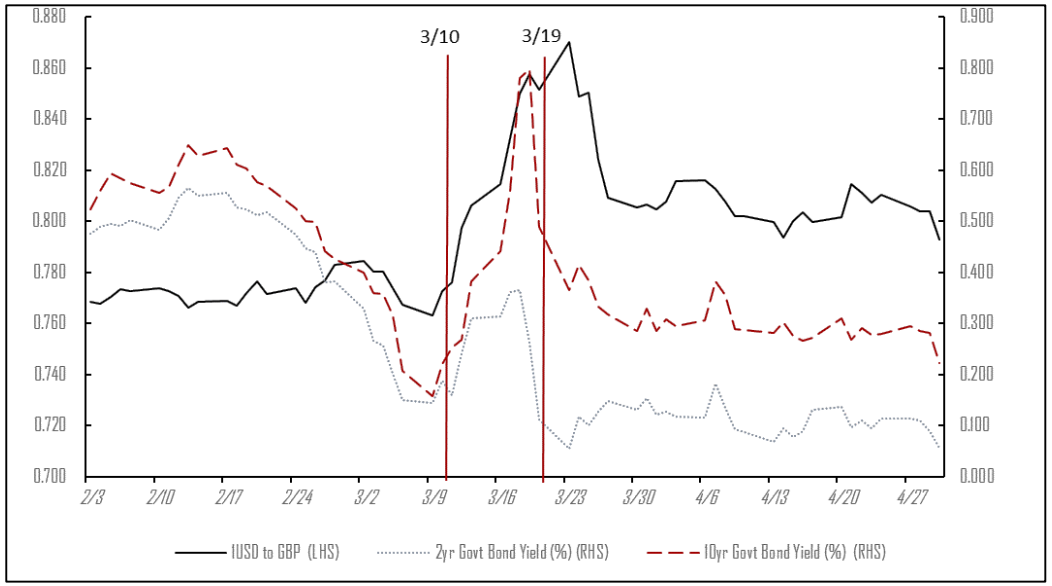
# UK Insurers' Derivatives Holdings



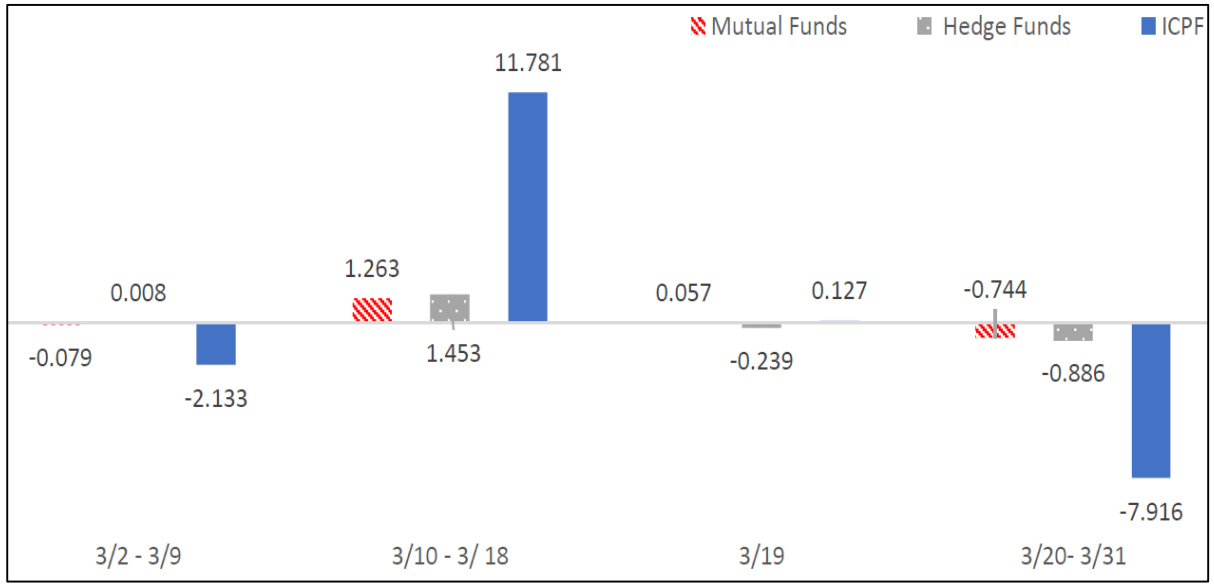

- Insurers hedge **50 cents** for every dollar of USD exposure (20 cents for other currencies)

