

## Editorial

Dear reader

The SNB's Research Updates present research conducted by SNB staff, announcements of upcoming conferences, and feature non-technical summaries of research papers that are considered to be particularly relevant for the SNB.

This issue covers the period from September 2012 to March 2013. During this period, nine SNB Working Papers and ten articles in peer-reviewed economic journals were published. Let me highlight two papers that are directly related to the core activities of the SNB. The first is «Asymmetries in price-setting behavior - New micro-economic evidence from Switzerland» by Daniel Kaufmann and Sarah Lein, together with Bo Honoré (published in the Journal of Money, Credit and Banking). It uses price data underlying the Swiss CPI to examine whether there are asymmetries in price-setting behavior (pages 4 and 7). The second is «Portfolio balance effects of the SNB's bond purchase program» by Signe Krogstrup, together with Andreas Kettemann (SNB Working Paper No. 2013-1). It analyses the impact of the SNB's unconventional bond purchases on bond spreads in 2009 (page 6).

The focus paper for this Research Update deals with commercial bank's access to central bank money provided through open market operations. Central banks may differ in their access policy. The SNB follows an open access policy, offering access to a large class of banks. In their paper called «Access Policy and Money Market Segmentation», authors Sébastien Kraenzlin and Thomas Nellen examine the effect of such a policy on the inter-bank repo market. They find that the open access policy of the SNB limits segmentation in the unsecured Swiss franc money market.

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# Focus paper

SNB Working Paper No. 2012-12

## Access Policy and Money Market Segmentation

by Sébastien P. Kraenzlin and Thomas Nellen

The open access policy of the SNB limits segmentation in the unsecured Swiss franc money market both in normal and crisis times.

### Market segmentations

During the financial crisis starting 2007 risk premiums in money markets rose sharply. In addition, one could observe that specific groups of banks paid differing interest rates that were unrelated to counterparty risk considerations. Such interest rate differentials are referred to as money market segmentation. The authors consider two specific segmentations in the Swiss franc unsecured money market in connection with access to sources of secured funding in the form of repurchase agreements (repo). Sources of secured funding are either monetary policy operations by the central bank or the interbank repo market. With regard to access policy, it is of particular interest to analyze the Swiss franc money market. The SNB conducts its monetary policy operations on the same platform on which the interbank repo market trades (see Box 1), and both sources of secured funding are connected by a comparatively open access policy (see Box 2).

The first segmentation results from banks' access to secured funding (monetary policy operations by the central bank and the interbank repo market). By the term 'access premium', the authors refer to the interest rate markup that a bank with no access to central bank monetary policy operations and to the repo interbank market pays on top of the interest rate that a bank with such access pays. The other form of segmentation may arise between domestically chartered banks

and foreign banks not chartered in Switzerland. The term 'cross-border premium' refers to the interest rate markup foreign banks pay on top of what banks pay that are chartered in Switzerland.



Authors: Sébastien Kraenzlin and Thomas Nellen

Access is considered to yield better insurance against liquidity shortages. However, access to secured funding sources is worth acquiring only if the financial system has a funding need vis-à-vis the central bank (so-called structural liquidity deficit). By contrast, it is held that the access premium disappears when the financial system moves into a structural liquidity surplus in which it has permanent excess reserves. The cross-border premium, however, is considered to be persistent as it is related to asymmetric information. Furthermore, an open access policy is perceived to limit segmentation both in normal and crisis times.

To identify the access and cross-border premium, the authors run a regression of the interest rate differential, measured by the premium a borrowing bank pays on the unsecured money market compared to the corresponding Libor rate, on two dummies. The first dummy captures access to secured funding, while the second dummy captures domestically chartered banks.

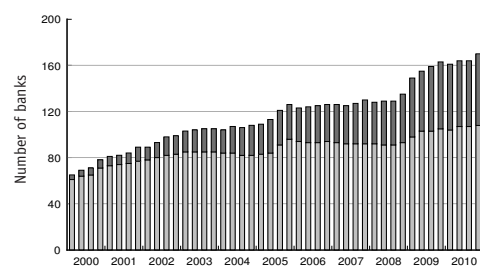
### Empirical findings

The authors show, for the period from 2005 to 2011, that open access to secured funding keeps the access premium low, and did so even during the financial crisis starting 2007.

