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October 2015

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Spotlight

Dear Reader

I am delighted to present our latest SNB Research Update. In this edition, our featured article presents the paper ‘Time-intensive R&D and unbalanced trade’. The paper uses Swiss balance of payments statistics to support its theory of how R&D expenses in sectors such as pharmaceuticals impact international capital flows. Understanding capital flows is, of course, central to our exchange rate analysis.

Economic research and high-quality data-gathering (statistics) – two interdependent activities – are key to the SNB’s policy tasks. The SNB collects economic data – for instance, it compiles Swiss balance of payments statistics and produces various statistics on the banking sector. These data support the SNB in fulfilling its legal mandate, especially in the fields of monetary policy, and reinforce its efforts to maintain the stability of the Swiss financial system. The SNB also conducts economic research that uses the data collected. It may wish to analyse the economy, exchange rates, or the background to the current state of the banking system, for example; or it may wish to gain a fuller understanding of how risks to the banking system evolve over time as banks adjust their business strategies. Economic research not only helps us to identify such trends, but it refines our understanding of the economy and strengthens the foundations of the SNB’s day-to-day policymaking.

Naturally, interaction between statistics and economic research improves quality in both fields. New and enhanced data sets may stimulate economic research activities; equally, findings in economic research may improve data collection processes and the data sets available to us. In short, policymaking depends on high-quality output from the two interrelated disciplines of statistics and economic research.

THOMAS J. JORDAN
Chairman of the Governing Board

SCHWEIZERISCHE NATIONALBANK
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PHILIP SAURÉ'S 'TIME-INTENSIVE R&D AND UNBALANCED TRADE'

BY THOMAS LUSTENBERGER

Switzerland has been running a trade surplus in recent years. Does this mean, as some observers have suggested, that the Swiss franc was undervalued during the period of the minimum exchange rate against the euro? Not necessarily, as Philip Sauré demonstrates. His model predicts that a country's real exchange rate barely changes if its trade balance is driven into surplus by industries with time-intensive R&D. Philip Sauré's paper goes on to argue that Switzerland's surplus was due to its R&D-intensive pharmaceutical sector rather than to an undervalued Swiss franc.

This featured article presents stylised facts of the pharmaceutical sector, Philip Sauré's model describing these facts, and policy conclusions.

Philip Sauré

The pharmaceutical sector

Three stylised facts associated with the pharmaceutical sector are crucial to the generation of trade imbalances. First, the pharmaceutical sector is important for the Swiss economy. Second, global demand for pharmaceuticals has been growing rapidly. And third, producing pharmaceuticals typically incurs high up-front R&D costs for a decade or more.

