



# The impact of international swap lines on stock returns of banks in emerging markets

Alin Marius Andries (*Alexandru Ioan Cuza Uni. of Iasi*)

Andreas M. Fischer (*Swiss National Bank*)

Pinar Yesin (*Swiss National Bank*)

Discussion by

Steven Ongena (*University of Zurich, SFI, Bangor University and CEPR*)

*Workshop on Foreign Currency Lending in Europe since the Financial Crisis*

*21 November 2014, Zurich*



## Research Question?

What is the impact of  
**international swap lines**

on

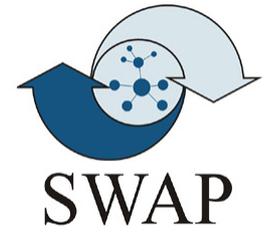
the valuation of banks  
lending in emerging markets?



## Answer

1. The impact of **SNB swap lines** with various central banks outside of their national jurisdictions was limited.
2. But the **stock prices of local and weaker capitalized banks responded strongly to** (i.e., banks benefited from!) **SNB swap lines with CEE central banks.**

# Well done SNB ...?





## Maybe yes, ...

But let me quibble a little about:

- The application of the event study methodology
  - And therefore also the interpretation of the findings
  - Economic relevancy assessments
- The connection to the literature
  - To end on a personal **to-do** note



University of  
Zurich <sup>UZH</sup>

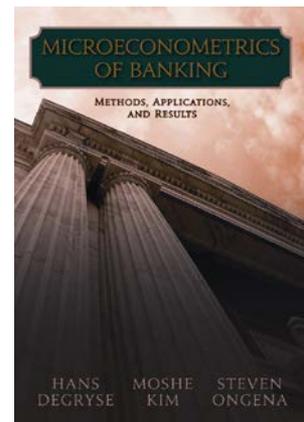
Department of Banking and Finance

# Application of the Event Study Methodology

McWilliams, Siegel (*AMJ* 1997)

Degryse, Kim and Ongena (2009)

among many others ...



$$\Delta p_{ijt} = \beta_1 SWAP_{jt}^{SNB|X} + other_t + \nu_j + \mu_t + \epsilon_{ijt}, \quad (1)$$

= the change in the ln stock price of a CEE bank i in country j at time t

- Why use a Taylor approximation for stock returns?
  - What if excess returns are large?
- Adjusted for dividends and stock splits?
  - Long event window concern (see next slide)

$$\Delta p_{ijt} = \beta SWAP_{jt}^{SNB|X} + other_t + \nu_j + \mu_t + \epsilon_{ijt}, \quad (1)$$

= 1 if swap line in country j at time t is active, = 0 otherwise

Table 1: Timeline of Events (Central Banks' Liquidity Measures)

Date	Event	Notes	Swap line limit	Term	In place until	Dummy variable in the empirical analysis
<b>2007</b>						
12 December	The SNB announces USD repo auctions	The SNB announces a six-month CHF/USD swap agreement with the Federal Reserve in order to provide USD repo auctions with its counterparties.	USD 4 billion	28 days	6 months	SWAP <sup>SNB MULTI</sup>
<b>2008</b>						
11 March	The USD/CHF swap lines are increased		USD 6 billion	28 days		
2 May	The USD/CHF swap lines are increased	Also the frequency of USD repo auctions is increased to every 2 weeks.	USD 12 billion	28 days		
30 July	The SNB announces extended-term USD repo auctions		USD 12 billion	28-days or 84 days		
18 September	The SNB announces overnight USD repo auctions. USD/CHF swap lines are also increased.		USD 27 billion	Overnight, 28-days and 84 days		
26 September	The SNB announces 7 day USD repo auctions. USD/CHF swap lines are also increased.		USD 30 billion	Overnight, 7 days, 28 days and 84 days		
29 September	USD/CHF swap lines are increased	Joint announcement of the Federal Reserve, ECB, SNB, BoC, BoE, BoJ, Danmarks Nationalbank, Norges Bank, RBA, and Sveriges Riksbank.	USD 60 billion	Overnight, 7 days, 28 days and 84 days	April 30, 2009	
13 October	USD/CHF swap lines are increased to accommodate whatever quantity of USD funding is demanded.	Joint announcement of the ECB, BoE, BoJ, SNB and the Federal Reserve	No limit	7 days, 28 days and 84 days		
15 October	The SNB and ECB announce the establishment of weekly EUR/CHF swap operations.	In place as long as needed, but at least until January 2009	No pre-specified limit		January 2009	SWAP <sup>SNB ECB</sup>
7 November	The Swiss National Bank and Narodowy Bank Polski announce the establishment of weekly EUR/CHF swap operations.	Starting on 17 November 2008, the NBP will join the weekly EUR/CHF foreign exchange swap operations of the SNB and the Eurosystem. Under this arrangement, the SNB will provide the NBP with Swiss francs against euro, while the NBP will provide the Swiss francs to its counterparties against Polish zloty. In place as long as needed, but at least until January 2009.	No pre-specified limit	7 days Longer term transactions may be offered from time to time	January 2009	SWAP <sup>SNB NBP</sup>
19 December	USD repo auction schedule is announced for the first quarter of 2009	Joint announcement of the SNB, BoE, ECB, BoJ, and the Federal Reserve.	No limit	7 days, 28 days, 84 days		

$$\Delta p_{ijt} = \beta \boxed{SWAP_{jt}^{SNB|X}} + other_t + \nu_j + \mu_t + \epsilon_{ijt}, \quad (1)$$

