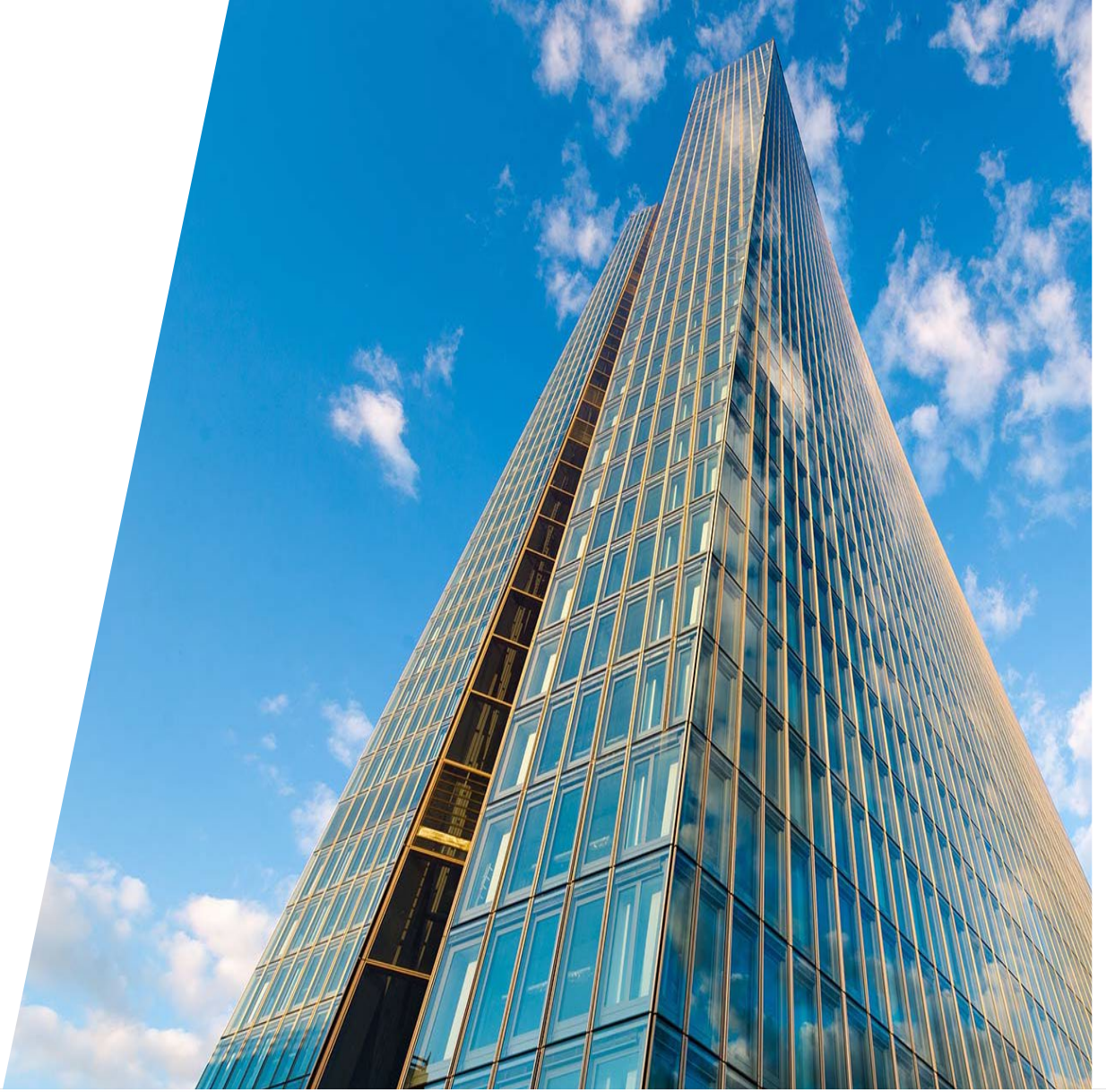
EUROPEAN CENTRAL BANK

EUROSYSTEM

Derivative Margin Calls: A new driver of MMF flows?



