
SNB Research Update

October 2013

Editorial
Focus Papers
SNB Working Papers
Publications by SNB Staff
Events

Editorial

Dear reader

Confronted with the zero lower bound and the need for further easing during the financial crisis, the major central banks – including, as of March 2009, the Swiss National Bank (SNB) – introduced so-called unconventional monetary policy measures. In so doing, they entered uncharted territory. Looking back now, mapping this new terrain requires a systematic evaluation of the measures that were implemented. Of course, a full cost-benefit analysis of unconventional monetary policy measures is still years away, since it will have to include estimates on the cost of exit. Nevertheless, researchers at the SNB and elsewhere are already hard at work in this area. Signe Krogstrup and Andreas Kettemann (SNB Working Paper No. 2013-01), for instance, have studied the impact of the SNB's bond purchase programme of 2009/2010. Their analysis shows that the announcement of the programme led to the intended narrowing of the yield spread of covered bonds. Interestingly, they find no evidence of a further effect of the actual purchases and subsequent sales on bond spreads.

Another effect of the financial crisis has been to highlight the role of financial market infrastructure. An infrastructure that continues to function robustly during periods of stress is crucial both for implementing monetary policy and for preserving systemic stability. Overall, the Swiss financial infrastructure proved remarkably resilient throughout the crisis, but this should not prevent us from considering potential improvements. In this regard, Thomas Nellen and Robert Oleschak examine the performance of alternative settlement procedures for the Swiss Interbank Clearing (SIC) system (SNB Working Paper No. 2013-10). They find that more advanced algorithms could improve the trade-off between liquidity and settlement delay, but that this improvement is not economically significant. Based on these results, the implementation of a more sophisticated algorithm does not appear justified.

The hallmarks of central bank research include that it benefits from excellent data access and is highly relevant, since it stands to immediately influence decision-making. The two papers mentioned here, as well as many others in this publication, are cases in point. With the financial crisis continuing to raise important new questions and casting familiar ones in a new light, the prospects of exciting work by SNB researchers are excellent. This edition, as well as future issues of the SNB Research Update, will help to keep you abreast of their work.

JEAN-PIERRE DANTHINE

Vice Chairman of the Governing Board, Berne

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

SNB WORKING PAPERS NO. 2013-01

PORTFOLIO BALANCE EFFECTS OF THE SNB'S BOND PURCHASE PROGRAM

ANDREAS KETTEMANN AND SIGNE KROGSTRUP

Signe Krogstrup (SNB), together with Andreas Kettemann (University of Zurich), analyse the impact of the SNB's bond purchase program in 2009–2010 on bond yield spreads. The authors provide evidence in favour of a narrowing yield spread on covered bonds as a result of the program. They attribute this finding to a portfolio balance effect.



Author: Signe Krogstrup

The SNB's bond purchase program

During the recent financial crisis, several central banks lowered short-term interest rates until they reached the zero lower bound. To loosen the monetary policy stance further, central banks relied on various unconventional monetary policies. For instance, major central banks such as the Federal Reserve, the European Central Bank, the Bank of England and the Swiss National Bank conducted outright asset purchases. While the purchases in the US and the UK have been concentrated on government securities and related assets, the SNB program focused on covered bonds (so-called 'Pfandbriefe', cf. box covered bonds) and non-bank corporate bonds.

The bond purchase program of the SNB was conducted in three main steps: First, the SNB announced the program on 12 March 2009 and immediately started to buy covered bonds. Second, the SNB extended the program to include non-bank corporate bonds on 6 April 2009. These purchases, however, remained small in comparison with those of covered bonds. The accumulated amount of covered bond purchases reached approximately CHF 2.8 billion, while corporate bond purchases reached around CHF 350 million by the time the purchases ended in August 2009. Third, the bonds were sold between March and August 2010. With the announcement of the bond purchase program on 12 March the SNB also announced other monetary policy actions, such as the provision of additional

liquidity and foreign exchange interventions. Moreover, the announcement of the bond purchase program did not contain any particular information regarding the intended size of the bond purchase program or the types of bonds to be purchased. These factors complicated the assessment of the effects of the program.

The impact on credit spreads

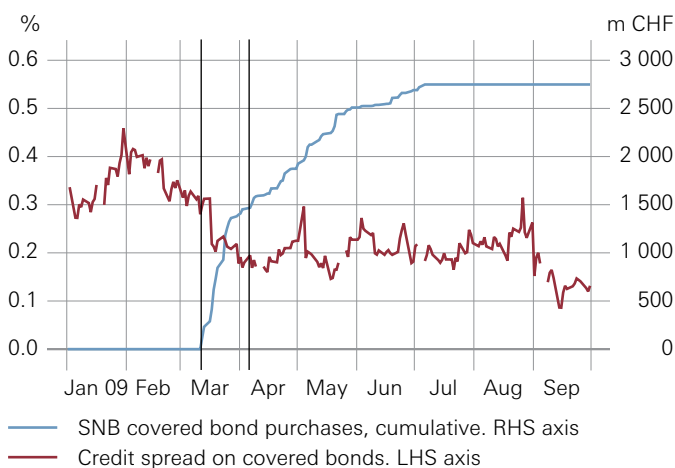
The credit spread on covered bonds measures the difference between the covered and the Confederation bond yield. This credit spread did not immediately react to the announcement of the SNB on Thursday, 12 March 2009 (cf. chart on the next page). The reaction came between the morning of Monday, 16 March and the morning of Tuesday, 17 March, when the spread dropped by around 10 basis points. In contrast, credit spreads of other Swiss bond categories and foreign credit spreads did not move to such an extent on those days. A change of 10 basis points is highly statistically significant. Moreover, since 2002, only seven days exhibit changes in covered credit spreads larger than 10 basis points. In spite of the delayed reaction, the authors argue that this drop is likely to be related to the announcement of the purchase program. The delay can be explained by the fact that markets were not aware that the SNB buys covered bonds, and hence had to observe the SNB's actions before factoring this into prices.

