Research News 2022

Research Division at Sveriges Riksbank

SVERIGES RIKSBANK

CONTENTS

This newsletter describes the research activities and output of the Research Division at Sveriges Riksbank in 2022.

Staff at the Research Division

Edvin Ahlander, research assistant

Niklas Amberg, economist

Christoph Bertsch, senior economist

Roberto Billi, advisor

Marianna Blix Grimaldi, *advisor*

Daria Finocchiaro, advisor (on leave)

Tor Jacobson, senior advisor

Thomas Jansson, advisor

Joakim Jigling, research assistant

Mathias Klein, senior economist

Stefan Laséen, senior advisor

Jesper Lindé, advisor (on leave)

Conny Olovsson, advisor (on leave)

Federico Ravenna, senior advisor

Anna Rogantini Picco, economist

Ulf Söderström, head of research

Lena Sundvall, secretary

David Vestin, senior advisor

Roine Vestman, advisor

Andreas Westermark, advisor

Xin Zhang, advisor (on leave)

Reflections by the Head of Research

2022 was the year when travel finally opened up after two years of pandemic restrictions, and we enjoyed participating in conferences again and restarting our research seminar series. We could also go back to organize research conferences and workshops at the bank, something we have been sorely missing during the pandemic. And we relaunched our internship program for PhD students with ten interns over the year, which must be an all-time-high for us.

2022 was also the 25th anniversary of the Research Division. The division was set up in 1997 as a very small Research Department with three permanent researchers and two internal secondments from other departments at the bank. In 1999 the division was enlarged by two more researchers, and since then the division has grown to its current size of 14 permanent researchers and two support staff. Over the years the Riksbank has published close to 400 working papers and Riksbank staff have published around 350 papers in academic journals. In addition, we have organized hundreds of research seminars and more than 50 research conferences and workshops, sometimes jointly with other departments and institutions. We also teach regularly at the Riksbank and elsewhere, in particular we have been teaching a PhD course in Monetary Economics since 2003. Overall, these have been 25 good years, and we should be proud of our achievements so far. The Research Division has been successful in establishing economic research as an important input into the analysis done at other departments and eventually as an input into policy decisions by the Executive Board.

In 2022 we had quite some turnover for our staff, with several people leaving and others temporarily on leave. We were happy to get some temporary reinforcement, and we had several visiting scholars during the year. So despite the staff turnover we have been able to keep an active research environment. Our visiting PhD interns have also been a welcome addition to the group. We are now working hard to recruit new permanent staff on the job market. As always, that is a tiring but also stimulating job.

The featured article in this year's Research News, ”A Wake-Up Call Theory of Contagion”, is written by Christoph Bertsch together with Tony Ahnert at the European Central Bank. Christoph and Tony use a theoretical framework to analyze how financial distress can spread from one country to another that is not necessarily exposed to the crisis country, as investors suddenly re-assess the fundamentals of the second country. This is a good example of how economic research can make us better understand the channels of financial contagion across countries.

As usual, our Research News also features an interview with a prominent researcher. This year we are happy to have an interview with Ricardo Reis, A. W. Phillips Professor of Economics at the London School of Economics, who has been an advisor to the Riksbank for almost two years. Ricardo talks about that experience, the current challenges for monetary policy, and about his current research agenda.

With this, I wish you a good read of our Research News, happy holidays and a happy and productive 2023!

Ulf Söderström

Interview with Ricardo Reis

A. W. Phillips Professor of Economics, London School of Economics and Political Science

You started advising the Riksbank for just less than two years now. What have you learned from the experience so far?

I have had the good fortune to occasionally interact with several central banks over the years, and the Riksbank had stood out for being an institution that "punched above its weight". The policy challenges it faces are, in many ways, harder than those of larger central banks, and yet it has for a long time achieved good outcomes for Swedish society. Its research staff is smaller, and yet it produces terrific research that is deep with the insights that both inform policy discussions as well as have an influence in academic debates. It is not easy to achieve so much, and it requires continuous work from a dedicated staff. At the same time, the last two years have been remarkably challenging for monetary policy. When I started advising the Riksbank, we had just come out of the pandemic, and the recovery of economic activity was being hampered by problems in supply chains. The global economy was recovering in jolts as lockdowns and waves of virus were affecting different parts of the globe at different times. Right now, just 20 months later, inflation is the number one (and two and three...) priority for the Riksbank, as it is for so many other central banks. It has been quite a roller coaster.

You have written about the reasons behind the rise in inflation. Is it not the increase in energy prices that resulted from the war in Ukraine that explains the current high inflation?

Surely the rise in energy prices is a proximate cause for the increase in inflation. After all, inflation is nothing but the average increase in prices in the economy. With the price of such an important good rising, and one that triggers increases in costs in so many other industries, of course inflation has to rise. At the same time, note that the temporary scarcity of oil and gas need only cause an increase in the price of energy relative to the price of all other goods. We could have had a large increase in energy prices and no other price in the economy change, causing just moderate inflation, or even have the prices of other goods falling (as they did during the pandemic), so that inflation overall would barely have risen. Which of the cases is true ultimately depends on monetary policy and what the central bank does in response to the energy prices. It may be useful to liken this to the question of whether you get your head wet when it rains. Surely, the rain caused you to get wet, but you had an umbrella, and so how wet you get depends in part on your policy of whether to open it and hold it upright. Energy price shocks pose difficult trade-offs to monetary policy but they do not mean inflation inevitable.

What are those trade-offs and how can the Riksbank and other central banks deal with them?

