# How Do Investors and Firms React to an Unexpected Currency Appreciation Shock?

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EHL Research Seminar

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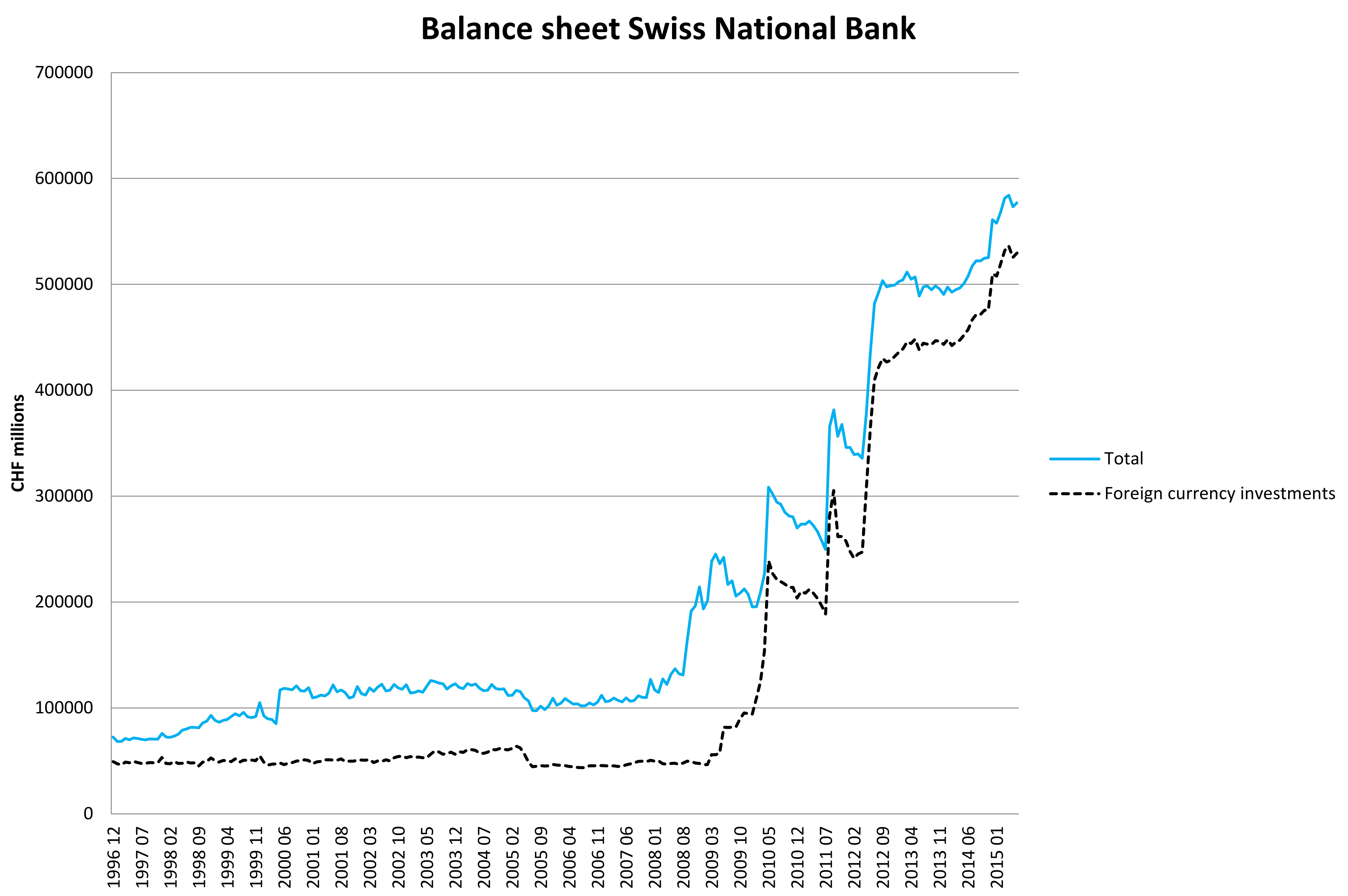
# Press release January 15, 2015

SCHWEIZERISCHE NATIONALBANK
BANQUE NATIONALE SUISSE
BANCA NAZIONALE SVIZZERA
BANCA NAZIUNALA SVIZRA
SWISS NATIONAL BANK

- The Swiss National Bank (SNB) is discontinuing the minimum exchange rate of CHF 1.20 per euro.
- The minimum exchange rate was introduced during a period of exceptional overvaluation of the Swiss franc and an extremely high level of uncertainty on the financial markets. This exceptional and temporary measure protected the Swiss economy from serious harm. While the Swiss franc is still high, the overvaluation has decreased as a whole since the introduction of the minimum exchange rate. The economy was able to take advantage of this phase to adjust to the new situation.
- Recently, divergences between the monetary policies of the major currency areas have increased significantly – a trend that is likely to become even more pronounced. The euro has depreciated considerably against the US dollar and this, in turn, has caused the Swiss franc to weaken against the US dollar. In these circumstances, the SNB concluded that enforcing and maintaining the minimum exchange rate for the Swiss franc against the euro is no longer justified.


Balance sheet Swiss National Bank
CHF millions
700000
600000
500000
400000
300000
200000
100000
0
1996 12
1997 07
1998 02
1998 09
1999 04
1999 11
2000 06
2001 01
2001 08
2002 03
2002 10
2003 05
2003 12
2004 07
2005 02
2005 09
2006 04
2006 11
2007 06
2008 01
2008 08
2009 03
2009 10
2010 05
2010 12
2011 07
2012 02
2012 09
2013 04
2013 11
2014 06
2015 01
Total
Foreign currency investments

# Other Swiss market participants were less optimistic…

- "Today's Swiss National Bank action is a tsunami; for the export industry and for tourism, and finally for the entire country," Nick Hayek, CEO Swatch Group
- Medienmitteilung vom 15. Januar 2015 of the Swiss Socialist Party:
  - **Unverständlicher Hochrisiko-Entscheid der Nationalbank**
  - Die SP reagiert überrascht und mit Unverständnis darauf, dass die SNB in einem Moment grösster Unsicherheit den bewährten Mindestkurs des Frankens zum Euro aufgibt. Damit riskiert die Schweiz erneut eine massive Verteuerung des Schweizer Frankens und damit katastrophale Folgen für Volkswirtschaft und Arbeitsplätze
- Medienmitteilung economiesuisse (Schweizer Wirtschaftsverband):
  - **Unerwartete Aufhebung der Wechselkursuntergrenze: Schweizer Wirtschaft in grosser Sorge**
  - Mit ihrem Entscheid, den Wechselkurs von 1.20 Franken zum Euro per sofort aufzuheben, hat die Schweizerische Nationalbank (SNB) die Märkte und Unternehmen völlig überrascht. Aus Sicht der Wirtschaft ist dieser Schritt zum aktuellen Zeitpunkt nicht nachvollziehbar.

