

General introduction

Financialization of FX markets

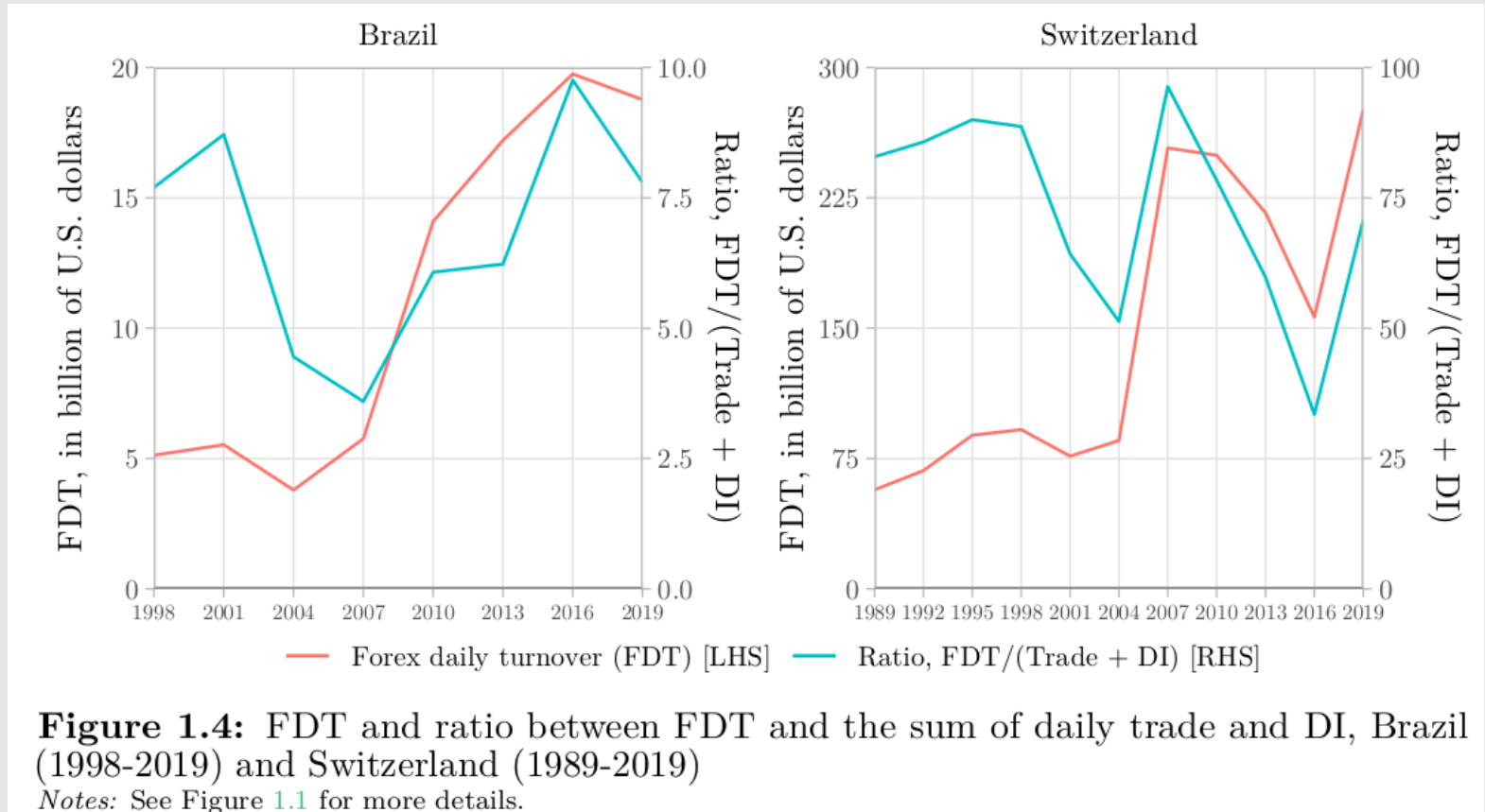


Figure 1.1: Forex daily turnover (FDT) and ratio between FDT and the sum of daily trade and direct investment (DI), 1989-2019

Source: Bank for International Settlements (BIS) for the Forex daily turnover (FDT), using the net-gross basis. International Monetary Fund (IMF) for trade (sum of exports and imports of goods and services in U.S. dollars) and direct investment (sum of net acquisition of financial assets and net incurrence of liabilities in U.S. dollars).