#### **Box 1: Access to infrastructures necessary to participate in the monetary policy operations of the SNB and to trade in the Swiss franc interbank repo market**

The SNB carries out its open market operations and provides its standing facilities on the Eurex repo platform for Swiss franc. Related payments are settled on the Swiss Interbank Clearing (SIC), the Swiss large-value payment system that settles in central bank money. Thus, each bank participating in SIC must have a reserve account at the SNB. Securities transfers are effected by SIX SIS (SIS), the Swiss central securities depository, which also runs a delivery-versus-payment settlement system that is linked to SIC. Access to these infrastructures is identical to the access policy by the SNB for its reserve accounts and monetary policy operations.

**Figure 1: Number of banks with access to the Eurex repo trading platform**



*This figure depicts the number of banks with access to the Eurex repo trading platform. The dark-grey bars represent foreign banks, the light-grey bars domestic banks.*

An access premium of about 6.3bp is estimated for the period before the financial crisis. While being comparatively low, the access premium is at an economically relevant level. Interestingly, the financial crisis starting 2007 did not increase the access premium. Rather, since the fourth quarter of 2008, the access premium has started to decrease and vanished entirely towards the end of the sample. Its disappearance is related to monetary policy that moved the financial sector from a structural liquidity deficit to a surplus in the course of the financial crisis. After the collapse of Lehman Brothers, the SNB provided ample liquidity to the market, reducing and eventually eliminating the value of direct access to secured funding.

In contrast to the access premium, the cross-border premium remained more or less persistent over the whole sample period. This is consistent with the view that information on the quality of foreign banks is less precise than that on domestically chartered banks. This information asymmetry in turn results in a cross-border premium between 3 to 6.3bp.

While the access premium results from better insurance against liquidity shortages that vanish with an increasing structural liquidity surplus, the cross-border premium arises from persistent asymmetric information and, as a consequence, did not alter with the changing structural liquidity position of the financial sector.

Having access to secured funding seems to pay off both for domestic and foreign banks. It provides insurance against liquidity disruptions on the unsecured money market. This is in line with the experience that the number of banks with access to the electronic repo trading platform (Figure 1) increased during the crisis and particularly so after the collapse of Lehman Brothers.

While comparable estimates for other currencies are scarce, segmentations in the unsecured Swiss franc money market seem to be smaller than those estimated in a study for the USD market both during normal and crisis times. The value of direct access to secured funding by the central bank is further supported by the reactions to the crisis by the Federal Reserve System that established access to central bank money for other than primary dealers via the establishment of diverse new facilities.

## Conclusion

These findings reveal that a so far neglected aspect of monetary policy implementation matters. The access policy to secured and central bank funding is a crucial determinant of the degree of integration and stability of the unsecured money market.

### Box 2: Access policies to secured funding

Central banks' access policies to their open market operations can be broadly divided into three types: First, only primary dealers, representing a selection of (domestic) banks, are eligible for open market operations (policy of e.g. Federal Reserve, Bank of Canada (BoC)). Second, all domestic banks including subsidiaries of foreign banks which are subject to minimum reserve requirements are eligible (policy of e.g. European Central Bank (ECB), Bank of Japan (BoJ)). Third, in addition to domestic and domestically chartered foreign banks, foreign banks that are not chartered domestically are also eligible (policy of the SNB).

Access to the central bank's standing facilities is usually granted to banks that have to fulfil minimum reserve requirements (discount window type of facilities) and/or to banks that participate in large-value payment systems (intraday liquidity facility).

The access to interbank repo markets crucially depends on their respective organisation. For instance, if repo markets are served by third-party clearers (for example tri-party agents or central counterparties), participation depends on their respective access policies.

In Switzerland the access policy to open market operations, to standing facilities as well as the interbank repo market are identical, representing, in worldwide comparison, a fairly unique and open access policy to different types of sources for secured funding for all domestically chartered banks, insurance companies and banks domiciled abroad which are not chartered in Switzerland.

