

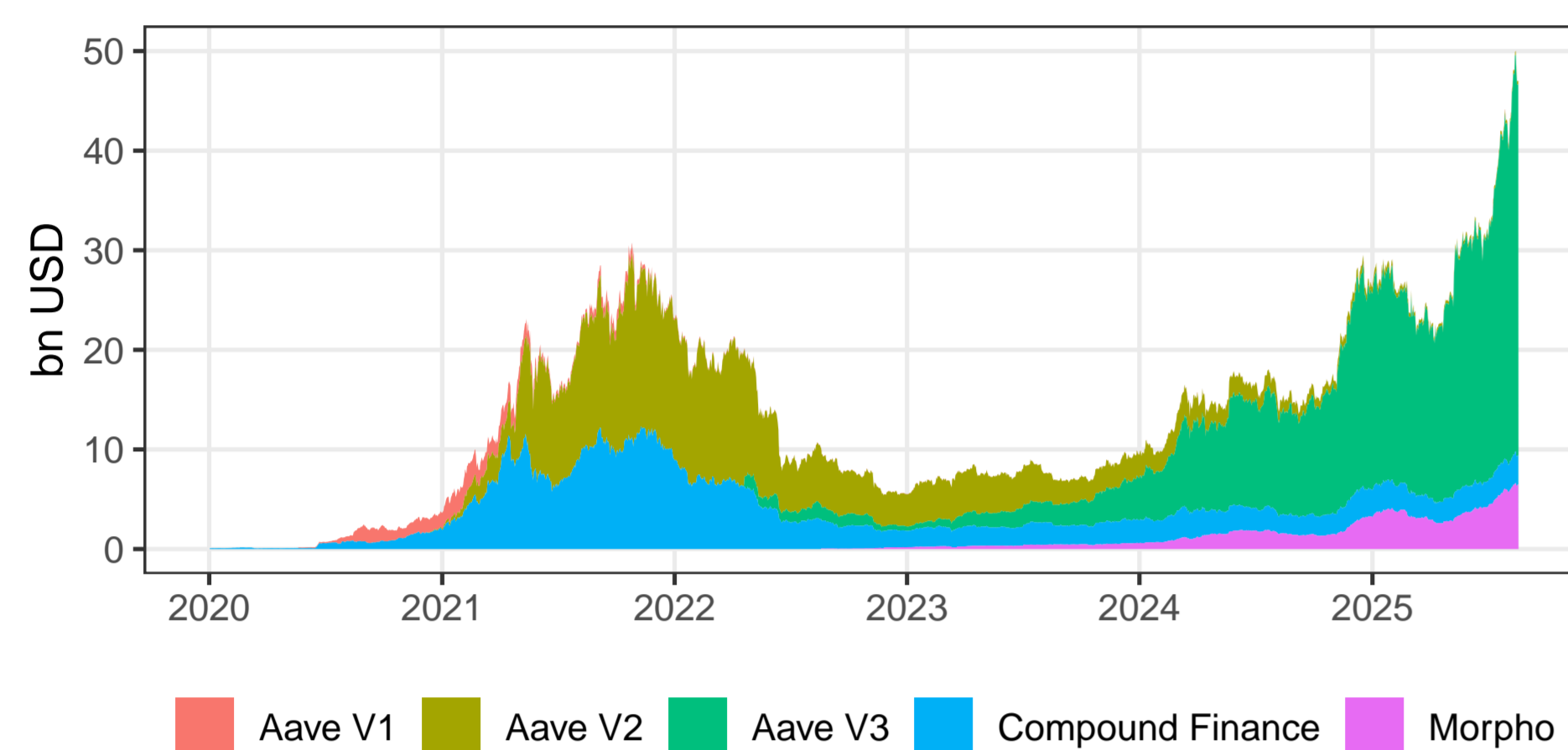
DeFi-ying the Fed ? Monetary policy transmission to stablecoin interest rates

Andrea Barbon ¹, Jean Barthélemy ², Benoit Nguyen ³

¹Univ. St Gallen, Swiss Finance Institute ²Banque de France ³European Central Bank

