Carry trade and negative policy rates in Switzerland

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YSI Virtual Plenary (2020)

UGA Université Grenoble Alpes

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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 heaven currency
    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 criticizing 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...

1. We analyse the **determinants** of the Swiss franc carry trade
    - Financial variables: interest rate differential between Switzerland and major currency, global market sentiment, nominal exchange rates, Swiss stock market index, and major currency stock market index

    Hypothesis 1 The Swiss franc carry trade is impacted differently by the major currencies

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2. How the carry trade activity in Swiss francs **impact** the financial variables in the model?

    Hypothesis 2 The exchange rate is depreciating with an increased Swiss franc carry trade activity

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3. Analysis setting
    - Weekly data; December 23, 2014 to September 15, 2020
    - Four major currencies: US dollar, euro, Japanese yen, and British pound

What do we find?

1. We analyse the **determinants** of the Swiss franc carry trade

   Hypothesis 1 is **partially confirmed**

   - Only two mutual results:

   I. Negative impact of the market sentiment shock (US dollar, euro and Japanese yen models)

   II. Positive impact of the US and Japanese stock markets (US dollar and Japanese yen models)

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   Hypothesis 2 **cannot** be confirmed

   - Euro model produces the only statistically significant result with an appreciation of the Swiss franc after an increase in the Swiss franc carry trade activity

Data and SVAR model

Table 1. Description of variables

Variable	Definition	Source
CT	Ratio of short positions over long positions of non-commercial traders	CFTC
VIX	Market sentiment (CBOE DJIA Volatility Index)	FRED
SM	Domestic stock market: Swiss Market Index ^SSMI	Yahoo Finance
ER_i	Nominal exchange rates: USD/CHF, EUR/CHF, CHF/JPY, GBP/CHF	Yahoo Finance
IRD_i	Interest rate differential using the spot Next London interbank offered rate (LIBOR): CHF minus major currency (USD, EUR, JPY, and GBP)	FRED
FSM_i	Foreign stock markets: S&P 500 ^GSPC - USD, EURONEXT 100 ^N100 - EUR, Nikkei 225 ^N225 - JPY, FTSE 100 ^FTSE	Yahoo Finance

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- All variables are in natural logarithms, except the interest rate differentials.
- Yahoo Finance data was obtained and checked/cleaned with R packages `quantmod` and `BatchGetSymbols`

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]

- Nevertheless, 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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  - Ordering: $IRD_i \rightarrow VIX \rightarrow CT \rightarrow ER_i \rightarrow FSM_i \rightarrow SM$
- Toda-Yamamoto approach to capture long-term effects (non-stationary variables stay in levels)

Table 2. Exogenous variables for each model

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

PDF and slides (ASAP also dataset and Stata do-file): https://bttomio.github.io

Results for the Impulse Response Functions (IRFs)

Swiss franc carry trade activity is impacted...