## SNB Working Papers 2012-09

### Asymmetries in price-setting behavior: New microeconomic evidence from Switzerland

*Bo E. Honoré, Daniel Kaufmann and Sarah M. Lein*

In this paper we follow the recent empirical literature that has specified reduced-form models for price setting that are closely tied to (S,s)-pricing rules. Our contribution to the literature is twofold. First, we propose an estimator that relaxes distributional assumptions on the unobserved heterogeneity. Second, we use the estimator to examine asymmetries in price-setting behavior. Using micro price data underlying the Swiss CPI we find that a substantial share of asymmetries in the frequency of price changes can be traced back to a rising aggregate price level. We show that asymmetries would be reduced substantially in the absence of aggregate inflation.

## SNB Working Papers No. 2012-10

### Global and country-specific business cycle risk in time-varying excess returns on asset markets

*Thomas Nitschka*

Deviations of national industrial production indexes from trend explain time variation in excess returns on the G7 countries' stock markets. This paper highlights that this finding is driven by a global, common component in the national production gaps. The global component is not a mirror image of the U.S. business cycle. Quite to the contrary, a «rest-of-the-world» production gap explains time variation in U.S. stock market excess returns while the U.S.-specific production gap does not. However, both U.S.-specific and global gap components explain time-varying excess returns on U.S. bonds. The relative importance of the U.S.-specific risk gap increases with the maturity of bonds.

## SNB Working Papers No. 2012-11

### Quality pricing-to-market

*Philip U. Sauré, Thomas Chaney and Raphael A. Auer*

We document that in the European car industry, exchange rate pass-through is larger for low than for high quality cars. To rationalize this pattern, we develop a model of quality pricing and international trade based on the preferences of *Musa and Rosen (1978)*. Firms sell goods of heterogeneous quality to consumers that differ in their willingness to pay for quality. Each firm produces a unique quality of the good and enjoys local market power, which depends on the prices and qualities of its closest competitors. The market power of a firm depends on the prices and qualities of its direct competitors in the quality dimension. The top quality firm, being exposed to just one direct competitor, enjoys the highest market power and equilibrium markup. Because higher quality exporters are closer to the technological leader, markups are generally increasing in quality, exporting is relatively more profitable for high quality than for low quality firms, and the degree of exchange rate pass-through is decreasing in quality.

## SNB Working Papers No. 2012-12

### Access policy and money market segmentation

*Thomas Nellen and Sébastien P. Kraenzlin*

We analyse deviations between interest rates paid in the Swiss franc unsecured money market and the respective Libor rate. First, banks that have access to the secured interbank market and the SNB's monetary policy operations pay less than banks without access. Second, domestically unchartered, foreign banks pay more than domestic banks. We find that these segmentations are limited both during normal times and during the financial crisis starting 2007 thanks to open access to the secured interbank market and the SNB's monetary policy operations. These findings reveal that a neglected aspect of monetary policy implementation matters, namely access policy.

**SNB Working Papers No. 2012-13**  
**Fixed costs per shipment**

*Andreas Kropf and Philip U. Sauré*

Exporting firms do not only decide how much of their products they ship abroad but also at which frequency. Doing so, they face a trade-off between saving on fixed costs per shipments (by shipping large amounts infrequently) and saving on storage costs (by delivering just in time with small and frequent shipments). The firm's optimal choice defines a mapping from size and frequency of shipments to fixed costs per shipment. We use a unique dataset of Swiss cross-border trade on the transaction level to analyze the size and shape of the underlying fixed costs. The data suggest that for the average Swiss exporter the fixed costs per shipment are economically important: about one percent of the value of export or at a net present value of CHF 7790. We document that the imputed fixed costs per shipment correlate negatively with language commonalities, trade agreements and geographic proximity.