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Motivation

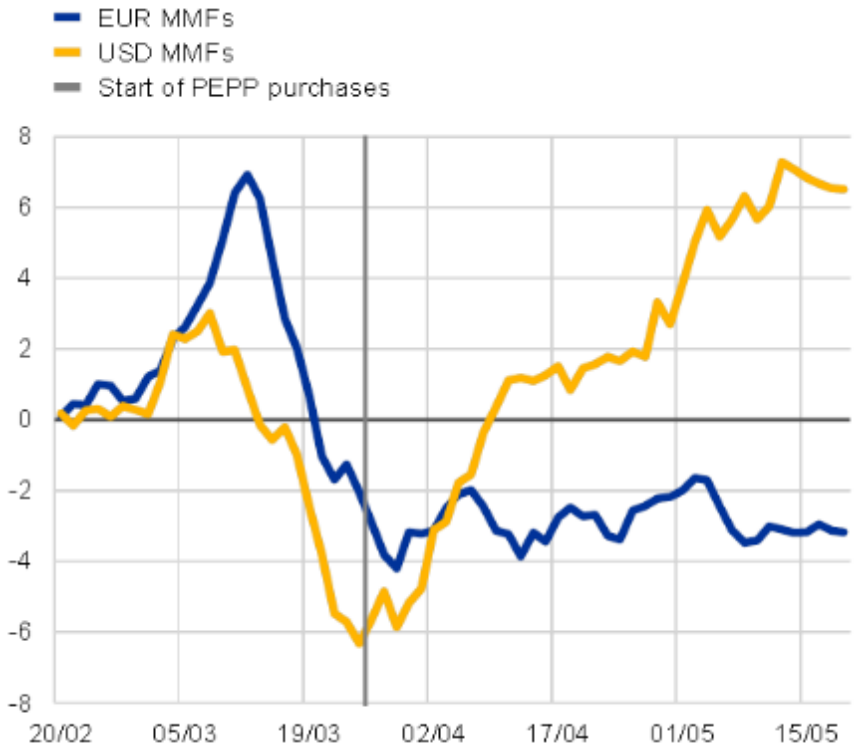
Large volatility in MMF flows during the March 2020 market turmoil

- Between 13 and 20 March 2020, euro area MMFs experienced outflows of nearly 8% of AUM
- Responses by central banks helped stabilise outflows

→ Important consequences for financial stability and funding of real economy

→ **What reasons underly these flows?**

Cumulative net flows into euro area MMFs
(% of total assets, 20/02/2020-17/05/2020)

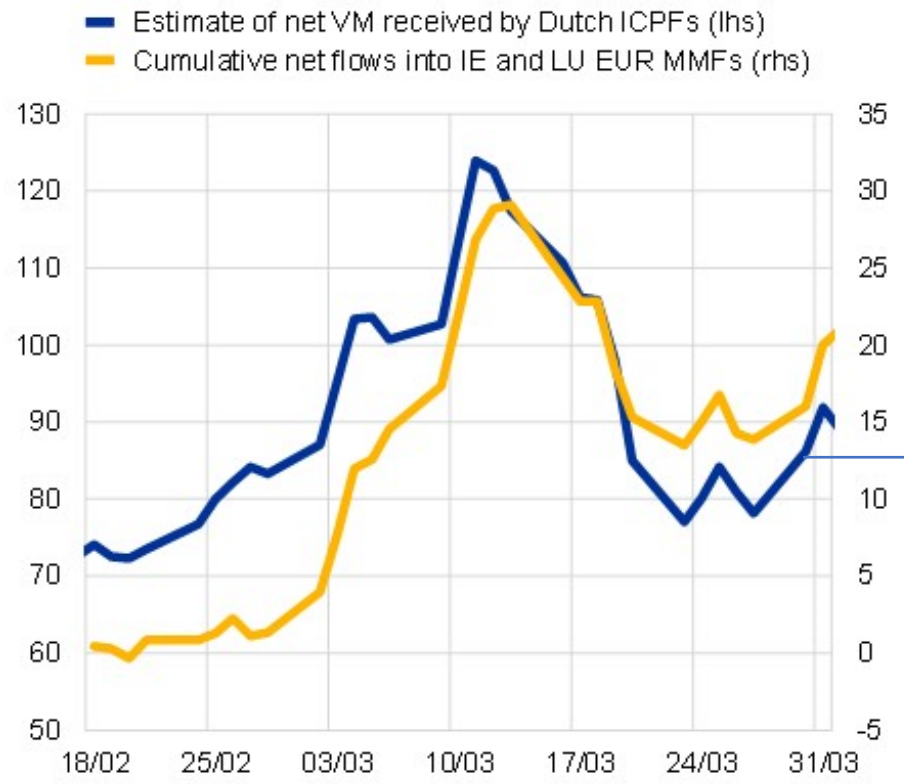


Source: Box 7 in ECB's Financial Stability Review, May 2020.