While still nascent, rapid growth in DeFi lending

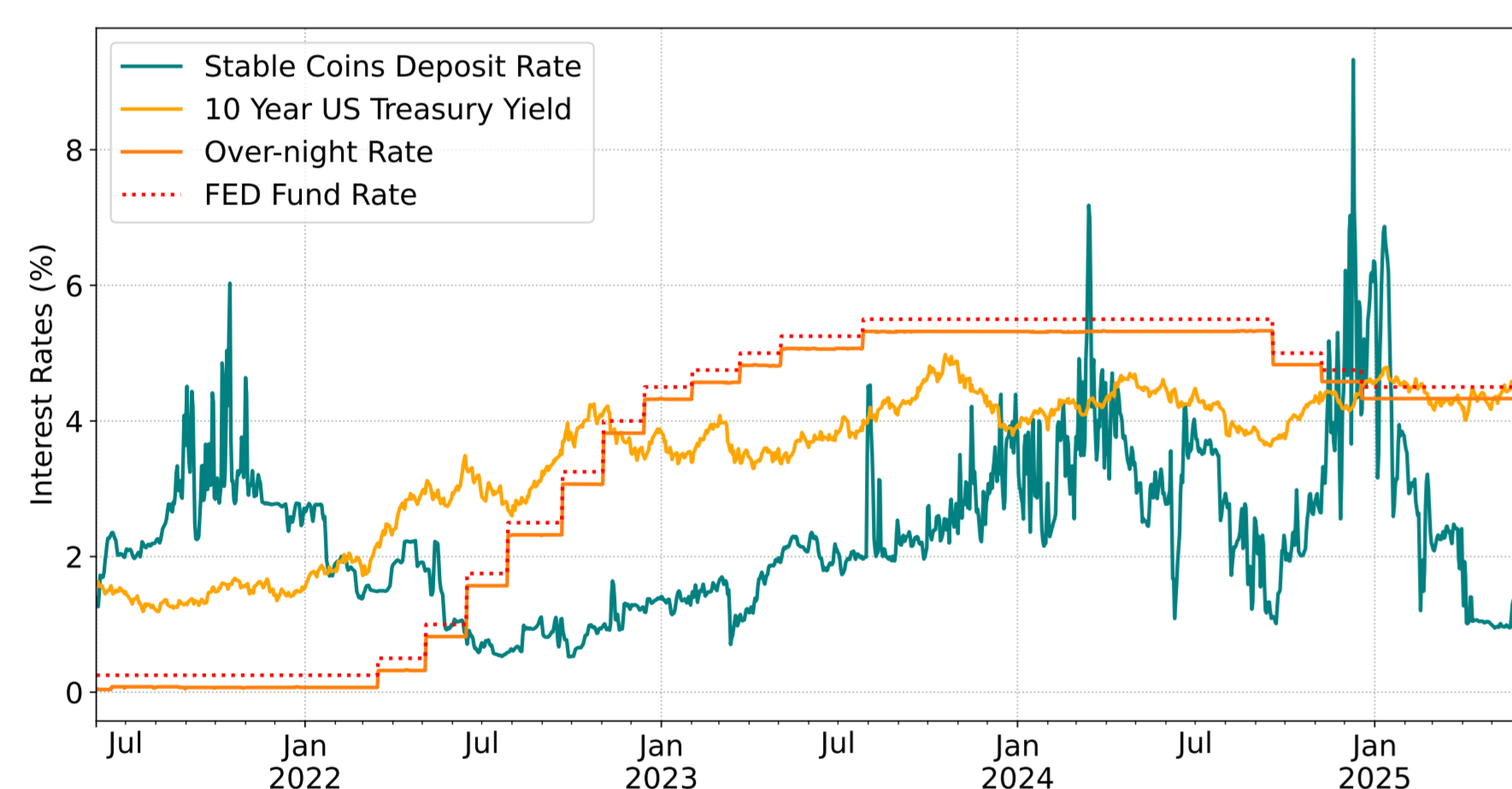
- DeFi lending platforms are decentralized "repo market" for cryptoassets allowing to build leverage positions and earn remuneration by lending liquidity (stablecoins)



The figure displays the time-series evolution of the Total value locked (TVL) in the 5 largest lending protocols from Jan 2020 to Aug 2025, in billion USD. Data source: DeFiLlama.