# Research question

- We study the effects of the repeal of the currency peg
- Two elements
  - How did investors react to the announcement?
  - How did the most affected Swiss firms respond in the months following the announcement?

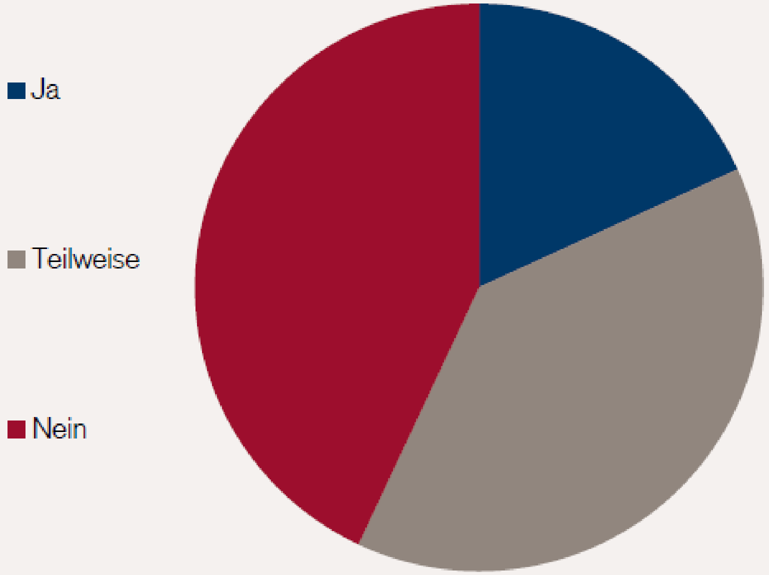
# Why is this an interesting question and setting?

- Rare to observe sudden currency movements of this magnitude
- If we do so, it is mostly currency depreciations in developing countries
  - These depreciations are typically endogeneous and a response to an economy in turmoil
  - Difficult to isolate the effects of the currency shock
- Switzerland is extremely export dependent
  - A wide variety of industries are affected by the shock
- Peg had been maintained for more than three years – firms may have not hedged anymore and thus had large exposures

# Did/do Swiss firms hedge currency exposure?

## Spezialumfrage Frankenstärke (Umfragezeitraum: 22.05. bis 26.05.2015)

### Sichern Sie Währungsrisiken ab?




Quelle: procure.ch, Credit Suisse

**Unternehmen sichern sich vermehrt gegen Wechselkursveränderung ab**

Jedes fünfte Unternehmen nutzte die Möglichkeit, sich mittels Finanzprodukten komplett gegen Währungsveränderungen abzusichern. Knapp 40% der Unternehmen tun dies zumindest teilweise. Nur 43% verzichten auf jegliche Absicherung. Vor der Aufhebung der EUR/CHF-Untergrenze durch die SNB war noch rund die Hälfte aller Unternehmen überhaupt nicht abgesichert.

**Unternehmen rechnen nicht mit baldiger Abwertung des Frankens**

Nur 32% der befragten Unternehmen gehen davon aus, dass sich der Franken innert eines Jahres wieder abwerten wird. Kurz nach der Aufhebung der EUR/CHF-Untergrenze war noch knapp die Hälfte davon überzeugt. Offenbar sind die Unternehmen hinsichtlich der Stabilität des Euros skeptischer geworden – trotz der Anzeichen auf Interventionen der SNB im Devisenmarkt.

# Prior literature

- Connects to a large literature on measuring currency exposure of firms, e.g.:
  - Adler and Dumas (1984)
  - Jorion (1990)
  - Bartov and Bodnar (1994)
  - Bartram, Brown, and Minton (2010)
- And a literature trying to understand firms’ reactions:
  - Allayannis and Ihrig (2001)
  - Forbes (2002)
  - Desai, Foley, and Forbes (2008)
- And a large econ literature on pricing to market and pass-through
- On the strong Swiss franc, there is: You

# Outline

- Research design
- Data
- Investor reactions
- Real effects
  - Sales and profitability
  - Investments
  - Operational hedging
  - (Employment)
- Conclusion

# Which Swiss firms are affected by the sudden appreciation of the Swiss franc?

| | Revenue in Switzerland | | Revenue in Eurozone | |
|---|---|---|---|---|
| | Domestic Players | | Exporters | |
| Cost in Switzerland | CHF/EUR = 1.20 | CHF/EUR = 1.00 | CHF/EUR = 1.20 | CHF/EUR = 1.00 |
| | R = 144 CHF<br>C =120 CHF<br>P =24 CHF | R = 144 CHF<br>C = 120 CHF<br>P = 24 CHF | R = 144 CHF<br>C = 120 CHF<br>P = 24 CHF | R = 120 CHF<br>C = 120 CHF<br>P = 0 CHF |
| | Importers | | Internationals | |
| Cost in Eurozone | CHF/EUR = 1.20 | CHF/EUR = 1.00 | CHF/EUR = 1.20 | CHF/EUR = 1.00 |
| | R = 144 CHF<br>C = 120 CHF<br>P = 24 CHF | R = 144 CHF<br>C = 100 CHF<br>P = 44 CHF | R = 144 CHF<br>C = 120 CHF<br>P = 24 CHF | R = 120 CHF<br>C =100 CHF<br>P = 20 CHF |

# Which Swiss firms are affected by the sudden appreciation of the Swiss franc?

| | Revenue in Switzerland | Revenue in Eurozone |
|---|---|---|
| Cost in Switzerland | Domestic Players<br>SwissCom | Exporters<br>Swatch Group |
| Cost in Eurozone | Importers<br>Leclanche SA | Internationals<br>Nestle; Logitech |

# How to measure currency exposure?

**Information by geographical area** in millions of CHF

| | Revenues from external customers Sales | Royalties and other operating income | Non-current assets Property, plant and equipment | Goodwill and intangible assets |
|---|---|---|---|---|
| **2014** | | | | |
| Switzerland | 526 | 604 | 4,187 | 2,271 |
| Germany | 2,900 | 19 | 3,235 | 1,343 |
| Rest of Europe | 11,119 | 8 | 1,117 | 701 |
| **Europe** | **14,545** | **631** | **8,539** | **4,315** |
| United States | 18,041 | 1,675 | 5,450 | 18,338 |
| Rest of North America | 962 | [illegible] | [illegible] | – |
| **North America** | **19,003** | **1,6[illegible]** | [illegible] | **18,338** |
| Latin America | 3,285 | – | 352 | 11 |
| Japan | 3,755 | 90 | 1,259 | 164 |
| Rest of Asia | 5,327 | 7 | 1,397 | – |
| **Asia** | **9,082** | **97** | **2,656** | **164** |
| Africa, Australia and Oceania | 1,547 | – | 89 | 2 |
| **Total** | **47,462** | **2,404** | **17,195** | **22,830** |

