

The Strong and the Weak: European currencies during the Snake



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Introduction

- Monetary policy struggles in a context of strong inflationary pressures and diverging fundamentals
- Context of shocks in energy prices

ECB's Ad-Hoc Meeting Signals Emergency, Analyst Says

By Renae Dyer



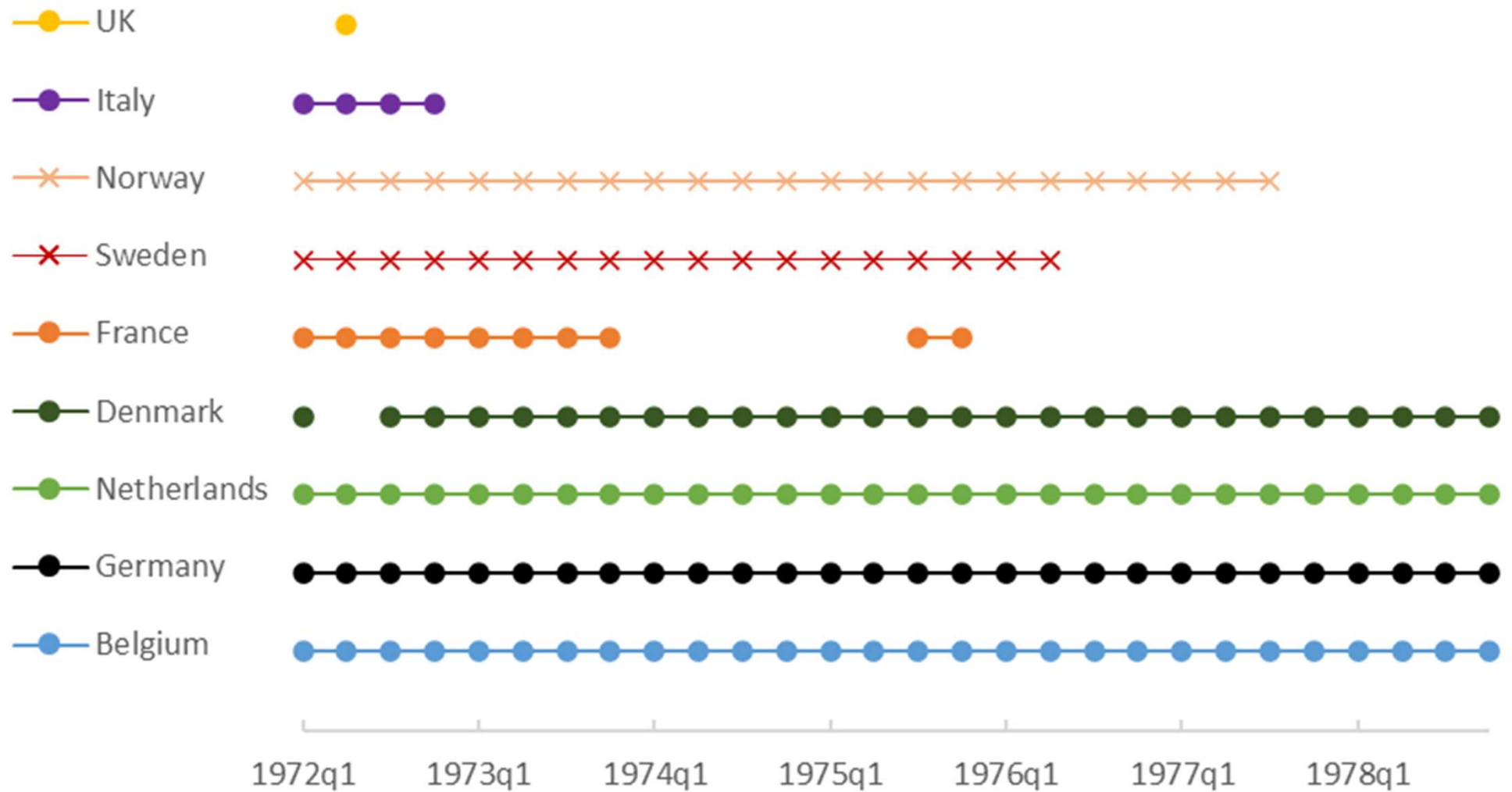
Our contribution

- The case of crawling peg: the European Monetary Snake 1972-1979, an arrangement to manage European currency movements after the fall of the Bretton Woods system.
- New data on central banks interventions on the foreign exchange markets
- Our questions
 - Did countries cooperate during the Snake?
 - Does inflation influence central bank fx intervention?
- Findings
 - Cooperation was far from perfect but worked overall within the snake
 - Strong currencies countries intervened more to support the snake