Covered bonds

Covered bonds, or 'Pfandbriefe', are mortgage-backed bonds issued by two institutes in Switzerland, the Pfandbriefbank and the Pfandbriefzentrale. The Pfandbrief institutes are owned by member banks. Banks can refinance their mortgages via covered bonds. To do so, Pfandbrief institutes sell covered bonds to private holders and get cash as compensation. Pfandbrief institutes pass these receipts to the member banks and get first-class quality mortgage loans in return. The credit risk of the mortgage remains with the commercial bank. In 2009 the amount of outstanding covered bonds was approximately CHF 64 billion.

DAILY COVERED BOND CREDIT SPREAD AND THE SNB COVERED BOND PURCHASES IN 2009

In levels



The announcement of the purchase program on 12 March 2009, and the beginning of the purchase of non-corporate bonds on 6 April 2009, are marked with a black line.

In contrast, the credit spread on non-bank corporate bonds was not found to react significantly in response to the purchases. One reason could be the small size of these purchases compared to the market size of such bonds and also the purchases of covered bonds.

The exit from the program in March 2010 was not announced and – as was the intention of the SNB – the operation remained largely unnoticed by market participants. No significant reaction of credit spreads to the exit can be observed in the data. Interestingly, credit spreads declined rather than increased during the selling period, which ended in August 2010.

Portfolio balance effect

One mechanism through which asset purchases affect the economy is the portfolio balance channel, which is based on the seminal work of Tobin (1965). It states that changes in the quantity and mix of financial assets held by investors affect the respective prices. If a central bank buys a specific kind of asset, it reduces its total supply, which in turn increases its price and decreases its yield. The key premise underlying the portfolio balance channel is that different classes of financial assets are not perfect substitutes in investors' portfolios. One way to explain imperfect substitution is the assumption of preferred habitat. It states that bond investors prefer one type of asset over another, or one type of maturity length over another, even if these assets have the same risk-return profile. Investors are only willing to buy assets which are not strictly preferred if these assets contain a compensating higher risk premium.

Portfolio balance effect

The literature in the field principally considers two possible channels as to how bond purchases may affect bond yields, these being a portfolio balance effect and a policy signalling effect (cf. boxes portfolio balance effect and policy signalling effect).

In short, a portfolio balance effect measures the effect on the price of an asset resulting from a change in the market supply of that asset. When the central bank buys an asset, less of this asset is available to private market participants, which in turn means that the yield and price will adjust. The authors isolate this portfolio balance effect by extracting the issuer-specific risk premium of the respective bond yield. The idea is as follows: A bond yield can be divided into a risk-free component which measures expected future short-term interest rates, a macro risk premium and an issuer specific risk premium. The risk-free component and the macro risk premium are the same for all Swiss bonds and thus cancel each other out when calculating the difference between the yields of two bonds. The credit spread is defined as the difference between the yield on the analysed bond and on the government bond. As a result, changes in the credit spread will reflect only the issuer-specific risk premium of the analysed bond, if we assume that the issuer-specific risk premium on Confederation bonds is largely constant. The issuer-specific risk premium particularly depends on the default risk of the issuer in question, risk aversion, and portfolio balance effects. Therefore, when correcting for possible changes in default risk and risk aversion, a movement in the credit spread will reflect portfolio balance effects.

If, in addition, the SNB's asset purchase program signalled something to market participants about its likely future monetary policy decisions, then this would affect the risk-free component of the yield through a policy signalling effect. The fact that the SNB announced a number of other policies at the same time, however, makes the identification of such a policy signalling effect on the asset purchase program impossible. The authors thus exclusively focus on the portfolio balance effect in their analysis, but note that the overall effect of the program on yields could have been even greater through signalling effects.

Policy signalling effect

In general, signalling describes how one market party tries to credibly convey private information to another. The effect is based on the idea of asymmetric market information. In regards of the bond purchase program, the SNB's action may indicate the direction of its future monetary policy, which in turn affects expected future policy rates.

Econometric investigations support the observation that the SNB's bond purchase program affected the credit spread on covered bonds significantly. Robustness checks for changes in the average maturity of the bonds, movements of foreign corporate spreads, liquidity effects, risk aversion, default risk, and an estimation of a volatility model strengthen these findings.