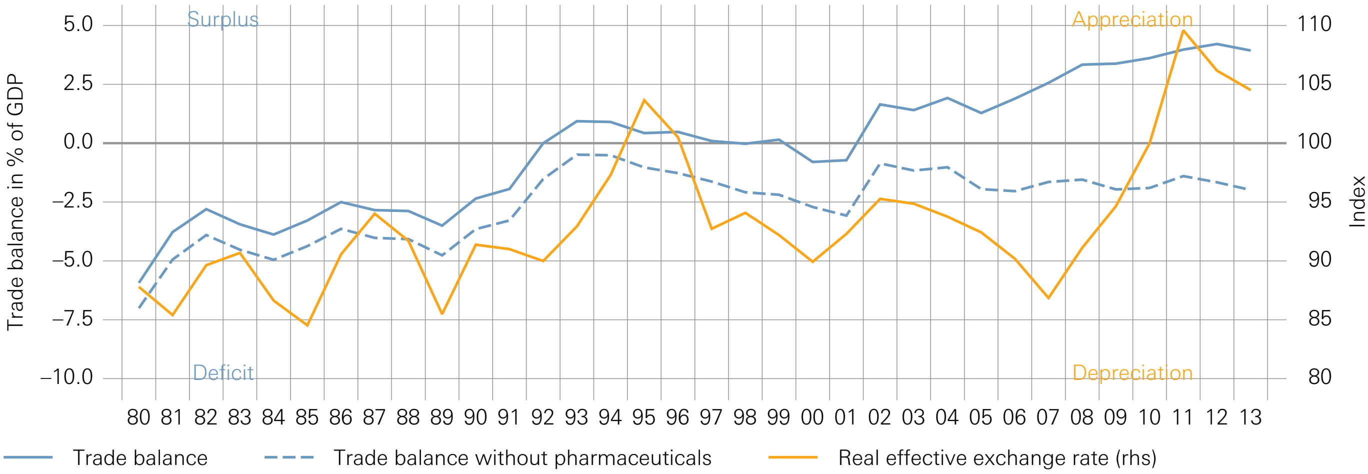
The model

Philip Sauré develops a model incorporating time-intensive R&D in order to analyse trade imbalances. The model features two countries trading two types of goods in two consecutive time periods; one is the home country, the other the foreign country. Pharmaceuticals are produced only by the home country. They require intensive R&D in the first period before production can start in the second period. However, both countries produce non-pharmaceutical goods in both periods.

The time sequence of the model is as follows: in the first period, the home country develops pharmaceuticals, financed by local and foreign investment; foreign investment leads to capital inflows to the home country, which result in a trade deficit. In the second period, the home country produces the pharmaceuticals it has developed, exports them, and repays R&D investments; this creates capital outflows from the home country. The trade deficit turns into a trade surplus.

Both newly available pharmaceuticals and capital outflows affect the home country's wages in the second period. Shifts in wages are critical to changes in the real exchange rate – defined as the ratio of home to foreign real wages. On the one hand, real wages increase because the home country's prices fall as the set of goods it produces expands. The real exchange rate appreciates. On the other hand, capital outflows (repayment of foreign R&D investments) cause the real exchange rate to depreciate. These two effects virtually offset one another and the home country's real exchange rate appreciates only very moderately overall. The model thus shows that a trade surplus can coincide with appreciations of the real exchange rate.

SWISS TRADE BALANCE AND REAL EXCHANGE RATE



Running the model using Swiss data
The data on the chart, which plots Switzerland's trade balance against GDP between 1980 and 2013, appear to support the model's view. For almost 20 years, Switzerland ran a trade deficit (the blue line is below zero). Since 2002, Switzerland has run a trade surplus. If one were to factor out pharmaceuticals, however, Switzerland would have run a trade deficit (the dashed blue line is below zero). On the whole, the real effective exchange rate fluctuates around a moderate trend towards appreciation (the orange line traces an upward trajectory overall).

Importantly, however, Philip Sauré shows that the model did not predict the magnitude of the Swiss franc appreciation that has occurred since 2008. This recent appreciation must therefore be due to factors other than the trade balance. Factors linked to the financial markets, such as safe haven effects, are the likely culprits here.

Policy conclusions
When trade is dominated by products that require cost and time-intensive R&D, it becomes unbalanced. In such cases, surpluses or deficits do not necessarily indicate that a country's currency is under or overvalued.

SNB WORKING PAPERS NO. 2015-11
TIME-INTENSIVE R&D AND UNBALANCED TRADE
PHILIP SAURÉ

SNB Working Papers are available at www.snb.ch, *Research*.

SNB WORKING PAPERS NO. 2015-04

A DYNAMIC NORTH-SOUTH MODEL OF DEMAND-INDUCED PRODUCT CYCLES

RETO FÖLLMI, **SANDRA HANSLIN** AND ANDREAS KOHLER

This paper presents a dynamic North-South general-equilibrium model where households have non-homothetic preferences. Innovation takes place in a rich North while firms in a poor South imitate products manufactured in the North. Introducing non-homothetic preferences delivers a complete international product cycle as described by Vernon (1966), where the different stages of the product cycle are determined not only by supply side factors but also by the distribution of income between North and South. We ask how changes in Southern labour productivity, population size in the South and inequality across regions affect the international product cycle. In line with presented stylised facts about the product cycle we predict a negative correlation between adoption time and per capita incomes.