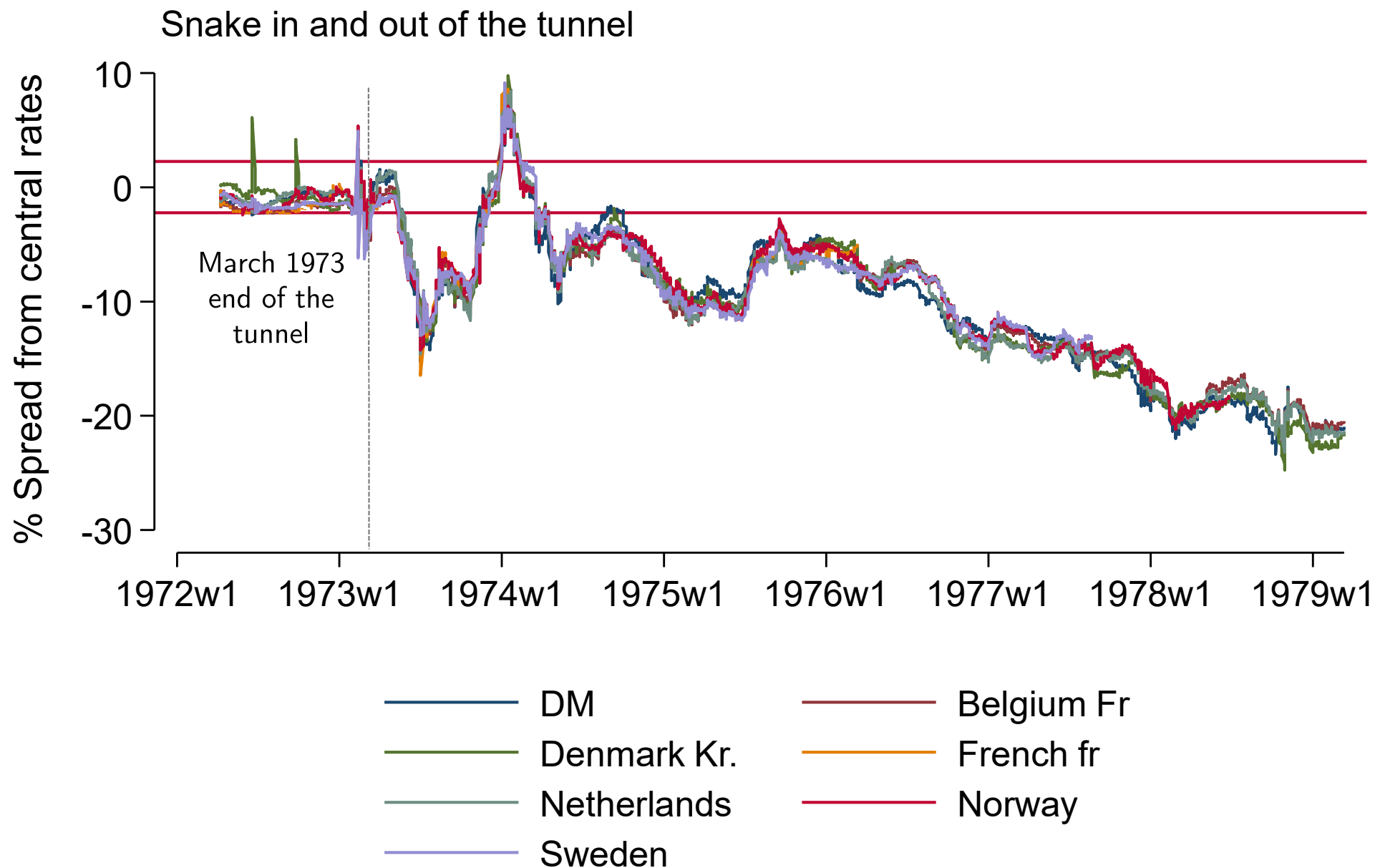
The Snake

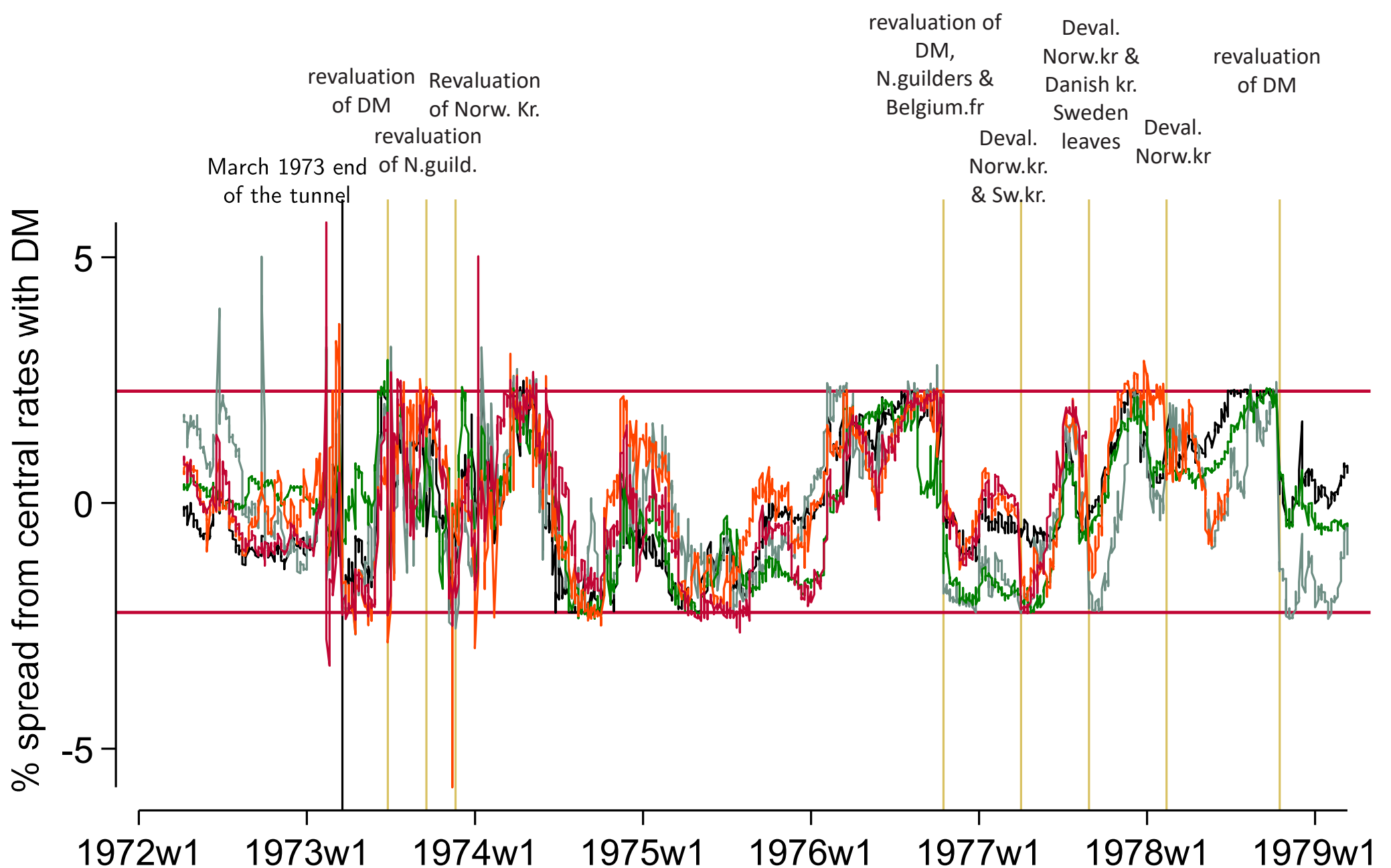
- It was part of a broad movement of creating a monetary union in Europe
- Smithsonian meeting of the G-10 finance ministers and central bank governors (December 17–18, 1971) launches the idea
- The Basel Accord of April 10, 1972 set out the operational details of the new system
- The Snake started with a 'tunnel' ie a dollar anchor, which was later removed in 1973.
- In continuation of EPU and EMA, Ancestry of the EMS and the Euro