Conclusions

The SNB bond purchases in 2009 were found to significantly reduce the credit spread on covered bonds. The authors attribute this to a portfolio balance effect. The SNB's asset purchase program was small in international comparison, but the evaluation of this program is nevertheless of particular interest because, in contrast to similar programs abroad, it has already been exited.

COMBINING DISAGGREGATE FORECASTS FOR INFLATION: THE SNB'S ARIMA MODEL

MARCO HUWILER AND DANIEL KAUFMANN

Marco Huwiler and Daniel Kaufmann present and evaluate the SNB's ARIMA model. The main characteristic of this model is the aggregation of ARIMA inflation forecasts for individual CPI expenditure items. The authors provide evidence that the SNB's ARIMA model performs well, and that the aggregation of individual ARIMA forecasts improves the forecast performance relative to an aggregate forecast.

This summary focuses on three main points of the economic study. First, it documents the SNB's ARIMA model. Second, it evaluates the model's performance. Third, it assesses the optimal level of disaggregation at which forecasts are computed.

The model

The SNB's ARIMA model aggregates ARIMA inflation forecasts for more than 200 individual expenditure items of the Swiss CPI. The forecasts are aggregated using the corresponding CPI expenditure weights. This strategy may improve the forecasting performance if price series are modelled more accurately at the disaggregated level than at the aggregated level. Whether this is the case is mainly an empirical question.

A key advantage of modelling individual price series rather than the aggregate CPI is that one can take into account different collection frequencies for different CPI expenditure items. Although the Swiss Federal Statistical Office publishes the CPI on a monthly basis, most prices are collected less frequently. For these expenditure items, the index value of the previous collection month is carried forward to calculate the total CPI. Until the end of 2007, only food items, heating oil and fuels were collected monthly.¹ Most other items were collected once a quarter or even less frequently. At a disaggregated level, the authors take into account the collection frequencies by estimating different models for items collected monthly and quarterly, and this allows them to model the price series more accurately.

For some items, however, forecasts based on ARIMA models are not feasible and are therefore based on analyst judgement. This occurs mainly if there are not enough observations available to estimate a model, if the ARIMA forecasts point to implausible or extreme price movements, or if the series are collected less often than quarterly. Moreover, the analyst may possess knowledge on announced future price changes (e.g. changes in public transport fees), which are then imposed on the forecast.

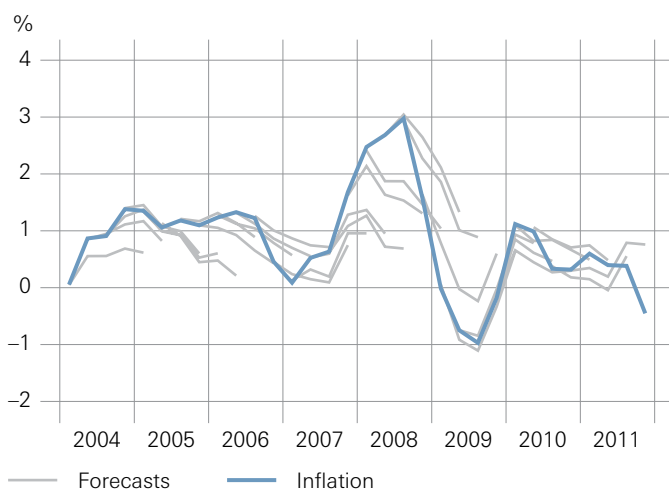
SNB Economic Studies

While SNB Working Papers can be considered as work in progress, the SNB also publishes a research series of completed scientific work, called SNB Economic Studies. The content of these studies covers scientific research topics which are not appropriate for publication in scientific journals, either because of their length or their topic. An example of a topic for an SNB Economic Study is the documentation of an econometric model used at the SNB. This report presents the ARIMA model used at the SNB for forecasting inflation in the short term. SNB Economic Studies also address broadly defined articles of questions regarding economic policy or investigations into subjects with a specifically Swiss background. SNB Economic Studies are reviewed by external referees.

¹ In the past couple of years, the collection frequency has been increased for many items of the Swiss CPI. This economic study also proposes a methodology to deal with these changes in collection frequency.

TOTAL CPI

Year-on-year change



Real-time ARIMA forecasts

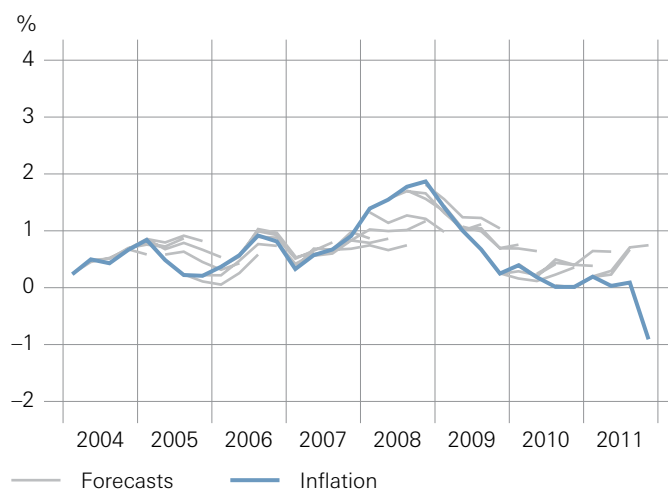
Forecasts for oil product prices and rents are based on more complex time series models that take into account exogenous variables. In particular, the forecast for oil product prices factors in the crude oil spot price and the USDCHF exchange rate, which are both assumed to remain constant. Moreover, the rent forecast takes into account the average mortgage rate published by the Swiss Federal Housing Office.