SNB WORKING PAPERS NO. 2015-05

MORTGAGE ARREARS IN EUROPE: THE IMPACT OF MONETARY AND MACROPRUDENTIAL POLICIES

PETRA GERLACH-KRISTEN AND SEÁN LYONS

Mortgage arrears arise if a household faces affordability problems and/or is in negative equity. Because widespread arrears pose a risk to the stability of banks and limit households' future access to credit, a crucial question is how monetary or macroprudential policies influence their incidence. We use a European household data set to analyse what drives arrears and find that affordability problems, such as unemployment, low income and high mortgage payments, matter, which suggests that monetary policy has an impact. Households facing the dual trigger of affordability problems and negative equity are more likely to go into longer-term arrears; macroprudential regulation preventing high loan-to-value (LTV) ratios can thus also have an impact.

SNB WORKING PAPERS NO. 2015-06

TRANSMISSION OF QUANTITATIVE EASING: THE ROLE OF CENTRAL BANK RESERVES

JENS CHRISTENSEN AND **SIGNE KROGSTRUP**

We argue that the issuance of central bank reserves per se can matter for the effect of central bank large-scale asset purchases – commonly known as quantitative easing – on long-term interest rates. This effect is independent of the assets purchased, and runs through a reserve-induced portfolio balance channel. For evidence, we analyse the reaction of Swiss long-term government bond yields to announcements by the Swiss National Bank concerning expansions of central bank reserves without the acquisition of long-lived securities. We find that declines in long-term yields following the announcements mainly reflected reduced term premiums suggestive of reserve-induced portfolio balance effects.

SNB WORKING PAPERS NO. 2015-07

THE IMPACT OF INTERNATIONAL SWAP LINES ON STOCK RETURNS OF BANKS IN EMERGING MARKETS

ALIN ANDRIES, **ANDREAS M. FISCHER** AND **PINAR YEŞIN**

This paper investigates the impact of international swap lines on stock returns using data from banks in emerging markets. The analysis shows that swap lines by the Swiss National Bank (SNB) had a positive impact on bank stocks in Central and Eastern Europe. It then highlights the importance of individual bank characteristics in identifying the impact of swap lines on bank stocks. Bank-level evidence suggests that stock prices of local and less-well capitalised banks responded strongly to SNB swap lines. This new evidence is consistent with the view that swap lines not only enhanced market liquidity but also reduced risks associated with microprudential issues.

SNB WORKING PAPERS NO. 2015-08

IS THERE A TOO-BIG-TO-FAIL DISCOUNT IN EXCESS RETURNS ON GERMAN BANKS' STOCKS?

THOMAS NITSCHKA

This paper shows that standard multifactor asset pricing models provide an adequate description of excess returns on stock indexes of German industrial sectors. The only exception is the banking sector index. It offers lower monthly excess returns than suggested by exposures to risk factors in the sample period from 1973 to 2014. This evidence is robust to various changes in the specification of the empirical model. Rolling time window regressions highlight that this finding has been most pronounced since the peak of the global financial crisis in 2008/2009 when the government guarantee for big, systemically important German banks became explicit.

SNB WORKING PAPERS NO. 2015-09

EXIT STRATEGIES AND TRADE DYNAMICS IN REPO MARKETS

ALEKSANDER BERENTSEN, **SÉBASTIEN P. KRAENZLIN** AND **BENJAMIN MÜLLER**

How can a central bank control interest rates in an environment with large excess reserves? In this paper, we develop a dynamic general equilibrium model of a secured money market and calibrate it to the Swiss franc repo market to study this question. The theoretical model allows us to identify the factors that determine demand and supply of central bank reserves, the money market rate and trading activity in the money market. In addition, we simulate various instruments that a central bank can use to exit from unconventional monetary policy. These instruments are assessed with respect to the central bank's ability to control the money market rate, their impact on the trading activity and the operational costs of an exit. All exit instruments allow central banks to attain an interest rate target. However, the trading activity differs significantly among the instruments and central bank bills and reverse repos are the most cost-effective.

