Cross-Border M&A and the Exchange Rate: Evidence from Switzerland

Michele Pelli

University of Zurich & Swiss Finance Institute

Summary

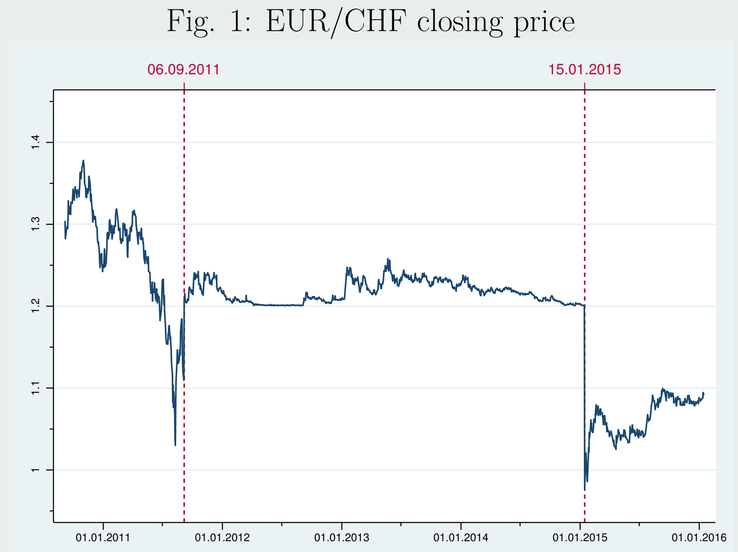
- I exploit the natural experiment induced by the Swiss National Bank in January 2015.
- I find evidence that a sudden, sizeable, and persistent appreciation of the local currency is associated with reduced cross-border M&A activity targeting domestic firms, relative to comparable countries.
- Further, I find a larger effect for high-technology firms.

Research question

- Does a **link** exist between the **cross-border** merger and acquisition (**M&A**) activity and the **exchange rate**?

The Swiss natural experiment

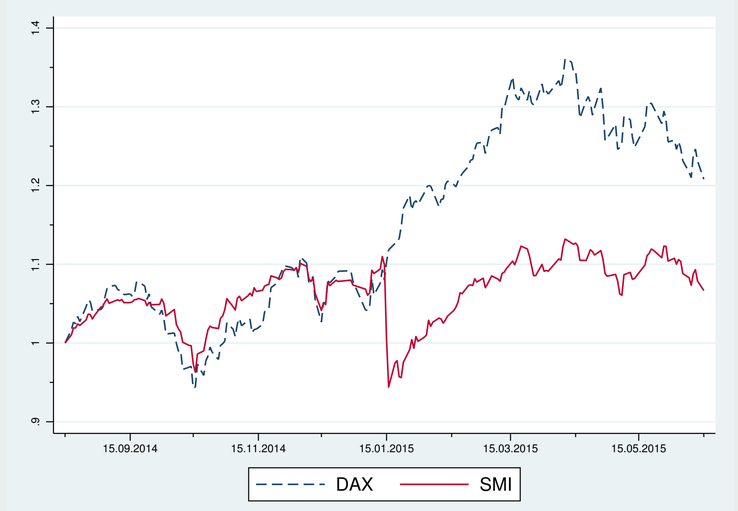
Fig. 1: EUR/CHF closing price



Source: Bloomberg

January 15, **2015**, the Swiss National Bank (SNB) communicates the **repeal** of the **minimum exchange rate** of 1.20 Swiss Francs (CHF) per Euro inducing an almost instantaneous 18.5% **appreciation** of the **CHF**.

Fig. 2: German & Swiss stock market indices



Replication of Efing et al.'s (2016) Fig. 2, values standardized as of 15.08.2014
Source: Bloomberg

The exchange rate **shock** is **sizeable** and **persistent**; market participants did not anticipate it (**exogenous**).