Large and persistent disconnect btw stablecoins & Fed policy rates

- Stablecoins do not pay interest natively, but depositing stablecoins (e.g. USDC, USDT, DAI) in DeFi generates a remuneration at rates widely disconnected from money market rates:



The figure displays the average DeFi deposit rate for USDT, USDC and DAI in Aave v2/v3 from July 2022 to Aug 2025. Data source: DeFiLlama.

How are interest rates set in DeFi?

DeFi lending rates are set automatically by each protocol, based on the utilization rate u

$$u = B/S = \text{Borrowed amount/Supplied amount}$$

Borrow Rate determined as a function of u and parameters α, β :

$$f(u) = \begin{cases} \alpha + \beta \frac{u}{\bar{u}} & \text{if } u < \bar{u} \\ \alpha + \beta + \beta' \frac{u - \bar{u}}{1 - \bar{u}} & \text{if } u \geq \bar{u} \end{cases}$$

Deposit Rate: $u \cdot f(u)$; both follow a kinked, non linear function.

A priori, no reason for DeFi rates to follow 1:1 Fed policy rates

Monetary policy transmission: arbitrage & leverage

Research question: How to make sense of the wide and persistent disconnect between risk-free rates and DeFi rates? Is there an influence of monetary policy and via which mechanisms?

At least 2 stylized transmission channels, insights from our model:

- TradFi-DeFi arbitrage:** Fed \nearrow policy rate \Rightarrow Liquidity providers \searrow DeFi deposits to buy e.g. T-bills, \Rightarrow DeFi rate \nearrow
- Indirect impact of MP on crypto leverage:** Fed \nearrow policy rate \Rightarrow expected return of risky assets incl. crypto \Rightarrow demand for leverage \searrow DeFi borrowing \searrow and DeFi rates \searrow

High segmentation and DeFi own risks: High frictions between TradFi-DeFi: 'Gas fees', tax considerations + liquidation risks and hacking risks need to be priced: DeFi rates are not risk-free.