SNB WORKING PAPERS NO. 2015-10

BEN BERNANKE VS. JANET YELLEN: EXPLORING THE (A)SYMMETRY OF INDIVIDUAL AND AGGREGATE INFLATION EXPECTATIONS

NIKOLA MIRKOV AND ANDREAS STEINHAUER

We conducted a simple, anonymous survey at the beginning of 2014, asking around 200 economists worldwide to reveal their inflation expectations, conditional on either Ben Bernanke or Janet Yellen being the chair of the Board of Governors of the Federal Reserve. We use the change in the Fed's leadership to focus attention on the difference in conditional expectations, while we are interested in the distribution of those expectations. The outcome of the survey shows that a significant share of respondents revealed asymmetric inflation expectations and that the deviation from symmetry is sizeable. Nonetheless, individual asymmetry in forecasts appears to be irrelevant for the aggregate distribution, as the number of respondents who factor in excess inflation broadly matches the number of those who gave more weight to disinflationary outcomes. The aggregate distribution we obtain is largely comparable to the outcome of the Survey of Professional Forecasters for the first quarter of 2014.

SNB WORKING PAPERS NO. 2015-11

TIME-INTENSIVE R&D AND UNBALANCED TRADE

PHILIP U. SAURÉ

This paper highlights a novel mechanism that generates global imbalances. It develops a general equilibrium trade model with one of two countries having a comparative advantage in a sector whose production is characterized by (i) rapid, anticipated demand growth and (ii) large up-front R&D costs. International funding of the accruing R&D costs generates capital inflows in the R&D stage, which are balanced by subsequent outflows. Importantly, sector-level growth does not generate growth differentials between countries, typically regarded as rationales of global imbalances. Additionally, it is shown that a trade surplus can coincide with appreciations of the real exchange rate. I argue that Switzerland's trades surplus, which was driven to record heights during 2010-2014 by pharmaceutical exports, exemplifies this mechanism. Calibrating the model to Swiss trade flows underpins this argument.

Publications by SNB staff

PUBLICATIONS IN JOURNALS

CHRISTIAN GRISSE AND **THOMAS NITSCHKA**, 2015

ON FINANCIAL RISK AND THE SAFE HAVEN CHARACTERISTICS OF SWISS FRANC EXCHANGE RATES

Journal of Empirical Finance 32(June): 153-164

We analyse bilateral Swiss franc exchange rate returns in an asset pricing framework to evaluate the Swiss franc's safe haven characteristics. A 'safe haven' currency is a currency that offers hedging value against global risk, both on average and in particular in crisis episodes. To explore these issues we estimate the relationship between exchange rate returns and risk factors in augmented UIP regressions, using recently developed econometric methods to account for the possibility that the regression coefficients may be changing over time. Our results highlight that in response to increases in global risk the Swiss franc appreciates against the euro as well as against typical carry trade investment currencies such as the Australian dollar, but depreciates against the US dollar, the Yen and the British pound. Thus, the Swiss franc exhibits safe haven characteristics against many, but not all, other currencies. We find statistically significant time variation in the relationship between Swiss franc returns and risk factors, with this link becoming stronger in times of stress.