When you have such a large shock, this will both push prices up as well as quantities produced down, since energy is used to produce almost anything in the economy so costs have gone up. Monetary policy can respond by trying to affect how much of the shocks translates into higher inflation as opposed to lower real activity. To be clear, this is hard and imperfect, especially if the shocks is sudden and unexpected. Perhaps as important though is to stop the shocks from raising expectations of inflation throughout the economy. If inflation is allowed to persist for a few months, and the central bank is perceived as doing little about it, consumers, firms, and workers start expecting it to persist further. They start savings less, raising prices, and asking for higher wages in response. This in turn feeds into inflation persisting. In a third stage, as inflation persists further, wage bargains start incorporating permanent increases as a mix of compensation for past losses and expectations of further losses in purchasing power, and inflation is now permanently stuck at a very high level. At each of these three stages, monetary policy can play a role to stop this chain reaction. It can respond swiftly to the first shock and communicate effectively that it cannot stop a slowdown in real activity. It can do whatever it takes to reassure economic agents that inflation will come down quickly so that the expectations anchor never loses its anchoring role. The last 18 months has seen this chain reaction take place at a very fast rate, which shows how important it is to have a central bank that is independent and has a strong inflation mandate. I am confident that in 1-2 years inflation will be back down, and I attribute that confidence to the current regime of inflation-targeting independent central banks.

Turning more concretely to policies, you have done much work on quantitative easing in the past. What do you think is its role in the present and future of monetary policy?

When talking of quantitative easing, it is important to draw a distinction between two aspects: the average size of the central bank's balance sheet, and its cyclical use to control inflation. On the first aspect, the last decade have shown that it is a good idea for the central bank to supply as much liquidity as an economy needs. This was an old tenet of monetary theory (sometimes called the Friedman rule, even though the principle is much older). However, there were fears that there might be side effects of having a large amount of bank deposits at the central bank, which banks could easily and quickly increase or dispose of, as they needed to clear transactions for their customers, or wanted to park their assets in a safe haven. That has not been the case and, in fact, this system has prevented, in my view, the Covid recession from turning into a financial crisis. At the same time, and this is especially relevant for the Riksbank, there may be very large fluctuations in the demand for central bank deposits, which requires the balance sheet to be elastic. There is still much research to be done on the size and the elasticity of the balance sheet for a financially-advanced open economy like Sweden.

What about the second, the use of quantitative easing for inflation control?

When policy interest rates are very low, but inflation is still below target, then using the balance sheet to buy long-term government bonds is an additional form of providing stimulus. It does not have a huge impact but it helps. However, in the other direction, if inflation is too high then raising interest rates is a more effective way to bring it down than it is to shrink the balance sheet or change its composition very suddenly. So, there is an important asymmetry to QE policies. Importantly, policy interest rates are, and should be, the primary instrument to control inflation, and even when QE is used, it should be done in a way that refers to interest rates.

What do you think researchers at the Riksbank, and in other central banks, should be devoting their efforts to?

Inflation is the target in the mandate of the central bank. It is what society holds the central bank accountable for. Theory tells us it is what monetary policy almost exclusively determines. Therefore, inflation has to be the obsession of everyone involved in central banking. Well, over the last twenty years, central banks were so successful at controlling inflation, that measured inflation was constant, to a first approximation. It is very difficult to study what determines a constant. In the last year, we have had a lot of (unwelcome) variation in inflation. With it comes the ability to refine our theories, test our hypotheses, and develop new approaches to understand it. Variation is the best friend of a researcher (but not of policymakers!) so I expect a lot of focus on inflation in research over the next few years.

What are you working on in your research right now?

I am working on three related strands of research. One is on how financial markets deal with inflation risk. There are active markets where inflation risk is swapped around that promise to reveal a lot of information on what are the costs of inflation and who is best prepared to hold them. I am trying to use data and theory to understand it. The second is work on how central banks can use their lending facilities to manage the flow of capital into small open economies. This follows up on previous work that I have done on swap lines. Third and finally, I have been involved in a research agenda that reexamines public debt sustainability from the perspective of the "specialness" of government bonds and what drives it.

Changes in the research staff

Marianna Blix Grimaldi joined the Research Division in May for a part-time position, **Stefan Laséen** from the Monetary Policy Department joined in July for a year, **Federico Ravenna** and **Roine Vestman** joined in October and November, respectively, for temporary positions, and **Joakim Jigling** joined as a Research Assistant in August. **Tor Jacobson** retired in May after 25 years at the bank, **Isaiah Hull** left for a position at the BI Norwegian Business School in Oslo, and **Karl Walentin** left for a position at Uppsala University. Also, **Anna Grodecka-Messi** left after a year for the Financial Stability Department, and **Daria Finocchiaro** and **Conny Olovsson** are both on leave at the ECB.

Daniele Bianchi (Queen Mary University of London), **Martin Ellison** (University of Oxford), **Hernán Seoane** (Universidad Carlos III de Madrid) and **Francesco Zanetti** (University of Oxford) all joined us as visiting scholars for various periods.

Featured article

The following is a summary of the article "A Wake-Up Call Theory of Contagion" by Toni Ahnert (ECB) and Christoph Bertsch from the Riksbank Research Division. The article was published in the Review of Finance in July 2022 (https://doi.org/10.1093/rof/rfac025).

Financial crises have occurred throughout history and financial contagion is an important phenomenon contributing to the spread and severity of financial distress. The empirical literature broadly distinguishes between four different, but not mutually exclusive, channels of contagion: trade, banks and financial institutions, portfolio investors, and wake-up calls. This article focuses on the wake-up call contagion channel.

Conceptually, the notion of wake-up calls has been introduced by Goldstein (1998) in his study of the Asian financial crisis. Observing a crisis in one region (or at one bank) is a wake-up call to investors that induces them to re-assess and inquire about the fundamentals of other regions (or other banks). Empirically, the strength of the wake-up call contagion channel has been linked to measures for ex-ante exposure across regions. A key source of potential ex-ante exposure are institutional similarities that create common vulnerabilities. These include, for currency attacks and sovereign debt crises, the sustainability of specific institutional and developmental models as well as structural and industrial policies in emerging economies that can make a country prone to adverse changes in the international macroeconomic environment. For bank runs, these include similarities in corporate governance and the proneness to financial misconduct, as well as the quality of regulation, and the credibility of deposit insurance and government guarantees that can give rise to financial sector vulnerabilities.

