

Our focus: swing pricing

Funds are exposed to a liquidity risk:

- Open-end investment funds engage in a liquidity transformation as they offer shares that are more liquid than their assets. This liquidity gap could lead to a dilution of portfolios.

A solution: swing pricing?

- Objective:** to reduce the risk of dilution by adjusting the net asset value (NAV) in order to reallocate the liquidity cost from remaining to transacting investors.
- Context:** Swing pricing was authorized in France in 2014. Its use is promoted by the major financial institutions to strengthen the financial stability of this sector.
- Different types:** the activation and intensity of swing pricing depend on conditions set by funds' managers.
- Potential drawback:** perverse effects due to negative reaction of investors (stigma effect)?

Our study

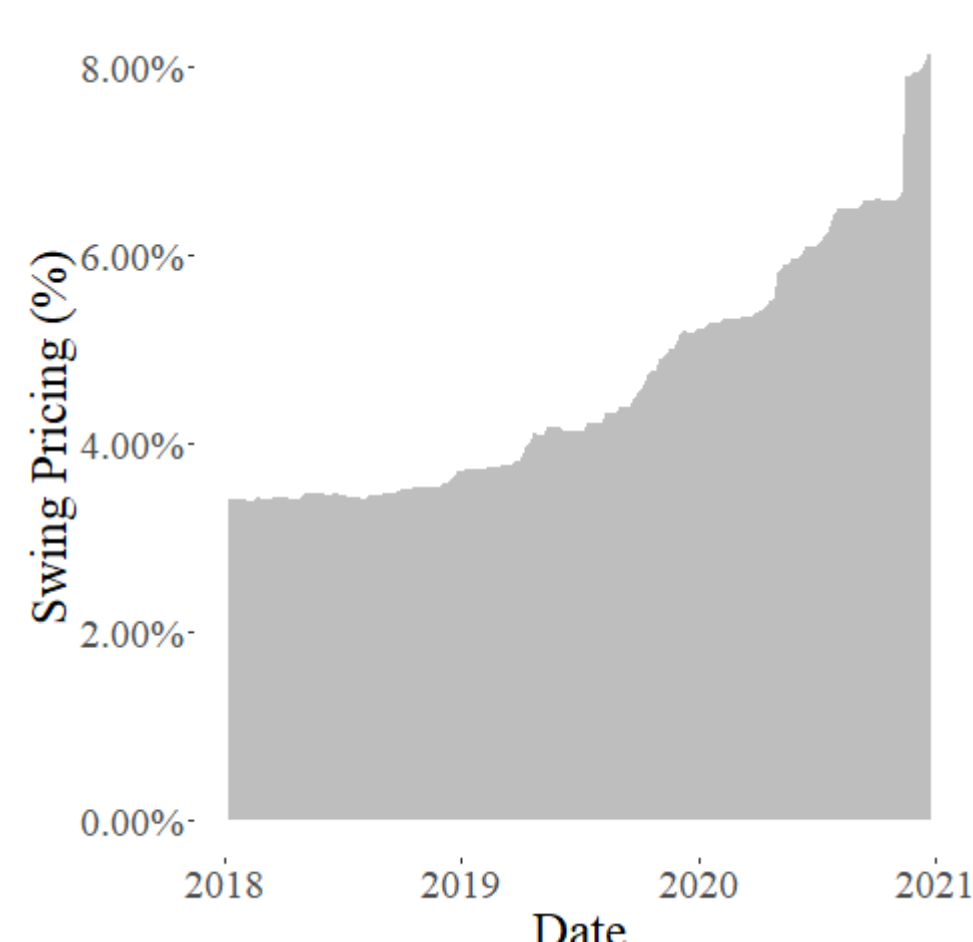
Research question: What is the impact of swing pricing implementation on funds' flow dynamics in light of the COVID-19 crisis?

- First study to analyze swing pricing implementation on an exhaustive sample (3000+ funds, 80% of all French OEFs) by using a natural language processing algorithm on prospectuses.
- We evaluate the impact of swing pricing on flow dynamics during a very severe market stress, the COVID-19 crisis.
- We identify the implementation of swing pricing (ability to use this tool): analysis of the impact of the implementation modalities + capacity to identify a potential stigma effect.

Data description

Swing pricing: identified by mandatory disclosure in prospectuses.

Acceleration of swing pricing implementation from 3.4% to 8.1% in three years.