Motivation, cont'd

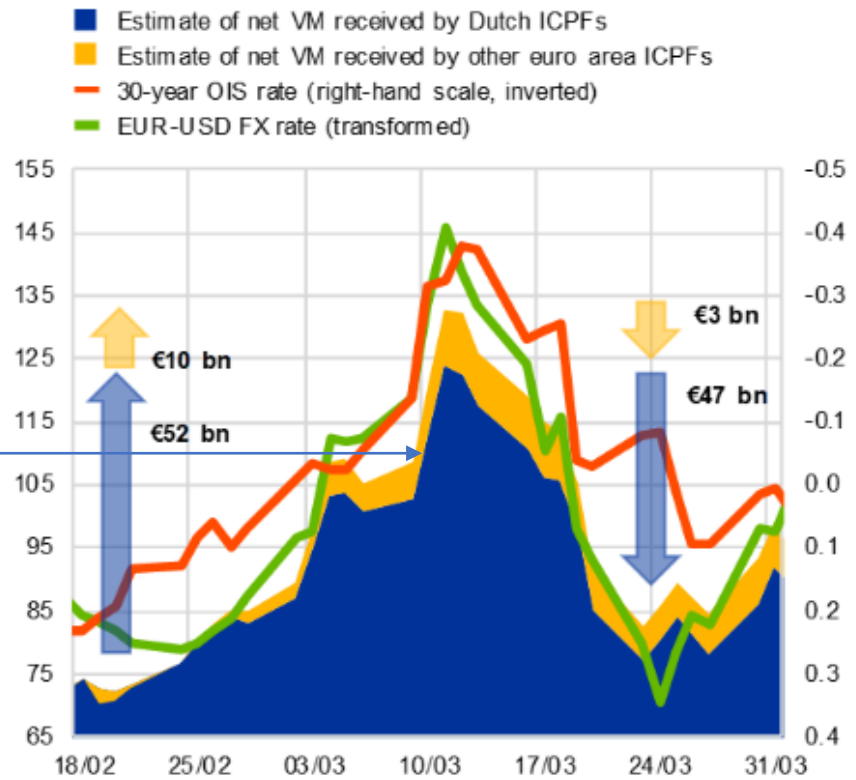
- We find a strong correlation (over 80%) between flows in/out of euro-denominated MMFs and variation margin (VM) faced by some ICPFs holding these MMFs

Co-movement of ICPF VM and euro-denominated MMF flows
(€ bn; 18/02 – 31/03 2020)



ICPFs' VMs correlate with interest- and FX-rates

Co-movement of interest- and FX-rates with VM paid/received by ICPFs
(lhs: € bn; rhs: %; 18/02 – 31/03 2020)



Source: Box 8 in ECB's Financial Stability Review, November 2020.

Main hypothesis

Our hypothesis: VM payments drive MMF flows

Other hypotheses in the literature:

- Flight-to-safety considerations (Boucinha et al., FSR Box May 2020)
- Characteristics of MMFs, e.g. LVNAV structure, MMF liquidity requirements (Capota et al., 2021)

In addition to these reasons/considerations, we aim to demonstrate that:

- VM payments are **a new source of liquidity needs** for institutional investors during crisis times
- Institutional (non-bank) investors **use MMFs for liquidity management**
- therefore, they **pass through the liquidity shock** coming from VMs to MMFs flows

Data

We combine three highly granular and unique datasets:

- Fund-by-fund **Refinitiv Lipper** to obtain daily MMF flows at fund level
- **Securities Holdings Statistics by Sector (SHSS)** to identify holdings in individual MMFs by investors (at country-sector level)
- Transaction-by-transaction trade repository **(EMIR data)** to compute VM payments

  → Since SHSS data provide investor information only at a country-sector level, we aggregate variation margin at a country-sector level