Relationship to the SNB's conditional forecast

The model presented in this economic study contributes, alongside other models and indicators, to the SNB's conditional inflation forecast. By means of a quarterly conditional inflation forecast, the SNB regularly reviews its monetary policy stance to ensure that it is appropriate for maintaining price stability. The SNB's conditional inflation forecast is based on the assumption that a short-term interest rate (the three-month Libor) will remain unchanged over the next three years. It should be noted that the ARIMA methodology is not suitable for producing forecasts conditional on an unchanged short-term interest rate (cf. box ARIMA methodology). However, because changes in a short-term interest rate take some time to affect inflation, the ARIMA model can be considered for the conditional inflation forecast in the short run. Current practice is to calculate the ARIMA forecast for up to five quarters.

CPI EXCLUDING OIL PRODUCTS

Year-on-year change



Forecast performance

The chart shows the quarterly forecasts of the ARIMA model in real time over the period 2004–2011, for the total CPI and for the CPI excluding oil products. When total CPI inflation is relatively stable, the model performs fairly well. In periods with more volatile inflation, the forecast errors are larger. These large forecast errors are mainly related to large swings in the crude oil spot price. Indeed, the forecast errors for CPI inflation excluding oil products are considerably smaller. A noteworthy exception is the last quarter of 2011. The strong appreciation of the Swiss franc triggered substantial price cuts for imported items, and led to a large forecast error because the model does not explicitly account for exchange rate movements and their pass-through to consumer prices.

A more rigorous evaluation of the forecast performance may be based on a comparison with other forecasts for Swiss CPI inflation. The authors compare their real-time inflation forecasts up to five quarters ahead with three benchmarks: the SNB's conditional inflation forecast, quarterly forecasts from Consensus Economics, and a simple autoregressive forecast.

ARIMA methodology

The ARIMA methodology was developed by Box and Jenkins (1976) and represents a simple modelling technique for time series data. The methodology is based on the idea that an integrated stochastic process can be approximated well by an autoregressive integrated moving-average (ARIMA) process. Depending on the nature of this process, past observations and past forecast errors contain information about its future development. This information can then be exploited for forecasting purposes. For unconditional forecasts, it has proven difficult to outperform ARIMA models using structural models. However, precisely because ARIMA models are non-structural – meaning that no knowledge of underlying economic relationships between variables is required – they are not suitable for policy analysis.

The results indicate that the SNB's ARIMA model performs well relative to other models in forecasting short-term inflation. It provides more accurate forecasts than the benchmarks at all forecast horizons. Statistical tests suggest that the ARIMA model is significantly better at forecast horizons of one and two quarters. The authors explain that the strong performance of the ARIMA model at the one-quarter horizon is largely due to the fact that it uses monthly data and hence includes more recent information than quarterly models. For longer forecast horizons, the model's performance can be traced back to the fact that disaggregated models exploit more information than aggregate models.

Optimal level of disaggregation

The current version of the SNB's ARIMA model is based on forecasts at the lowest level of disaggregation for which price indices and expenditure weights are available. However, it remains an open question which level of disaggregation yields the most accurate forecasts. To answer this question, the authors compare model variants at various levels of disaggregation with the fully disaggregated model. These variants include an aggregate model, a model with six sub-aggregates (grouping expenditure items according to origin and product type), and a model with 14 sub-aggregates (roughly corresponding to the divisions according to the United Nations' COICOP classification).²

In terms of forecast accuracy, the fully disaggregated model performs at least as well as the less disaggregated models. Moreover, the fully disaggregated model significantly outperforms the other model variant for forecast horizons of two and three quarters ahead. However, the results show that a model with 14 sub-aggregates also performs well, although not significantly better than the fully disaggregated model. To sum up, the results suggest that disaggregation improves forecast accuracy by exploiting additional information, and there is no evidence that full disaggregation performs worse than lower levels of disaggregation.

Conclusion

Marco Huwiler and Daniel Kaufmann show that the SNB's ARIMA model performs well in forecasting Swiss CPI inflation up to five quarters ahead. The aggregation of ARIMA forecasts for individual CPI expenditure items improves the forecast performance relative to an aggregate forecast. The authors attribute this to additional heterogeneous information available at the individual level, and in particular to differing collection frequencies for the CPI data. Moreover, the model is based on monthly data and therefore includes more recent data than quarterly models.

² cf. <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=5>.

SNB WORKING PAPERS NO. 2013-02

TRANSACTION TAXES, CAPITAL GAINS TAXES AND HOUSE PRICES

NICOLE AREGGER, MARTIN BROWN AND ENZO ROSSI

Motivated by the search for instruments to contain future housing bubbles, we examine the impact of transaction taxes and capital gains taxes on residential house price growth. We exploit the variation in taxation across Swiss cantons, as well as within-canton changes in taxation over time. We relate these taxes to house price growth observed for 92 regions of the country during the period 1985–2009. Our results suggest that higher taxes on capital gains exacerbate house price dynamics while transaction taxes have no impact on house price growth. These findings support the existence of a lock-in effect of capital gains taxes on housing supply. They further suggest that taxes on real estate capital gains and transaction values are not suitable measures to prevent excessive house price growth.