Notes: Since FDT series are daily means for April, the sum of trade and DI are divided by 252, which is a rule of thumb for the number of trading days in a year (New York Stock Exchange 2021). See Appendix A.1 for more details. LHS and RHS are the abbreviations for left-hand axis and right-hand axis, respectively.

Two key currencies involved



Lack of empirical studies

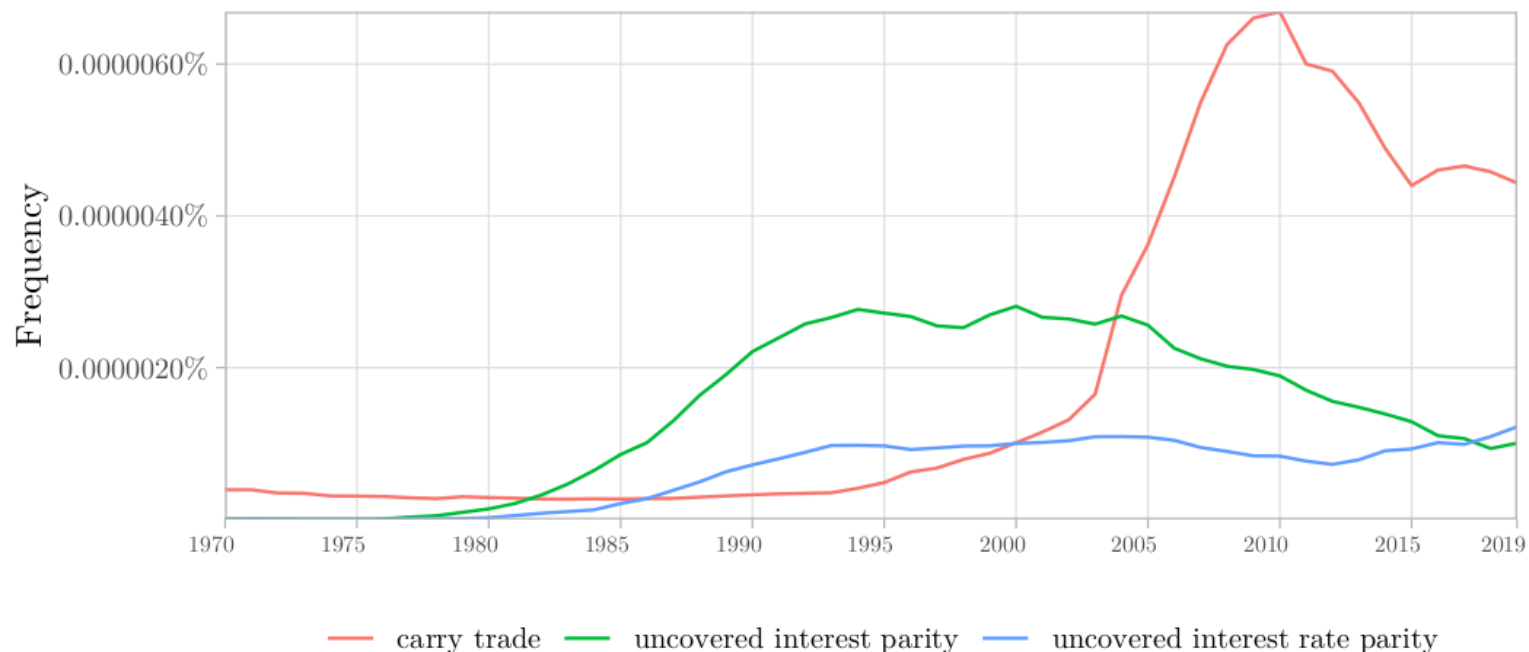


Figure 1.5: Frequency of appearance of the keywords *carry trade* and *uncovered interest (rate) parity*, 1970-2019

Source: Data obtained from Google Books Ngram Viewer (2021a).