FILIPPO BRUTTI AND **PHILIP U. SAURÉ**

TRANSMISSION OF SOVEREIGN RISK IN THE EURO CRISIS

Journal of International Economics (forthcoming)

We assess the role of financial linkages for the transmission of sovereign risk in the euro crisis. Building on the narrative approach by Romer and Romer (1989, 2010) and augmented by Mertens and Ravn (2013), we use financial news to identify structural shocks in a vector autoregressive model of daily sovereign CDS premium for eleven European countries. To estimate how these shocks transmit across borders, we use data on cross-country bank exposures to sovereign debt. Our results indicate that cross-border financial exposures constitute important transmission channels: a reduction of exposure to overall Greek debt by one standard deviation is associated with a reduction in the response of the sovereign CDS to a shock to Greek sovereign risk of about three quarters in the average country. Decomposing these effects, we find that exposures to sovereign debt constitute significant transmission channels, while we find no robust support for transmission through bank-to-bank lending.

RAPHAEL A. AUER

EXCHANGE RATE PASS-THROUGH, DOMESTIC COMPETITION AND INFLATION: EVIDENCE FROM THE 2005/08 REVALUATION OF THE RENMINBI

Journal of Money, Credit and Banking (forthcoming)

Import competition from China is pervasive in the sense that for many goods categories, the competitive environment that US firms face in these markets is strongly driven by the prices of Chinese imports, and so are their pricing decisions. This paper quantifies the effect of the government-controlled appreciation of the Chinese renminbi vis-à-vis the USD from 2005 to 2008 on the prices charged by US domestic producers. In a panel spanning the period from 1994 to 2010 and including up to 519 manufacturing sectors, import price changes of Chinese goods pass into US producer prices at an average rate of 0.7, while import price changes that can be traced back to exchange rate movements of other trade partners only have mild effects on US prices. Further analysis points to the importance of trade integration, variable mark-ups, and demand complementarities on the one side, and to the importance of imported intermediate goods on the other side as drivers of these patterns. Simulations incorporating these microeconomic findings reveal that a substantial revaluation of the renminbi would result in a pronounced increase of aggregate US producer price inflation.

CHRISTIAN GRISSE, 2015

THE ZERO LOWER BOUND AND MOVEMENTS IN THE TERM STRUCTURE OF INTEREST RATES

Economics Letters 131(June): 66-69

The expectations hypothesis of the term structure implies a non-linear relationship between short and long-term rates if nominal interest rates are constrained by the zero lower bound (ZLB). This note finds limited evidence for such non-linearities in the US term structure. The sensitivity of medium-term yields to short rate movements declined, but there is no evidence for asymmetric responses to positive versus negative short rate changes.

PETRA GERLACH-KRISTEN, BRIAN O'CONNELL AND CONOR O'TOOLE, 2015

DO CREDIT CONSTRAINTS AFFECT SME INVESTMENT AND EMPLOYMENT?

The Economic and Social Review 46(1): 51-86

This paper explores the potential presence of credit constraints confronting Irish SMEs and investigates the impact of these constraints on firms' employment and investment. Using new survey data collected by the Department of Finance, we define firms as credit-rationed or credit-discouraged borrowers and link these constraints to employment and the propensity to invest. We find a negative and significant effect of SME credit constraints on employment for firms that are discouraged from applying for credit. We also find a negative effect of constraints on the probability of an SME investing. This effect is driven by firms who are credit-rationed when seeking capacity expansion loans.

JENS CHRISTENSEN AND **SIGNE KROGSTRUP**, 2015

TRANSMISSION OF ASSET PURCHASES: THE ROLE OF RESERVES

FRBSF Economic Letter 2015-20: 1-5

The Swiss National Bank expanded bank reserves as part of its unconventional monetary policy during the European sovereign debt crisis. The unprecedented expansion involved short-term rather than long-term asset purchases. This approach provides novel insights into how central bank balance sheet expansions affect interest rates. In particular, it illustrates how an expansion of reserves can lower long-term yields through a reserve-induced portfolio balance effect that is independent of the assets purchased.