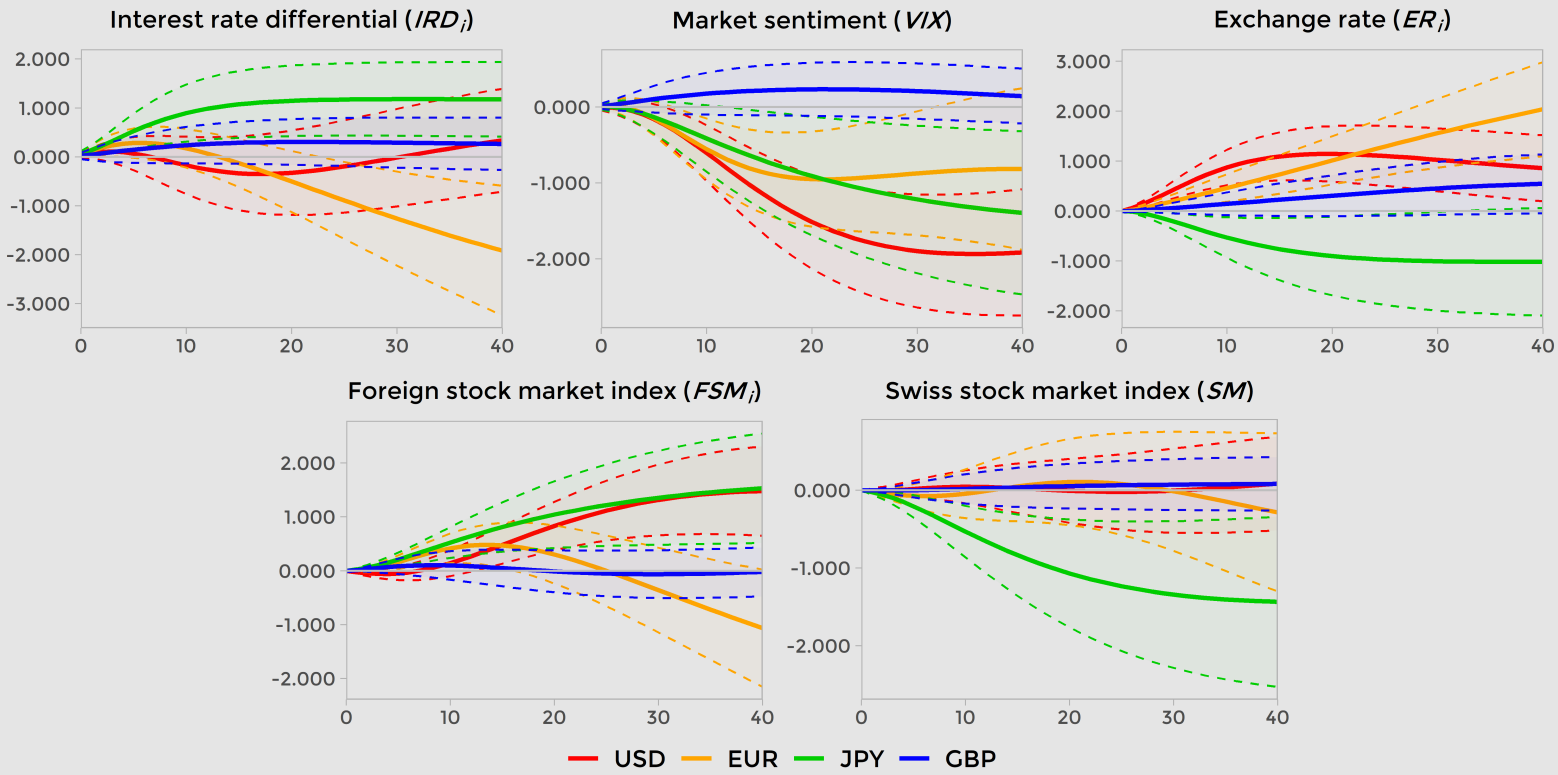

Figure 1. Cumulative structural carry trade (CT) responses to variables impulses in each model