The Snake countries



Stylised snake – strong, weak, parity and tunnel





Note: currency unit per DM,
negative spread = appreciation
of the currency

— Belgium Fr	— Denmark Kr.
— Netherlands	— Norway
— Sweden	

The original data – central bank foreign exchange intervention

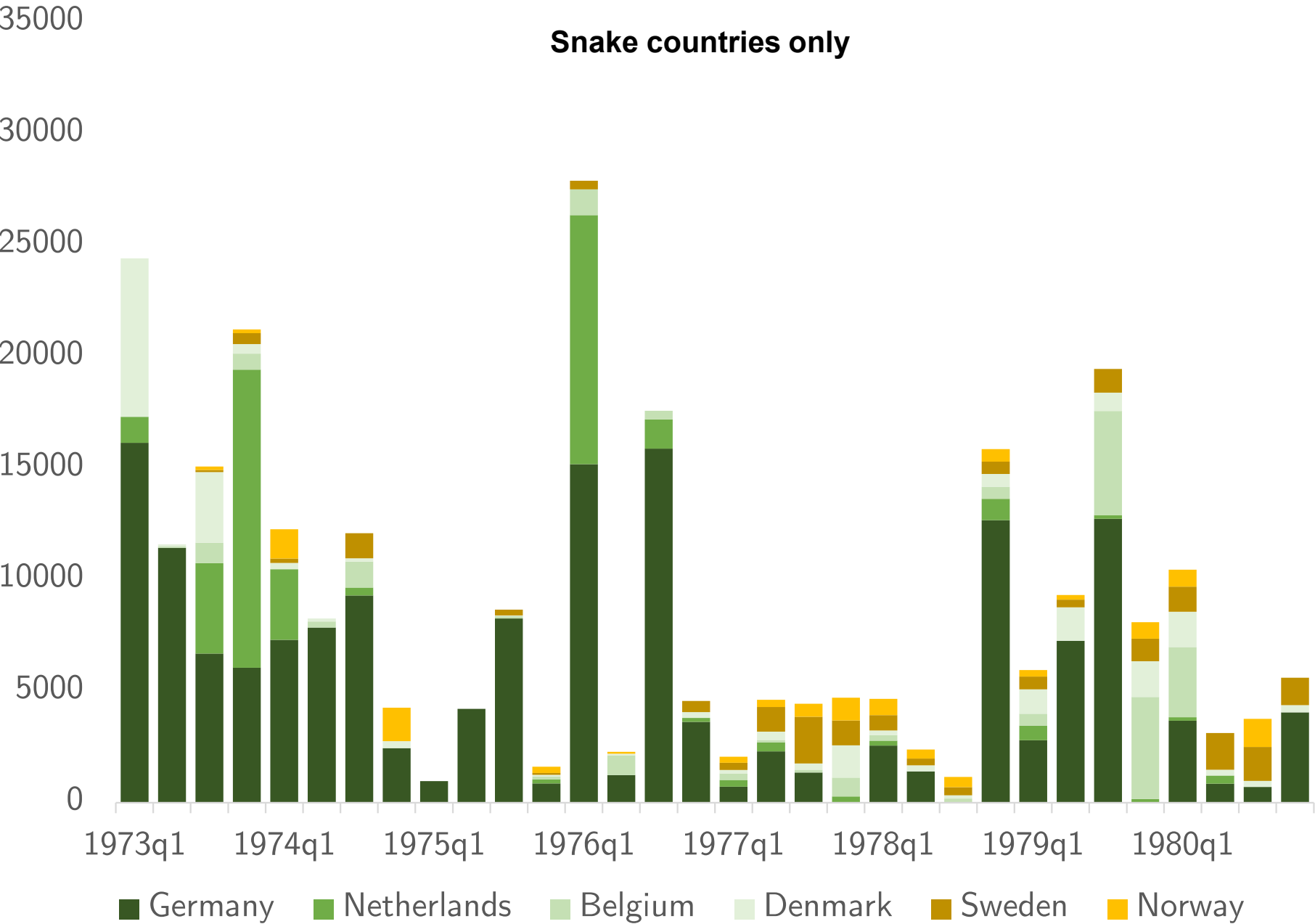
- Main data: sales and purchases of foreign exchange reserves. This is meant to influence the value of the currency on foreign exchange markets
- Data gathered at the Bundesbank archive, newly digitized for this research
- In the 1970s, central banks in Europe started to call each other several times a day (a procedure called the concertation “Konzertation” in Germany)