Foreign Sales = (47,462 – 526)/47,462 = 99%

Domestic cost = (4,187)/17,195 = 24%

# Treated firms

- Three different measures
  - Foreign sales > median foreign sales  AND domestic assets > median domestic assets
  - More reported sales segments than production segments
  - Currency beta of Jorion (1990)

$$R_{it} = \beta_{0i} + \beta_{1i} R_{st} + \varepsilon_{it}$$

# Data and summary statistics

- All publicly listed Swiss firms that were traded in January 2015
  - No cross-listed foreign firms
  - No mutual funds or real estate investment trusts
  - No firms with assets less than CHF 10 million
- Sample of 214 firms
- Worldscope - accounting information
- Datastream – stock returns and trading volume
- CapitalIQ –geographic segment data
  - Geographic segment data availability reduces sample
- SDC Platinum – merger and acquisition (M&A) data

# Industry composition

| ICB Industry | Number of observations | Percent of Sample |
|---|---|---|
| Basic Materials | 11 | 5.14 |
| Consumer Goods | 20 | 9.35 |
| Consumer Services | 19 | 8.88 |
| Financials | 65 | 30.37 |
| Health Care | 20 | 9.35 |
| Industrials | 55 | 25.70 |
| Technology | 16 | 7.48 |
| Telecommunications | 1 | 0.47 |
| Utilities | 7 | 3.27 |
| Total | 214 | 100 |

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | | | | |
| Panel A: Event return sample | | | | |
| Variable | num. obs. | mean | std dev | median |
| Currency exposure variables | | | | |
| Foreign sales / total sales | 168 | 0.640 | 0.391 | 0.855 |
| Fixed assets CH / total assets | 144 | 0.539 | 0.371 | 0.525 |
| Foreign market exposure | 136 | 0.162 | 0.370 | 0 |
| FX Beta | 176 | 1.309 | 0.962 | 1.131 |
| t-stat \|FX Beta\| | 176 | 6.930 | 4.407 | 6.290 |
| | | | | |
| Dependent variable | | | | |
| Stock return Jan 15, 2015 | 214 | -0.048 | 0.046 | -0.040 |
| Cum. return Jan 14-16, 2015 | 214 | -0.095 | 0.075 | -0.091 |
| | | | | |
| Control variables | | | | |
| Total assets (in CHF billion) | 214 | 21.97 | 107.40 | 0.98 |
| Trading vol (in CHF 1000) | 214 | 16,694 | 59,544 | 435 |
| Market-to-book | 214 | 1.730 | 1.571 | 1.227 |