Despite its popularity, including among policymakers, there has been little theoretical work on the wake-up call hypothesis. We close this gap in Ahnert and Bertsch (2022) by proposing a theory of wake-up call contagion that allows us to rationalize evidence about contagious currency crises and bank runs. Our work addresses the following research questions:

(1) How can there be contagion even if there is no discernible exposure across countries or financial institutions ex-post, that is at the time of the contagious spread of a crisis?
(2) How do the magnitude of the wake-up call contagion effect and the demand for information during the re-appraisal of risk depend on the degree of ex-ante exposure across countries or financial institutions?

To answer these questions, we develop a global coordination game of regime change (Morris and Shin 2003) with two regions that move sequentially. A financial crisis comprises a currency attack, a bank run, or a debt crisis and occurs when enough investors act against the regime in their region by attacking a currency peg, withdrawing funds from a bank, or refusing to roll over debt. In our model, regional fundamentals are linked via the exposure to a common macro shock, which captures common vulnerabilities and institutional similarities of regions. The wake-up call of observing a crisis elsewhere induces investors to acquire costly information about the actual exposure to the common macro shock.

We find that investors have a higher incentive to acquire information after observing a crisis in the other region. Thus, investors choose to learn only after a crisis. This is because after the wake-up call of a crisis, an investor's benefit of tailoring her attack decision with the help of costly acquisition of better information about the realized macro shock is highest.

In a next step, we isolate the wake-up call component of contagion. Contagion is defined as an increase in the probability of a financial crisis in one region due to a crisis in the other region. We find that contagion can occur even after investors learn that the other region has no ex-post exposure to the crisis region. That is, the probability of a crisis in the second region after a crisis in the first region and learning that the second region has no ex-post exposure to the first region is higher than the probability of a crisis in the second region after no crisis in the first region.

The theoretical findings rationalize an empirical literature that has documented wake-up call contagion in banking and international finance, as reviewed in Ahnert and Bertsch (2022). Moreover, they serve as a basis for testable implications that may inform future empirical work on financial contagion in currency, debt, and banking crises.

Research projects pursued in 2022

CREDIT AND BANKING

Do Credit Lines Provide Reliable Liquidity Insurance? Evidence from the COVID-19 Pandemic

Niklas Amberg

I study the efficiency and extent of banks' liquidity provision to commercial-paper issuers via backup lines of credit during periods of severe debt-market stress. I do so using a unique matched loan- and security-level data set—comprising close to the universe of bank loans and debt securities in Sweden—and the sharp contraction of the Swedish commercial-paper market during the early phase of the COVID-19 pandemic as an exogenous contractionary shock to the supply of market-provided liquidity. I find that the bank-provided backup lines enabled issuers to fully offset the contraction of the commercial-paper market. Meanwhile, the drawdowns did not crowd out bank lending to firms without access to the commercial-paper market, most likely because of substantial simultaneous inflows of deposits into the banking system. Hence, in stark contrast to the Great Recession, banks acted as a stabilizing force in the COVID-19 recession.

(Continuing project)

Why Trade Credit?

Niklas Amberg, Tore Ellingsen, Tor Jacobson and Erik von Schedvin

Why do virtually all firms—even the wealthiest—borrow from their suppliers? And why do financially constrained firms borrow substantially more? Data comprising 21 million invoices from 46 suppliers to 126,000 different corporate customers reveal that contracted trade credit duration is independent of the customer's creditworthiness, and that overdue payments only account for a sixth of the variance in customers' trade debt. Our new theory of these regularities implies that financially constrained firms distort their input mix away from employed labor in order to increase their overall funding. As predicted, we find that firms' labor share is increasing in their credit rating.

(Continuing project)

Financing Trade Credit

Niklas Amberg, Tor Jacobson and Yingjie Qi

The increasing maturity of trade credit in recent years puts suppliers under increasing uncertainty and financial constraints. Using novel invoice-, contract-, and firm-level data, this paper studies how a recent financial innovation—Supply Chain Finance (SCF)—reduces suppliers' financial constraints and improves supply-chain efficiency. We compare SCF with traditional factoring and document its effects. Both suppliers and buyers reduce their borrowing of bank debt. While suppliers see an increase in sales and investment, buyers are largely unaffected. Overall, the evidence suggests that SCF increases supply-chain efficiency, but it also raises concerns about hidden debt.

(Continuing project)

Dynamic Financial Constraints in the Presence of Uncertainty: Theory and Evidence from Credit Lines

Niklas Amberg, Tor Jacobson, Vincenzo Quadrini and Anna Rogantini Picco

Using a comprehensive Swedish credit registry, we document that firms throughout the size distribution have access to substantial amounts of unused borrowing capacity via credit lines. This finding seems to conflict with the notion that financial constraints are widespread in the economy. However, uncertainty can help reconcile the apparent contradiction. We begin by constructing a model in which firms optimally choose not to borrow up to the limit when facing uncertainty about future productivity and access to external financing. The choice optimizes the trade-off between the benefits of borrowing today and the expected cost of illiquidity tomorrow. We test empirically the main predictions of the model and find that they are consistent with the data. In particular, we find that credit-line utilization rates are negatively related to idiosyncratic uncertainty. Our findings indicate that financial constraints need to be assessed dynamically: a firm can be financially constrained even when its current borrowing is not constrained.

(New project)

ECONOMETRICS

Quantitative Easing and Bond Risk Premia: Evidence from Sweden

Jens Christensen and Xin Zhang

We assess the impact of Sveriges Riksbank's large-scale asset purchases, commonly known as quantitative easing (QE), on bond risk premia in the Swedish government bond market using an arbitrage-free dynamic term structure model of nominal and real bond prices that accounts for bond-specific safety premia. Our flexible model can capture different bond-specific factors in nominal and real government bond markets, which makes it ideal for studying the transmission mechanisms of QE. We find that the bond purchases raised short-rate expectations and the natural real rate, lowered nominal term premia, and increased nominal bond safety premia, suggestive of signalling, portfolio rebalance, and scarcity effects from these QE programs. Furthermore, we document spill-over effects of European Central Bank QE programs on Swedish bond risk premia.