RAPHAEL A. AUER, 2015

HUMAN CAPITAL AND THE DYNAMIC EFFECTS OF TRADE

Journal of Development Economics 117(Nov.): 107-118

This paper examines the cross-country income and welfare consequences of trade-induced human capital (dis-)accumulation. The model is based on heterogeneous workers who make educational decisions in the presence of complete markets. When such heterogeneous workers invest in schooling, high type agents earn a surplus from their investment. In the presence of cross-country differences in skill-augmenting technology, trade shifts this surplus to rich countries that can use skills more efficiently. Thus, while the static gains from trade may lead to convergence, the dynamic gains from trade occur to initially rich countries, thus leading to cross-country divergence of income and welfare. The second part of the paper endogenises world prices, documenting that as trade liberalisation concentrates skills in countries with a high level of skill-augmenting technology, it increases the effective global supply of skilled labour. Despite the resulting decline in the price of skill-intensive goods, trade is shown to be skill-biased.

CHRISTIAN GRISSE AND **THOMAS NITSCHKA**

EXCHANGE RATE RETURNS AND EXTERNAL ADJUSTMENT: EVIDENCE FROM SWITZERLAND

Open Economies Review (forthcoming)

This paper studies the predictive power of external imbalances for exchange rate returns. We focus on Switzerland, a very open economy where exchange rate movements have a strong effect on external imbalances through valuation effects and trade flows. Using a simple modification of the Gourinchas and Rey (2007) approach to make their approximation applicable to Switzerland, we find that measures of deviations from trends in Swiss net foreign assets and net exports help to forecast Swiss franc nominal effective exchange rate movements, both in and out of sample.

PINAR YEŞIN, 2015

CAPITAL FLOW WAVES TO AND FROM SWITZERLAND BEFORE AND AFTER THE FINANCIAL CRISIS

Swiss Journal of Economics and Statistics 151(1): 27-75

This paper first shows that capital inflows to and outflows from financial centres were disproportionately affected by the global financial crisis. Switzerland was no exception. The paper then identifies capital flow waves to and from Switzerland from Q1 2000 to Q2 2014 by using a simple statistical method. The analysis shows that private capital inflows to and outflows from Switzerland have become exceptionally muted and less volatile since the crisis. Further, strong and long-lasting 'home bias' behaviour can be observed for both Swiss and foreign investors. By contrast, net private capital flows have shown significantly higher volatility since the financial crisis, frequently registering extreme movements driven by extreme movements in bank lending flows. These findings suggest that the financial crisis generated a breaking point for capital flows to and from Switzerland.

GREGOR BÄURLE AND **ELIZABETH STEINER**, 2015

HOW DO INDIVIDUAL SECTORS RESPOND TO MACROECONOMIC SHOCKS? A STRUCTURAL DYNAMIC FACTOR APPROACH APPLIED TO SWISS DATA

Swiss Journal of Economics and Statistics 151(3): 167-225

This paper quantifies the impact of monetary policy, exchange rates and external demand on the production sectors of the Swiss economy. As the model covers the full set of production sectors, it is possible through aggregation to estimate the impact of a given shock on total GDP. We conduct the analysis in the framework of a Bayesian structural dynamic factor model. Our approach proves to be useful to cope with the large data set and at the same time allows us to consistently identify fundamental aggregate shocks. We find that monetary variables, such as interest rates and exchange rates, mainly influence the financial sectors. Variations in value added in the manufacturing sectors or business services, on the other hand, are markedly influenced by changes in external demand, but show a weaker and slower reaction to monetary variables.

Events

PAST EVENTS

4—5 MAY 2015
12TH ANNUAL NBP-SNB JOINT SEMINAR ON INFLATION FORECASTING MODELS
HOST: SWISS NATIONAL BANK, ZURICH

The SNB, together with the National Bank of Poland (NBP), held the joint seminar on ‘Inflation Forecasting Models’ in Zurich on 4–5 May 2015. This year’s seminar was targeted at central bankers from Eastern Europe, the Caucasus and Central Asia. Representatives of the National Bank of the Kyrgyz Republic presented the macroeconomic model they had developed jointly with the SNB. Economists from the central banks of Azerbaijan and Kazakhstan also presented their modelling approaches. The organisation committee consisted of Paulina Gomulak (NBP) and Werner Hermann (SNB).