- The swap line may be active for many months: long “event window” and that is potentially problematic
  - Stock prices should impound at once and correctly the new information
  - Identification strategy embedded in the event study methodology “relies” on the semi-strong efficiency of the stock market and the precise timing of the informative event
    - Joint test actually
- Long event window therefore inconsistent



But there are potentially more problems with a long event window:

$$\Delta p_{ijt} = \beta \boxed{SWAP_{jt}^{SNB|X}} + other_t + \nu_j + \mu_t + \epsilon_{ijt}, \quad (1)$$

- **Noise piles in (undercuts estimation power)**
  - **Low signal to noise ratio**
- **Confounding events**
  - **Your Table 1 is already full with possible confounding events**
  - **Turbulent period: probably quite a few more?**
    - **Correlated in time and effects with swap lines?**
- **There are studies that calculate excess returns from merger announcement until merger consummation (also long event window)**
  - **But then there may be resolution about uncertainty about the merger's shape and success**
    - **Is there here? I am not sure?**

$$\Delta p_{ijt} = \beta \boxed{SWAP_{jt}^{SNB|X}} + other_t + \nu_j + \mu_t + \epsilon_{ijt}, \quad (1)$$

• **Not all swap lines were immediately active?**

- **E.g., November 7, 2008 announcement of SNB-NBP swap was active on November 17 only**
  - **Problem: Investors may already have reacted?**

• **Seems like some lines were active for a period that was then changed over time**

- **A further complication when investors would react?**

• **In general, was there information leakage before?**

- **I assume not: central banks are typically not known to leak**
  - **Still it does happen**
    - **See recent (past) leak of ECB minutes on Cyprus bail out**
  - **Multiple central banks (and actors) involved?**
    - **More difficult to control leaking: maybe check?**