Anecdotal evidence

- As per the Cass MARC *M&A Attractiveness Index*, Switzerland **drops** from 9th place in 2014 to 18th in 2015.
- The 2015 *Clarity on Mergers & Acquisitions* report published by KPMG states that, **despite global records**, 2015 was a bumpy M&A year for Switzerland.

Empirical literature

- There is **mixed evidence** in the literature regarding the link between cross-border M&A and the exchange rate.

Blonigen's (1997) model

- A link exists when firms are endowed with **firm-specific assets** (e.g., process technology, product innovation) that are **not location specific** and can therefore generate returns in foreign currencies (vs. "bond-like" assets).

Novelty

Unique framework to test Blonigen's (1997) model:

- **Short time** vs. long-term exchange rate movement: it reduces the incidence of potential confounding factors.
- Local **currency appreciation** vs. depreciation.
- Extremely **innovative country**: Switzerland ranks first in both *The Global Innovation Index* 2014 and 2015. Moreover, it exhibits the highest number of patent applications and R&D personnel per million inhabitants, relative to comparable countries.

Hypotheses

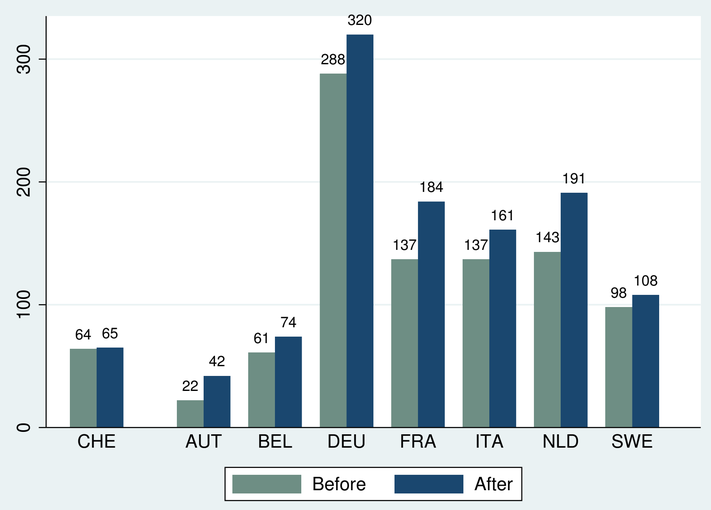
- **H1**: The appreciation of the domestic currency leads to reduced cross-border M&A activity targeting local firms.
- **H2**: The shock affects the cross-border acquisitions of domestic high-technology companies more substantially.

Data

- **M&A transactions** involving firms registered in Switzerland (CHE) and in the following control countries. Observation dropped if target country = acquirer country (**cross-border** deals) and if acquirer country = CHE (**simultaneity bias**). Source: Bloomberg.
- Control countries: **neighbouring countries** (based on the literature on cross-border M&A's determinants) and continental Europe **G-10 members** (based on criteria of regional proximity and economic comparability).

Summary statistics

Fig. 3: Announced cross-border M&A transactions



Source: Bloomberg

Consistently with KPMG's statement about 2015 global records, the chart shows that the number of cross-border M&As targeting domestic firms significantly **increases in all** the selected **countries but Switzerland**.

Methodology - Difference-in-differences

$$n_{it} = \beta_0 + \beta_1 After_t + \beta_2 Treated_i + \beta_3 Treated_i \cdot After_t + \epsilon_{it}$$

- Dependent variable: monthly **number of** announced cross-border **transactions** targeting local firms.
- Time window: **1 year** before and after the shock.
- *After*: **dummy** equal to **1 after** January 15, 2015.
- *Treated*: **dummy** equal to **1 if** the target firm is **registered in Switzerland**.
- **Country fixed effects** to absorb time-invariant observed and unobserved heterogeneity across countries.

Methodology - Synthetic control method

- Data-driven extension of the traditional DiD framework.
- Synthetic Switzerland: **weighted average** of (control) countries from the donor pool **that best matches**, both in terms of **pre-treatment** (3 years) covariates and outcome variable, the characteristics of Switzerland.
- Covariates: macroeconomic, stock market, and firm-level variables. "Bad controls" could also be employed.