Two constraints impact the activation and intensity of swing pricing:

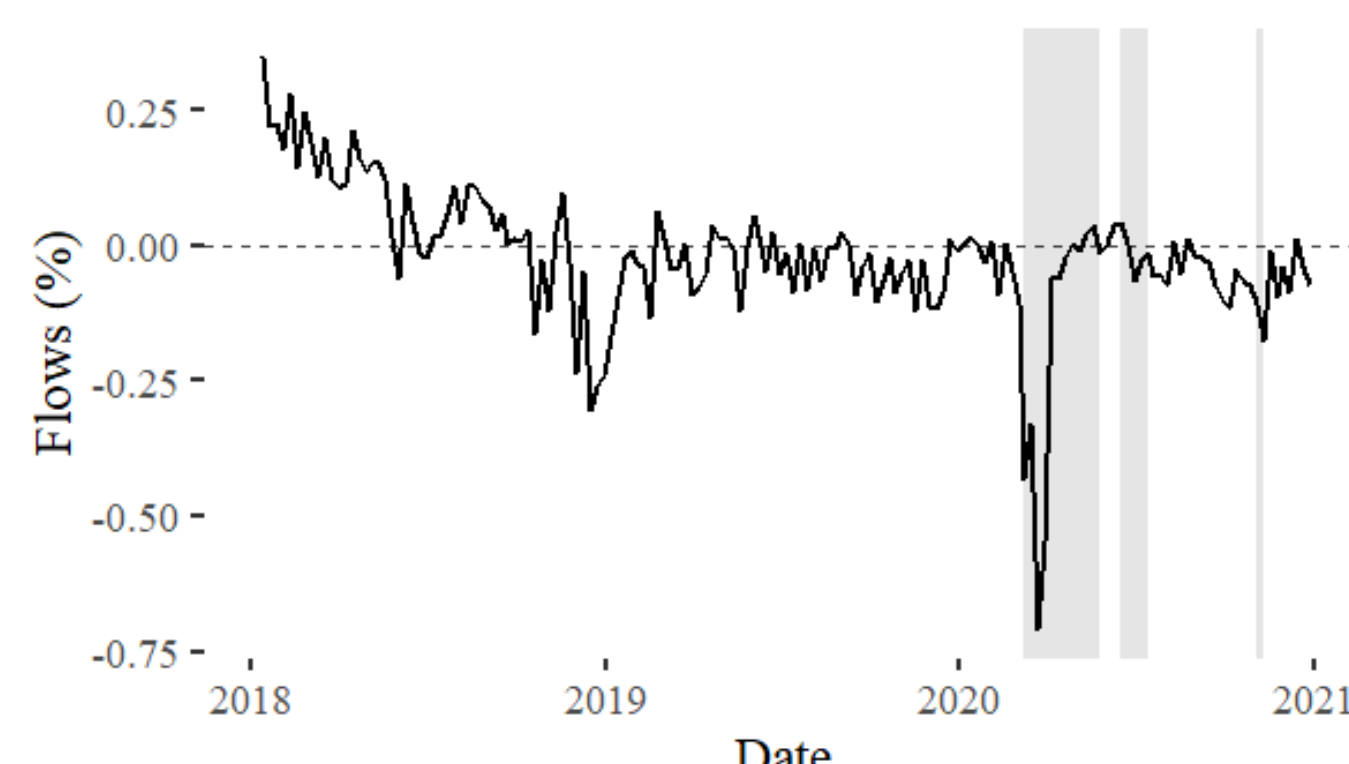
- Partial swing pricing:** NAV adjustment only if flows exceed a threshold.
- Swing factor cap:** upper bound on the NAV adjustment.

Swing factor cap	Partial swing pricing	
	No	Yes
No	6.6% (0)	60.4% (1)
Yes	1.1% (1)	31.9% (2)

Continuous variable "Constraints": number of constraints on the swing pricing mechanism.

Flows and systemic stress:

- Main dependent variable:** weekly flows per fund share divided by previous total net assets (black line).
- Systemic stress:** VIX CAC40 > 90th percentile (grey area).



Immediate impact of swing pricing introduction on flows level

Motivation:

Investors could react to swing pricing introduction through different channels, e.g.:

- Belief updating on ex-ante liquidity risk (signal of higher vulnerability) that can cause outflows.
- Fund structure change can cause inflows from investors seeking stable funds or outflows due to a potential increase of the total redemption cost.

