Carry trade and negative policy rates in Switzerland

Low-lying fog or storm?

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CREg Centre de Recherche en Economie de Grenoble

FURB Universidade Regional de Blumenau

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[1])
- 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.
    2. Due to the "interest rate bonus" (Kugler and Weder 2002[2]) 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.” *Aussenwirtschafhet* 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)[3]
    - 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)...

- Major findings
  - Distinctive behavior for the Swiss franc as funding and safe have currency
  - the UIP is violated for the Euro model
  - 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
SM	Domestic stock market: Swiss Market Index ^SSMI	BIS
ER_i	Nominal exchange rates (cross rates): USD/CHF, EUR/CHF, CHF/JPY, GBP/CHF	Yahoo Finance
FSM_i	Foreign stock markets: USD - S&P 500 (^GSPC), EUR - EURONEXT 100 (^N100), JPY - Nikkei 225 (^N225), GBP - FTSE 100 (^FTSE)	Yahoo Finance

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- Yahoo Finance data was obtained and checked/cleaned with R 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 (mostly OTC)
>
> --- Galati, Heath and McGuire (2007)[3]

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

[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

- Structural vector-autoregressive (SVAR) model with Cholesky identification
  - Ordering: $IRD_i \rightarrow VIX \rightarrow CT \rightarrow ER_i \rightarrow FSM_i \rightarrow SM$

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Table 2. Exogenous variables for each model

Model	VAR lag length	Exogenous variables
USD	3	$USME, IRD^{USD}_{t-4}, CT_{t-4}, FSM^{USD}_{t-4}, SM_{t-4}$
EUR	10	$ZLBEUR, ER^{EUR}_{t-11}, SM_{t-11}$
JPY	7	$NIJPY, ER^{JPY}_{t-8}, FSM^{JPY}_{t-8}, SM_{t-8}$
GBP	1	$BREXIT, CT_{GBP,t-2}, FSM^{GBP}_{t-2}, SM_{t-2}$

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- Selection of the VAR lag length follows a step-wise approach: unit-root tests, Lagrange-multiplier (LM) test for residual autocorrelation and stability test

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- Selection of the VAR lag length follows a step-wise approach: unit-root tests, Lagrange-multiplier (LM) test for residual autocorrelation and stability test
  - Results are robust to (1) different ordering, based on Granger causality tests, and (2) estimations excluding carry trade

Results for the Impulse Response Functions (IRFs)

Swiss franc carry trade activity is impacted...