SNB WORKING PAPERS NO. 2013-03

FINANCIAL GLOBALIZATION AND MONETARY TRANSMISSION

SIMONE MEIER

This paper analyses the way in which international financial integration affects the transmission of monetary policy in a New Keynesian open economy framework. It extends Woodford's (2010) analysis to a model with a richer financial markets structure, allowing for international trading in multiple assets and subject to financial intermediation costs. Two different forms of financial integration are considered, in particular an increase in the level of gross foreign asset holdings and a decrease in the costs of international asset trading. The simulations in the calibrated model show that none of the analysed forms of financial integration undermine the effectiveness of monetary policy in influencing domestic output and inflation. Under realistic parameterizations, monetary policy is more, rather than less, effective as the positive impact of strengthened exchange rate and wealth channels more than offsets the negative impact of weakened interest rate channels. The paper also analyses the interaction of financial integration with trade integration, varying both the importance of trade linkages and the degree of exchange rate pass-through. These interactions show that the positive effects of financial integration are amplified by trade integration. Overall, monetary policy is most effective in parameterizations with the highest degree of both financial and real integration.

SNB WORKING PAPERS NO. 2013-04

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

CHRISTIAN GRISSE AND THOMAS NITSCHKA

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.

SNB WORKING PAPERS NO. 2013-05

COMMODITY PRICE SHOCKS AND THE BUSINESS CYCLE: STRUCTURAL EVIDENCE FOR THE US

MATTHIAS GUBLER AND MATTHIAS S. HERTWECK

This paper evaluates the relative importance of commodity price shocks in the US business cycle. Therefore, we extend the standard set of business cycle shocks to include unexpected changes in commodity prices. The resulting SVAR shows that commodity price shocks are a very important driving force of macroeconomic fluctuations – second only to investment-specific technology shocks – particularly with respect to inflation. Neutral technology shocks and monetary policy shocks, on the other hand, seem less relevant at business cycle frequencies. Neutral technology shocks rather play an important role at low frequencies.

MERCHANTING AND CURRENT ACCOUNT BALANCES

ELISABETH BEUSCH, BARBARA DÖBELI, ANDREAS M. FISCHER AND PINAR YEŞİN

Merchanting is goods trade that does not cross the border of the firm's country of residence. Merchanting grew strongly in the last decade in several small open economies, particularly in Finland, Ireland, Sweden, and Switzerland, and has become an important driver of these countries' current account. Because merchanting firms reinvest their earnings abroad to expand their international activities, this practice raises national savings in the home country without increasing domestic investment. This results in a significantly large current account surplus. To show the empirical links between merchanting and the current account balance, two exercises are performed in this paper using a sample of 53 countries during 1980–2011. The first exercise estimates the savings impact of merchanting countries in empirical models of the medium-term current account and shows that the presence of merchanting activity in a country indeed increases its current account balance by 3% on average. The second exercise shows that merchanting's impact on the country's current account is sensitive to firm mobility.

CURRENCY EXCESS RETURNS AND GLOBAL DOWNSIDE MARKET RISK

VICTORIA GALS BAND AND THOMAS NITSCHKA

We take the perspective of a US investor to assess cross-sectional differences in 19 bilateral, conditional currency excess returns in an empirical model that distinguishes between US-specific and global risks, conditional on US bull (upside) or bear (downside) markets. At first glance, our results suggest that global downside risk is compensated in average bilateral currency excess returns. Further analysis, however, reveals that downside risk and financial market volatility exposures are closely related. Moreover, the downside risk evidence is mostly driven by emerging markets' currencies. We conclude that downside risk models do not fully address the issue of foreign currency excess returns being largely unrelated to standard risk factors.

ESTIMATING TAYLOR RULES FOR SWITZERLAND: EVIDENCE FROM 2000 TO 2012

NIKOLAY MARKOV AND THOMAS NITSCHKA

This paper estimates Taylor rules using real-time inflation forecasts of the SNB's ARIMA model and real-time model-based internal estimates of the output gap since the monetary policy concept was adopted in 2000. To study how market participants understand the SNB's behaviour, we compare these Taylor rules to market expected rules using Consensus Economic survey-based measures of expectations. In light of the recent financial crisis, the zero-lower-bound period and the subsequent massive Swiss franc appreciation, we analyse potential non-linearity of the rules using a novel semi-parametric approach. First, the results show that the SNB reacts more strongly to its ARIMA inflation forecasts three and four quarters ahead than to forecasts at shorter horizons. Second, market participants expect a higher inflation responsiveness of the SNB than found in the central bank's data. Third, the best fitting specification includes a reaction to the nominal effective Swiss franc appreciation. Finally, the semi-parametric regressions suggest that the central bank reacts to movements in the output gap and the exchange rate to the extent that they become a concern for price stability and economic activity.