(Continuing project)

Modeling Extreme Events: Time-Varying Extreme Tail Shape

Bernd Schwaab, André Lucas and Xin Zhang

We propose a dynamic semi-parametric framework to study time variation in tail parameters. The framework builds on the Generalized Pareto Distribution (GPD) for modeling peaks over thresholds as in Extreme Value Theory, but casts the model in a conditional framework to allow for time-variation in the tail parameters. The parameter updates improve the expected Kullback-Leibler divergence between the true unobserved data generating process and its GPD approximation. We illustrate the approach using simulated data and two empirical datasets: daily U.S. equity returns, and 15-minute euro area sovereign bond yield changes.

(Continuing project)

Quantitative Easing Auctions of Government Bonds

Stefan Laséen

In this research project I estimate how much monetary policy counterparties (individual dealers) are willing to alter their offered yields in the Riksbank's quantitative easing auctions of government bonds in order to sell an additional percent of the outstanding stock of bonds to the Riksbank, or in other words the potential for the Riksbank to affect yields during its quantitative easing purchase operations. To do so I study a unique dataset consisting of all pairs of offered prices and quantities (both rejected and accepted), from individual dealers participating in the Riksbank's asset purchase auctions from 2015 to 2021. The auction mechanism and the Riksbank's way of implementing the purchases allow me to address the potential endogeneity between the allocation of purchases to individual securities and their prevailing market prices. Additionally, the time period and the granular transaction-level data offers both a detailed and a long-run perspective on asset purchases in both calmer and stressed market conditions. Finally, and importantly, my setting allows me to identify the slope for offered amounts of up to 40 percent of the outstanding stock.

(New project)

FINANCIAL THEORY

Stablecoins: Adoption and Fragility

Christoph Bertsch

Stablecoins are a new form of digital private money that promises a stable and secure way to park funds in the crypto universe. The dominant stablecoins are pegged one-to-one to the US dollar. Much like banks or money market funds, stablecoin issuers face the risk of runs. A large demand for redemptions can only be met if issuers are able to quickly raise sufficient funds. As a result, stablecoin holders are sensitive to adverse information about the quality of the issuer's assets and potential exposures to custodial, operational, and technological risk. This paper provides a theoretical framework that can inform the ongoing regulatory debate and offer a set of new testable implications. The theory adapts existing global games bank run models to study the rapidly developing market for stablecoins, incorporating important aspects such as the adoption of different means of payment and stablecoin lending. Key determinants of stablecoin fragility are their level of adoption, transaction costs and network effects, as well as the issuer's ability to earn revenue from fees and seigniorage. A higher adoption may be destabilizing in case the marginal coin holder becomes flightier or stabilizing due to positive network effects and cost advantages, while congestion effects that cause higher transaction costs in crypto markets during times of distress are stabilizing. The existence of a stablecoin lending market promotes both stability and adoption if the benefits are not undermined by speculation. Introducing a moral hazard problem offers additional insights for the management of reserve assets and for transparency.

(New project)

Optimal Bank Leverage and Recapitalization in Crowded Markets

Christoph Bertsch and Mike Mariathasan

We study optimal bank leverage and recapitalization in general equilibrium when the supply of specialized investment capital is imperfectly elastic. Assuming incomplete insurance against capital shortfalls and segmented financial markets, ex-ante leverage is inefficiently high, leading to excessive insolvencies during systemic capital shortfall events. Recapitalizations by equity issuance are individually and socially optimal. Additional frictions can turn asset sales individually but not necessarily socially optimal. Our results hold for different bankruptcy protocols and we offer testable predictions for banks' capital structure management. Our model provides a rationale for macroprudential capital regulation that does not require moral hazard or informational asymmetries.

(Continuing project)

FISCAL POLICY

Who is Afraid of Eurobonds?

Francesco Bianchi, Leonardo Melosi and Anna Rogantini Picco

The growing asymmetry in the size of fiscal imbalances poses a serious challenge to the macroeconomic stability of the Euro Area (EA). We show that following a contractionary shock, the current monetary and fiscal framework weakens economic growth even in low-debt countries because of the zero lower bound (ZLB) constraint. At the same time, the current framework also exposes the EA to the risk of fiscal stagflation if one country were to refuse to implement the necessary fiscal consolidations. We study a new framework that allows EA policymakers to separate the need for short-run macroeconomic stabilization from the issue of long-run fiscal sustainability. Following a contractionary shock, the central bank tolerates the increase in inflation needed to stabilize the amount of Eurobonds issued in response to a large EA recession. National governments remain responsible to back their country-level debt by fiscal adjustments. The policy acts as an automatic stabilizer that benefits both high-debt and low-debt countries, generating a moderate increase in inflation that mitigates the recession and allows the central bank to move away from the ZLB. At the same time, the proposed policy lowers the risk of fiscal stagflation because it endows EA countries with effective stabilization policies.

(Continuing project)

Inflation Targeting or Fiscal Activism?

Roberto Billi

I study the welfare performance of a policy regime of fiscal activism in which fiscal policy acts as an automatic stabilizer and controls inflation, while monetary policy pegs the nominal interest rate. When evaluated through the lens of a standard New Keynesian model, accounting for price and wage rigidities and for a zero lower bound (ZLB) on the nominal interest rate, fiscal activism can substantially outperform inflation targeting in the face of both demand shocks and technology shocks. Fiscal activism can also eliminate the occurrence of ZLB episodes.

(New project)

Seemingly Irresponsible but Welfare Improving Fiscal Policy at the Lower Bound

Roberto Billi and Carl Walsh

We evaluate super-active fiscal policy rules that cut taxes or increase spending as the government's debt level rises. Using a standard New Keynesian model subject to an occasionally-binding zero lower bound on the monetary policy interest rate and a model-consistent measure of welfare, we show that such seemingly irresponsible fiscal rules can improve economic welfare. While sensible fiscal policy and active monetary policy performs best away from the ZLB, the fiscal rules we analyze significantly reduce the time spent at the ZLB and produce overall welfare gains. Super-active fiscal policies are most effective with a high debt target and when debt is short-term. However, when private expectations are characterized by cognitive discounting, the performance of super-active fiscal rules deteriorates. Fiscal rules calibrated to the U.S. response during both the Great Recession and COVID recession, combined with a weak monetary policy response to inflation, outperform a monetary policy that responds strongly to inflation and reduce the frequency of ZLB episodes under rational expectations, but not under cognitive discounting.