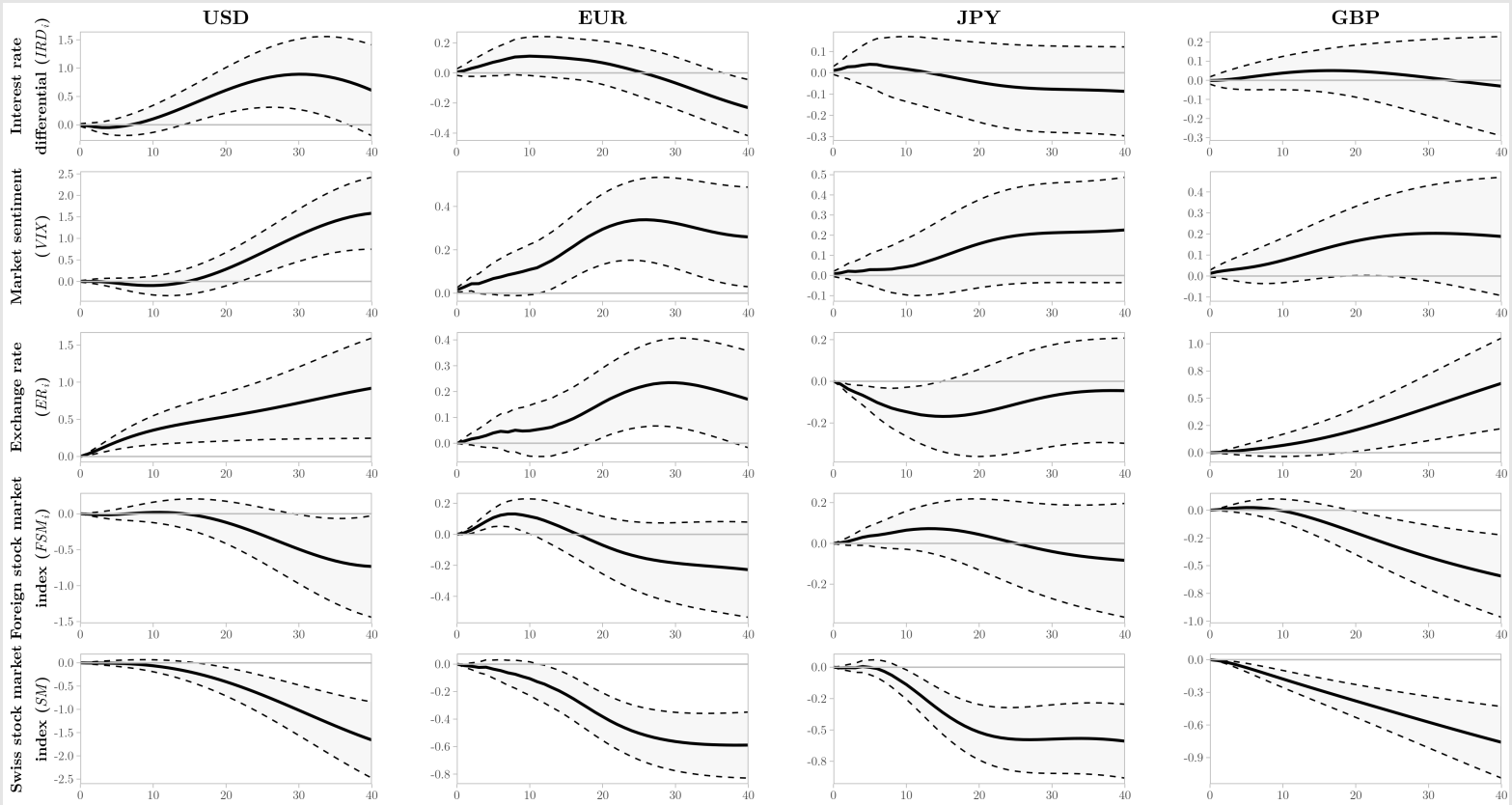

Figure 1. Cumulative structural carry trade (*CT*) responses to variables impulses in each model

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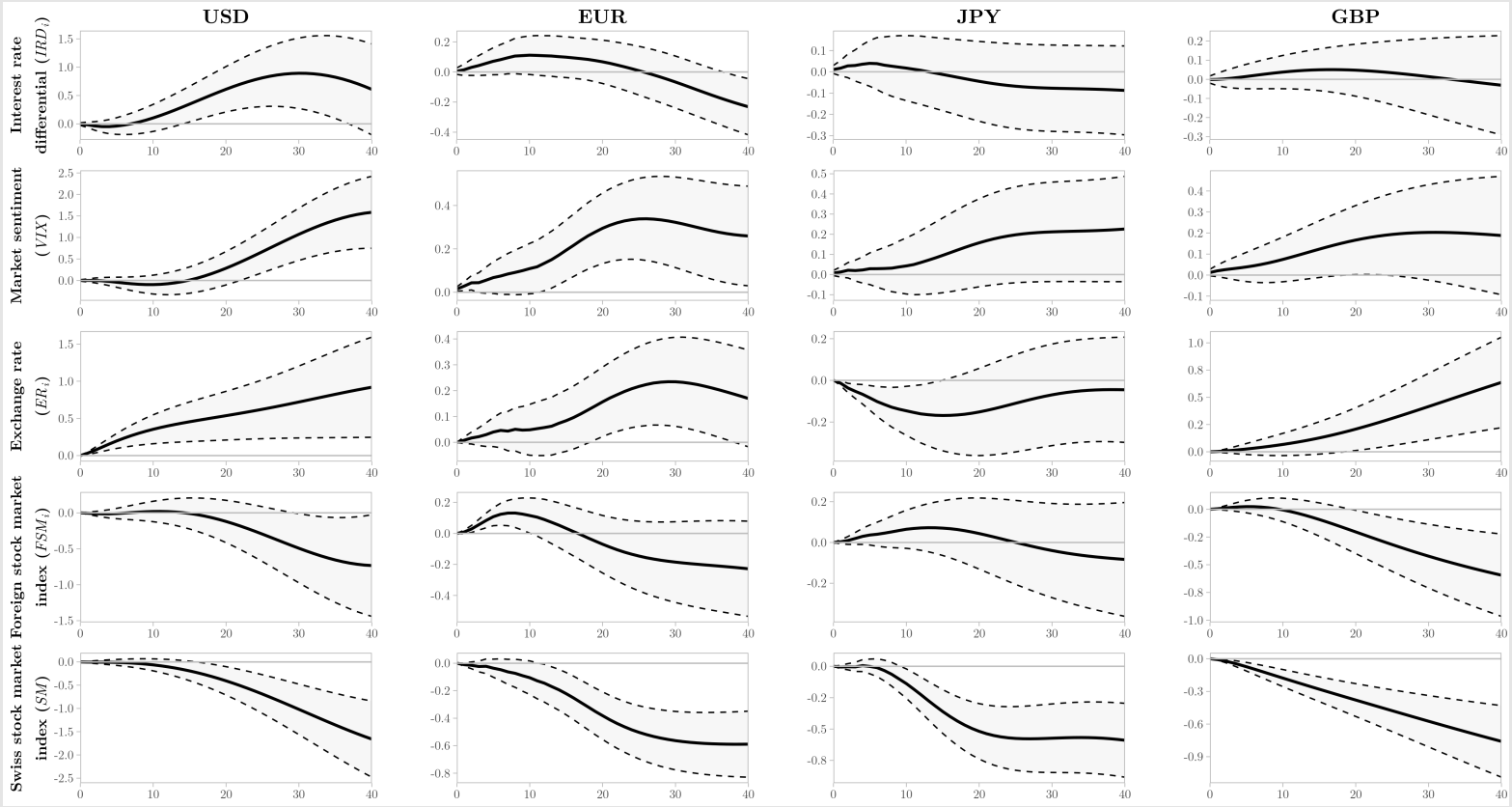

