

# Carry trade and negative policy rates in Switzerland

Low-lying fog or storm?

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# Motivation

- International spillovers of negative interest rate policy (NIRP) is a **very recent** strand in the literature (e.g. Arteta, Kose, Stocker and Taskin 2016<sup>1</sup>)
- Twofold interest in the Swiss franc:
  1. In times of turmoil, it is a major **safe haven currency**. Overall, also a **funding currency** of carry trade activities.
  1. Due to the "interest rate bonus" (Kugler and Weder 2002<sup>2</sup>) and the NIRP, the impacts of the Swiss National Bank's actions resonate **far beyond** Switzerland
- Lack of **robust** empirical papers analyzing the **pervasive effects** of the carry trade activity

[1] Arteta, Carlos, Ayhan Kose, Marc Stocker, and Temel Taskin. 2016. "Negative Interest Rate Policies: Sources and Implications." *Policy Research Working Paper Series* 7791. The World Bank.

[2] Kugler, Peter, and Beatrice Weder. 2002. "The Puzzle of the Swiss Interest Rate Island: Stylized Facts and a New Interpretation." *Aussenwirtschaft* 57 (01): 49–64.

# What do we do?

In the context of the NIRP in Switzerland...

- We use data from hedge funds to **investigate the behavior** of the Swiss franc carry trade
  - Four major currencies: US dollar, euro, Japanese yen, and British pound
  - Disentangle the **funding currency** and **safe haven** effects
- Our Swiss franc carry trade proxy allows the investigation of different target currencies (**bilateral analysis**)
  - **Volume** approach using **weekly** CFTC data (**non-commercial** traders), based on Fong (2013)<sup>3</sup>
  - Uncovered interest rate parity (UIP), impact on asset prices, and systemic risk

[3] Fong, Wai Mun. 2013. "Footprints in the Market: Hedge Funds and the Carry Trade." *Journal of International Money and Finance* 33 (March): 41–59.

# What do we find?

Using **all available data** at the time (Dec 23, 2014 to Nov 24, 2020), excluding the sample-selection bias...

- Major findings:
  - Distinctive behavior for the Swiss franc as **funding** and **safe have** currency
  - The UIP is **violated** for the USD, EUR and JPY models
  - Hedge funds **are able** to move asset prices
  - An **increased systemic risk** is linked to a higher Swiss franc carry trade activity

# Data and *SVAR* model

Table 1. Description of variables


Variable	Definition	Source
$IRD_i$	Interest rate differential using the 12-Month London Interbank Offered Rate (LIBOR) and spot (LIBOR) rates for target currencies (USD, EUR, JPY, and GBP)	FRED
$VIX^*$	Market sentiment: CBOE DJIA Volatility Index	FRED
$CT_i$	Net position of Swiss franc-funded carry trade by target currencies, following Fong (2013)	CFTC
$ER_i^*$	Nominal exchange rates (cross rates): USD/CHF, EUR/CHF, CHF/JPY, GBP/CHF	BIS
$FSM_i^*$	Foreign stock markets: USD - S&P 500 ( $\wedge GSPC$ ), EUR - EURONEXT 100 ( $\wedge N100$ ), JPY - Nikkei 225 ( $\wedge N225$ ), GBP - FTSE 100 ( $\wedge FTSE$ )	Yahoo Finance
$SM^*$	Domestic stock market: Swiss Market Index $\wedge SSMI$	Yahoo Finance

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- Yahoo Finance data was obtained and checked/cleaned with  packages [quantmod](#) and [BatchGetSymbols](#). Overall, the problem with this source is related to individual stocks, **not indices**.

# CFTC data

- Some **caveats**:

I. Bias in the classification of the traders

II. Trades identified as speculative may not result from carry trades

III. Only a small proportion of foreign exchange market activity is executed through exchanges (primarily OTC)

--- Galati, Heath and McGuire (2007)<sup>3</sup>

- As mentioned by **market participants**, CFTC data tends to be indicative of the **trend** of carry trade activity (Bank for International Settlements 2015)<sup>4</sup>.