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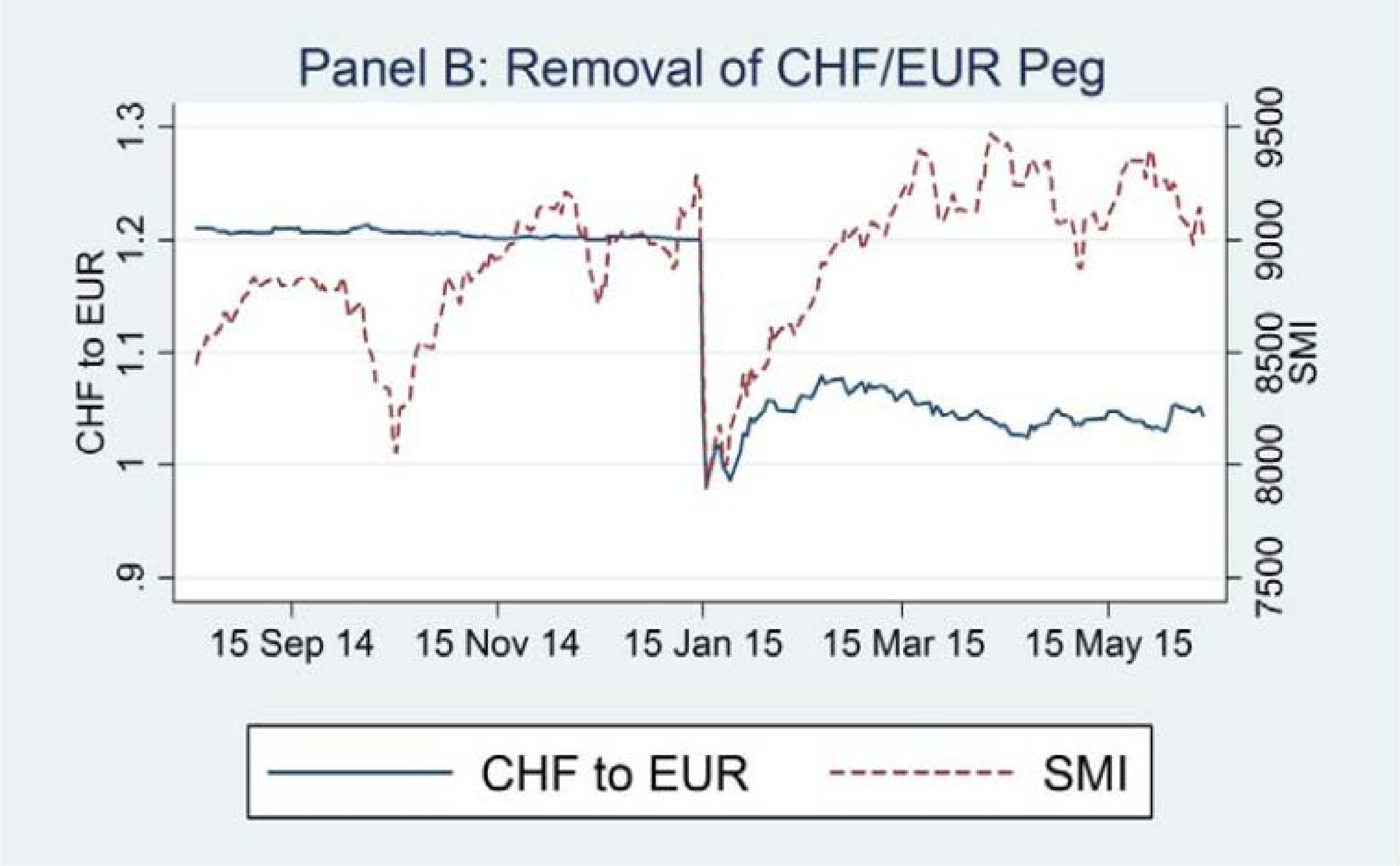
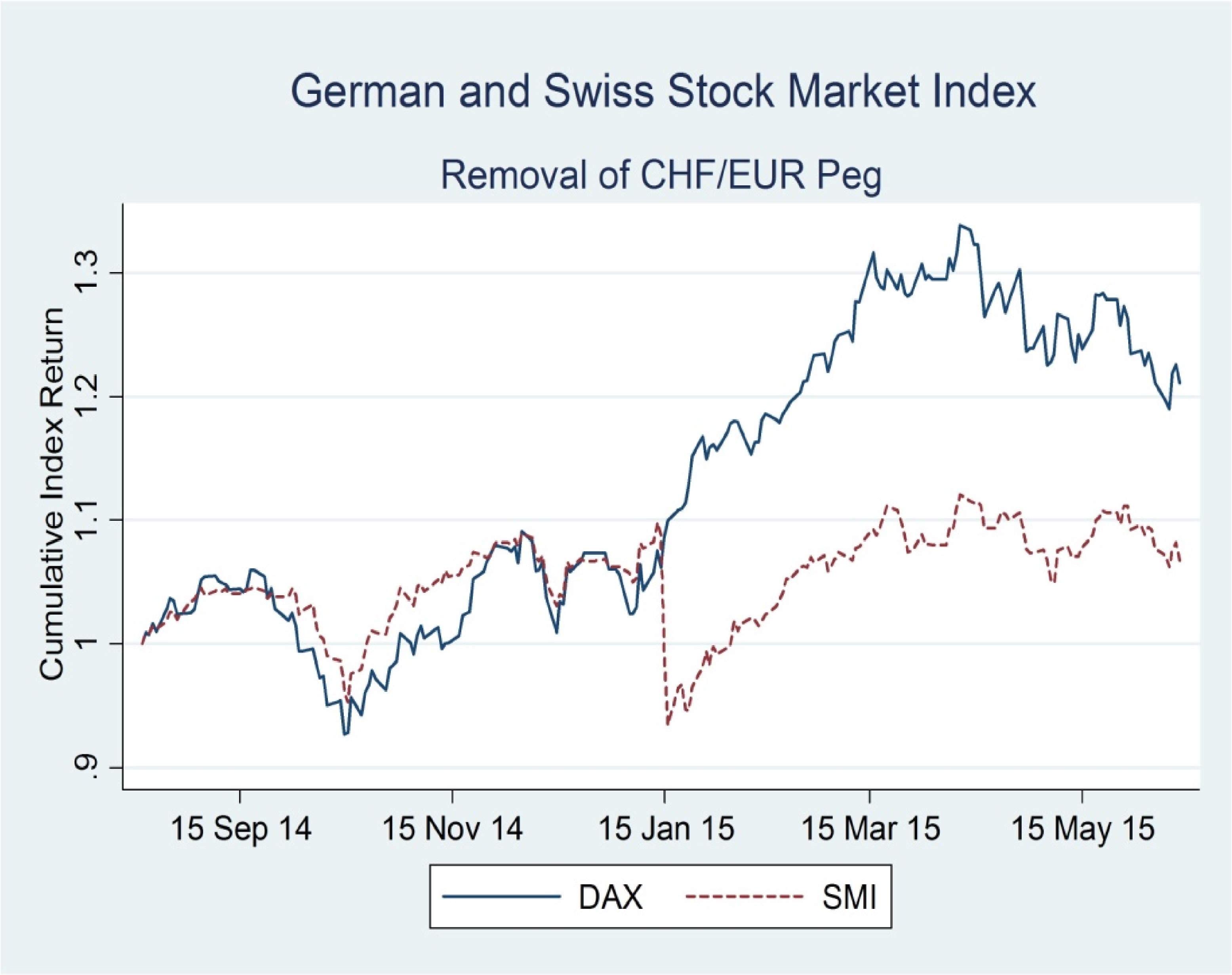
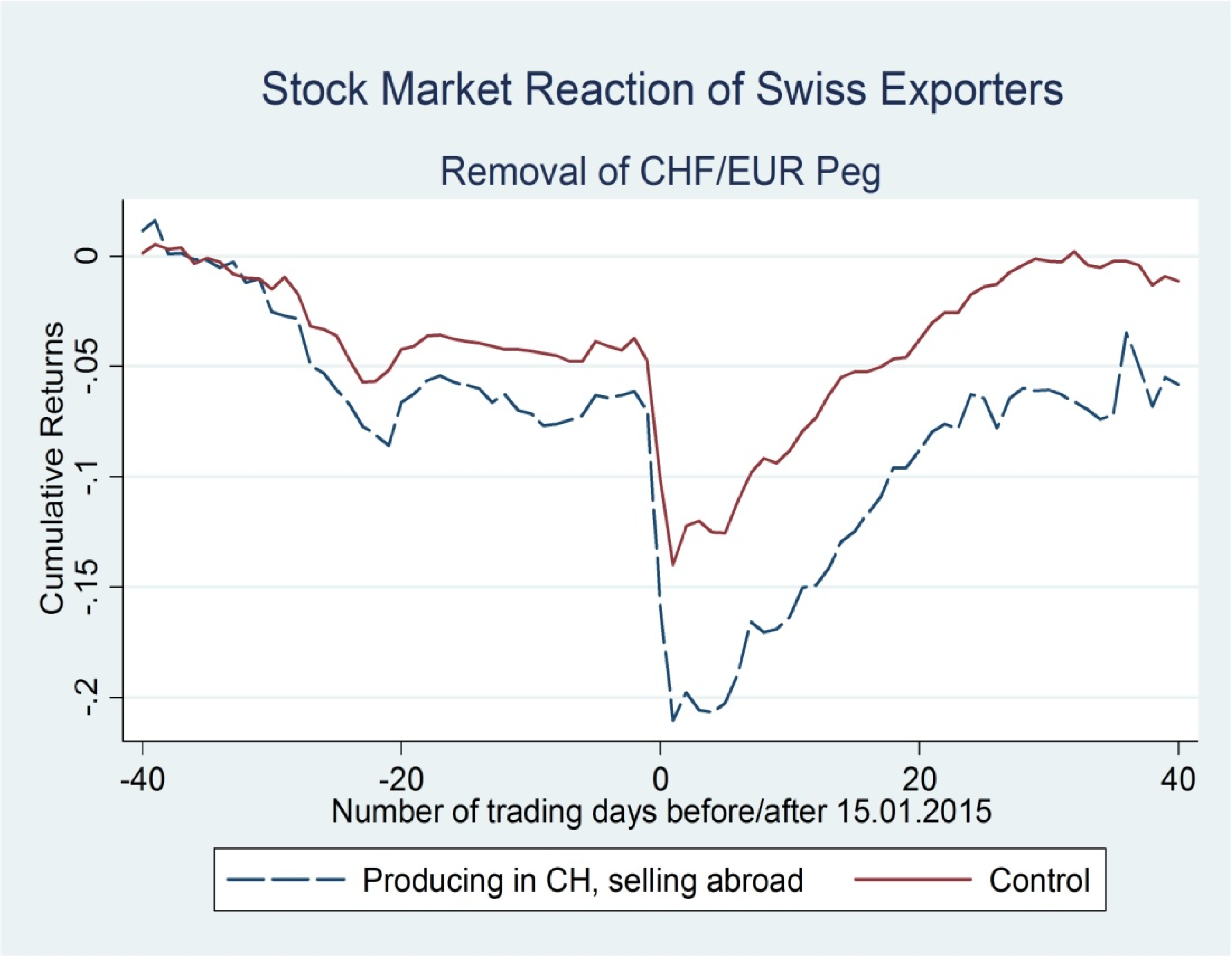