# VM Demands in March 2020

## GILT YIELDS & USD-GBP EXCHANGE RATE

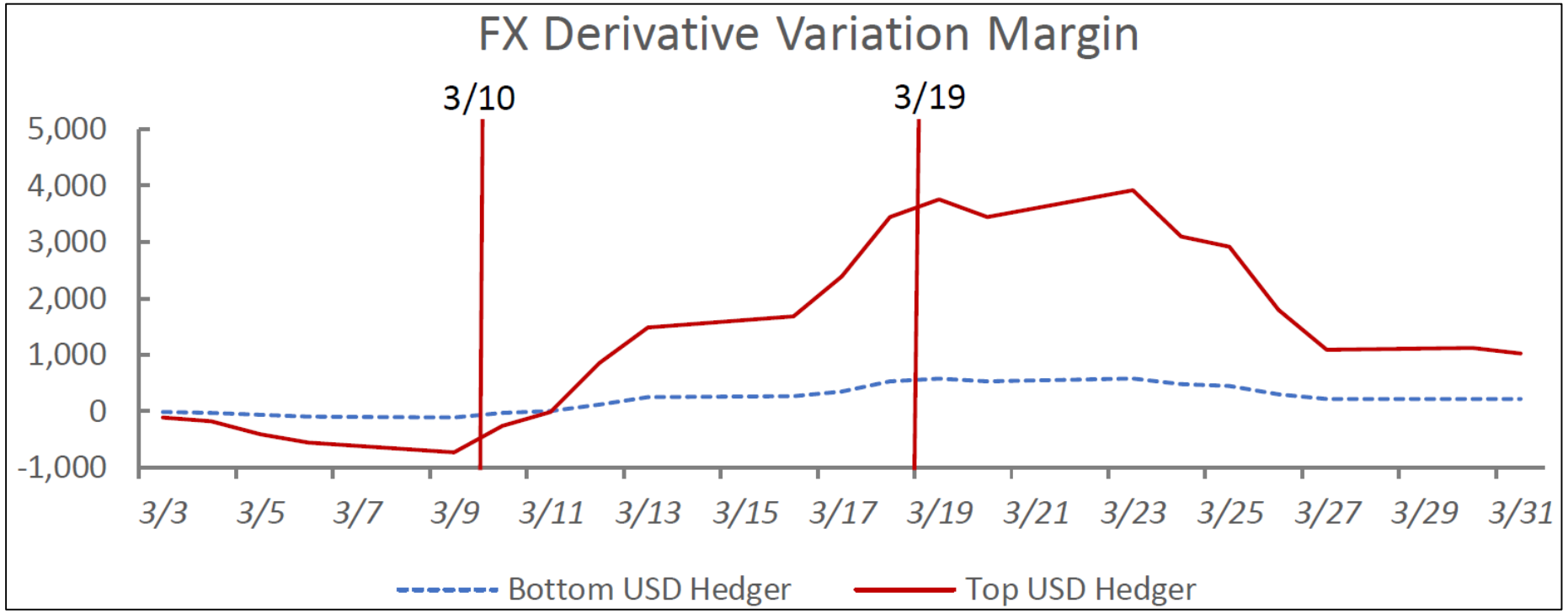



## VARIATION MARGIN DEMANDS



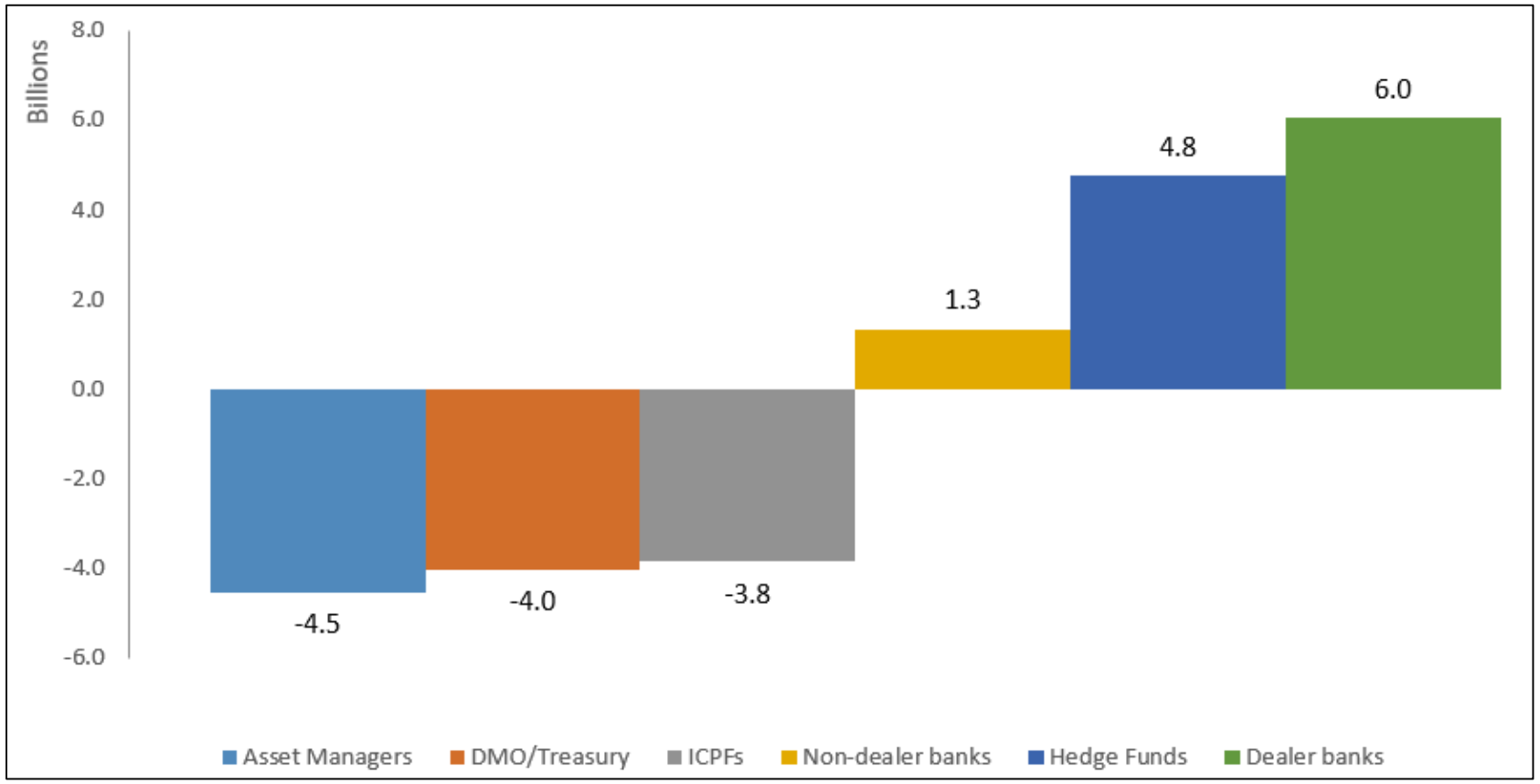

- USD appreciated **>10%** against sterling → sector faced VM calls of **>£6bn** on FX hedging positions from March 10-18 → in desperate **need for cash**

# FX Hedging and Variation Margin




- In the cross-section, VM calls predominantly affected insurers with **above-average** hedging positions ("Top USD Hedger")