[3] Galati, G., A. Heath and P. McGuire (2007), 'Evidence of carry trade activity', *BIS Quarterly Review*. [4] Bank for International Settlements (2015), *Currency Carry Trades in Latin America*, Bank for International Settlements.



# Econometric model

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Table 2. Exogenous variables for each model

Model	VAR lag length ( $p$ )	Exogenous variables
USD	2	$VIX_{t-3}, CT_{USD,t-3}, ER_{USD,t-3}, FSM_{USD,t-3}, SM_{t-3}$
EUR	2	$VIX_{t-3}, CT_{EUR,t-3}, ER_{EUR,t-4}, FSM_{EUR,t-3}, SM_{t-3}$
JPY	1	$VIX_{t-2}, CT_{JPY,t-2}, ER_{JPY,t-2}, FSM_{JPY,t-2}, SM_{t-2}$
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- Selection of the VAR lag length follows a step-wise approach: unit-root tests and Lagrange-multiplier (LM) test for residual autocorrelation
  - Robustness checks: (1) different ordering, based on Granger causality tests, (2) non-stationary model, (3) model with time dummies, and (4) model excluding the carry trade proxy

# **Results for the Impulse Response Functions (IRFs)**

## Swiss franc carry trade activity is impacted...

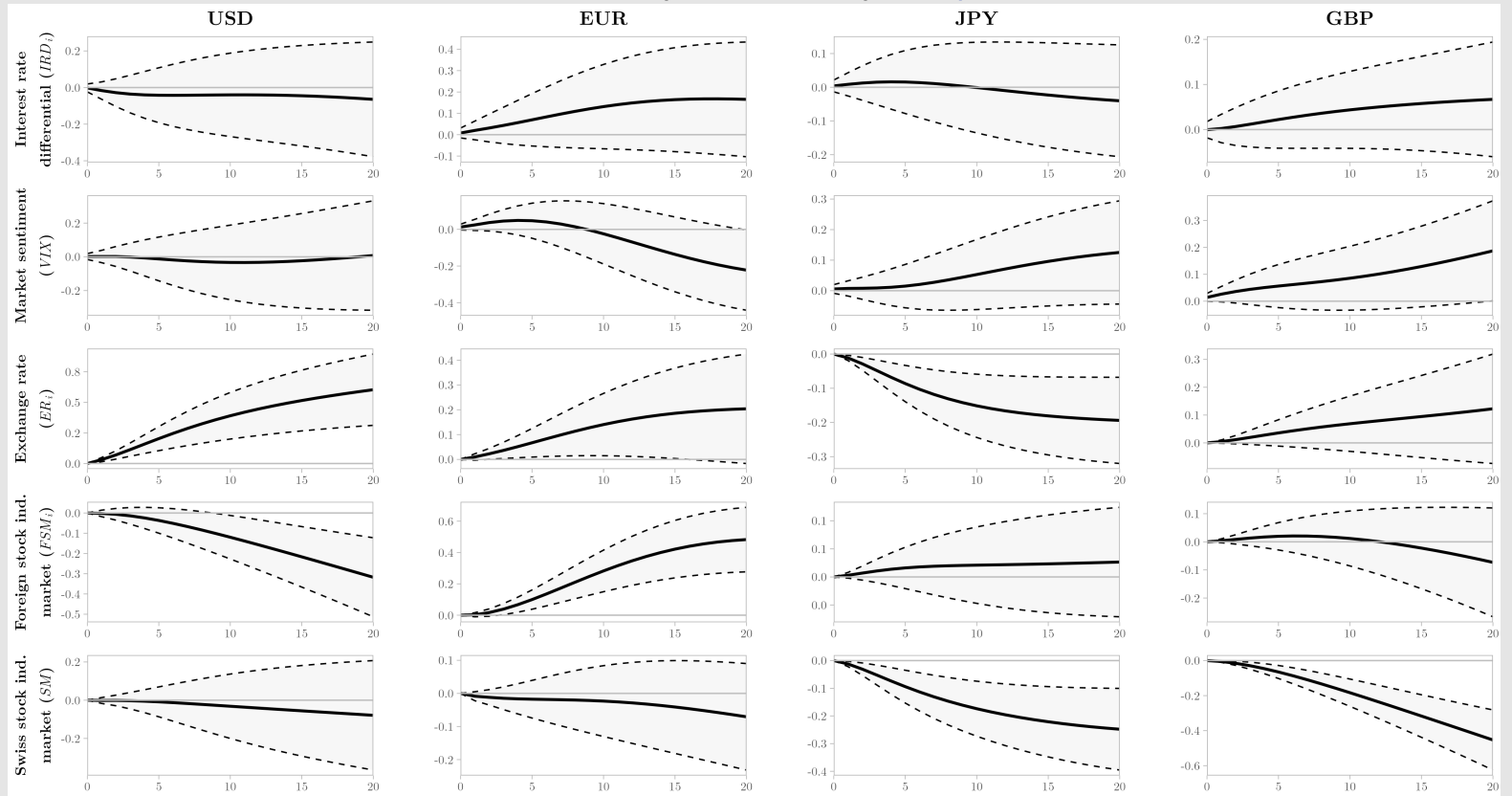


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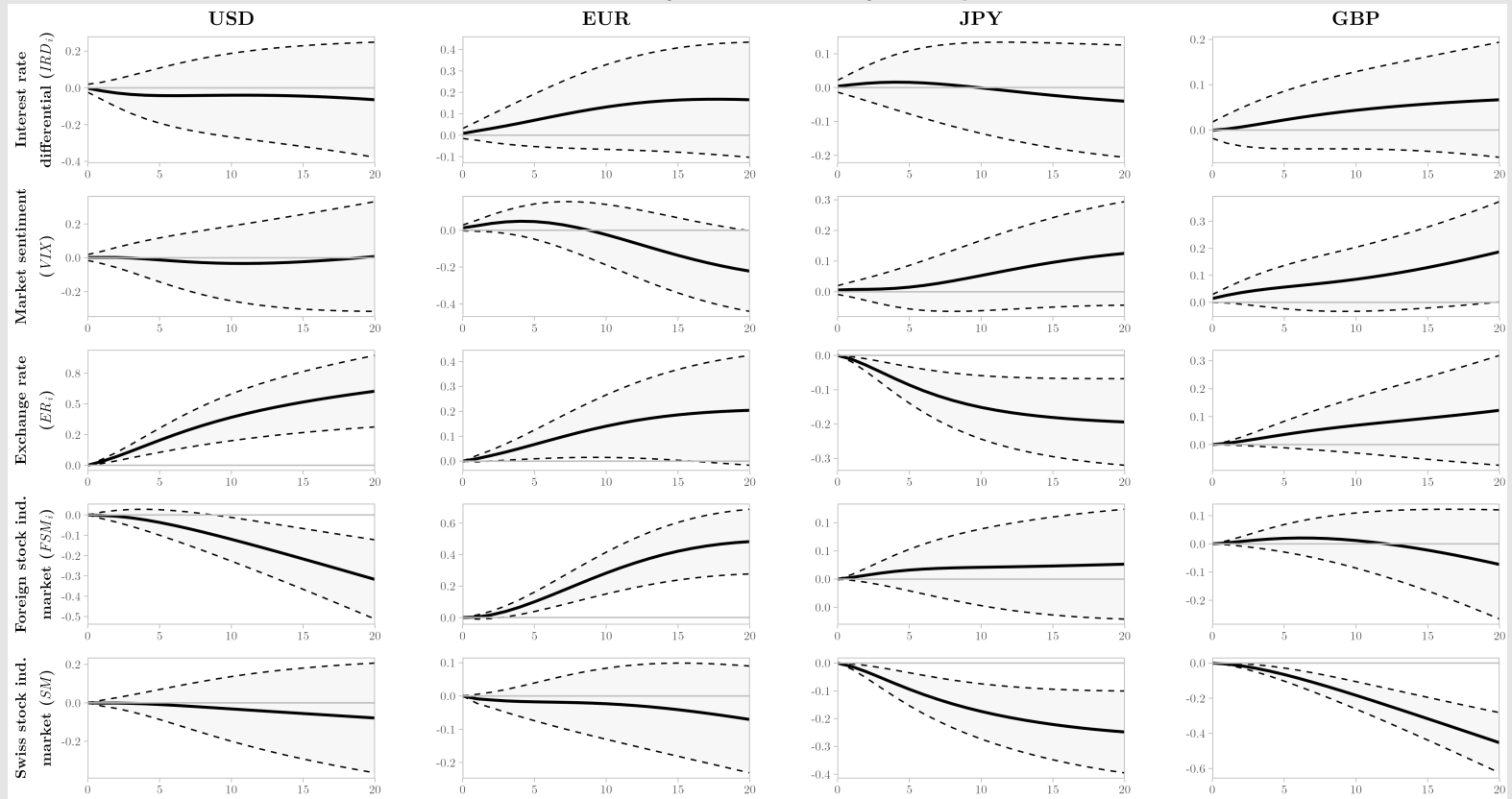