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Currency pair	IRD_i	VIX	ER_i	FSM_i	SM
USD	+	+	+	- (LR)	-
EUR	- (LR)	+	+	+ (SR)	-
JPY			-		-
GBP			+	-	-

An increased Swiss franc carry trade activity...

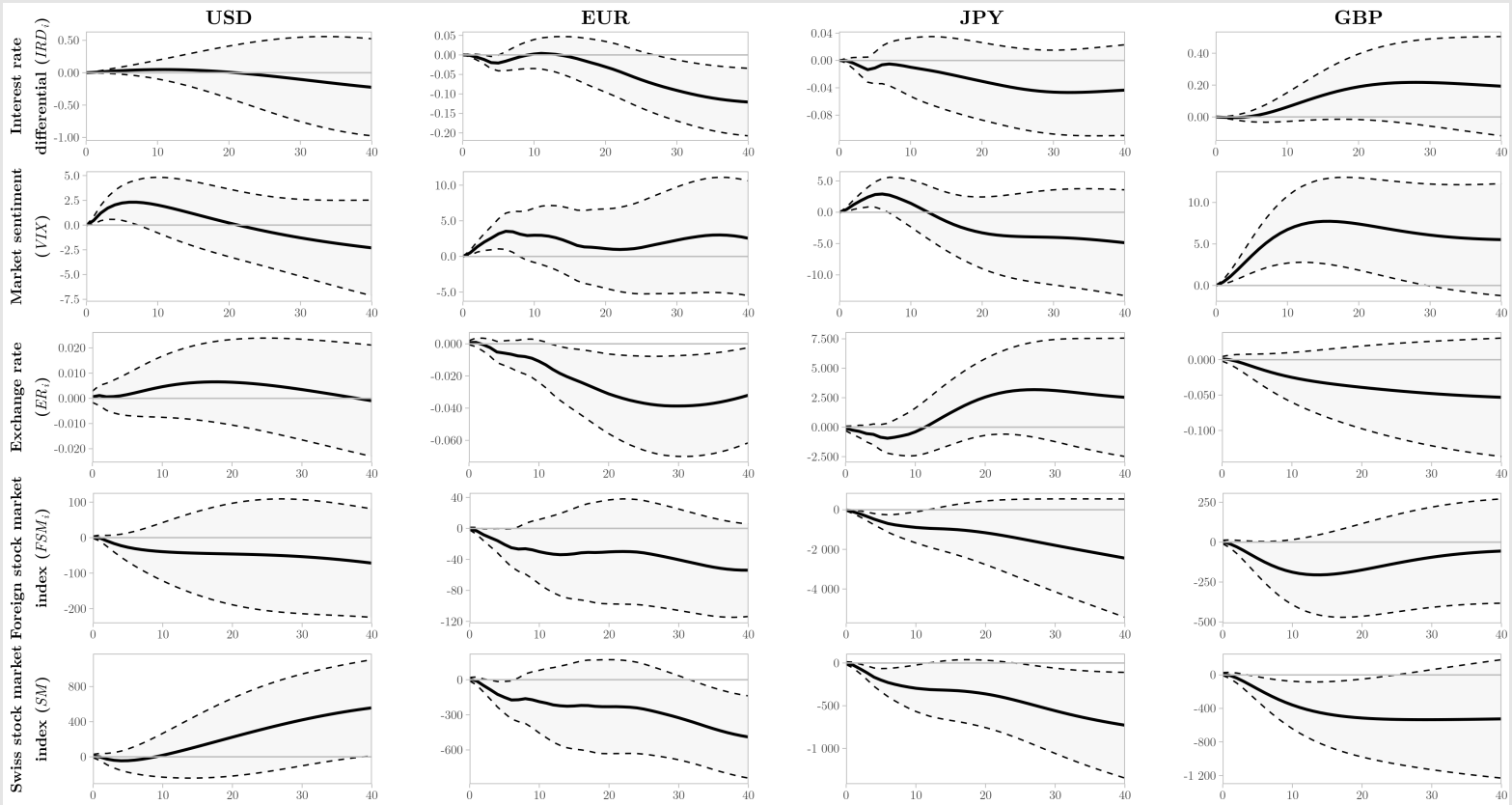

Figure 2. Cumulative structural variables responses to carry trade (*CT*) impulses in each model