12 MAY 2015
6TH SNB-IMF HIGH LEVEL CONFERENCE ON THE INTERNATIONAL MONETARY SYSTEM
HOST: SWISS NATIONAL BANK, ZURICH

Jean-Pierre Danthine, Christine Lagarde and Thomas Jordan

The sixth SNB-IMF High Level Conference on the International Monetary System was held in Zurich on 12 May 2015. Thomas Jordan (Chairman of the Governing Board, SNB) together with Christine Lagarde (Managing Director, IMF) chaired the conference. Governors and deputy governors of 27 central banks, as well as leading economists and economic commentators, attended this year’s event. The overarching topic of the conference was ‘Monetary Policy in a Changing World’ and discussions focused on three issues: the global effects of different monetary policy regimes in advanced countries, rethinking currency interventions, and lessons from monetary policy trade-offs. The organisation committee consisted of Roberto Cippà (SNB) and Siddharth Tiwari (IMF).

18 MAY 2015

BREVAN HOWARD CENTRE-CEPR-SNB CONFERENCE ON 'REMOVING THE ZERO LOWER BOUND ON INTEREST RATES'

HOST: BREVAN HOWARD CENTRE, IMPERIAL COLLEGE BUSINESS SCHOOL, LONDON

The Imperial College Business School's Brevan Howard Centre for financial analysis, the Centre for Economic Policy Research (CEPR) and the SNB held a conference on 'Removing the Zero Lower Bound on Interest Rates' in London on 18 May 2015. Katrin Assenmacher (SNB) gave a presentation. The organisation committee consisted of Franklin Allen (Brevan Howard Centre, Imperial College Business School and CEPR) and Signe Krogstrup (SNB).

26—27 JUNE 2015

NBER INTERNATIONAL SEMINAR ON MACROECONOMICS

HOST: SWISS NATIONAL BANK, ZURICH

The SNB hosted the National Bureau of Economic Research (NBER) International Seminar on Macroeconomics (ISoM) on 26–27 June 2015. NBER is a private, non-profit, non-partisan research organisation. Its seminar attracted around 30 well-known researchers. Thomas Moser (Alternate Member of the Governing Board, SNB) presented a dinner address. Francesco Giavazzi (Bocconi University) and Kenneth West (University of Wisconsin at Madison) co-organised the seminar programme. Jeffrey Frankel (Harvard University), Francesco Giavazzi and Hélène Rey (London Business School) alternately chaired the seminar.

8 JULY 2015

SNB-HSG-AUSSENWIRTSCHAFT WORKSHOP ON 'THE SAFE HAVEN STATUS OF THE CHF AND THE SWISS EXTERNAL SECTOR DURING INTERNATIONAL CRISIS'

HOST: SWISS NATIONAL BANK, ZURICH

The Swiss Institute for International Economics and Applied Economic Research (SIAW) at the University of St.Gallen (HSG), together with the Journal Aussenwirtschaft and the SNB, held a high level policy workshop on 'The safe haven status of the CHF and the Swiss external sector during international crisis' in Zurich on 8 July 2015. The event was attended by academicians, policy makers, and representatives from the Swiss economy. It featured a lunch discussion attended by members of the SNB's enlarged governing board. The organisation committee included Simon Evenett (HSG and CEPR), Reto Foellmi (HSG and CEPR) and Roland Hodler (HSG), and was chaired by Raphael Auer (SNB and CEPR). The presented papers are eligible for publication in a regular issue of Aussenwirtschaft. The quarterly journal Aussenwirtschaft, domiciled at SIAW and HSG, publishes current research on international economics and economic policy.