(Continuing project)

The Political Costs of Austerity

Ricardo Duque Gabriel, Mathias Klein and Ana Sofia Pessoa

Using a novel regional database covering over 200 elections in several European countries, this paper provides new empirical evidence on the political consequences of fiscal consolidations. To identify exogenous reductions in regional public spending, we use a Bartik-type instrument that combines regional sensitivities to changes in national government expenditures with narrative national consolidation episodes. Fiscal consolidations lead to a significant increase in extreme parties' vote share, lower voter turnout, and a rise in political fragmentation. We highlight the close relationship between detrimental economic developments and voters' support for extreme parties by showing that austerity induces severe economic costs through lowering GDP, employment, private investment, and wages. Austerity-driven recessions amplify the political costs of economic downturns considerably by increasing distrust in the political environment.

(New project)

Fiscal Policy, International Spillovers, and Endogenous Productivity

Klein Mathias and Ludger Linnemann

The paper presents empirical evidence on the international effects of US fiscal policy from structural vector autoregressions identified through external instruments in a panel setting for the G7 countries. An exogenous increase in US government spending is estimated to produce sizeable positive responses of output and consumption in the rest of the G7 countries, both about half as large as their domestic US counterparts, while strongly depreciating the US terms of trade and lowering the US trade balance and short-run real interest rates. Moreover, fiscal shocks are estimated to have a strongly positive impact on hourly labor productivity in the private sector. We solve a two-country New Keynesian model in closed form and show that a low cost elasticity of varying technology utilization can simultaneously explain the positive productivity, consumption and international spillover effects as well as the real depreciation resulting from expansionary US government spending shocks.

(Continuing project)

HOUSEHOLD FINANCE AND SAVINGS

House Prices, Home Equity, and Personal Debt Composition

Anna Grodecka-Messi, Jieying Li and Xin Zhang

Using a monthly panel dataset of Swedish individuals' debt composition including mortgage and non-mortgage consumer credit, we show that house price changes can explain a significant fraction of personal debt composition dynamics. We exploit the variation in local house price growth as shocks to homeowners' housing wealth to study the consequential adjustment of personal debt composition. To account for local demand shocks and disentangle the housing collateral channel from the wealth effect, we use renters and non-equity-withdrawal homeowners in the same region as control groups. We present direct evidence that homeowners reoptimize their debt structure by using withdrawn home equity to pay down comparatively expensive short-term non-mortgage debt during a housing boom, unsecured consumer loans in particular. We also find that homeowners withdraw home equity to finance their entrepreneurial activities. Our study sheds new light on the dynamics of personal debt composition in response to changes in house prices.

(Continuing project)

Business Education and Portfolio Returns

Adam Altmejd, Thomas Jansson and Yigitcan Karabulut

We provide evidence of a positive causal link between financial knowledge acquired through business education and returns on stock investments. Using exogenous variation generated by admission thresholds to university business programs in Sweden, we document that early investment in financial sophistication causes individuals to invest significantly more in the stock market, to earn higher portfolio returns, and to end up accumulating higher levels of wealth. Investments in financial sophistication at the launch of economic life thus significantly alters the life cycle wealth profiles of individuals.

(New project)

Do the Rich Gamble in the Stock Market? Low Risk Anomalies and Wealthy Households

Turan G. Bali, A. Doruk Gunaydin, Thomas Jansson and Yigitcan Karabulut

Contrary to the theoretical principle that higher risk is compensated with higher expected return, the literature shows that low-risk stocks outperform high-risk stocks. Using a large-scale household dataset, we provide an explanation for this puzzling result that the anomalous negative risk-return relation is only confined to those stocks held by rich households, whereas the anomaly disappears for stocks held by non-rich households and institutional investors. We find that social status concerns combined with the lottery-type preferences of rich households explain wealthy investors' demand for high-risk stocks, leading to overpricing and low future returns for such stocks.

(Continuing project)

Do Robots Increase Wealth Dispersion?

Francisco Gomes, Thomas Jansson and Yigitcan Karabulut

We document significant negative effects of exposure to increased automation at work on household wealth accumulation. Beyond the income and saving channels, we uncover a novel mechanism driving the negative wealth effects of automation that arises through the endogenous optimal portfolio decisions of households. We show both theoretically and empirically that households rebalance their financial wealth away from the stock market in response to increased human capital risk induced by pervasive automation, thereby attaining lower wealth levels and relative positions in the wealth distribution. Our evidence suggests that the portfolio channel amplifies the inequality-enhancing effects of increased automation.

(Continuing project)

Wealth Inequality: Opportunity or Unfairness?

Michael Haliassos, Thomas Jansson and Yigitcan Karabulut

This paper presents evidence of a new propagation mechanism for wealth inequality, based on differential responses, by education, to greater inequality at the start of economic life. It is motivated by a novel positive cross-country relationship between wealth inequality and perceptions of opportunity and fairness, which holds only for the more educated. Using unique administrative micro data and a quasi-field experiment of exogenous allocation of households, the paper finds that exposure to a greater top 10% wealth share at the start of economic life in the country leads only the more educated placed in locations with above-median wealth mobility to attain higher wealth levels and position in the cohort-specific wealth distribution later on. Underlying this effect is greater participation in risky financial and real assets and in self-employment, with no evidence for a labor income, unemployment risk, or human capital investment channel. This differential response is robust to controlling for initial exposure to fixed or other time-varying local features, including income inequality, and consistent with self-fulfilling responses of the more educated to perceived opportunities, without evidence of imitation or learning from those at the top.