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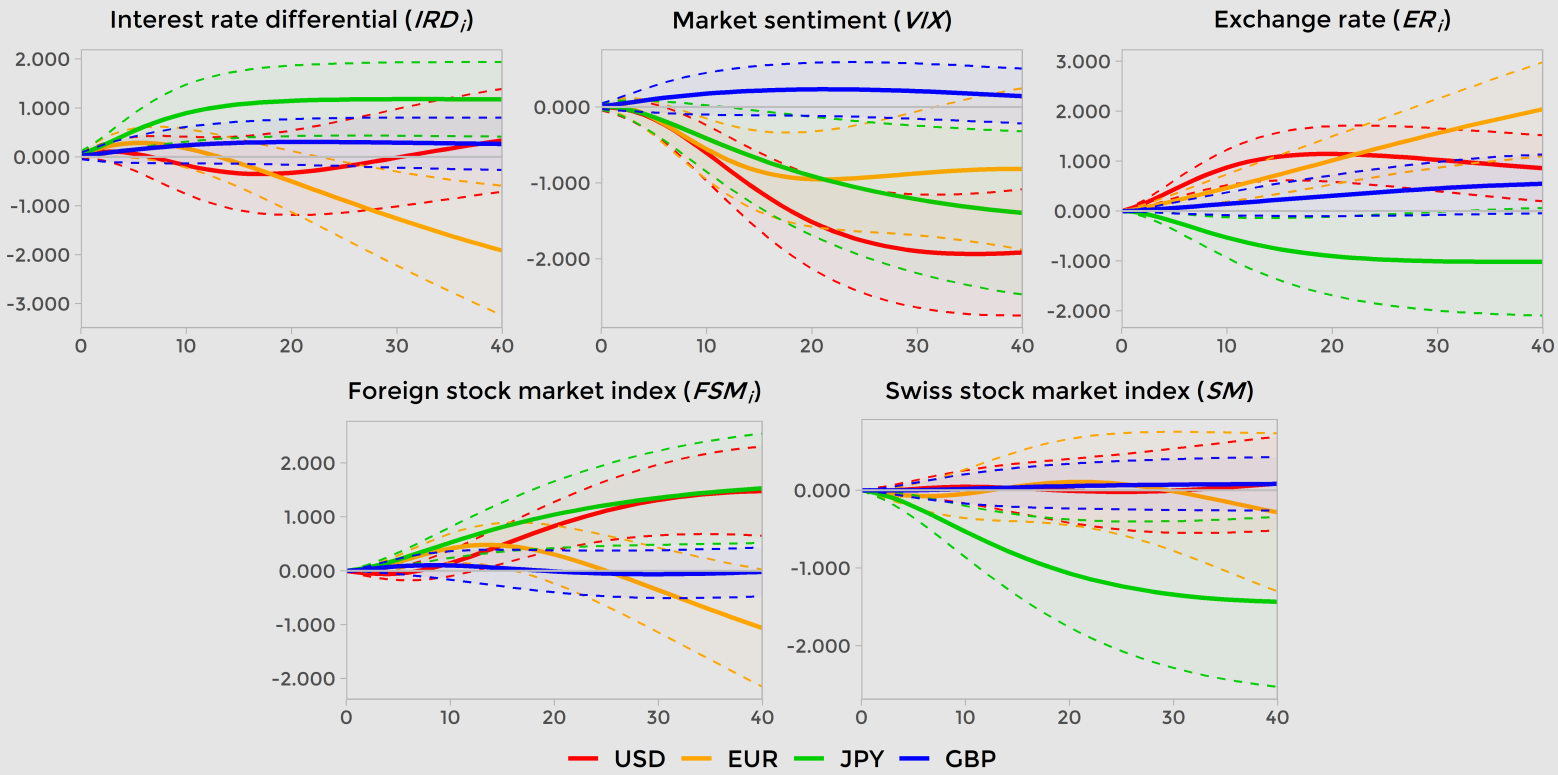

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IRD_i	VIX	ER_i	FSM_i	SM
EUR (-)	EUR (+)	EUR (+)	EUR (+, SR)	
JPY (+)	JPY (+)	JPY (-)	JPY (+)	JPY (-)
	USD (+)	USD (+)	USD (+)	

An increased Swiss franc carry trade activity...