Panel B: Removal of CHF/EUR Peg
CHF to EUR
SMI
1.3
1.2
1.1
1
.9
9500
9000
8500
8000
7500
15 Sep 14
15 Nov 14
15 Jan 15
15 Mar 15
15 May 15
CHF to EUR
SMI


German and Swiss Stock Market Index
Removal of CHF/EUR Peg
Cumulative Index Return
.9
1
1.1
1.2
1.3
15 Sep 14
15 Nov 14
15 Jan 15
15 Mar 15
15 May 15
DAX
SMI



Stock Market Reaction of Swiss Exporters
Removal of CHF/EUR Peg
Cumulative Returns
0
-.05
-.1
-.15
-.2
-40
-20
0
20
40
Number of trading days before/after 15.01.2015
Producing in CH, selling abroad
Control

# Regression analysis of announcement returns

$$ret_i = \beta_0 + \beta_1 \text{Foreign sales}_j + \Gamma \times \text{controls}_i + \delta_j + \varepsilon_i$$

$$ret_i = \beta_0 + \beta_1 I_{\text{Foreign sales>Q50, } i} + \beta_2 I_{\text{Fixed assets CH>Q50, } i} +$$

$$+\beta_3 I_{\text{Fixed assets CH>Q50, } i} \times I_{\text{Foreign sales>Q50, } i} + \Gamma \times \text{controls}_i + \delta_j + \varepsilon_i$$

**Table 3**: Announcement returns to removal of currency peg

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Sales Foreign | $-0.041^{***}$ (0.008) | | $-0.058^{***}$ (0.012) | | | |
| Fixed Assets CH | | $0.025^{**}$ (0.011) | -0.010 (0.013) | | | |
| Fixed Assets CH > Q50 × Sales Foreign > Q50 | | | | $-0.049^{***}$ (0.015) | | |
| Sales Foreign > Q50 | | | | -0.005 (0.008) | | |
| Fixed Assets CH > Q50 | | | | $0.034^{***}$ (0.009) | | |
| Foreign Mkt Exposure | | | | | $-0.022^{***}$ (0.007) | |
| FX Beta | | | | | | $-0.019^{***}$ (0.004) |
| Ln(Total Assets) | -0.002 (0.003) | -0.001 (0.004) | -0.003 (0.004) | -0.003 (0.004) | -0.004 (0.004) | -0.002 (0.003) |
| Market-to-book | 0.001 (0.002) | 0.002 (0.002) | 0.001 (0.002) | 0.001 (0.002) | 0.001 (0.002) | -0.002 (0.002) |
| Ln(Trad Vol) | $-0.007^{***}$ (0.003) | $-0.008^{**}$ (0.004) | $-0.006^{*}$ (0.003) | $-0.005^{*}$ (0.003) | $-0.008^{**}$ (0.003) | -0.004 (0.003) |
| Constant | $0.073^{*}$ (0.040) | 0.016 (0.046) | $0.105^{**}$ (0.050) | 0.053 (0.041) | 0.056 (0.043) | 0.031 (0.031) |
| R-squared | 0.532 | 0.499 | 0.561 | 0.552 | 0.470 | 0.538 |
| Observations | 168 | 144 | 130 | 130 | 136 | 176 |

**Table 4**
Cumulative announcement returns Jan 14 – Jan 16

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Sales Foreign | $-0.054^{***}$ (0.012) | | $-0.082^{***}$ (0.021) | | | |
| Fixed Assets CH | | $0.038^{**}$ (0.015) | -0.017 (0.022) | | | |
| Fixed Assets CH > Q50 × Sales Foreign > Q50 | | | | $-0.074^{***}$ (0.024) | | |
| Sales Foreign > Q50 | | | | 0.016 (0.013) | | |
| Fixed Assets CH > Q50 | | | | $0.048^{***}$ (0.015) | | |
| Foreign Mkt Exposure | | | | | -0.019 (0.014) | |
| FX Beta | | | | | | $-0.035^{***}$ (0.006) |
| Ln(Total Assets) | -0.004 (0.004) | -0.000 (0.004) | -0.005 (0.004) | -0.006 (0.004) | 0.000 (0.004) | -0.001 (0.003) |
| Market-to-book | 0.000 (0.002) | 0.002 (0.002) | 0.000 (0.002) | 0.000 (0.002) | 0.001 (0.002) | -0.003 (0.002) |
| Ln(Trad Vol) | $-0.011^{***}$ (0.003) | $-0.013^{***}$ (0.004) | $-0.009^{***}$ (0.003) | $-0.009^{***}$ (0.003) | $-0.016^{***}$ (0.004) | $-0.006^{**}$ (0.003) |
| Constant | 0.078 (0.049) | -0.037 (0.056) | $0.117^{*}$ (0.063) | 0.030 (0.057) | 0.005 (0.054) | 0.005 (0.036) |
| R-squared | 0.521 | 0.479 | 0.526 | 0.497 | 0.493 | 0.576 |
| Observations | 168 | 144 | 130 | 130 | 136 | 176 |