Research design

Carry trade definition

- No generally accepted
- Borrowing and investing (canonical)
- In this thesis, the carry trade is
 - Leveraged
 - Futures market
 - Short (funding) and Long (target)

Methodology

- Holism as the core
- Epistemology rooted in
 - Realism
 - Skepticism
 - Empiricism
 - Principle of parsimony
- Reproducible research
 -  (manuscript, presentation and econometric procedures)
 - Check https://github.com/bttomio/UGA_thesisdown

Data

- Volume approach, instead of prices
- Weekly CFTC data
- Best public data
- Limitations
 - Small proportion
 - Classify traders, not activity
 - Short data range for Brazil

Main results

Empirical approach [I]

- World economy is proxied with 21 countries and the Euro area (84% of global nominal output)

Country coverage

CFTC countries	Australia (AU), Brazil (BR), Canada (CA), Switzerland(CH), United Kingdom (GB), Japan (JP), Mexico (MX), New Zealand (NZ), Russia (RU), Euro area (U2)*, United States (US)
Global economy	China (CN), Czech Republic (CZ), Denmark (DK), Hungary (HU), India (IN), Korea, Rep. (KR), Norway (NO), Poland (PL), South Africa (ZA), Sweden (SE), Turkey (TR)

Notes: Abbreviations follow the two-digit codes provided by IMF's database International Financial Statistics (IFS). South Africa (ZA) is excluded from the CFTC group due to lack of data.

* Changing composition.

Empirical approach [II]

- Monthly and quarterly models (roughly)
- Two measures of global risk

List of variables

Variable	Definition	Source	Model							
			Quarterly				Monthly			
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>GDP</i>	Gross domestic product*	OECD	•	•						
<i>C</i>	Final consumption expenditure*	OECD			•	•				
<i>GFCF</i>	Gross fixed capital formation*	OECD			•	•				
<i>X</i>	Exports of goods and services*	OECD			•	•	•	•	•	•
<i>M</i>	Imports of goods and services*	OECD			•	•	•	•	•	•
<i>RES</i>	Official reserve assets and other foreign currency assets*	IMF	•	•	•	•	•	•	•	•
<i>IR</i>	Policy interest rate	BIS	•	•	•	•	•	•	•	•
<i>ER</i>	Nominal exchange rate*	BIS	•	•	•	•	•	•	•	•
<i>EQ</i>	Equity (share) prices*	OECD	•	•	•	•	•	•	•	•
<i>NP</i>	Net (long minus short) positions as a share of open interest contracts (carry trade proxy)	CFTC	•	•	•	•	•	•	•	•
<i>VIX</i>	CBOE Volatility Index (VIXCLS)*	FRED	•		•		•		•	
<i>GCF</i>	Global common factor estimated from world-wide cross section of risky asset prices	Miranda-Agrippino (2021)		•		•		•		•
<i>IP</i>	Industrial production excluding construction*	OECD							•	•

Notes: See Table A.1 in A for more details.

* Variables in logarithmic transform.

Empirical approach [III]