EWG - Konzertation

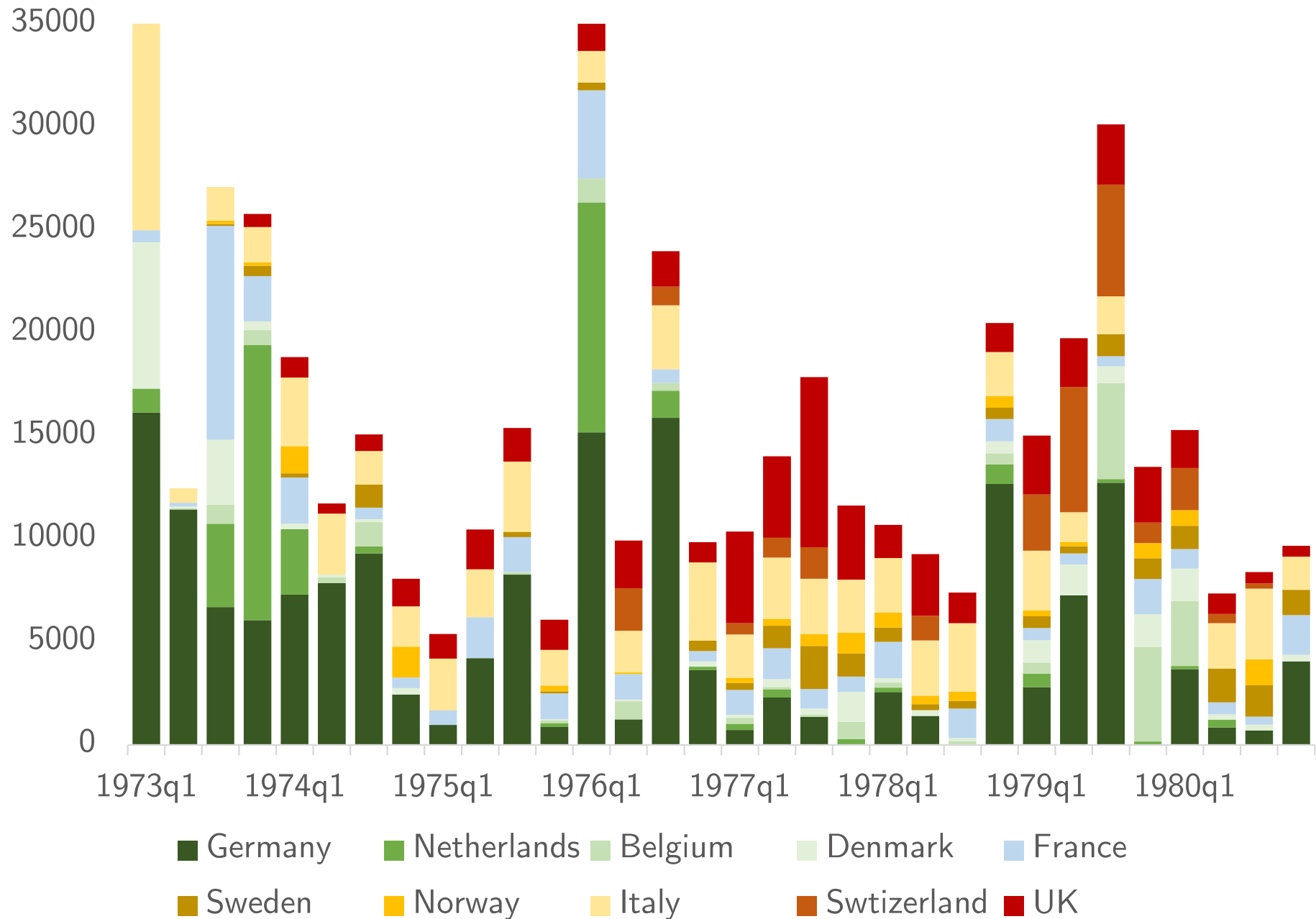
Beträge in Mio

1979													
London					Paris					Rom			
Datum	Interv.	Swaps	Kund.G.	Reserve-V.	Interv.	Swaps	Kund.G.	Reserve-V.	Interv.	Swaps	Kund.G.	Reserve-V.	
8/3	+ 200 \$ + 49 \$	- 105 \$			- 182 DM - 148 " d Fed + 1160				+ 30 \$ + 2 \$				
9/3	+ 13 \$	- 155 \$	- 16,0		- 185 DM				- 64 \$ + 1 \$				
12/3	+ 81 \$ + 6 \$		+ 170,0		- 690,9 DM + 225 \$				+ 53 \$			+ 175, km	
13/3	+ 1774,0	- 1700,0	+ 185,0		+ 017950	+ 1280	+ 177,7				- 18,0		
14/3	+ 172,0		+ 16,0		+ 1707,8 + 017252,6	- 165,0			+ 126,0				