**Table 5**
Announcement returns – no financials

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| Sales Foreign | $-0.028^{***}$ (0.008) | | $-0.042^{***}$ (0.011) | | | |
| Fixed Assets CH | | 0.015 (0.013) | -0.009 (0.014) | | | |
| Fixed Assets CH > Q50 × Sales Foreign > Q50 | | | | $-0.030^{**}$ (0.015) | | |
| Sales Foreign > Q50 | | | | -0.001 (0.009) | | |
| Fixed Assets CH > Q50 | | | | 0.011 (0.011) | | |
| Foreign Mkt Exposure | | | | | $-0.017^{*}$ (0.009) | |
| FX Beta | | | | | | $-0.010^{*}$ (0.005) |
| Ln(Total Assets) | 0.003 (0.003) | 0.005 (0.004) | 0.002 (0.004) | 0.001 (0.004) | 0.004 (0.005) | 0.003 (0.003) |
| Market-to-book | $0.003^{*}$ (0.001) | $0.003^{*}$ (0.002) | 0.003 (0.002) | $0.003^{*}$ (0.002) | $0.003^{*}$ (0.002) | 0.002 (0.001) |
| Ln(Trad Vol) | $-0.011^{***}$ (0.002) | $-0.012^{***}$ (0.003) | $-0.010^{***}$ (0.002) | $-0.009^{***}$ (0.003) | $-0.014^{***}$ (0.004) | $-0.010^{***}$ (0.002) |
| Constant | 0.010 (0.038) | -0.038 (0.051) | 0.034 (0.050) | 0.008 (0.053) | -0.031 (0.063) | -0.023 (0.041) |
| R-squared | 0.540 | 0.476 | 0.536 | 0.518 | 0.469 | 0.538 |
| Observations | 131 | 99 | 98 | 98 | 92 | 130 |

# Summary of investor reactions

- Swiss firms that had more currency exposure did more poorly on the day of the repeal of the currency peg relative to other Swiss firms

- Very robust results; independent of exposure measure, of whether we include financials or not, of the time period over which we measure returns we find strong negative investor reactions

- Investors seem to have a pretty good idea of the currency exposure of the firms they invest in

# Outline

- Research design
- Data
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- Real effects
  - Sales and profitability
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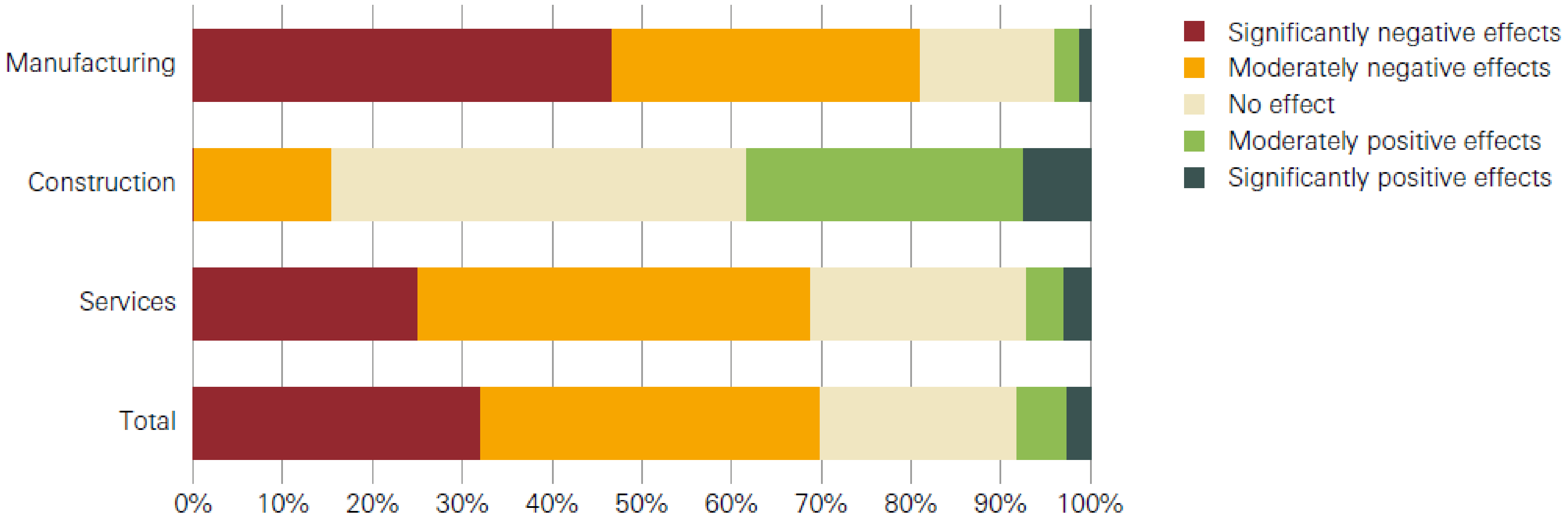
- Conclusion