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

GREGOR BÄURLE AND ELIZABETH STEINER

Surprisingly little empirical work is available on how individual production sectors respond to macroeconomic shocks. The model developed in this paper quantifies the impact of monetary policy, exchange rates and external demand on the various production sectors of the Swiss economy. Our results show that such shocks are incompletely transmitted and that their effect is heterogeneous across sectors. The information gained through this work is new and a useful contribution for policymakers as it enables them to assess the consequences of their decisions on the various sectors. The analysis is done in the framework of a structural dynamic factor model in order to cope with the large data dimensions. The model is estimated on Swiss data, but because it is carefully specified to capture the macroeconomic dynamics of a large set of variables in a small and open economy, its specification may also serve as a benchmark for other countries with this attribute.

SNB WORKING PAPERS NO. 2013-10

DOES SIC NEED A HEART PACEMAKER?

THOMAS NELLEN AND ROBERT OLESCHAK

Real-time gross settlement (RTGS) systems effect final settlement of payments continuously and on an individual basis. This generates a trade-off between liquidity needs and settlement delay. Against the background of reconstruction discussions, the paper analyses whether more advanced algorithms reduce liquidity needs and settlement delay if applied to the Swiss Interbank Clearing (SIC) system. Simulations run with the BoF-PSS2 simulator show that expected reductions in liquidity needs and settlement delay are modest and should carefully be evaluated against costs. More advanced settlement algorithms improve settlement efficiency only if payment release behaviour is highly aligned.

SNB ECONOMIC STUDIES

MARCO HUWILER AND DANIEL KAUFMANN. 2013.

COMBINING DISAGGREGATE FORECASTS FOR INFLATION: THE SNB'S ARIMA MODEL.

SNB Economic Studies 2013-07.

This study documents the SNB's ARIMA model based on disaggregated CPI data used to produce inflation forecasts over the short-term horizon, and evaluates its forecasting performance. Our findings suggest that the disaggregate ARIMA model for the Swiss CPI performed better than relevant benchmarks. In particular, estimating ARIMA models for individual CPI expenditure items and aggregating the forecasts from these models give better results than directly applying the ARIMA method to the total CPI. We then extend the model to factor in changes in the collection frequency of the Swiss CPI data and show that this extension further improves the forecasting performance.

PUBLICATIONS IN JOURNALS

RAPHAEL A. AUER, KATHRIN DEGEN AND ANDREAS M. FISCHER. 2013.

LOW-WAGE IMPORT COMPETITION, INFLATIONARY PRESSURE, AND INDUSTRY DYNAMICS IN EUROPE.

European Economic Review 59(2): 141-166.

Have exogenous changes in import competition from low-wage countries (LWCs) brought about changes in inflationary pressure in Europe? This paper examines whether labor-intensive exports from Asia and other global regions have a uniform impact on producer prices in Germany, France, Italy, Sweden, and the United Kingdom. In a panel covering 110 (4-digit) NACE industries from 1995 to 2008, instrumental variable estimations document that LWC import competition is associated with strong price effects. More specifically, when Chinese and other Asian LWC exporters capture 1% of a European market, producer prices decrease by about 3%. Next, decomposing the mechanisms that underly the LWC price effect on European industry, we show that import competition has a pronounced effect on average productivity and only a muted effect on wages. Owing to the exit of firms and the increase in productivity, LWC import competition is shown to have substantially reduced employment in the European manufacturing sector.

GEOGRAPHY, INSTITUTIONS, AND THE MAKING OF COMPARATIVE DEVELOPMENT.

Journal of Economic Growth 18(2): 179-215.

While the direct impact of geographic endowments on prosperity is present in all countries, in former colonies, geography has also affected colonization policies and, therefore, institutional outcomes. Using non-colonized countries as a control group, I re-examine the theories put forward by La Porta et al. (*J Law Econ Org* 15(1): 222–279, 1999) and Acemoglu et al. (*Am Econ Rev* 91(5), 1369–1401, 2001). I find strong support for both theories, but also evidence that the authors' estimates of the impact of colonization on institutions and growth are biased, since they confound the effect of the historical determinants of institutions with the direct impact of geographic endowments on development. In a baseline estimation, I find that the approach of Acemoglu et al. (2001) overestimates the importance of institutions for economic growth by 28%, as a country's natural disease environment affected settler mortality during colonization and also has a direct impact on prosperity. The approach of La Porta et al. (1999) underestimates the importance of colonization-imposed legal origin for institutional development by 63%, as Britain tended to colonize countries that are remote from Europe and thus suffer from low access to international markets.

STRUCTURAL DYNAMIC FACTOR ANALYSIS USING PRIOR INFORMATION FROM MACROECONOMIC THEORY.

Journal of Business & Economic Statistics 31(2): 136-150.

Dynamic factor models are becoming increasingly popular in empirical macroeconomics due to their ability to cope with large datasets. Dynamic stochastic general equilibrium (DSGE) models, on the other hand, are suitable for the analysis of policy interventions from a methodical point of view. In this article, we provide a Bayesian method to combine the statistically rich specification of the former with the conceptual advantages of the latter by using information from a DSGE model to form a prior belief about parameters in the dynamic factor model. Because the method establishes a connection between observed data and economic theory and at the same time incorporates information from a large dataset, our setting is useful to study the effects of policy interventions on a large number of observed variables. An application of the method to US data shows that a moderate weight of the DSGE prior is optimal and that the model performs well in terms of forecasting. We then analyze the impact of monetary shocks on both the factors and selected series using a DSGE-based identification of these shocks.