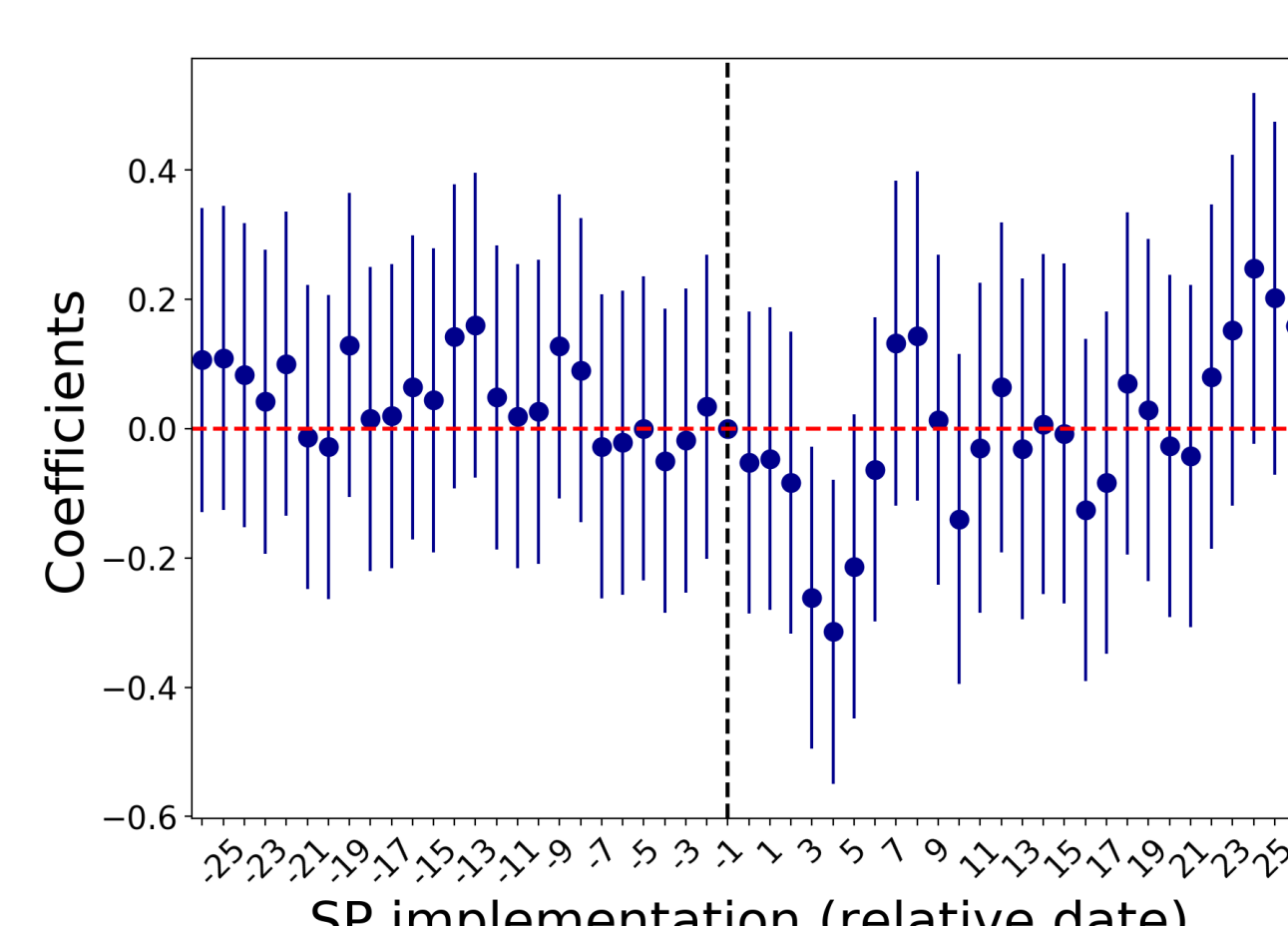