**SNB Working Papers No. 2012-14**  
**Market structure and exchange rate pass-through**

*Raphael A. Auer and Raphael S. Schoenle*

In this paper, we examine the extent to which market structure and the way in which it affects pricing decisions of profit-maximizing firms can explain incomplete exchange rate pass-through. To this purpose, we evaluate how pass-through rates vary across trade partners and sectors depending on the mass and size distribution of firms affected by a particular exchange rate shock. In the first step of our analysis, we decompose bilateral exchange rate movements into broad US Dollar (USD) movements and trade-partner currency (TPC) movements. Using micro data on US import prices, we show that the pass-through rate following USD movements is up to four times as large as the pass-through rate following TPC movements and that the rate of pass-through following TPC movements is increasing in the trade partner's sector-specific market share. In the second step, we draw on the parsimonious model of oligopoly pricing featuring variable markups of Dornbusch (1987) and Atkeson and Burstein (2008) to show how the distribution of firms' market shares and origins within a sector affects the trade-partner specific pass-through rate. Third, we calibrate this model using our exchange rate decomposition and information on the origin of firms and their market shares.

We find that the calibrated model can explain a substantial part of the variation in import price changes and pass-through rates across sectors, trade partners, and sector-trade partner pairs.

**SNB Working Papers No. 2012-15**  
**What drives Target2 balances? Evidence from a panel analysis**

*Raphael A. Auer*

What are the drivers of the large Target2 (T2) balances that have emerged in the European Monetary Union since the start of the financial crisis in 2007? This paper examines the extent to which the evolution of national T2 balances can be statistically associated with cross-border financial flows and current account (CA) balances. In a quarterly panel spanning the years 1999 to 2012 and twelve countries, it is shown that while the CA and the evolution of T2 balances were unrelated until the start of the 2007 financial crisis, since then, the relation between these two variables has become statistically significant and economically sizeable. This reflects the partial «sudden stop» to private sector capital that funded CA imbalances beforehand. I next examine how different types of financial flows have evolved over the last years and how this can be related to the evolution of T2 balances. While changes in cross-border positions in the interbank market are associated with increasing T2 imbalances, cross-border inter-office flows between banks belonging to the same financial institution have reduced T2 imbalances. Flows to the banking sector that originate from private investors and non-financial firms are large in magnitude, but are only weakly correlated with the evolution of T2 balances; changes in banks' holdings of foreign government debt and deposit flows are strongly correlated with the post-2007 evolution of T2 balances. Overall, these findings point to a sizeable transfer of risk from the private to the public sector within T2 creditor nations via the use of central bank liquidity.

## **Bottom-up or direct? Forecasting German GDP in a data-rich environment**

*Katja Drechsel and Rolf Scheufole*

This paper presents a method to conduct early estimates of GDP growth in Germany. We employ MIDAS regressions to circumvent the mixed frequency problem and use pooling techniques to summarize efficiently the information content of the various indicators. More specifically, we investigate whether it is better to disaggregate GDP (either via total value added of each sector or by the expenditure side) or whether a direct approach is more appropriate when it comes to forecasting GDP growth. Our approach combines a large set of monthly and quarterly coincident and leading indicators and takes into account the respective publication delay. In a simulated out-of-sample experiment we evaluate the different modelling strategies conditional on the given state of information and depending on the model averaging technique. The proposed approach is computationally simple and can be easily implemented as a nowcasting tool. Finally, this method also allows to retrace the driving forces of the forecast and hence enables the interpretability of the forecast outcome.

## **Portfolio balance effects of the SNB's bond purchase program**

*Andreas Kettmann and Signe Krogstrup*

This paper carries out an empirical investigation of the impact of the SNB's unconventional bond purchases on bond spreads in 2009. We find evidence in favor of a negative effect of the bond purchase program by the SNB on the credit spreads of covered bonds. The effect materializes in the days following the announcement of the SNB's intention to buy bonds issued by private sector borrowers, as markets learn that the SNB is buying covered bonds. The specification of the bond spreads used allow us to identify this effect as markets discounting a portfolio balance effect of the purchases, as distinct from policy signaling or liquidity effects that might also have affected bond yields.

# Publications by SNB staff

## SNB Economic Studies

(None in this issue)

## Publications in journals

Bo E. Honoré, Daniel Kaufmann and Sarah M. Lein. 2012.