Data - Operations overview (interventions in million dollars)



Data - Operations overview (interventions in million dollars)



Intervention currencies

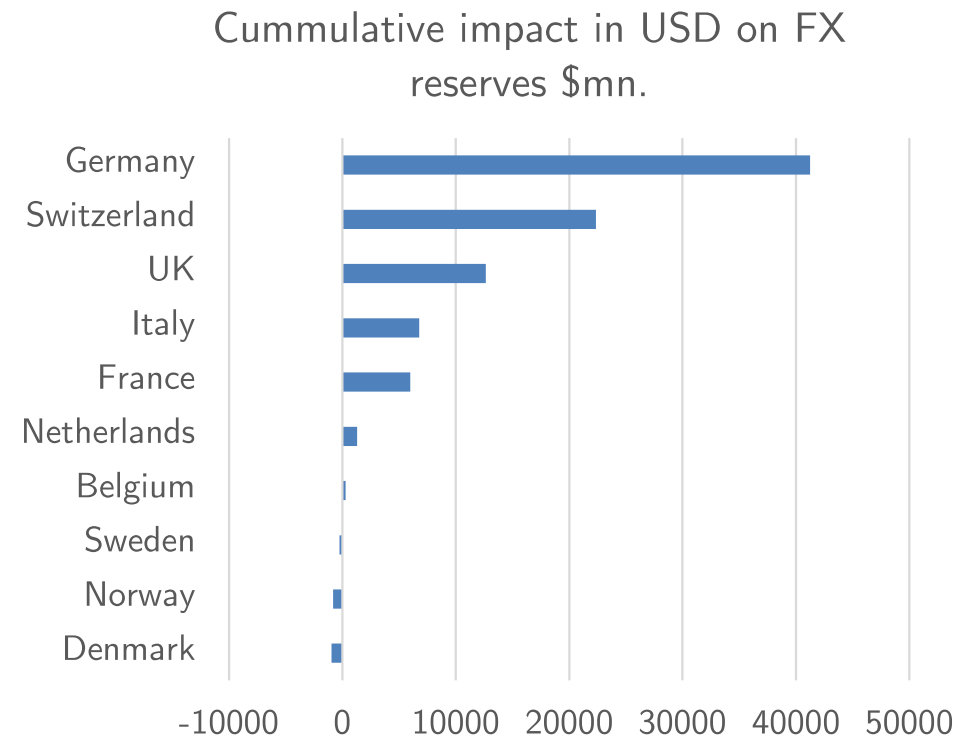
- The dollar was only to be used to affect rates between the snake and the dollar, but snake member countries also used it to maintain intra-snake rates.
- Most of FX reserves were in dollars. Other interventions currencies were borrowed from the EMCF

	% of intervention volumes in USD All periods
Belgium	34%
Denmark	66%
France	73% (61% if snake)
Germany	75%
United Kingdom	100%
Italy	98%
Netherlands	51%
Norway	76%
Sweden	83%
Switzerland	98%