Time span for each model

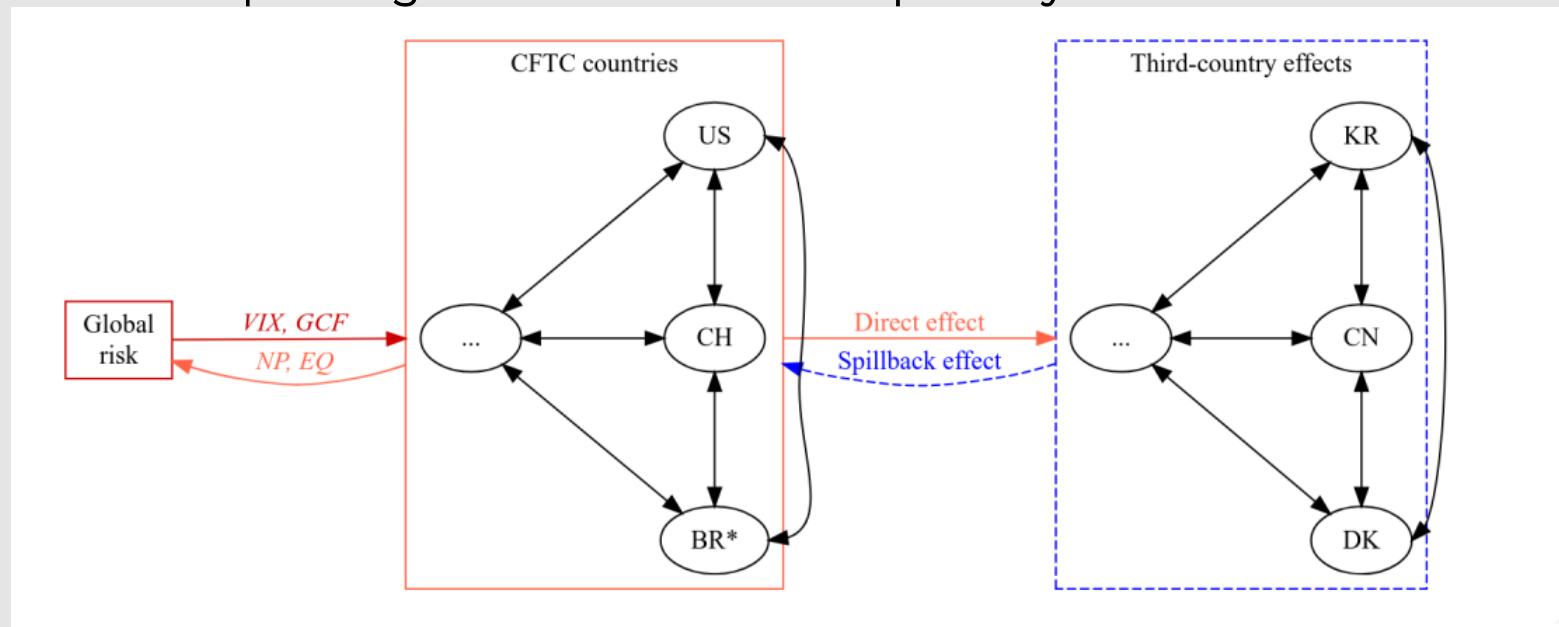
Country	Period	Observations	Global risk	Models
Quarterly data				
Switzerland	2006-Q2 to 2021-Q2	61	<i>VIX</i>	(1), (3)
	2006-Q2 to 2019-Q1	52	<i>GCF</i>	(2), (4)
Brazil	2012-Q2 to 2021-Q2	37	<i>VIX</i>	(1), (3)
Monthly data				
Switzerland	2006-06 to 2021-07	182	<i>VIX</i>	(5)
	2006-06 to 2019-04	155	<i>GCF</i>	(6)
Brazil	2014-01 to 2021-07	91	<i>VIX</i>	(5), (7)
	2014-01 to 2019-04	64	<i>GCF</i>	(6), (8)

Notes: Models (2) and (4) are not estimated for Brazil due to a lack of data, which leads to a sample of 27 observations. For Switzerland, models (7) and (8) are not estimated because there is no monthly data for industrial production.

Empirical approach [IV]

- Bayesian global vector autoregressive model (BGVAR)
- Negative carry trade effects in both countries (main hypothesis)

GVAR setup with global risk modelled separately



Main results [Switzerland]

Negative shock on carry trade

Variable	Definition	Model					
		Quarterly				Monthly	
		(1) [†]	(2) [‡]	(3) [†]	(4) [‡]	(5) [†]	(6) [‡]
<i>GDP</i>	Gross domestic product	○	↓				
<i>C</i>	Final consumption expenditure			○	↓		
<i>GFCF</i>	Gross fixed capital formation			○	↓		
<i>X</i>	Exports of goods and services			○	○	↓	↓
<i>M</i>	Imports of goods and services			○	○	↓	↓
<i>RES</i>	International reserves	○	↓	↓	↓	↓	↓
<i>ER</i>	Nominal exchange rate	↑	↑	↑	↑	↑	↑
<i>EQ</i>	Equity (share) prices	○	○	○	○	↓	↑

Notes: See Figures D.19 and D.20 in Appendix D.9 for the responses of policy interest rates (*IR*), which do not present any statistically significant result.

Symbols: † (*VIX*), ‡ (*GCF*), ↑/↓ (increase/decrease, statistically significant), ↑/↓ (increase/decrease, partially statistically significant), and ○ (not statistically significant).

General conclusion

Final remarks

- In general, this article **contributes to a better understanding** of the carry trade effects in developed and developing countries (notably, Switzerland and Brazil)
- By making all econometric procedures **reproducible**, there is a contribution for **enhanced transparency and ethics** in Economics
- The **macro-financial linkages** remain a field widely open for new developments, wherein this article aimed to contribute on exploring the carry trade
- Central banks...
 - need more research to **tame the negative spillovers** of monetary policy
 - could **follow** the CFTC to create better datasets on futures market

Thank you!

Obrigado!

⚙️ bttomio@furb.br

🐦 [@bttomio](https://twitter.com/bttomio)