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Target currency	$IRD_i$	$VIX$	$ER_i$	$FSM_i$	$SM$
USD		+		-	
EUR		+		+	
JPY		-			-
GBP					-

## An increased Swiss franc carry trade activity...

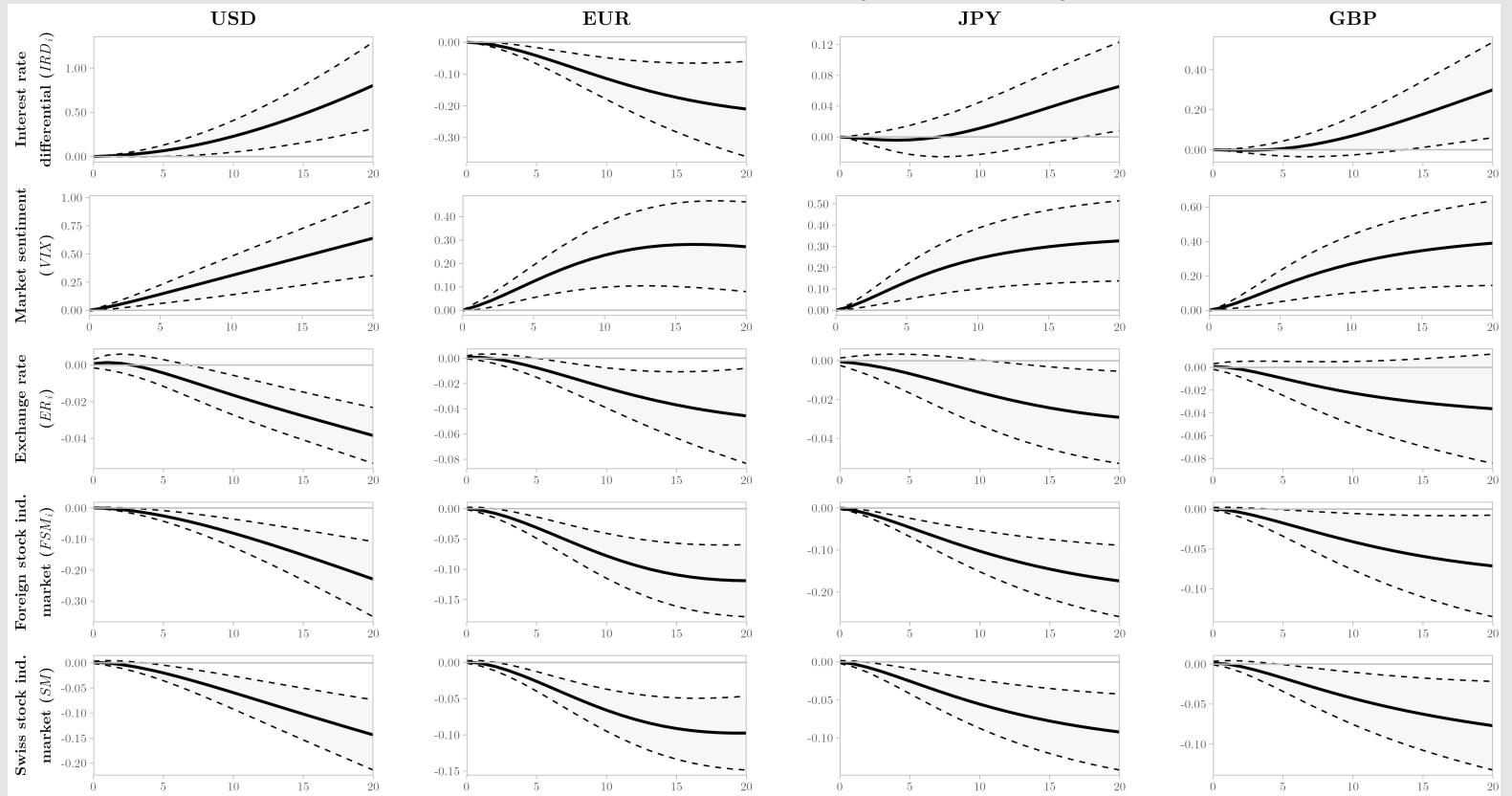


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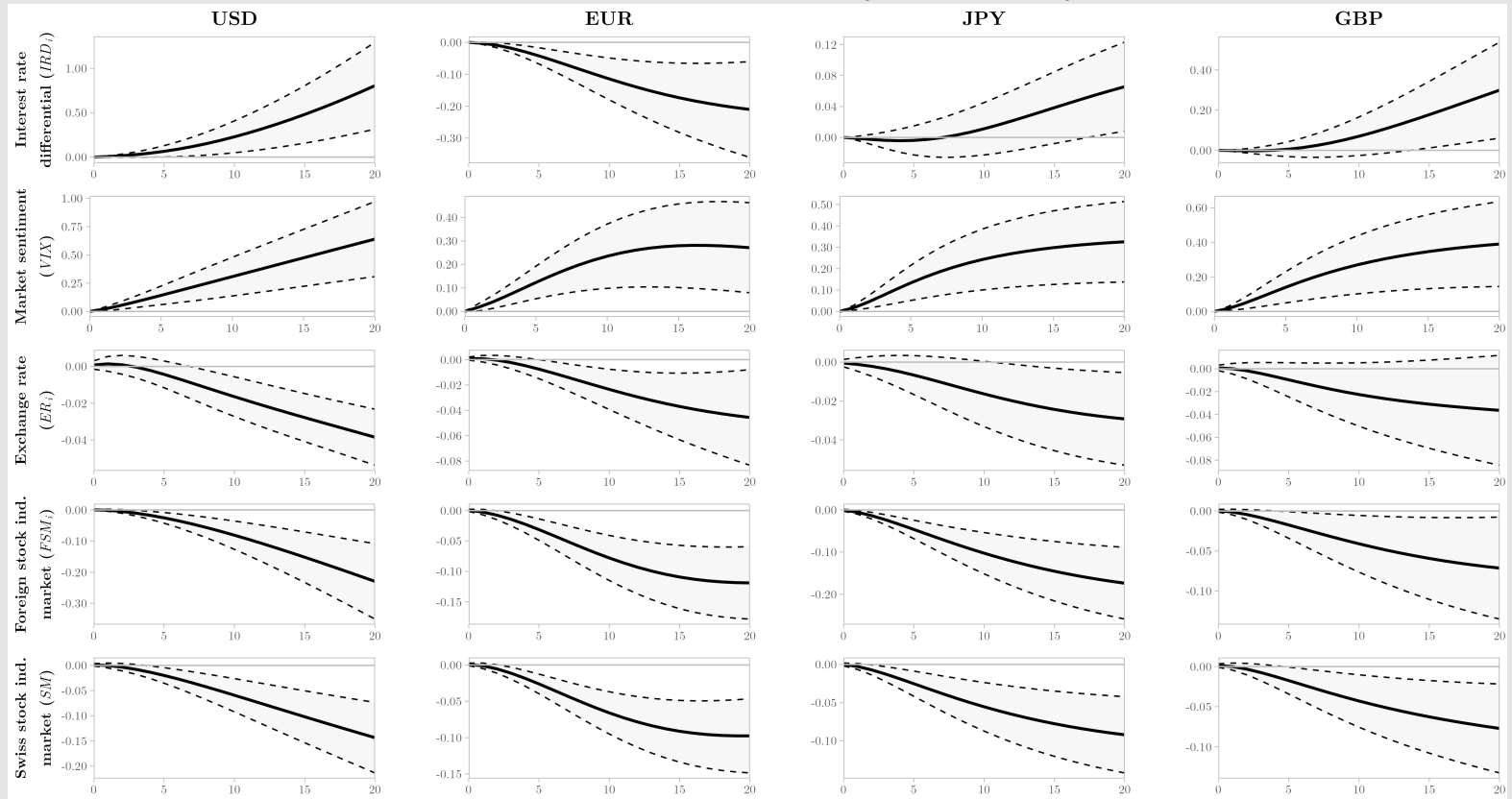


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Target currency	$IRD_t$	$VIX$	$ER_t$	$FSM_t$	$SM$
USD	+	+	-	-	-
EUR	-	+	-	-	-
JPY	-	+	-	-	-
GBP	-	+		-	-

# **Results for the Granger causality tests using the Toda- Yamamoto approach**

Swiss franc carry trade activity is Granger-caused by...