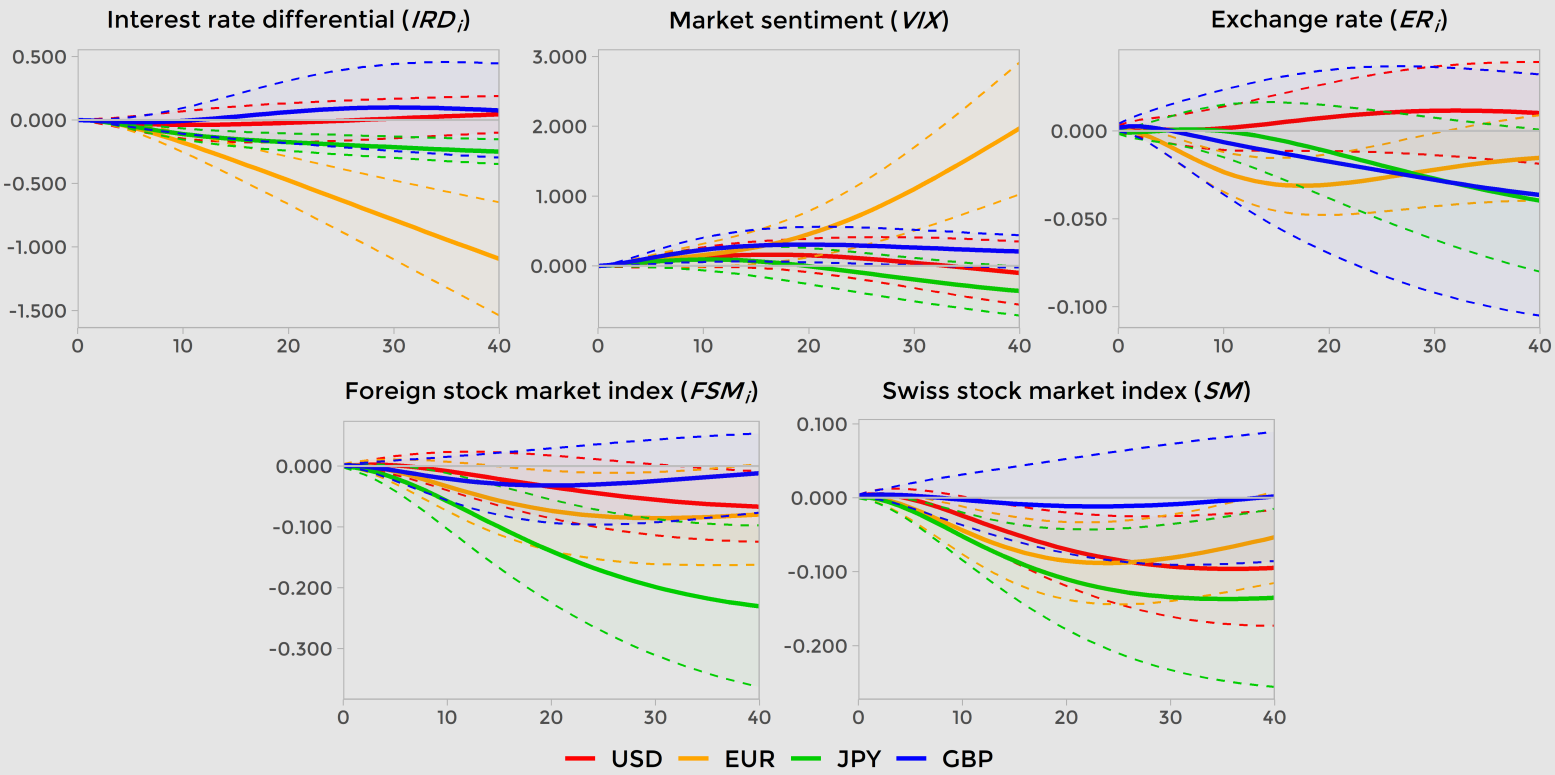

Figure 2. Cumulative structural variables responses to carry trade (CT) impulses in each model