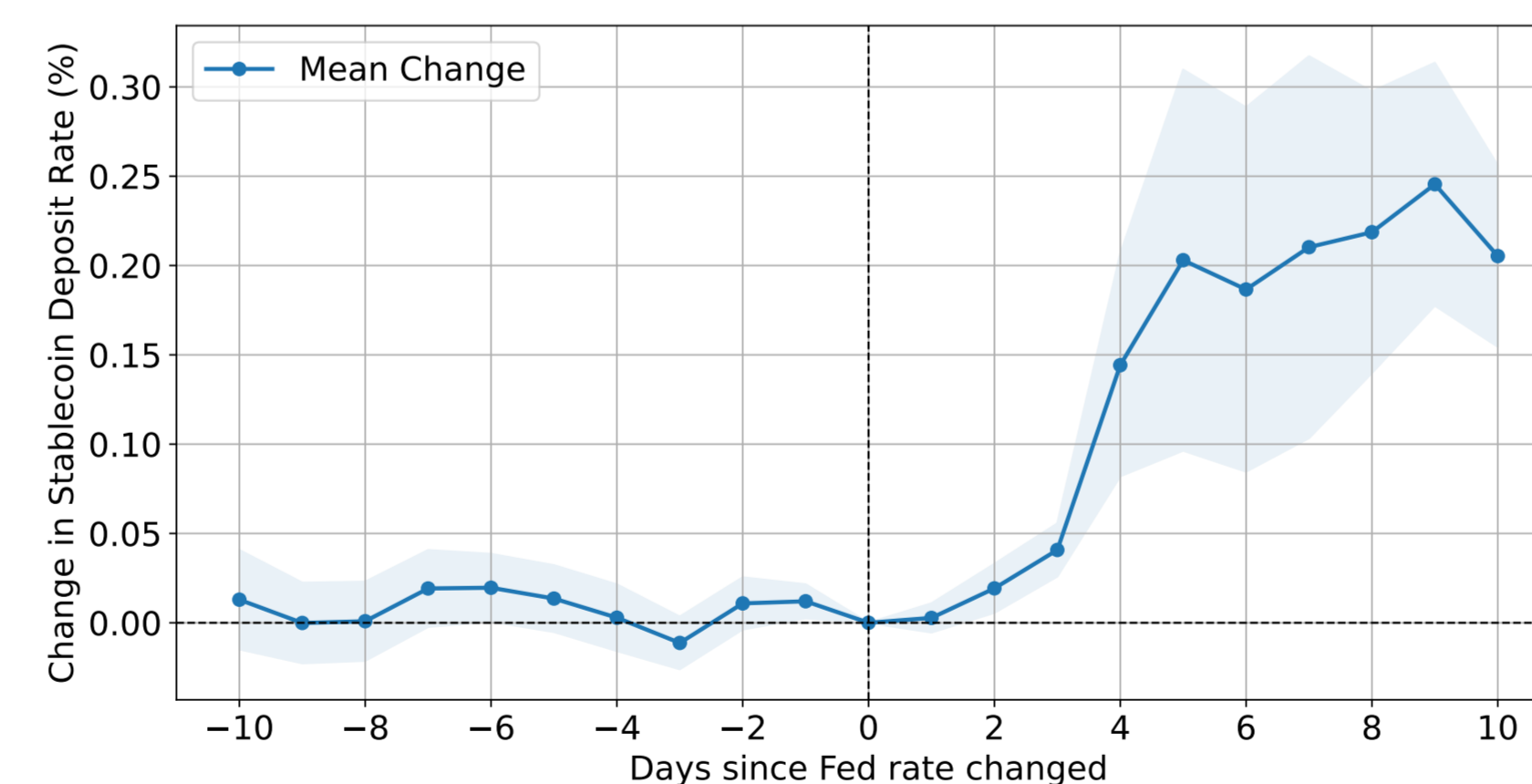
Data and empirical strategy

- Blockchain data for 3 stablecoins (USDT, USDC, and DAI) on Ethereum for AAVE v2 Lending Pool and AAVE v3 Pool smart contracts.
- More than 2.5M transactions, from May 2021 to May 2025
- Prices of ETH and BTC call and put options to proxy the *Liquidation risks*; Hacked TVL to proxy hacking risks.

Three empirical strategies: event study, panel regression, local projections/SVAR.

Event-study around the Federal Reserve rate hikes

- Simple event study around the last Federal Reserve hiking cycle suggests a 10-30% passthrough within 1-week