Results - Difference-in-differences

Table 1: Results - Difference-in-differences

	(1) Neighbours	(2) Neighbours	(3) EU G-10	(4) EU G-10	(5) All	(6) All
Diff-in-diff	-2.125**	-2.125**	-2.125**	-2.125***	-2.036**	-2.036***
	(1.055)	(0.542)	(0.947)	(0.557)	(0.891)	(0.480)
Observations	120	120	168	168	192	192
R-squared	0.820	0.820	0.733	0.733	0.774	0.774
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Standard Errors	Robust	Clust. Country	Robust	Clust. Country	Robust	Clust. Country

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

The coefficient of interest controlling for country fixed effects reveals that, after the exchange rate shock, the **average change** in the number of cross-border M&As targeting local firms is about **2 units** per month **smaller** in Switzerland than in the control countries.

Results - Synthetic control method

- The country weights in the synthetic Switzerland are the following: 0.765 BEL, 0.141 FRA, 0.094 NLD.
- The **pre- minus post-** treatment **difference** between means amounts to **-2.022**.
- Switzerland exhibits the smallest root of the preintervention mean squared prediction error.

Economic meaning

- 2012-2014 **average** announced **value of** cross-border **M&As** targeting Swiss firms: $485.09 million.
- 2015 **FDI inflows** in Switzerland: $115,891.60 million.
- -2 · $485.09 million · 12 = -$11,642.16 million.
- -$11,642.16 million / $115,891.60 million ≈ **-10%**
- 10% should be interpreted as the **upper bound**, since the value of (smaller) private deals is not always disclosed.

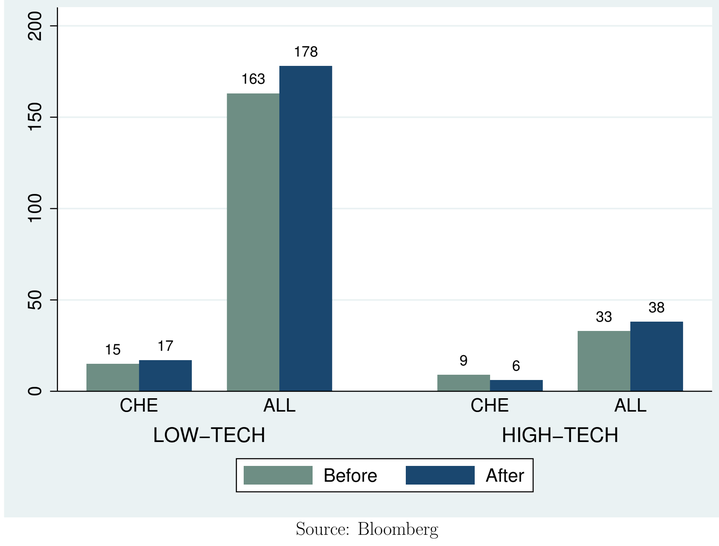
Robustness tests

- **Placebo** tests falsely assuming that the treatment took place in the control **countries**. ✓
- **Placebo** test falsely assuming that the treatment took place in the middle of the "peg" **period**. ✓
- **Control for** volatility to make sure not to be measuring the increased **economic uncertainty**. ✓

High-technology firms

- I follow Kile and Phillips's (2009) procedure to sample **high-technology** firms **based on** the **SIC** codes.
- I find evidence that the **reduced** cross-border M&A **activity** is mostly driven by high-technology firms.

Fig. 4: Transactions involving high-technology firms



Source: Bloomberg

The chart shows that the ratio of cross-border M&A transactions targeting **high-technology** firms is significantly **higher in Switzerland** than in the control countries. This supports the anecdotal evidence that Swiss firms are endowed with **firm-specific assets**.

Contacts

michele.pelli@uzh.ch ◇ www.sfi.ch/en/people/michele-pelli