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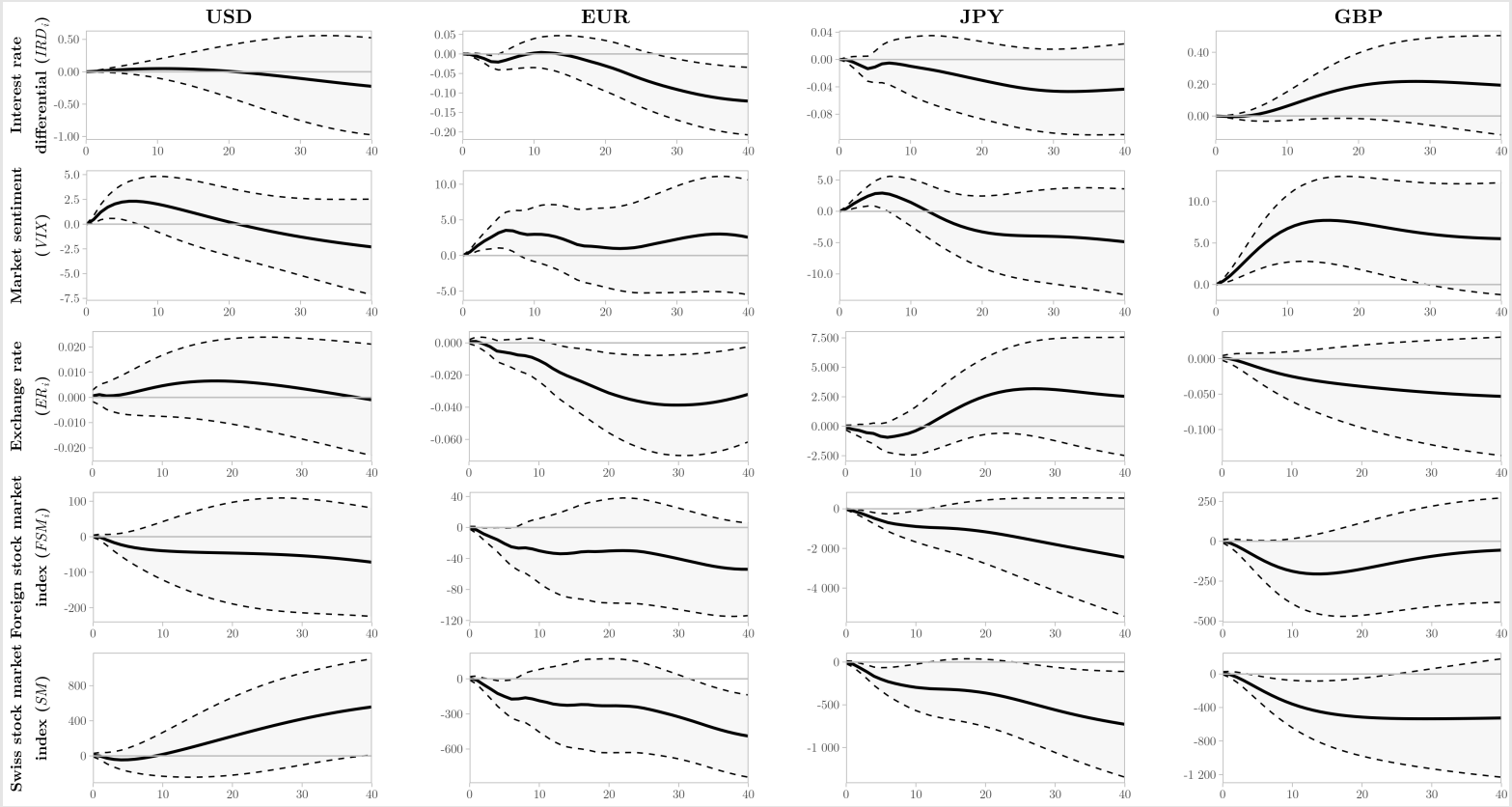

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Currency pair	IRD_i	VIX	ER_i	FSM_i	SM
USD		+ (SR)			
EUR	-	+ (SR)	-	-	-
JPY		+ (SR)		-	-
GBP		+			-

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  - Higher IRD shocks positively CT (USD)
  - CHF depreciation increases CT (all)
  - UIP failure (EUR)

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- Central banks' non-coordinated/cooperative measures could make things worse (increased uncertainty generated by the COVID-crisis)
- Massive asset-purchasing programs, targeting government bonds in particular, participate in the reduction of the “safe asset trap” between bond yields

Thank you!

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