9—10 JULY 2015

SNB-BIS-CEPR-FRBD CONFERENCE ON SPILLOVERS OF CONVENTIONAL AND UNCONVENTIONAL MONETARY POLICY: THE ROLE OF REAL AND FINANCIAL LINKAGES

HOST: SWISS NATIONAL BANK, ZURICH

The SNB, together with the Bank for International Settlements (BIS), the Federal Reserve Bank of Dallas (FRBD) and the Centre for Economic Policy Research (CEPR), held its fifth conference on international economics in Zurich on 9–10 July 2015. The conference was entitled 'Spillovers of conventional and unconventional monetary policy: the role of real and financial linkages'. Thomas Jordan (Chairman of the Governing Board, SNB) delivered a keynote speech on the importance of international spillover effects on Swiss consumer prices and the exchange rate and Claudio Borio (Head of the Monetary and Economic Department, BIS) also gave a keynote speech on the growing significance of financial (as opposed to current account) imbalances in the emergence of international crises. Among other topics, the conference explored interest rate spillovers, spillovers of unconventional monetary policy and the trade-off between monetary policy and structural reforms. The conference's organisation committee consisted of Raphael Auer (SNB and CEPR), Menzie Chinn (University of Wisconsin and NBER), Giancarlo Corsetti (University of Cambridge and CEPR), Andrew Filardo (BIS), Andreas Fischer (SNB and CEPR) and Mark Wynne (FRBD and GMPI). Selected papers from the conference will be published in a special issue of the Journal of International Money and Finance edited by Raphael Auer and Menzie Chinn.

25–26 SEPTEMBER 2015
SNB RESEARCH CONFERENCE 2015
HOST: SWISS NATIONAL BANK, ZURICH

The 9th annual SNB Research Conference entitled 'Monetary Policy Lessons from the Financial Crisis' was held in Zurich on 25–26 September 2015. Central bank economists and academic researchers discussed their latest findings at the conference. The organisation committee consisted of Ernst Baltensperger (Study Center Gerzensee), Athanasios Orphanides (MIT), Samuel Reynard (SNB) and Marcel Savioz (SNB).

The official conference dinner took place on the evening of Thursday 24 September. Fritz Zurbrügg (Vice Chairman of the Governing Board, SNB) introduced Peter Praet (Member of the Executive Board, ECB). In his dinner speech, Peter Praet elaborated on the conference's topic 'Monetary Policy Lessons from the Financial Crisis', noting that the probability of hitting the zero lower bound seemed higher now than had been anticipated prior to the financial crisis. However, as we approach this bound, monetary policy had, he said, remained effective thanks to non-standard measures such as quantitative easing (QE) programmes. "But it is fair to say that we need to understand more about their transmission in order to see whether QE can be retained as an instrument that, if not conventional, can play a valuable and reliable role in the toolbox to which central banks can make recourse," he argued.

The conference programme and the papers presented are available at www.snb.ch, *Research*.

UPCOMING EVENTS

29–30 OCTOBER 2015
6TH EUROPEAN SEMINAR ON BAYESIAN ECONOMETRICS (ESOBE) ANNUAL CONFERENCE ON COMPLEXITY IN ECONOMICS: BIG DATA AND PARALLELIZATION
HOST: STUDY CENTER GERZENSEE, GERZENSEE

4–6 NOVEMBER 2015
JOINT CENTRAL BANK CONFERENCE (FEDERAL RESERVE BANK OF CLEVELAND, BANK OF CANADA, FEDERAL RESERVE BANK OF ATLANTA, SNB)
HOST: SWISS NATIONAL BANK, BERNE

17–18 DECEMBER 2015
5TH WORKSHOP ON THE FINANCIAL DETERMINANTS OF EXCHANGE RATES
HOST: SWISS NATIONAL BANK, ZURICH

21–22 JANUARY 2016
EURO AREA BUSINESS CYCLE NETWORK (EABCN)-SNB CONFERENCE ON MEDIUM AND LONG RUN IMPLICATIONS OF FINANCIAL CRISES
HOST: SWISS NATIONAL BANK, ZURICH

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