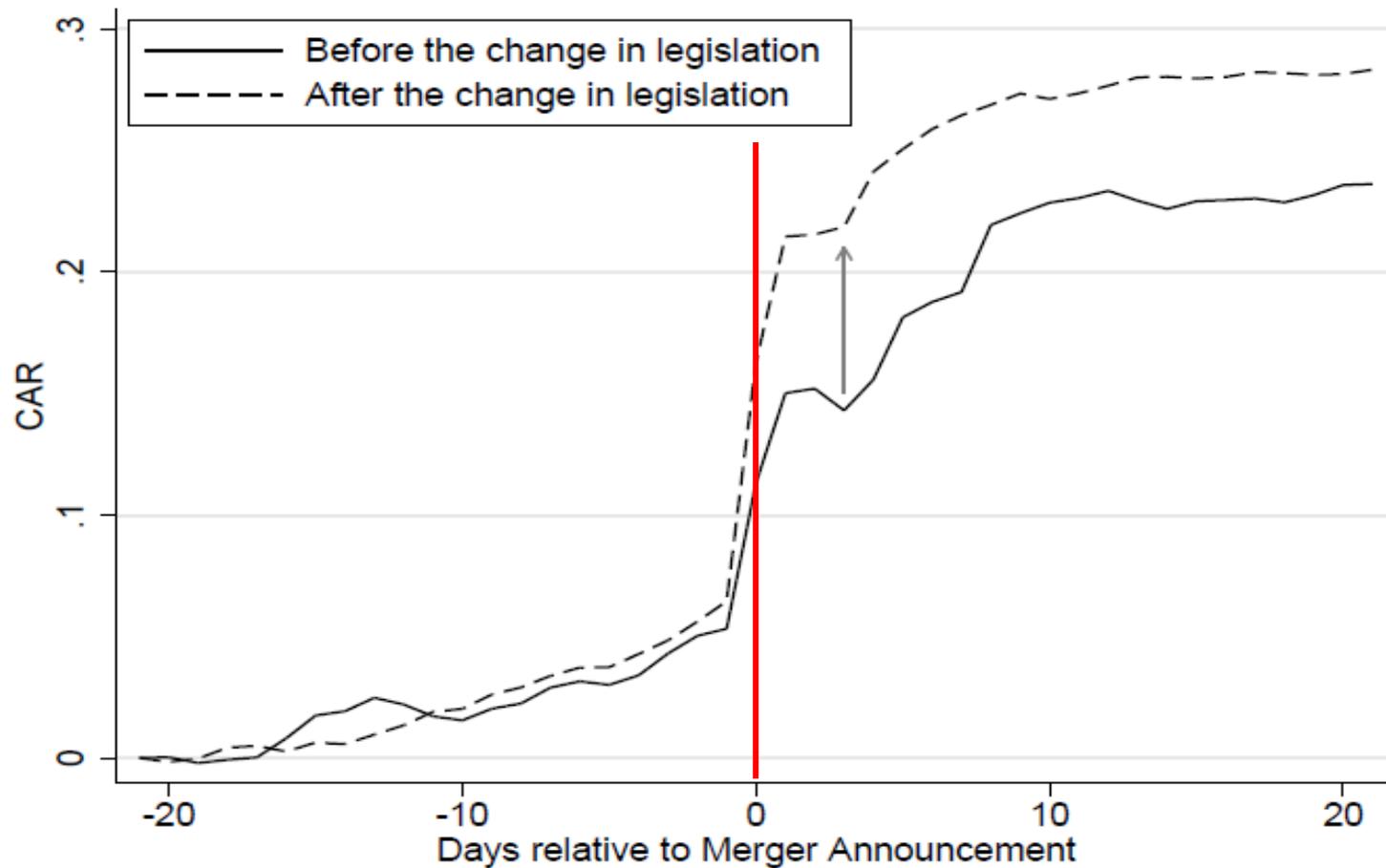


Figure 2: Effect of Change in Legislation on Target CARs by Day

Maybe construct a standard graph of this type ...

$$\Delta p_{ijt} = \beta_1 SWAP_{jt}^{SNB|X} + \boxed{other_t} + \nu_j + \mu_t + \epsilon_{ijt}, \quad (1)$$

- **Other variables: include STOXX® Europe 600 Banks index return**
  - In a market model the key control variable
  - Somewhat less important in an event study, still ...
    - Is this the only relevant index? Assumes marginal investor freely invest in banks across Europe
    - Maybe also try a domestic market index, World index, ...
    - APT: other factors? You have already VIX, ...
  
- **Add (3) leads and lags of market index to account for non-synchronous trading**
  - On a related note: Can you provide citations to studies to show that covered markets are reasonably semi-strong efficient in these countries? Recall it is a joint hypothesis you are testing.

$$\Delta p_{ijt} = \beta_1 SWAP_{jt}^{SNB|X} + other_t + \nu_j + \mu_t + \epsilon_{ijt}, \quad (1)$$

“If you do not what to say, throw in a clustering comment”  
Jose Liberti in *Lenzerheide 2014*



- Clustering is at the country level
- But maybe also the event level could be appropriate? Check?

$$\Delta p_{ijt} = \beta_1 SWAP_{jt}^{SNB|X} + \beta_2 BANK_{ijt}^{char} + \beta_3 BANK_{ijt}^{char} * SWAP_{jt}^{SNB|X} \quad (2)$$

$+ other_t + \nu_j + \mu_t + \epsilon_{ijt},$

- Why not saturate also once with swap line event fixed effects and then focus on the within-swap line variation across banks?

$$\Delta p_{ijt} = \beta_1 SWAP_{jt}^{SNB|X} + \beta_2 BANK_{ijt}^{char} + \beta_3 BANK_{ijt}^{char} * SWAP_{jt}^{SNB|X} \quad (2)$$
$$+ other_t + \nu_j + \mu_t + \epsilon_{ijt},$$

- **Economic relevancy assessments should be much extended and clarified**
- **In the end: this is what it is all about in this paper, the valuation effects**
- **Trivia: some rescaling of the dependent variable will make coefficients “more readable”**



**A few more related papers  
could be helpful for your case?**



- Brown M, Kirschenmann K, Ongena S. 2013. Foreign Currency Loans - Demand or Supply Driven? *Journal of Money, Credit and Banking*, Forthcoming
  - Maybe relevant because it indicates banks may not be able to perfectly substitute among currencies in their borrowing and lending



- Brown M, Ongena S, Yeşin P. 2011. Foreign Currency Borrowing by Small Firms in the Transition Economies. *Journal of Financial Intermediation* 20: 285-302
  - Not cited. Seems related in terms of motivation for foreign currency borrowing.
- Brown M, De Haas R. 2012. Foreign Banks and Foreign Currency Lending in Emerging Europe. *Economic Policy* 27: 57-98
  - Bank ownership argumentation?



**What is the impact  
of the swap lines  
on bank and corporate financing  
and what are the real effects?**



- In your paper
  - Maybe you can also assess the impact on bank balance sheets?
- In another paper?
  - The impact on corporate financing across countries?
    - BEEPS: local probabilistic matching as in e.g. Popov and Udell (JIE 2012) and Ongena, Popov and Udell (JFE 2013)
    - Kompass: bank-firm connections as in e.g. Giannetti and Ongena (JIE 2012)



To Do:

For: Ongena S, Schindele I, Vonnák D. 2014. In Lands of Foreign Currency Credit, Bank Lending Channels Run Through? The Effects of Monetary Policy at Home and Abroad on the Currency Denomination of the Supply of Credit, University of Zurich, Mimeo

- Use relevant swap line dates to assess impact on currency denomination of the supply of credit in Hungary



a marked up copy with some (more) trivia





## To Conclude

Nice question

Assessement of variation in impact across banks is an insightfull step

Event study methodology: may need some tightening?

My few comments hopefully help a little?