THE GLOBALISATION OF INFLATION: A VIEW FROM THE CROSS SECTION.

BIS Papers 70: 113-118.

We examine whether a higher degree of trade integration is associated with a higher rate of price spillovers. More specifically, we examine how bilateral sector-specific trade integration affects the bilateral co-movements of sectoral prices. Our findings suggest that increasing trade integration was associated with a significant increase in the rate of price spillovers, which is consistent with the hypothesis that increasing real integration has made the inflation process a more global one. We conclude with describing our current work in this research field.

THE IMPACT OF (GLOBAL) BUSINESS CYCLE RISK ON THE GERMAN AND BRITISH STOCK MARKETS: EVIDENCE FROM THE FIRST AGE OF GLOBALIZATION.

Review of Financial Economics 22(3): 118-124.

In the period from 1880 to 1913, time-varying German and British stock market returns are related to business cycle variables such as the deviation of industrial production from trend. Common British and German business cycle dynamics Granger-cause stock returns and explain more than 20% of time variation in one-year ahead stock market returns. The link between business cycle variables and stock returns is less pronounced in the modern era of financial globalization. A potential explanation for this finding is the fact that during the first globalization period stock indices were dominated by industrial companies and stock prices varied in line with dividends. In the modern era of globalization stock price dynamics predominantly reflect time-varying risk premia.

FOREIGN CURRENCY LOANS AND SYSTEMIC RISK IN EUROPE.

Federal Reserve Bank of St. Louis Review 95(3): 219-236.

Foreign currency loans to the unhedged non-banking sector are remarkably prevalent in Europe and create a significant exchange-rate-induced credit risk to European banking sectors. In particular, Swiss franc denominated loans, popular in Eastern European countries, could trigger simultaneous bank failures if depreciation of the domestic currencies prevents unhedged borrowers from servicing the loans. Foreign currency loans thus pose a systemic risk from a ‘common market shock’ perspective. The author uses a novel dataset of foreign-currency loans from 17 countries for 2007-11 (collected by the Swiss National Bank) and builds on the method suggested by Ranciere, Tornell, and Vamvakidis (2010) to quantify this systemic risk. The author finds that systemic risk is substantial in the non-euro area, while it is relatively low in the euro area. However, CHF-denominated loans are not the underlying source of the high systemic risk: Loans denominated in other foreign currencies (probably to a large extent in euros) contribute significantly more to the systemic risk in the non-euro area than CHF-denominated loans. Furthermore, systemic risk shows high persistence and low volatility during the sample period. The author also finds that banks in Europe have continuously held more foreign-currency-denominated assets than liabilities, indicating their awareness of the exchange-rate-induced credit risk they face.

OTHER PUBLICATIONS

(None in this issue)

Events

20/21 SEPTEMBER 2013

SNB RESEARCH CONFERENCE 2013

HOST: SWISS NATIONAL BANK, ZURICH

The Swiss National Bank held its 7th annual Research Conference in Zurich on 20/21 September 2013. The topic of the conference was 'A new normal for monetary policy'. The organisation committee of the conference consisted of Ernst Baltensperger (Study Center Gerzensee), Athanasios Orphanides (MIT), Marcel R. Savioz (SNB) and Samuel Reynard (SNB). Seven researchers presented their latest papers.

Aleksander Berentsen opened the first morning session on Friday 20th by discussing properties of floor systems for implementing monetary policy. His conclusion was that optimal floor systems exhibit unpleasant fiscal arithmetic since they require transfers from the fiscal authority to the central bank, or a reduction in seigniorage payments from the central bank to the government. In the second presentation, George Evans showed how a temporary fiscal stimulus or a policy of fiscal austerity can insulate the economy from a deflation trap.

In the afternoon session, Oreste Tristani emphasised that subsidising the interest rate on loans can be a promising policy at the zero lower bound. In the last presentation of the day, Marc P. Giannoni revisited the Phillips curve. He finds that, at positive interest rates, inflation loses its stimulative effects as it becomes better anticipated, while the reverse holds true with the interest rate zero lower bound.

At the beginning of the final session on Saturday morning, Thomas Laubach provided empirical evidence that changes in the supply of Treasury securities led to a joint response of US Treasury yields, embedded term premium, and macroeconomic variables. The second presenter, Jens H. Christensen, discussed the greatly expanded balance sheet of the Federal Reserve and the resulting worries about interest rate risks for the Fed. He finds that losses are unlikely to be large and therefore the worries are unjustified. Finally, Seth Carpenter presented his findings on the asset purchase program of the Federal Reserve during the financial crisis. He shows that the Fed was buying primarily from households.

Furthermore, he finds some evidence for the preferred habitat theory which states that investors do not have the same objectives, and therefore prefer to hold different types and maturities of securities.