(Continuing project)

Individual Investor Behavior and Sustainability

Thomas Jansson and Vicke Norén

This paper investigates whether a change in a company's sustainability performance affects the propensity to hold stocks of the company. Using an administrative panel of individual investors in Sweden allows us to control for a rich set of socioeconomic and portfolio characteristics. We find that the average investor is more likely to offload stocks of companies that have worsened sustainability performance, especially if environmental issues are managed poorly. Investor reaction is particularly strong among less wealthy investors with a lower level of education, as well as for large firms and popular stocks. The findings are robust to plausible alternative hypotheses.

(New project)

Identifying the Benefits from Homeownership: A Swedish Experiment

Paolo Sodini, Stijn Van Nieuwerburgh, Roine Vestman and Ulf von Lilienfeld-Toal

Homeownership is widely stimulated by policy yet its economic effects are poorly understood. We exploit quasi-random variation in homeownership generated by privatization decisions of municipally-owned buildings, and use granular data on demographics, income, housing, financial wealth, and debt that allow us to construct high-quality measures of spending. Homeownership causes wealth accumulation via house price appreciation, increases consumption, and improves consumption smoothing across time and states of the world. It increases mobility for young households, who move up the property ladder, and amplifies wealth accumulation for older households, who take more risk in their financial portfolio.

(Continuing project)

Designing Pension Plans According to Consumption-Savings Theory

Kathrin Schlafmann, Ofer Setty and Roine Vestman

We derive optimal characteristics of contribution rates into defined-contribution pension plans based on consumption-savings theory. Contribution rates should be age-dependent and adjust to the balance-to-income ratio. Using registry data on household savings in Sweden, we show that individuals adjust savings rates according to these principles. We apply these principles in a quantitative model to design an optimal rule for contribution rates in mandatory defined-contribution pension plans. Holding the average replacement rate fixed, our design implies a welfare gain of 1.8 percent and reduces the dispersion of replacement rates by more than 40 percent. These results are robust to time-inconsistent investors.

(Continuing project)

The Housing Wealth: Quasi-Experimental Evidence

Jesper Böjeryd, Dany Kessel, Björn Tyrefors and Roine Vestman

We exploit a quasi-experiment to provide new evidence on households spending out of housing wealth. We estimate an immediate shock of -19.4 percent to house prices close to one of Stockholm's airports after its operations were unexpectedly continued as a result of political bargaining. This source of price variation is ideal to identify housing wealth effects since it is local and unrelated to variation in macroeconomic conditions. Using a household data set with information on location of primary residence relative to the airport we find a short-run elasticity with respect to car purchases of 0.34, corresponding to one-year MPC of 0.11 cents per dollar lost in housing wealth. Responses are twice as large among homeowners with low net worth. Our empirical estimates are consistent with responses in a quantitative model.

(Continuing project)

LABOR MARKETS

Dynamic Macroeconomic Implications of Migration

Conny Olovsson, Karl Walentin and Andreas Westermark

International migration flows are large, volatile and have increased in the recent period. As one of the first papers, we study the dynamic effects of immigration shocks on the economy within a search and matching framework. Since many of the macroeconomic effects of immigration are largest in the short run, a steady state analysis would be insufficient. To construct a quantitatively relevant general equilibrium framework, extensive Swedish microdata is used. We then study the effect of a large migration shock on various macroeconomic aggregates. The effect on GDP per capita and the employment rate is substantial on impact, and then decreases over time.

(Continuing project)

Skill Loss, Job Mismatch and Slow Recovery from Large Recessions

Karl Walentin and Andreas Westermark

In this paper we ask to what degree i) human capital dynamics induced by skill loss during unemployment and ii) decrease in match quality contributed to the slow recovery from large recessions, in particular the low post-2009 growth in GDP, employment, labor productivity and real wages following the Great Recession. Match quality has decreased because of the sullying effect of the recession that follows from reduced hiring activity and the resulting collapse of the job ladder. We find that the increase in unemployment during the initial phase of the Great Recession had long-lasting effects through the skill loss it induced, mainly in terms of increased unemployment and reduced GDP. We also find that persistence is important for the results. An equally sized shock that is less persistent has substantially smaller effects on GDP and employment.

(Continuing project)

MACROECONOMICS

Measuring Nominal Rigidities with Everyday Reference Prices

Nicoletta Berardi, Federico Ravenna and Mario Samano

Using a novel dataset from a large supermarket retailer in a European country that never engages in temporary sales, we establish that prices are actually as sticky as regular prices. Circumventing the debate on whether sales have to be included or excluded from price adjustments, we find evidence consistent with state-dependent price setting in a multi-product firm. Indeed, our data exhibit responsiveness of prices to changes to aggregate demand shifts, a more than trivial share of very small price changes, and synchronization of price changes across items especially within the same product category. Price rigidity and the extent of state-dependence are heterogeneous across items. In particular, we find that pricing of top sales items (and even more of private label ones) is more flexible and state-dependent, which is consistent with price setting in a multi-product firm characterized by rational inattention.

(Continuing project)

Pessimistic Expectations and Commodity Price Uncertainty: Estimated Impact on the Euro Area

Giovanni Pellegrino, Federico Ravenna and Gabriel Züllig

Policymakers face an extremely uncertain environment in the energy and commodity markets. Using a nonlinear VAR estimated for the Euro area, we assess the impact on industrial production of pessimistic expectations when the economy is faced with increases in uncertainty. Uncertainty shocks have a much larger impact on industrial production during periods of negative outlook for the future of the economy. We estimate the impact on industrial production of a one-standard deviation increase in the volatility of commodity prices to peak at a year-over-year growth loss of 1%, and to be 4 times large in pessimistic times relative to optimistic times as measured by consumer confidence. In an energy crisis scenario with an increase in uncertainty equal to the one observed in June-November 2022 pessimistic expectations can lead to a loss as large as 3.5% in industrial production. The shock is deflationary, and during pessimistic times is channeled through sectors that are more commodity-dependent.