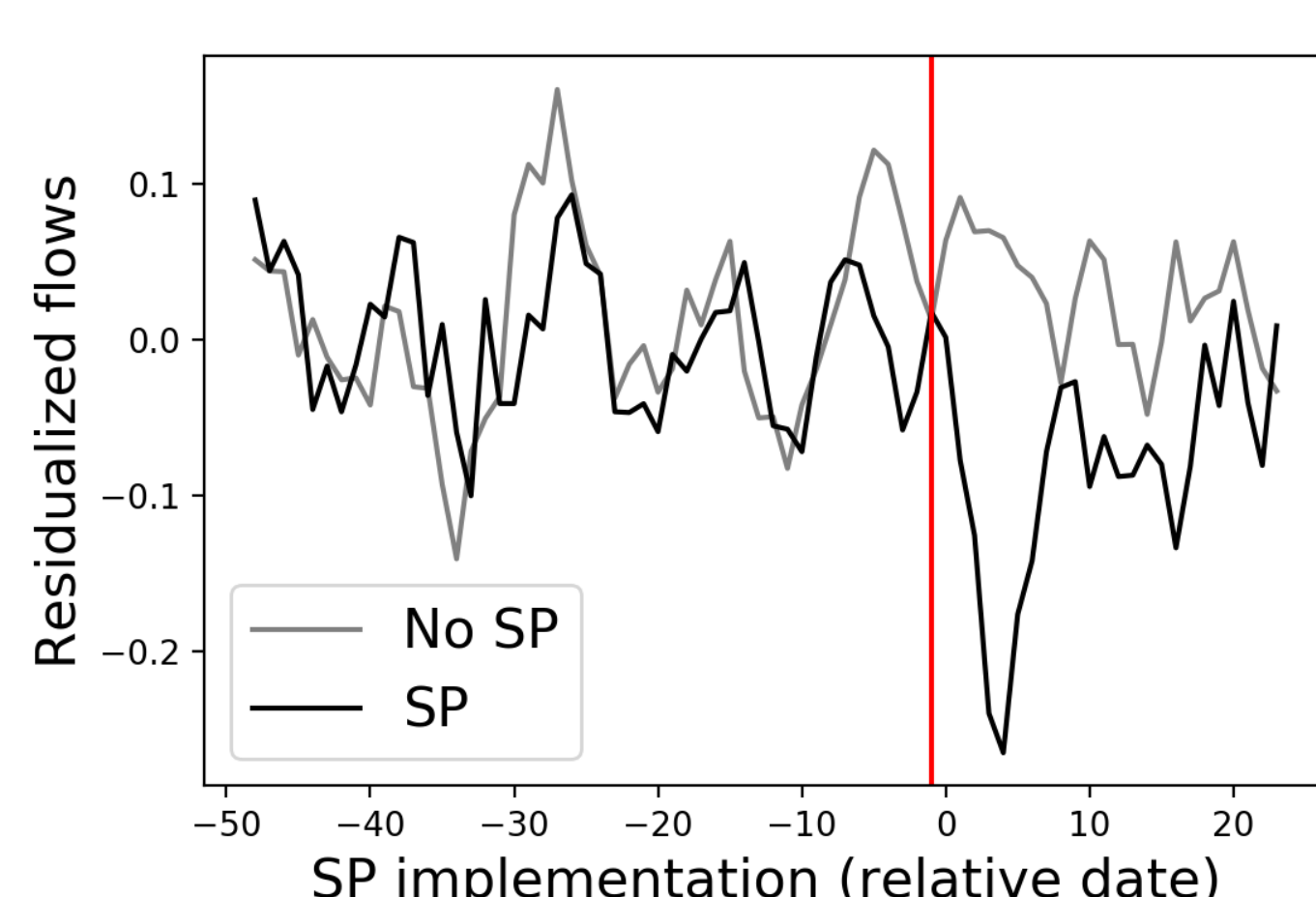
Methodology:

- Matching:** each fund implementing swing pricing (treated group) is matched with a comparable fund without swing pricing (control group) on granular portfolio and investors characteristics.
- Event-study** staggered differences-in-difference following two steps:

Step 1 : $Flows_{i,t} \sim \beta_0 + \beta_1 Controls_{i,t-1} + \beta_2 \phi_t + \epsilon_{i,t}$ (Computation of residualized flows)

Step 2 : $\tilde{\epsilon}_{i,t} \sim \beta_0 + \beta_1 Treated_i + \sum_{t=-26}^{26} (\beta_{2t} RelativeDate_t + \beta_{3t} RelativeDate_t \times Treated_i) + \epsilon_{i,t}$

Results: flight of investors following swing pricing introduction \Rightarrow Stigma-effect.



Impact of swing pricing on flows volatility during systemic stress

Motivation:

- More stable flows decrease portfolio restructuring costs and thus potential dilution, especially during systemic stress.
- Swing pricing provides an incentive for investors to limit transaction costs and thus to spread large redemptions and subscriptions over multiple NAV.

Methodology:

- Specification 1:** differentiation of effects under systemic stress and standard conditions:

$$Vol_{i,t} \sim \beta_0 + \beta_1 Stress_t + \beta_2 SP_{i,t} + \beta_3 (SP_{i,t} \times Stress_t) + \beta_4 Controls_{i,t-1} + \beta_5 \gamma_i + \beta_6 \phi_t + \epsilon_{i,t}$$

- Specification 2:** Influence of constraints on the sensitivity of flow volatility to swing pricing estimated with a triple interaction term ($SP_{i,t} \times Stress_t \times Constraints_{i,t}$).

Results:

- Weak evidence that swing pricing decreases flow volatility.
- However, without constraints, we find a stabilizing impact of swing pricing.

(selected coefficients)	Volatility			
	(1)	(2)	(3)	(4)
SP x Stress	-0.005 (0.057)	-0.151* (0.081)	-0.299** (0.121)	-0.432*** (0.131)
SP x Stress x Constraints	-	-	0.241** (0.098)	0.247** (0.098)
Matching	No	Yes	No	Yes

Impact of swing pricing and flows level during systemic stress

Motivation:

- Swing pricing ability to address redemption pressures during stress market conditions could limit potential dilutions.

Methodology:

- Same specifications as for volatility with consecutively *Flows*, *Negative Flows* (i.e. $Flows \times \mathbb{1}_{Flows < 0}$) and *Positive Flows* (i.e. $Flows \times \mathbb{1}_{Flows > 0}$) as explained variables.

Results:

- Swing pricing decreases net flows during systemic stress ... by reducing inflows.
- However, without constraints, swing pricing has a stabilizing impact by reducing redemptions ... but also reducing subscriptions \Rightarrow stigma effect.

(selected coefficients)	Flows	Neg. flows	Pos. flows	Flows	Neg. flows	Pos. flows
	(1)	(2)	(3)	(4)	(5)	(6)
SP x Stress	-0.126** (0.061)	0.011 (0.048)	-0.137*** (0.036)	0.100 (0.108)	0.207** (0.087)	-0.106* (0.064)
SP x Stress x Constraints	-	-	-	-0.186** (0.085)	-0.161** (0.069)	-0.025 (0.048)

Note: matched dataset

Impact of swing pricing on flows level during idiosyncratic stress

Motivation:

- Idiosyncratic stress: periods of previous large outflows and liquidity strain \Rightarrow high restructuring cost.
- Funds are vulnerable during these periods: large unexpected outflows faced in situations of a deteriorated liquidity generate a dilution risk.
- How swing pricing reduces the sensitivity of net flows to idiosyncratic stress?
- High restructuring cost \Rightarrow partial swing pricing activated and high expected swing factor.

Methodology:

- Triple interaction model to explain *Flows*: $Outflows_{i,t-1} \times Illiquidity_{i,t-1} \times SP_{i,t}$
- Constraints: we isolate the impact of implementing a capped swing pricing as partial swing pricing is supposed to be activated.

Results:

- Swing pricing increases flows during idiosyncratic stress.
 - The effect strengthens for swing pricing without cap.
 - The effect vanishes for capped swing pricing.

(selected coefficient)	Flows		
	(1)	(2)	(3)
SP x Outflows x Illiquidity	0.200** (0.098)	0.305*** (0.098)	-0.094 (0.162)
Type of SP	All	W/O cap	W/ cap
Note:	matched dataset		

Conclusions

As currently implemented in France, swing pricing does not improve financial stability, as:

- Constraints on the activation and intensity of swing pricing decrease its stabilizing effect.
- Swing pricing is associated with a stigma effect that reduce inflows during turmoil and generate immediate outflows.

However, we highlight a strong stabilizing effect in the absence of constraints or when the portfolio restructuring cost is high.

\Rightarrow The calibration of swing pricing thus appears crucial to enable the stabilizing effect to offset the stigma effect.

Policy recommendations:

- Favor the implementation of unconstrained swing pricing.
- Mandatory implementation of swing pricing to avoid the stigma effect.

References

- Agostino Capponi, Paul Glasserman, and Marko Weber. Swing pricing for mutual funds: Breaking the feedback loop between fire sales and fund redemptions. *Management Science*, 2020.
- Dunhong Jin, Marcin Kacperczyk, Bige Kahraman, and Felix Suntheim. Swing pricing and fragility in open-end mutual funds. *The Review of Financial Studies*, 35(1):1–50, 2022.
- Ulf Lewrick and Jochen F Schanz. Is the price right? swing pricing and investor redemptions. *BIS Working Papers*, 664, 2017.



Working paper