	$CT_{USD}$	$CT_{EUR}$	$CT_{JPY}$	$CT_{GBP}$
$IRD_i$	0.0483**	0.7511	0.9286	0.0558*
$VIX$	0.9823	0.2604	0.4740	0.5320
$ER_i$	0.0015***	0.1818	0.0241**	0.0002***
$FSM$	0.8945	0.3664	0.1994	0.0034***
$SM$	0.9624	0.3845	0.0787*	0.2506
<i>All variables</i>	0.0311**	0.5404	0.3112	0.0097***

Swiss franc carry trade activity Granger-causes...

	$IRD_i$	$VIX$	$ER_i$	$FSM_i$	$SM$
$CT_{USD}$	0.1881	0.0217**	0.3625	0.0656*	0.0442**
$CT_{EUR}$	0.0810*	0.0600*	0.0648*	0.0281**	0.0169**
$CT_{JPY}$	0.5202	0.0395**	0.7120	0.0017***	0.0255**
$CT_{GBP}$	0.8517	0.0300**	0.1296	0.0931*	0.0442**

Both tables show the p-value of the test for the absence of Granger causality. The null hypothesis is that one variable does not Granger-cause the other variable. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10%, respectively.

**Concluding remarks**

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- Notably, for **all models**, there is also evidence that CT **increases systemic risk** (higher CT increases VIX) and **moves asset prices** (higher CT increases FSM and SM)
- More importantly, results demonstrate that coordinated monetary policies are needed to tame these negative spillovers

# Thank you!

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