[Asymmetries in price-setting behavior: New micro-econometric evidence from Switzerland.](#)

*Journal of Money, Credit and Banking* 44: 211-236.

Michael Lamla and Thomas Maag. 2012.

[The role of media for inflation forecast disagreement of households and professional forecasters.](#)

*Journal of Money, Credit and Banking* 44(7): 1325-1350.

Alain Gabler and Markus Poschke. 2013.

[Experimentation by firms, distortions, and aggregate productivity.](#)

*Review of Economic Dynamics* 16(1): 26-38.

Christian Glocker and Pascal Towbin. 2012.

[Reserve requirements for price and financial stability: When are they effective?](#)

*International Journal of Central Banking* 8(1): 65-114.

Terhi Jokipii and Pierre Monnin. 2013.

[The impact of banking sector stability on the real economy.](#)

*Journal of International Money and Finance* 32(1): 1-16.

Pascal Towbin and Sebastian Weber. 2013.

[Limits of floating exchange rates: The role of foreign currency debt and import structure.](#)

*Journal of Development Economics* 101: 179-194.

Sébastien P. Kraenzlin and Martin Schlegel. 2012.

[Demand for reserves and the central bank's management of interest rates.](#)

*Swiss Journal of Economics and Statistics* 148(4): 531-555.

Thomas Nitschka. 2013.

[Momentum in stock market returns: implications for risk premia on foreign currencies.](#)

*Applied Financial Economics* 23(7): 551-560.

Raphael A. Auer and Sébastien P. Kraenzlin. 2012.

[How do Austrian banks fund their Swiss franc exposure?](#)

Oesterreichische Nationalbank *Financial Stability Report* 24: 54-61.

Andreas M. Fischer. 2012.

[Immigrant language barriers and house prices.](#)

*Regional Science and Urban Economics* 42(3): 389-395.

## Other publications

Katrin Assenmacher-Wesche. 2013.

[Forecasting the Swiss economy with a small GVAR model.](#)

In *The GVAR Handbook: Structure and Applications of a Macro Model of the Global Economy for Policy Analysis*, Eds. Filippo Di Mauro and M. Hashem Pesaran, 244-254. Oxford: Oxford University Press.

The chapter evaluates the forecast performance of a small global vector autoregressive (GVAR) model comprising Switzerland, the euro area, the US and Japan. This GVAR model produces better forecasts for Swiss inflation and real GDP growth from 2002 to 2011 than a cointegrating VAR model for Switzerland with predictions from a simple VAR for the exogenous variables. Using the exogenous variables from the SNB's scenarios for the world economy, however, achieves lower forecast errors. This can be explained by the larger information set that enters these scenarios, in particular during the financial crisis. We conclude that the GVAR model is able to produce reasonable forecasts even if one is interested in a single economy that forms part of a global system.

Philipp Haene and Robert Oleschak. 2012.

[Twenty-five years of Swiss Interbank Clearing: A review.](#)

In *Payment Systems: Design, Governance and Oversight*, Ed. Bruce J. Summers, 295-305. London: Central Banking Publications.

Swiss Interbank Clearing (SIC) was one of the earliest real-time gross settlement (RTGS) systems, coming into operation in 1987 with the aim of reducing settlement risk for participants and improving the overall efficiency of interbank settlement. 25 years later, SIC settles all Swiss franc interbank large-value payments, as well as a large share of interbank retail payments. Thanks to its large payment volumes, SIC transaction fees have stayed extremely low, helping it to develop a broad base of direct participants. The attractiveness of SIC for financial institutions in using the system to settle Swiss franc interbank payments is supported by its system design, technological achievements, its governance structure and its strategic positioning.

Thomas Nellen and Robert Oleschak. 2012.

[Does SIC need a heart pacemaker?](#)

In *Diagnostics for the financial markets - Computational studies of payment system*, Eds. Matti Helqvist, Tatu Laine, 341-377. Helsinki: Bank of Finland scientific monographs.