# Gilt Net Trading March 10-18

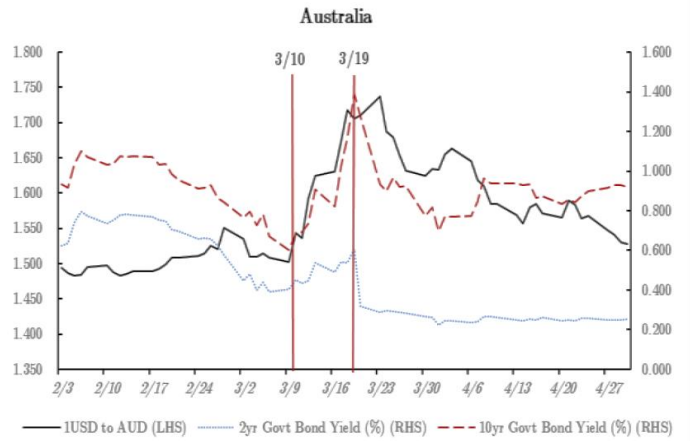


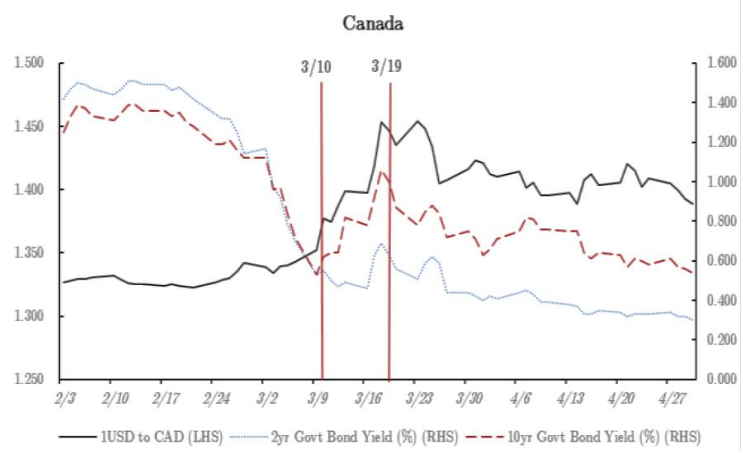
# Gilt Liquidation & Price Effect

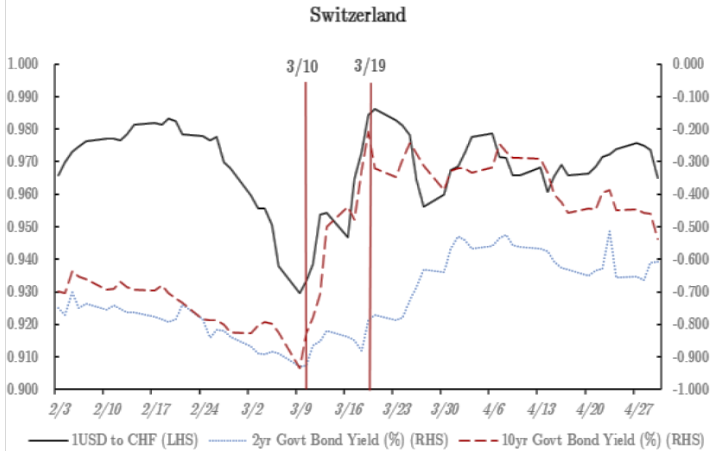
- In response to VM calls, ICPFs sold nearly **£4bn of gilts** during dash for cash
  - Effect most pronounced for VM calls on **FX derivatives**
  - ICPFs follow **liquidity pecking order** and sell relatively liquid gilts
  - **Asymmetric** effect: ICPFs sell gilts when having to pay VM, but don't buy when receiving VM
  - ICPFs also increased their gilt **repo borrowing** by around **£2bn** during dash for cash, again driven by VM calls on FX derivatives