→ We focus on *EUR-denominated* VM payments and MMF funds in LU, IE, and FR around March 2020 market turmoil (Feb-Apr 2020)

Baseline model specification

$$Outflows_{i,t} = \alpha + \sum_{g} \beta_g * held_{g,i} * VM\ posted_{g,t} + I_i + T_t + \varepsilon_{i,t}$$

$$Inflows_{i,t} = \alpha + \sum_{g} \beta_g * held_{g,i} * VM\ received_{g,t} + I_i + T_t + \varepsilon_{i,t}$$

i ~ MMF
g ~ investor group (sector-country level)
t ~ date

- $Outflows_{i,t}$ equals to MMF outflows when they are positive, and to zero when they are negative
- $VM\ posted_{g,t}$ and $VM\ received_{g,t}$ refer to VM posted and received (simultaneous effects but also lags/leads)
- $held_{g,i}$ is a dummy equal to one if the investor group g holds MMF i

→ Model run separately for each MMF domicile (different MMF flow dynamics, MMF type, investor type)

→ Model focuses on the most important investor groups with large VM payments (always non-banks: IF, PF, IC)

→ In both models, we expect $\beta_g > 0$ for at least some (not necessarily all) investor groups

Results for MMF outflows and margin posted

- Some investors withdrew funds from MMFs to post margins

- The effects are not only statistically but also economically important:

→ Interpretation: When Dutch PFs post EUR 1 bn in VM, Irish MMFs held by Dutch PFs are estimated to face outflows of around EUR 11 mn

Dependent variable: MMF outflows (t)

	Irish MMFs		Luxemburg MMFs		French MMFs	
*Independent variables: Margin posted * MMF held*						
Luxembourg IF			*Luxembourg IF*		*French IC*	
(t)	0.001	0.002	(t)	**0.002****	(t)	-0.026	-0.024
	[0.816]	[0.670]		[0.043]	[0.023]		[0.197]	[0.207]
(t+1)		-0.001	(t+1)		-0.000	(t+1)		-0.003
		[0.781]			[0.920]			[0.856]
(t+2)		-0.001	(t+2)		-0.001	(t+2)		0.014
		[0.786]			[0.454]			[0.378]
Irish IF			*Irish IC*			*French IF*		
(t)	-0.004	-0.009	(t)	0.013	0.011	(t)	0.003	-0.007
	[0.578]	[0.281]		[0.576]	[0.672]		[0.545]	[0.320]
(t+1)		0.003	(t+1)		0.002	(t+1)		-0.003
		[0.621]			[0.838]			[0.488]
(t+2)		0.007	(t+2)		0.009	(t+2)		**0.013***
		[0.509]			[0.254]			[0.084]
Dutch PF			*German IF*			*Luxembourg IF*		
(t)	**0.011*****	**0.011*****	(t)	0.002	0.002	(t)	**0.015*****	**0.016*****
	[0.009]	[0.009]		[0.382]	[0.434]		[0.000]	[0.001]
(t+1)		0.002	(t+1)		-0.000	(t+1)		0.003
		[0.652]			[0.933]			[0.459]
(t+2)		0.003	(t+2)		0.000	(t+2)		-0.003
		[0.347]			[0.821]			[0.610]

Results and conclusions

- VM payments faced by some non-bank investors holding MMFs were an important driver of the MMF flows
  - Margin posted tends to increase MMF outflows (some MMF investors quickly redeemed MMF shares to meet the margin payments)
  - Margin received increases MMF inflows in some cases
- Non-banks used MMFs to manage liquidity related to margin calls in the March 2020 market turmoil
- Non-banks passed the liquidity shock to MMFs and thus to funding of banks and NFCs

Policy implications

- **Enhance liquidity preparedness of non-banks to meet margin calls:**

  → **Risks of reliance on the cash-like properties of MMF shares** as a reliable source of liquidity under stress

- **Enhance MMFs' resiliency** to significant outflows
- **Enhance monitoring and understanding of interconnectedness,** incl. in view of regulatory reforms and by new/enhanced data collections (where data not available)
- **OTC derivative reform**
  - ➢ Stricter margining reduces counterparty credit risk, but creates liquidity risk spillovers
  - ➢ Trade repository data enabled our analysis (jointly with other datasets)

Thank you for your attention!

Any questions?