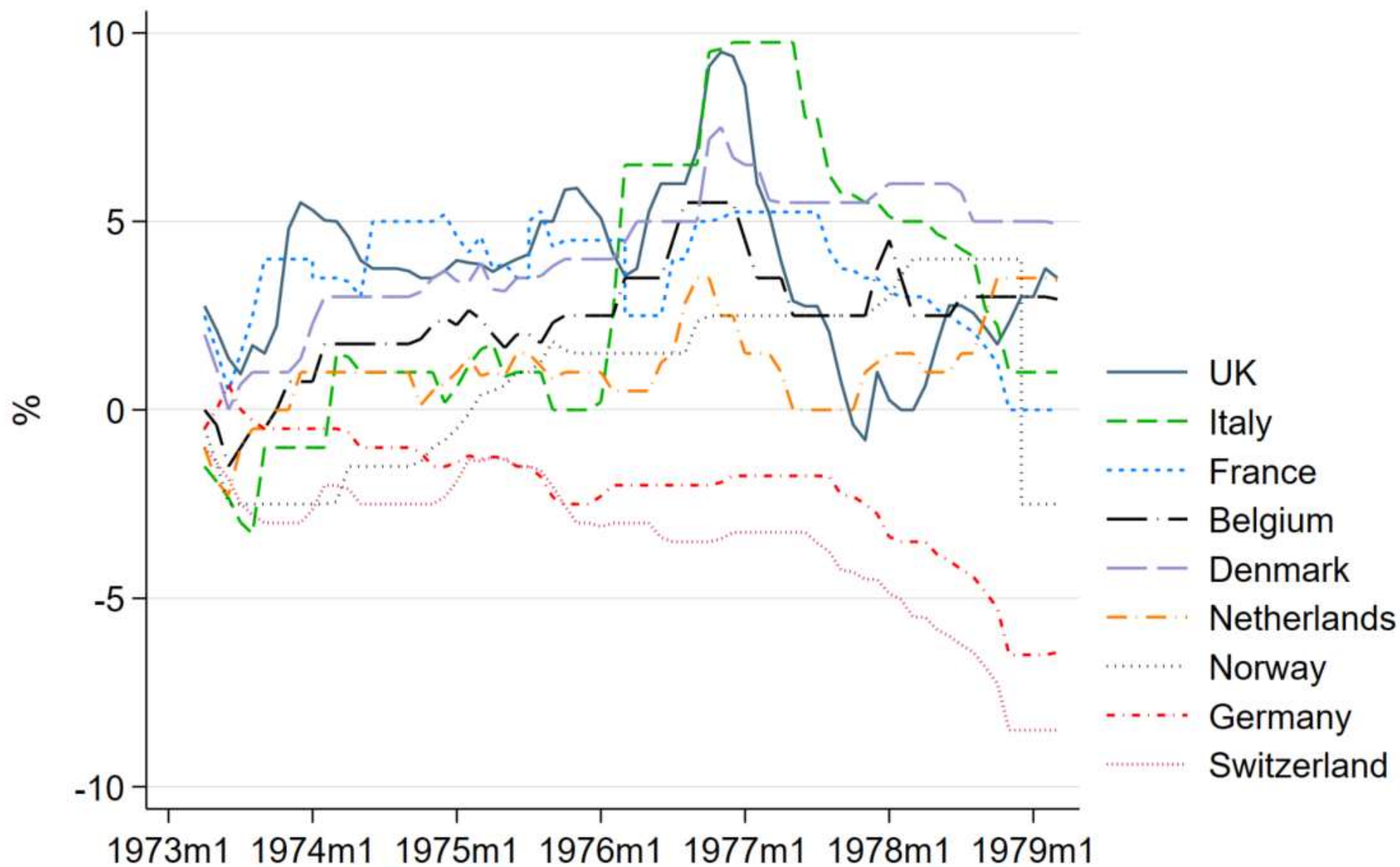
Strong and weak currencies

- The idea of strong and weak currencies is well established and the used terminology at the time (Needham 2017; James 2012)
- We look at patterns in the different central bank interventions
 - Using principal component analysis (PCA) on intervention data
 - Cumulative impact on reserves

Country	PC 1
Germany	0.58
Netherlands	0.56
Belgium	0.41
Denmark	0.32
France	0.17
Sweden	0.12
Norway	0.11
Italy	0.11
UK	0.09



Real Interest differential with Germany or US



Cooperation

- Having a large data set on all countries' intervention helps us understand if central banks cooperated
 - March 1974-March 1979: 8 057 interventions by European central banks
 - Snake members: 4 372 interventions, average intervention: \$4.5mn
 - Non snake: 3 685 interventions, average intervention: \$13mn
- Intra-european direct cooperation
 - For example, when France was trying to defend the French franc against the Deutschmark, did the Bundesbank help?
 - Direct Cooperation: 20% of snake members' interventions are in cooperation
 - Less than 1% of snake members' interventions have opposite directions
 - Snake and non snake members do not cooperate but they avoided intervening in opposite directions on a same day

Other potential forms of cooperations

- Cooperation via the dollar:
 - The Belgian central bank may simply buy francs in exchange for U.S. dollars and the Bundesbank may sell marks for dollars in the market.
- Europe/US coordination among European countries against the dollar
 - Did European countries fight rise of the dollar jointly?
 - This would later be the spirit of the Plaza (1985) and Louvre (1987) Agreements, to have European central banks fight a fall of the dollar

=> We focus for now on Intra-european direct cooperation

Playing nice – German cooperation with European countries

	Percentages of days Germany cooperates with	Country sells DM (# of days)	Germany buys country's currency (# of days)
France	13%	170	22
The Netherlands	27%	71	19
Belgium	36%	180	64
Sweden	37%	91	34
Denmark	46%	137	63
Norway	53%	57	30
Total	33%	706	232

- One third of the time a country was selling Deutschmark, the Bundesbank helped by buying that country's currency

OLS specifications

- We investigate potential determinants of interventions
- We run a panel OLS

$$I_{c,d} = \beta_0 + \beta_1 D.snake_{c,d} + \beta_2 D.F_{c,d} + \beta_3 (D.snake_{c,d} \times D.F_{c,d}) + \lambda_c + \gamma_{(c,q)} + e$$

- $I_{c,d}$ central bank intervention on the FX market
- $D.snake_{c,d}$ membership in the snake
- $D.F_{c,d}$ inflation differential with reference country (1 higher inflation / 0 lower inflation)

What leads to intervention?