# Survey based evidence suggests real effects

Chart 1

**EFFECTS OF CHF APPRECIATION**

182 companies



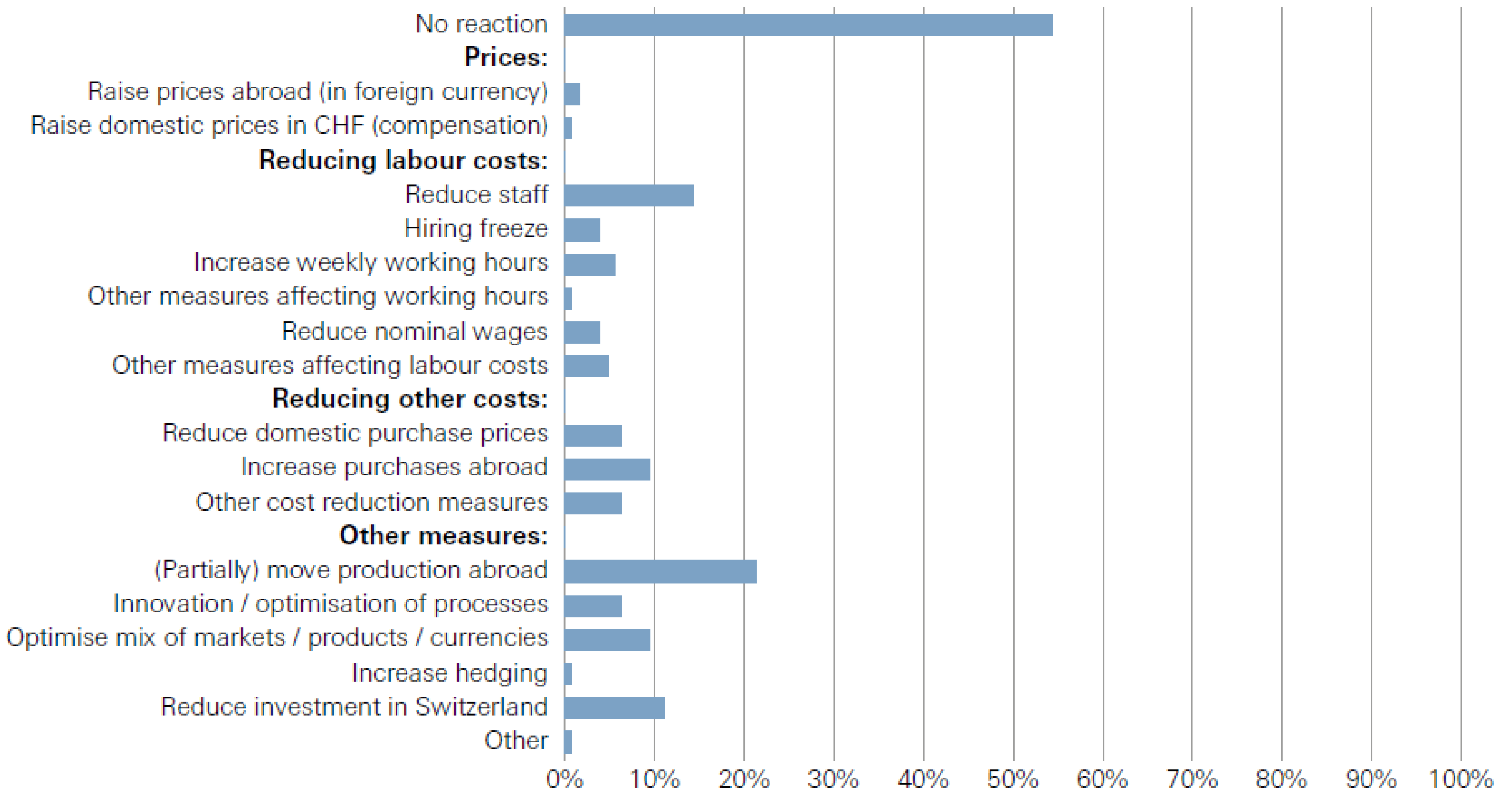

Source: SNB

# SNB Survey – measures to counteract effects

Chart 4

**NEGATIVELY AFFECTED COMPANIES: MEASURES BEING CONSIDERED DUE TO CHF APPRECIATION**

127 companies, multiple answers possible



# Real effects

Three parts

1) Did sales in fact drop in the six months following the currency shock?
2) What happened to profitability? Gives a hint on pricing to market / pass-through
3) Competitive response of firms – capital expenditures and M&A activity

4) To do: Reactions of FDI in Switzerland; employment numbers

Disclaimer: Still early to study some of these effects – year/year numbers in January (we now have almost all the data) will be more informative.

# Specification

$$y_{it} = \beta_0 + \beta_1 \times I_{2015} \times I_{\text{Fixed assets CH>Q50, } it} \times I_{\text{Foreign sales>Q50, } it}$$

$$+ \beta_2 \times I_{2015} \times I_{\text{Fixed assets CH>Q50, } it} + \beta_3 \times I_{2015} \times I_{\text{Foreign sales>Q50, } it}$$

$$+ \beta_4 \times I_{\text{Fixed assets CH>Q50, } it} \times I_{\text{Foreign sales>Q50, } it} + \beta_5 \times I_{\text{Fixed assets CH>Q50, } it}$$

$$+ \beta_6 \times I_{\text{Foreign sales>Q50, } it} + \beta_7 \times I_{2015} + \Gamma \times \text{controls}_{it} + \delta_t + \alpha_i + \varepsilon_{it}, (4)$$

# Sales growth

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| 2015 × Sales Foreign | -0.267** | | -0.324** | | | |
| | (0.111) | | (0.130) | | | |
| Sales Foreign | -0.732** | | -0.407* | | | |
| | (0.341) | | (0.216) | | | |
| 2015 × Fixed Assets CH | | -0.008 | -0.169 | | | |
| | | (0.101) | (0.114) | | | |
| Fixed Assets CH | | 0.838 | 0.867 | | | |
| | | (0.797) | (0.802) | | | |
| 2015 × Fixed Assets CH > Q50 | | | | -0.341 | | |
| × Sales Foreign > Q50 | | | | (0.263) | | |
| 2015 × Sales Foreign > Q50 | | | | -0.002 | | |
| | | | | (0.152) | | |
| 2015 × Fixed Assets CH > Q50 | | | | 0.080 | | |
| | | | | (0.172) | | |
| Fixed Assets CH > Q50 | | | | 0.555 | | |
| × Sales Foreign > Q50 | | | | (0.461) | | |
| Sales Foreign > Q50 | | | | -0.407 | | |
| | | | | (0.330) | | |
| Fixed Assets CH > Q50 | | | | -0.019 | | |
| | | | | (0.096) | | |
| 2015 × Foreign Mkt Exposure | | | | | -0.140** | |
| | | | | | (0.068) | |
| Foreign Mkt Exposure | | | | | 0.004 | |
| | | | | | (0.048) | |
| 2015 × FX Beta | | | | | | 0.047 |
| | | | | | | (0.057) |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |

Economic significance:

-0.267 x 0.365 ~ 10% lower sales growth in 2015 for firms with a one standard deviation higher foreign sales

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| 2015 × Sales Foreign | -0.016* | | -0.015 | | | |
| | (0.008) | | (0.015) | | | |
| Sales Foreign | 0.017 | | 0.015 | | | |
| | (0.023) | | (0.031) | | | |
| 2015 × Fixed Assets CH | | 0.003 | -0.009 | | | |
| | | (0.008) | (0.016) | | | |
| Fixed Assets CH | | 0.055* | 0.054* | | | |
| | | (0.032) | (0.032) | | | |
| 2015 × Fixed Assets CH > Q50 | | | | -0.046* | | |
| × Sales Foreign > Q50 | | | | (0.026) | | |
| 2015 × Sales Foreign > Q50 | | | | 0.035 | | |
| | | | | (0.023) | | |
| 2015 × Fixed Assets CH > Q50 | | | | 0.036** | | |
| | | | | (0.023) | | |
| Fixed Assets CH > Q50 | | | | 0.036 | | |
| × Sales Foreign > Q50 | | | | (0.016) | | |
| Sales Foreign > Q50 | | | | -0.014 | | |
| | | | | (0.021) | | |
| Fixed Assets CH > Q50 | | | | -0.005 | | |
| | | | | (0.006) | | |
| 2015 × Foreign Mkt Exposure | | | | | -0.005 | |
| | | | | | (0.011) | |
| Foreign Mkt Exposure | | | | | -0.006 | |
| | | | | | (0.006) | |
| 2015 × FX Beta | | | | | | -0.004 |