Real-time gross settlement (RTGS) systems effect final settlement of payments continuously and on an individual basis. This generates a trade-off between liquidity and settlement delay. RTGS systems have, thus, been enriched with more advanced settlement algorithms aimed at improving the flow of payments and reducing congestion. The paper analyses whether the four most common algorithms can reduce liquidity needs and settlement delay in the Swiss Interbank Clearing (SIC) system. Simulations run with the BoF-PSS2 simulator developed by the Bank of Finland show that expected reductions in delay and liquidity needs are modest and should be evaluated against implementation costs.

Patrick Halbeisen and Tobias Straumann. 2012.

[Die Wirtschaftspolitik im internationalen Kontext.](#)

In *Wirtschaftsgeschichte der Schweiz im 20. Jahrhundert*, Eds. Patrick Halbeisen, Margrit Müller, Béatrice Veyrassat, 983-1076. Basel: Schwabe Verlag.

The chapter describes the economic policy of Switzerland in the 20th century. The authors argue that the economic policy was dominated by monetary policy. The monetary policy was successful insofar as it led to a very stable currency and low interest rates. Because the overall aim was stability, there remained little room for fiscal policy. During economic crises the government supported the domestic economy by raising customs tariffs, granting subsidies and the like. Bilateral treaties with the EU and other international agreements aiming at liberalisation, however, are increasingly putting this approach in question.



# Events

## Past events

**19/20 October 2012**

### JME-SNB-SCG Conference

*Host: Study Center Gerzensee, Gerzensee*

The Study Center Gerzensee (SCG), together with the Journal of Monetary Economics and the SNB, held the JME-SCG-SNB Conference in Gerzensee on 19/20 October 2012. The theme of the conference was 'Financial Markets, Financial Policy, and Macroeconomic Activity'. Fritz Zurbrügg, Member of the Governing Board, SNB, presented a dinner address. The organisation committee of the conference consisted of Jordi Galí (CREI), Robert G. King (Boston University), Dirk Niepelt (Study Center Gerzensee), Sérgio Rebelo (Northwestern University) and Marcel Savioz (Swiss National Bank).

**15-17 November 2012**

### Joint Central Bankers Conference

*Host: Federal Reserve Bank of Atlanta, New Orleans*

The Federal Reserve Bank of Atlanta, together with the Bank of Canada, the Federal Reserve Bank of Cleveland, and the Swiss National Bank held the Joint Central Bankers Conference 'Unconventional Government Policies' on 15-17 November 2012. The conference focused on the connections between fiscal policy, monetary policy, and financial stability, and on the evaluation of unconventional policy propositions. The keynote speech was delivered by President Lockhart, Federal Reserve Bank of Atlanta. The organisation committee consisted of Richard Anton Braun and Dave Altig (Federal Reserve Bank of Atlanta).

## Upcoming events

**14 May 2013**

### SNB-IMF High Level Conference on the International Monetary System

*Host: Swiss National Bank, Zurich*

**31 May–1 June 2013**

### The Effect of Globalization on Market Structure, Industry Evolution and Pricing

*Host: Federal Reserve Bank of Dallas, Dallas*

**3/4 June 2013**

### Joint Seminar with National Bank of Poland

*Host: Swiss National Bank, Zurich*

**22/23 August 2013**

### Inflation Dynamics in a Post-Crisis Globalized Economy

*Host: Swiss National Bank, Zurich*

**20/21 September 2013**

### SNB Research Conference 2013

*Host: Swiss National Bank, Zurich*

**27/28 September 2013**

### Hydra Workshop on Dynamic Macroeconomics

*Host: Banca d'Italia, Rome*

**18/19 October 2013**

### JMCB-SNB-Uni Bern Conference

*Host: Study Center Gerzensee, Gerzensee*

**24/25 October 2013**

### Workshop Deutsche Bundesbank, Schweizerische Nationalbank, Oesterreichische Nationalbank

*Host: Deutsche Bundesbank, Frankfurt*

**6-8 November 2013**

### Joint Central Bankers Conference

*Host: Federal Reserve Bank of Cleveland, Cleveland*