The conference dinner took place on Friday evening. A city-tour with the famous Zurich old-timer tram guided all guests to the 'Zunfthaus zur Meisen'. Thomas J. Jordan, Chairman of the Governing Board of the Swiss National Bank, introduced Adam S. Posen, president of the Peterson Institute for International Economics, by remembering the lectures by Mr Posen he attended at Harvard University. During his dinner speech, Mr Posen stated his skepticism about the effectiveness of forward guidance. Announcements without proper accompanying actions can have no or even the opposite effect what central banks want to achieve. Mr Posen has already argued against forward guidance in the past, and he claims that the latest developments support his view.



The conference participants

31 MAY – 1 JUNE 2013

THE EFFECT OF GLOBALIZATION ON MARKET
STRUCTURE, INDUSTRY EVOLUTION AND PRICING
HOST: FEDERAL RESERVE BANK OF DALLAS, DALLAS

On 31 May to 1 June 2013, the Federal Reserve Bank of Dallas and the SNB organized a conference on ‘The effect of globalization on market structure, industry evolution and pricing’ in Dallas (US). The topics covered the microeconomics of exchange rate pass through into import prices; the transmission of import prices to prices at the retail level; the globalization of the inflationary process and the global slack hypothesis; the nature of optimal monetary policy in a more open economy; as well as appropriate policy lessons. The organization committee of the conference consisted of Raphael A. Auer (SNB), Mario Crucini (Vanderbilt University), Andreas M. Fischer (SNB), Roberto Rigobon (MIT), Michael Sposi (Federal Reserve Bank of Dallas), and Mark Wynne (Federal Reserve Bank of Dallas).

3/4 JUNE 2013

10TH ANNUAL NBP-SNB JOINT SEMINAR ON ‘MONETARY
TRANSMISSION MECHANISM IN TRANSITION
COUNTRIES’
HOST: SWISS NATIONAL BANK, ZURICH

The Swiss National Bank, together with the National Bank of Poland, held the Conference ‘Monetary Transmission Mechanism in Transition Countries’ in Zurich on 3/4 June 2013. The alternately organized conference has been taking place since 2002. The target audience of this year’s conference were central bankers from eastern Europe, the Caucasus and Central Asia. In addition to presentations by economists from the Swiss National Bank and the National Bank of Poland, representatives of the central banks of Azerbaijan, Kazakhstan, Kyrgyzstan and Serbia also provided rich contributions. The organization committee of the conference consisted of Werner Hermann (SNB), Peter Kugler (University of Basel), Georg Rich (Rich Consulting) and Magdalena Berlinska (NBP).

22/23 AUGUST 2013

INFLATION DYNAMICS IN A POST-CRISIS GLOBALIZED
ECONOMY
HOST: SWISS NATIONAL BANK, ZURICH

On 22/23 August 2013, the SNB, together with the Bank for International Settlements (BIS), the Centre for Economic Policy Research, the Federal Reserve Bank of Dallas’ Globalization & Monetary Policy Institute, held a conference on ‘Inflation dynamics in a post-crisis globalized economy’ in Zurich. Among others, the conference focused on the impact of globalization on pricing in national and international markets, the

transmission of monetary policy across national borders, the implications of extended supply chains for price and exchange rate pass-through, the role of global versus domestic slack as a driver of domestic inflation, the role of global versus domestic liquidity as a driver of domestic inflation, and on international implications of the policy response to the financial crisis. Jean-Pierre Danthine, Member of the Governing Board of the SNB, presented the dinner address. The organization committee of the conference consisted of Raphael A. Auer (SNB), Giancarlo Corsetti (University of Cambridge and CEPR), Andrew Filardo (BIS), Andreas M. Fischer (SNB), and Mark Wynne (Federal Reserve Bank of Dallas).

27/28 SEPTEMBER 2013

HYDRA WORKSHOP ON DYNAMIC MACROECONOMICS
HOST: BANCA D’ITALIA, ROME

The Banca d’Italia hosted the 11th Hydra Workshop on Dynamic Macroeconomics on 27/28 September 2013. The topics discussed included the welfare implications of mandatory disclosure of losses by financial institutions, job uncertainty as an explanation for high unemployment during the Great Recession, non-inflationary demand driven business cycles, the effect of debt deleveraging on the exchange rate, the distribution of government debt among heterogeneous agents, the poor connection of exports and imports with real exchange rate movements, and the optimal reaction of monetary and fiscal policy to financial shocks at the zero lower bound. The conference was organized by Harris Dellas (University of Bern).

UPCOMING EVENTS

6-8 NOVEMBER 2013

JOINT CENTRAL BANK CONFERENCE
HOST: FEDERAL RESERVE BANK OF CLEVELAND,
CLEVELAND

TBA 2014

BIS-SNB-UNIVERSITY OF ZURICH WORKSHOP ON ‘THE
ASSET PRICING VIEW ON EXCHANGE RATES’
HOST: UNIVERSITY OF ZURICH

PUBLISHED BY

Swiss National Bank
Research Coordination
Börsenstrasse 15, P.O. Box
CH-8022 Zurich
E-mail: research.update@snb.ch
© Swiss National Bank, 2013

Documents available at: www.snb.ch, *Research*