(Continuing project)

The Costs of Inflation: Evidence from Microdata along the Supply Chain

Mikael Carlsson, Mathias Klein and Andreas Westermark

Using US consumer price microdata, Nakamura & Steinsson (2018) QJE finds that there is no relation between the inflation rate and the size of price changes at the micro level. This contrasts to the New Keynesian framework, which is used for analyzing monetary policy and indicates that the level of the inflation target is unimportant for the welfare and real variables in the economy. However, as indicated by e.g., Carvalho (2006), in response to a monetary policy shock, sectors with lower frequencies of price adjustment have a disproportionate effect on the aggregate price level. This project uses Swedish microdata from the PRISMA project for both consumer and producer prices, to see whether the Nakamura & Steinsson (2018) results for consumer prices are valid, or if sectoral effects lead to a substantially different and larger effects of shocks. Specifically, since previous studies on producer prices indicates support for the New Keynesian framework, the result in Nakamura & Steinsson (2018) could be overturned by the presence of intermediate goods sectors.

(Continuing project)

A Traffic Jam Theory of Growth

Daria Finocchiaro and Philippe Weil

Financial development affects investment, innovation and growth while growth enhances the profitability of finance. This creates a two-way finance-growth nexus which we investigate in a Schumpeterian endogenous growth model with search frictions in credit and innovation markets. . Firms that wish to innovate face a double bottleneck: the probability they will find the financier they need to finance their R&D depends negatively on credit market tension, while the probability their R&D results in innovation is negatively affected by congestion effects in science. By easing the first bottleneck, financial liberalization contributes positively to growth yet it might aggravate congestion in science. Once all general equilibrium feedback effects are taken into account, the interplay between the two congestion frictions generates a non-linear relationship between finance and productivity growth in line with what observed in the data.

(Continuing project)

The Costs of Macroprudential Deleveraging in a Liquidity Trap

Jiaqian Chen, Daria Finocchiaro, Jesper Lindé and Karl Walentin

What are the effects of different borrower-based macroprudential tools when both real and nominal interest rates are low? We study this question in a New Keynesian model featuring long-term debt, housing transaction costs and a zero lower bound constraint on policy rates. We find that the long-term costs, in terms of output losses, of all the macroprudential tools we consider are moderate. However, the short-term costs differ substantially between tools. Moreover, the costs vary depending on the current state of economy and monetary policy. Specifically, a loan-to-value tightening is more than three times as contractionary compared to a loan-to-income tightening when debt is high and monetary policy cannot accommodate.

(Continuing project)

Risk Sharing and the Adoption of the Euro

Alessandro Ferrari and Anna Rogantini Picco

This paper empirically evaluates whether adopting a common currency has changed the ability of euro area member states to share risk. We construct a counterfactual dataset of macroeconomic variables through the synthetic control method. We then use the output variance decomposition of Asdrubali, Sorensen and Yosha (1996) on both the actual and the synthetic data to study if there has been a change in risk sharing and through which channels. We find that the euro has reduced consumption smoothing. We further show that this reduction is mainly driven by the periphery countries of the euro area who have experienced a decrease in risk sharing through private credit.

(Continuing project)

Macro Uncertainty and Unemployment Risk

Joonseok Oh and Anna Rogantini Picco

This paper shows how uninsurable unemployment risk is crucial to qualitatively and quantitatively match macro responses to uncertainty shocks. Empirically, uncertainty shocks i) generate deflationary pressure; ii) have considerably negative consequences on economic activity; iii) produce a drop in aggregate consumption, which is mainly driven by the response of the households in the bottom 60% of the income distribution. Standard representative-agent New Keynesian models have difficulty to deliver these effects. A heterogeneous-agent framework with search and matching frictions and Calvo pricing allows us to jointly attain these results. Uncertainty shocks induce households' precautionary saving and firms' precautionary pricing behaviors, triggering a fall in aggregate demand and supply. These precautionary behaviors increase the unemployment risk of the imperfectly insured households, who strengthen precautionary saving. When the feedback loop between unemployment risk and precautionary saving is strong enough, a rise in uncertainty leads to i) a drop in inflation; ii) amplified negative responses of macro variables; iii) heterogeneous consumption responses of households, which are consistent with the empirical evidence.

(Continuing project)

International Business Cycles: Quantifying the Effects of a World Market for Oil

Johan Gars and Conny Olovsson

To what extent is the international business cycle affected by the fact that an essential input (oil) is traded on the world market? We quantify the contribution of oil by setting up a model with separate shocks to efficiencies of capital/labor and oil, and global shocks to the oil supply. The oil related shocks both contribute to comovements in output and inputs. The wealth effect associated with these shocks is typically smaller than the substitution effect, which induces higher responses in output than in consumption. Overall, the model can resolve both the consumption correlation puzzle and the international comovement puzzle.

(Continuing project)

On the Effectiveness of Climate Policies

John Hassler, Per Krusell, Conny Olovsson and Michael Reiter

We present a quantitative integrated assessment model (IAM) designed as a dynamic, multi-region general-equilibrium model coupled with climate and carbon-cycle modules. The energy input into production comes from an array of different sources, including those not based on fossil fuel. The IAM setup is aimed toward policy evaluation, with a focus on policies that are (i) not necessarily optimal and (ii) potentially different quantitatively and qualitatively across regions. We conduct three key exercises. We first compare policies that have the right design–global carbon taxes–but the wrong magnitude: a tax that is set based on worries about climate change that ex post turn out to be overly pessimistic to one based on the reverse mistake (an optimistic view that turns out to vastly understate the climate challenge ex post). We find a sharp asymmetry: the former is not very costly at all to human welfare whereas the latter is very costly. Second, we examine taxes that differ significantly by region and discuss the cost of implementing them instead of an optimal–uniform–scheme; here we record welfare costs that potentially are very high. Third, we look at efforts to promote green energy–a suboptimal policy in isolation–and argue that reliance on such efforts is highly hazardous. In addition to addressing these policy issues, we show that the model, which is rather tractable, can be extended in interesting directions.