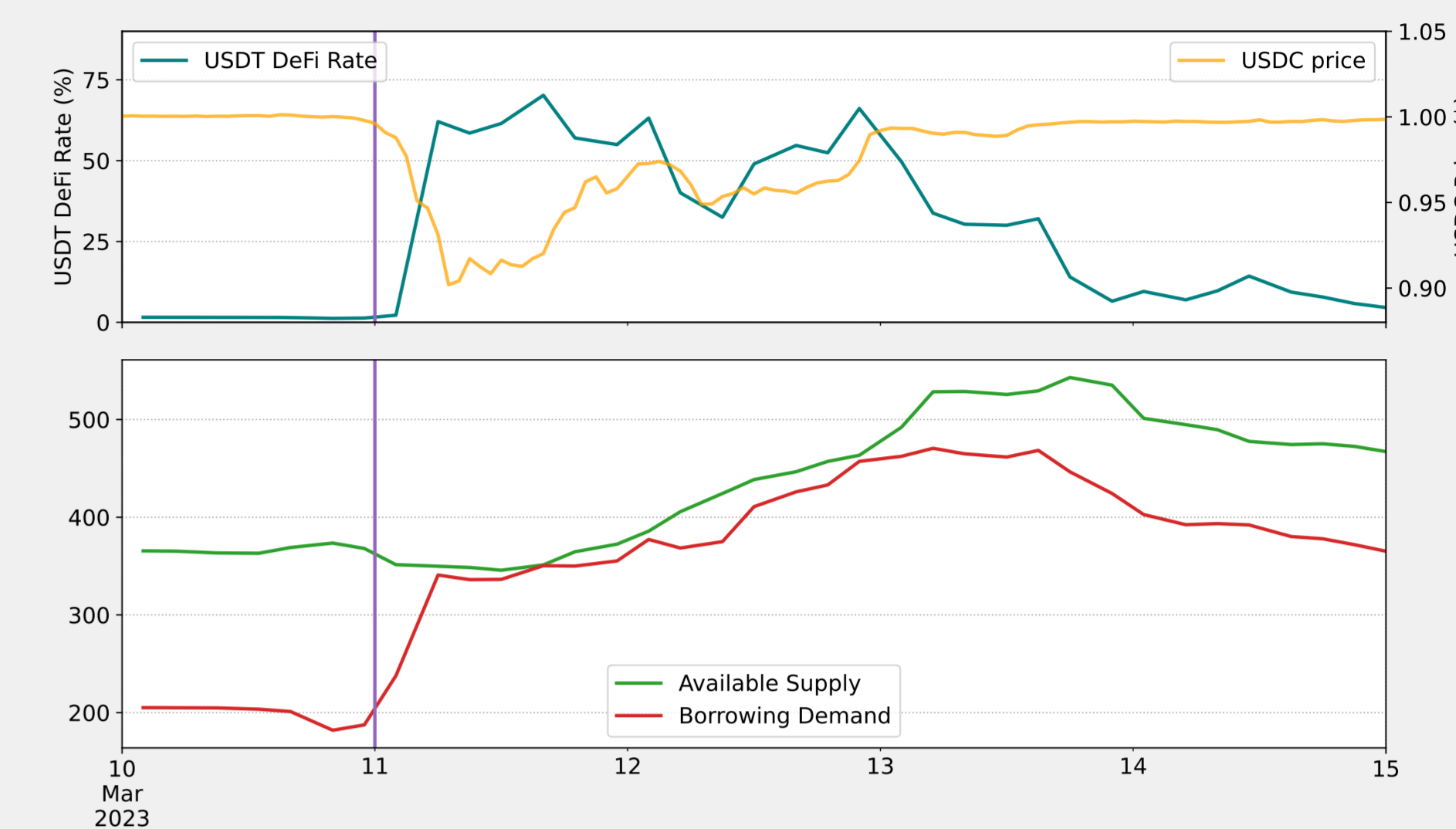
Note: The figure displays the evolution of average deposit rates around 11 policy rate hikes by the Federal Reserve. Perfect passthrough = 1

Panel regressions confirm drivers behind reduced passthrough

	(1)	(2)	(3)	(4)
Risk-free	0.31***	0.31***	0.33***	0.31***
Risk-free x High-Concentration		0.11*		
High-Concentration		0.04		
Risk-free x High-Gas			-0.32***	
High-Gas			-0.36	
Risk-free x High-Hacking				-0.09***
High-Hacking				-0.09

Limits to arbitrage in DeFi: an example with SVB

SVB shock = brief depeg of USDC and increase in borrowing demand for USDT



- First effect is a brutal rise in USDT interest rate as demand rises faster than supply: demand shock is absorbed over time as supply adjusts slowly

Additional exercises in the paper...

- A model of DeFi lending to disentangle the mechanisms
- Local projections confirm the magnitude of the limited passthrough
- Structural VAR analysis to identify and quantify the supply/demand channels

Why should we care? Policy implications

- Monetary policy is only partially transmitted to DeFi rates
 - Short-run passthrough is 0.3 / medium-run between 0.5-0.7
 - But DeFi rates are mostly driven by other (crypto-related) factors and can diverge substantially from policy rates
 - Our model and results suggest DeFi rates and policy rates can even go in opposite direction when the leverage channel is dominating the arbitrage channel
 - Supply appears not sufficiently reactive to spread (frictions like gas prices, DeFi risks, strategic behavior and uncertainty play a role)
- Does DeFi interest rates matter for Monetary Policy?
 - At the current size of the stablecoin/DeFi market probably not... but may become important if stablecoins are massively adopted and DeFi continue its fast-pace growth: **competing interest rates + risk to see more deposits volatility due to DeFi rate volatility**
 - Tokenization of Real world assets (like tokenized funds, T-bills) & entry of larger/more sophisticated liquidity providers may improve arbitrage and reduce large and persistent spreads

Contact us: andrea.barbon@unisg.ch
jean.barthelemy@banque-france.fr
benoit.nguyen@ecb.europa.eu



https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4673325