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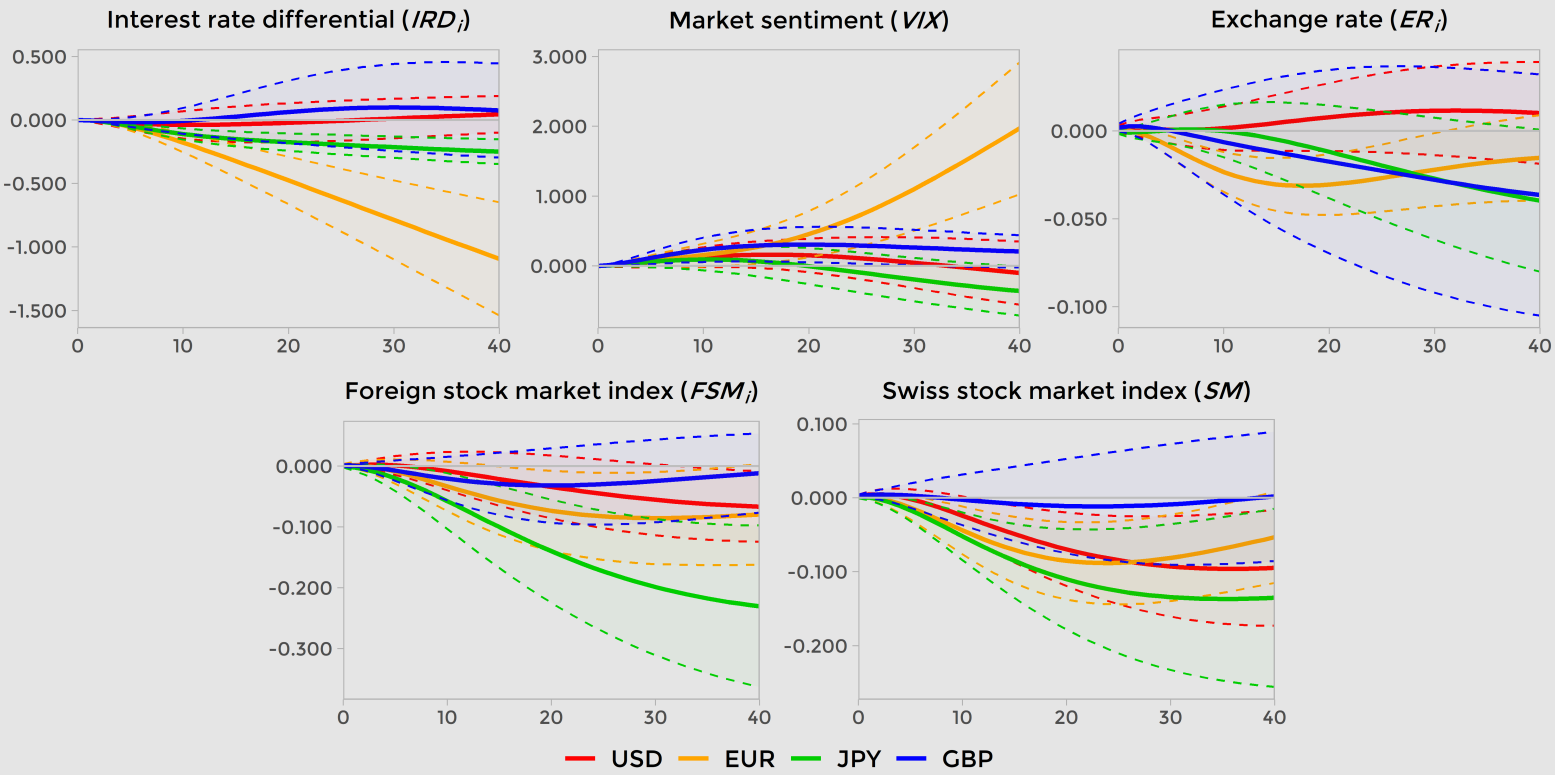

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IRD_i	VIX	ER_i	FSM_i	SM
EUR (-)	EUR (+)	EUR (-)	EUR (-)	EUR (-)
JPY (-)			JPY (-)	JPY (-)
			USD (-)	USD (-)

Concluding remarks

Contribution

- The paper extends the carry trade literature by investigating the effects of the Swiss NIRP
- Four Swiss-major currency models are explored ($, €, ¥, £)
- With an **increased** carry trade activity in Switzerland (due to NIRP), the **CHF** is **appreciating** (€ model) and **financial markets activities** (domestic, abroad) is being **harmed**

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Policy implications

- We find evidence of an appreciation of the EURCHF (drawback of the NIRP) and an increased systemic risk (VIX and stock market)
- Massive asset-purchasing programs, targeting government bonds in particular, participate in the reduction of the “safe asset trap” between bond yields
- Central banks' non-coordinated/cooperative measures could make things worse (increased uncertainty generated by the COVID-crisis)

Thank you!

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Slides created with {xaringan} and {xaringanthemer}.

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