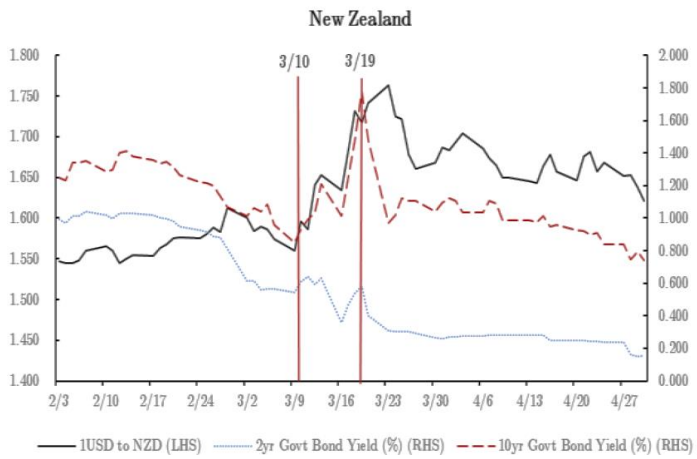
- ICPF selling pressure **contributed to the yield spike** in the gilt market
  - A one sd increase in ICPF selling → **30bps** increase in gilt yields during dash for cash (nearly 60% of total yield spike in this period)
  - Effect much more pronounced for **longer-term gilts** (>5Y)

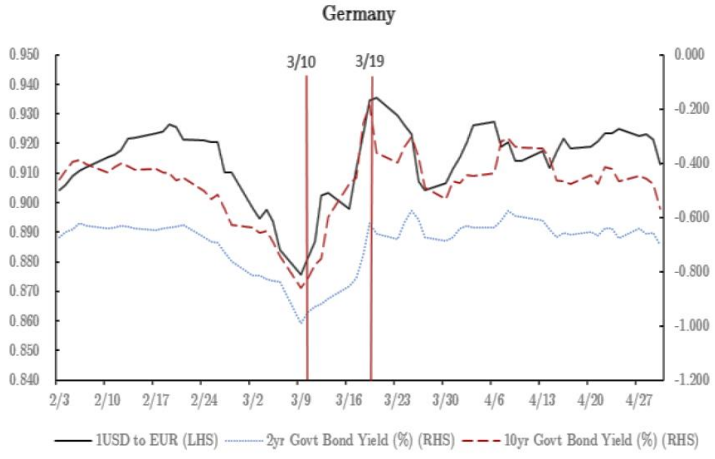
# A Global Phenomenon?

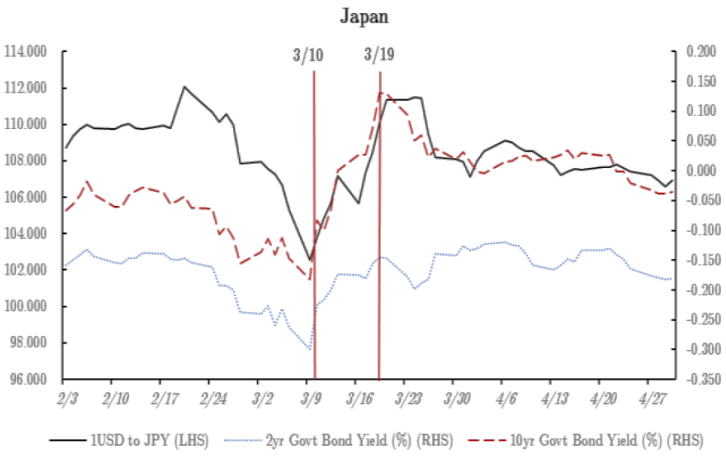


# Concluding Remarks & Policy Implications

- Novel mechanism through which **reserve currency status** of the US dollar can have large impact on **non-US safe-asset yields**
- Non-US institutions hold large amounts of USD assets, and **hedge** exposures by **selling USD forward** through FX derivatives
- US Dollar appreciates against other currencies in crisis periods → large **margin calls on FX hedging positions**
- Institutions **sell domestic safe assets** to meet margin calls → contributing to yield spikes & **exacerbating crises** in domestic markets
- Important policy implications:
  1. Enhance the sector's **liquidity preparedness**, e.g. via increase in required cash holdings
  2. Make **margin calls more predictable**, e.g. via more transparent margin calculations

✓ Such measures may prevent similar liquidity drains in future downturns