# ROA

Economic magnitude (column 4): -4.6% lower ROA. Sample mean ROA is 3.3%

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| 2015 × Sales Foreign | -0.046 | | -0.008 | | | |
| | (0.032) | | (0.030) | | | |
| Sales Foreign | -0.350** | | -0.277* | | | |
| | (0.144) | | (0.165) | | | |
| 2015 × Fixed Assets CH | | 0.005 | 0.016 | | | |
| | | (0.023) | (0.037) | | | |
| Fixed Assets CH | | 0.002 | 0.021 | | | |
| | | (0.161) | (0.162) | | | |
| 2015 × Fixed Assets CH > Q50 | | | | -0.073** | | |
| × Sales Foreign > Q50 | | | | (0.036) | | |
| 2015 × Sales Foreign > Q50 | | | | 0.017 | | |
| | | | | (0.022) | | |
| 2015 × Fixed Assets CH > Q50 | | | | 0.031 | | |
| | | | | (0.028) | | |
| Fixed Assets CH > Q50 | | | | 0.111 | | |
| × Sales Foreign > Q50 | | | | (0.107) | | |
| Sales Foreign > Q50 | | | | -0.081 | | |
| | | | | (0.083) | | |
| Fixed Assets CH > Q50 | | | | -0.059 | | |
| | | | | (0.044) | | |
| 2015 × Foreign Mkt Exposure | | | | | -0.056** | |
| | | | | | (0.023) | |
| Foreign Mkt Exposure | | | | | 0.023 | |
| | | | | | (0.027) | |
| 2015 × FX Beta | | | | | | -0.025** |
| | | | | | | (0.012) |

# Capital expenditures

Economic magnitude:

Column 4: -7.3% lower Capex for treated firms in 2015. Sample mean for capex is 14.4% => drop in Capex by 50%.

# M&A activity in 2015

- Corporate takeovers and large asset acquisitions represent a second channel through which firms can quickly react to the Swiss franc appreciation
- The stronger Swiss franc increases firms’ ability to purchase foreign competitors
  - Buying a foreign competitor will reduce pressure on margins
  - Large asset acquisitions move production facilities abroad and provide a natural hedge

# Table 3, Panel C: M&A summary statistics

| Panel C: Mergers and acquisitions sample | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
| Entire sample | | | | | | | |
| Total acquisitions | 151 | 121 | 165 | 133 | 103 | 151 | 137 |
| Foreign acquisitions | 92 | 94 | 120 | 89 | 73 | 114 | 104 |
| Foreign percentage | 60.93% | 77.69% | 72.72% | 66.92% | 70.87% | 75.50% | 75.91% |
| Observations | 211 | 207 | 212 | 205 | 202 | 202 | 218 |
| | | | | | | | |
| Regression sample | | | | | | | |
| Total acquisitions | 76 | 62 | 94 | 74 | 57 | 78 | 78 |
| Foreign acquisitions | 52 | 49 | 73 | 51 | 40 | 52 | 59 |
| Foreign percentage | 68.42% | 79.03% | 77.66% | 68.92% | 70.18% | 66.66% | 75.64% |
| Observations | 105 | 118 | 118 | 118 | 117 | 115 | 115 |

# M&A regression analysis

- Decision to engage in M&A activity is endogenous
- Estimate a Heckman (1979) selection model
- First stage: Decision to become active in the M&A market (selection equation)
- Second stage: Decision to acquire a foreign rather than a domestic target (outcome equation).
- First stage selection model includes four variables which have the potential to explain whether a firm undertakes an acquisition but which are plausibly exogenous to the choice of whether the target is a Swiss or a foreign firm

| | (1)<br>Selection | (2)<br>Outcome | (3)<br>Selection | (4)<br>Outcome |
|---|---|---|---|---|
| 2015 × Fixed Assets CH > Q50 | 0.59 | 0.45*** | 0.48 | 0.51*** |
| × Sales Foreign > Q50 | (0.73) | (0.17) | (0.74) | (0.18) |
| 2015 × Sales Foreign > Q50 | -0.18 | -0.23*** | -0.21 | -0.29*** |
| | (0.54) | (0.08) | (0.55) | (0.10) |
| 2015 × Fixed Assets CH > Q50 | 0.09 | -0.27** | 0.10 | -0.36** |
| | (0.55) | (0.13) | (0.57) | (0.14) |
| Fixed Assets CH × Sales Foreign | -0.74*** | 0.22 | -0.61** | 0.16 |
| | (0.26) | (0.13) | (0.27) | (0.14) |
| Sales Foreign > Q50 | -0.20 | 0.21*** | -0.24 | 0.09 |
| | (0.17) | (0.07) | (0.19) | (0.08) |
| Fixed Assets CH > Q50 | -0.06 | -0.37*** | -0.09 | -0.24*** |
| | (0.17) | (0.08) | (0.18) | (0.09) |
| 2015 | 0.11 | 0.23*** | 0.05 | 0.29*** |
| | (0.51) | (0.07) | (0.54) | (0.10) |
| Ln(Total Assets) | 0.40*** | -0.01 | 0.45*** | 0.00 |
| | (0.03) | (0.01) | (0.04) | (0.02) |
| Book to Market (log) | -0.35*** | 0.01 | -0.30*** | 0.05 |
| | (0.06) | (0.02) | (0.07) | (0.03) |
| Cash to Assets | 1.21** | | 1.24** | |
| | (0.48) | | (0.54) | |
| Book leverage | -0.02 | | -0.12 | |
| | (0.37) | | (0.40) | |
| Cash Flow | -0.00 | | 0.00 | |
| | (0.00) | | (0.00) | |
| EBIT/Assets | 0.34 | | -0.32 | |
| | (0.48) | | (0.50) | |
| Constant | -3.40*** | 0.87*** | -4.01*** | 0.52* |
| | (0.57) | (0.20) | (0.69) | (0.29) |
| Industry FE | No | No | Yes | Yes |
| Year FE | No | No | Yes | Yes |
| Observations | 995 | 995 | 995 | 995 |

# Employment

- Key question of interest to policy makers
- Firms only report their employment annually; cannot yet look at employment changes in sample firms
- But there is initial evidence from aggregate employment statistics
- We obtain quarterly data on job openings by industry
- Employment in exporting industries such as metal works and mechanical engineering decreases by about 20%.
- These two exporting industries are also overrepresented in our treatment group.
- The reduction of open positions in these industries is hence suggestive of the fact that treated firms reduced employment after the removal of the peg

# Conclusion

- Adverse exchange rate shock has a predictable and significant impact on firms with large currency exposure
- Roughly CHF 100 billion were lost in Swiss market capitalization, with larger losses for more exposed firms

- Swiss firms started to react immediately by reducing profit margins, capital expenditures, and moving production abroad
- Shows that currency movements can have first-order effects on corporate decisions

# Conclusion (2)

- In some ways, the wrong sample of firms to look at
- Would be great to repeat this for SMEs (Schweizer Mittelstand) that are probably more affected
  - Very export dependent
  - One production site in Switzerland; more limited resources
  - But:
    - Difficult (impossible?) to get data
    - Survey evidence may be possible, but surveys on delicate issues requires strong belief in truth-telling assumption
- Policy recommendations to prevent de-industrialization of Switzerland should probably be geared toward this sample