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable:	<u>Baseline</u>		<u>Inflation</u>		<u>Real Interest rate</u>	
FX interventions	buying reserves	selling reserves	buying reserves	selling reserves	buying reserves	selling reserves
Snake membership	1.68** 0.02	0.70*** 0.00	1.23* 0.06	0.90*** 0.01	-5.90** 0.02	2.94*** 0.00
Inflation			-0.79 0.18	0.48 0.29		
D.inflation#snake			4.32* 0.08	-0.96 0.54		
D.Real interest rate differential					-3.34 0.11	0.28 0.68
Real interest rate differential # Snake member					8.44*** 0.01	-2.31** 0.02
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Country x Quarters FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.084	0.074	0.084	0.074	0.086	0.074
Observations	40826	40826	40826	40826	40826	40826

- Snake countries intervene more, especially to fight appreciation
- Snake countries facing inflationary pressures build more FX reserves than other countries
- Snake countries with weak currencies let the strong ones defend the snake but they build more reserves.

What are the determinants of cooperation?

- Probit model of cooperation with the Bundesbank
- Testing commitment to the margins of fluctuations

Dependent variable: Cooperation dummy	(1) All country	(2) Snake & spread	(3) w/ fundamentals
Snake member	1.02*** 0.00		
Distance to int. points		-1.56*** 0.00	-0.99*** 0.00
Real rate diff#distance int. points			-1.88*** 0.00
Country FE	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes
Observations	27255	11208	11208

* p<0.1, ** p<0.05, *** p<0.01

- Cooperation is more frequent closer to the intervention points
 - Especially with weak currencies

Takeaways

- We provide a new quantitative history of central banks interventions during the European Snake
- New study of central bank cooperation
- Snake countries had to intervene more on FX markets than non members
 - This in part explains the cost of not having a unique currency, arrangements like the Snake were costly
 - Central banks cooperated in managing the crawling peg
 - Strong currencies central banks intervened more to protect the arrangement
- More research to be done to study central banks cooperation across the whole network

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WORKING paper



Imported or Home Grown? The 1992-3 EMS Crisis

Barry Eichengreen¹ and Alain Naef²

Décembre 2020, WP #793

ABSTRACT

Using newly assembled data on foreign exchange market intervention, we construct a daily index of exchange market pressure during the 1992-3 crisis in the European Monetary System. Using this index, we pinpoint when and where the crisis was most severe. Our analysis focuses on a neglected factor in the crisis: the role of the weak dollar in intra-EMS tensions. We provide new evidence of the contribution of a falling dollar-Deutschmark exchange rate to pressure on EMS currencies.³

Keywords: European Monetary System, exchange rates, foreign exchange intervention, currency crisis.

JEL classification: F31, E5, N14, N24

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An Exchange Rate History of the United Kingdom 1945–1992



ALAIN NAEF

Available August 2022

Appendix

Descriptive statistics

	Belgium	Denmark	France	Germany	Italy	Netherlands	Norway	Sweden	UK
Mean	-9.6	-2.8	13.7	4.1	3.7	7.8	4.2	-9.7	11.2
Median	1.8	1.0	15.0	-0.5	10.0	5.6	4.0	-10.0	7.0
Maximum	127.0	176.0	399.7	2661.0	320.0	604.0	160.5	372.0	614.0
Minimum	-296.0	-151.0	-505.0	-1480.0	-465.0	-617.0	-129.5	-154.0	-391.0
Std. Dev.	42.7	22.2	65.2	154.3	60.6	67.2	35.7	30.9	73.1
Sum	-2818.5	-1711.3	8907.2	4352.1	5510.6	2373.9	1700.1	-7190.8	17073.3
Sum Sq. Dev.	531336	298859.8	2770702	25475161	5531611	1374441.0	518813	705488	8155330
Observations	293.0	608.0	652.0	1071.0	1506.0	305.0	407.0	740.0	1527.0