(Continuing project)

The Impact of Foreign Shocks on the Swedish Economy

Jesper Lindé, Henrik Lundvall, Conny Olovsson and Spyridon Sichlimiris

We aim to explain the positive cross-country comovement observed in the data among the main macroeconomic variables both nominal and real ones. We address the comovement problem by introducing international trade in durables. Durables trade in OECD represents roughly 2/3 of the total imports and the total exports. Based on the work of Engel & Wang (2011), incorporating durables trade into a standard international business cycle model improves substantially the volatility of imports and exports and induces positive correlation of these variables with respect to GDP. However, the issue of comovement has not been addressed because prices are flexible. We intend to build a two country New-Keynesian model with price and wage stickiness. Given the price stickiness, there has to be a strong adjustment through quantities that can potentially induce positive comovement among the main macroeconomic variables across the two countries.

(Continuing project)

The Composition of Public Spending and the Inflationary Effects of Fiscal Policy Shocks

Klein Mathias and Ludger Linnemann

The paper uses structural proxy-vector autoregressions to separately identify shocks to US government investment and government consumption expenditures. Positive public investment shocks robustly raise inflation and have a weak and insignificant impact on labor productivity. In contrast, positive public consumption shocks induce a significant fall in inflation together with a strong and persistent increase in hourly productivity. The empirical findings are consistent with a model where demand shocks have an endogenous effect on productivity due to variable technology utilization. Increases in government investment, despite adding to a productive public capital stock, induce a relatively low endogenous increase in productivity and goods supply in the short run and thus are inflationary, whereas government consumption shocks can lead to a temporary productivity increase and inflation decrease if technology utilization is relatively inexpensive to vary.

(Continuing project)

Tax Shocks, Firm Entry, and Productivity in the Open Economy

Klein Mathias and Ludger Linnemann

We examine the role of endogenous firm entry for the domestic effects and international repercussions of tax policy. We present new evidence from proxy-vector autoregressions that exogenous US tax reductions increase hourly labor productivity and firm creation domestically, and induce higher trade deficits and real depreciation with respect to the other G7 countries, with positive spillovers to foreign consumption and investment. We show that the empirical evidence is compatible with a two-country model with endogenous firm entry. The entry channel provides a strong amplification mechanism for the supply effects of tax shocks at home and leads to persistent spillovers to the foreign economies.

(Continuing project)

MONETARY POLICY AND THEORY

The Impact of Central Bank Transparency on the Decisions of Board Members

Mikael Apel and Marianna Blix Grimaldi

The impact of transparency on the deliberations and decisions of board members of central banks is an important issue in research on policymaking. Increased transparency can have different effects. It can make agents prepare more thoroughly – a disciplinary effect. It can also make agents behave differently due to career concerns, either by making them less inclined to oppose to the majority view – a herding, or conformism, mechanism – or by making them instead want to distinguish themselves more from others – an anti-herding or exaggeration mechanism. It may also make agents more committed to stick to a specific opinion once they have expressed it and less willing to change their mind, even if circumstances change. In this paper, we investigate if the character of the monetary policy meetings, as reflected in the minutes, has changed due to the de-anonymization and, if so, in what ways.

(Continuing project)

The Security Lender of Last Resort Function and the Impact of QE

Marianna Blix Grimaldi and Johanna Hirvonen

QE programmes can influence the supply and demand for government bonds. When central banks hold government bonds, there are fewer bonds left to trade in the market. But demand may also be affected. Under certain market conditions, market makers demand can become more “speculative” - for example, if arbitrage opportunities with the central bank occur. Based on highly granular proprietary data on the usage of the security lending facility of the Swedish Debt Management Office (DMO), we investigate the impact that the QE program has had on the DMO’s security lender of last resort’s function and market makers’ incentives to trade.

(Continuing project)

Central Bank Mandates and Monetary Policy Stances: through the Lens of Federal Reserve Speeches

Christoph Bertsch, Isaiah Hull, Robin L. Lumsdaine and Xin Zhang

When does the Federal Reserve deviate from its dual mandate of pursuing the economic goals of maximum employment and price stability and what are the consequences? We assemble the most comprehensive collection of Federal Reserve speeches to-date and apply state-of-the-art natural language processing methods to extract a variety of textual features from each paragraph of each speech. We find that the periodic emergence of non-dual mandate related discussions is an important determinant of time-variations in the historical conduct of monetary policy with implications for asset returns. The period from mid-1996 to late-2010 stands out as the time with the narrowest focus on balancing the dual mandate. Prior to the 1980s there was an outsized attention to employment and output growth considerations, while non dual-mandate discussions centered around financial stability considerations emerged after the Great Financial Crisis. Forward-looking financial stability concerns are a particularly important driver of a less accommodative monetary policy stance when Fed officials link these concerns to monetary policy, rather than changes in banking regulation. Conversely, discussions about current financial crises and monetary policy in the context of inflation-employment themes are associated with a more accommodative policy stance.

(New project)

Optimal Monetary Policy with $r^* < 0$

Roberto Billi, Jordi Galí and Anton Nakov

We study the optimal monetary policy problem in a New Keynesian economy with a zero lower bound (ZLB) on the nominal interest rate, and in which the steady state natural rate (r^*) is negative. We show that the optimal policy aims to approach gradually a steady state with positive average inflation. Around that steady state, inflation and output fluctuate optimally in response to shocks to the natural rate. The central bank can implement that optimal outcome by means of an appropriate state-contingent rule, even though in equilibrium the nominal rate remains at zero most (or all) of the time. In order to establish that result, we derive sufficient conditions for local determinacy in a more general model with endogenous regime switches.

(New project)

Liquidity, Capital Pledgeability and Inflation Redistribution

Paola Boel, Julian Diaz and Daria Finocchiaro

We study the redistributive effects of expected inflation in a microfounded monetary model with heterogeneous discount factors and collateral constraints. In equilibrium, this heterogeneity leads to borrowing and lending. Model assumptions also guarantee a tractable distribution of money and capital holdings. Several results emerge from our analysis. First, in this framework expected inflation is detrimental to capital accumulation. Second, expected inflation affects borrowing and lending when collateral constraints are present, thus also inducing redistributive effects through credit. Third, we find this channel to be regressive when we calibrate our model using US data. This is because the drop in borrowers’ capital caused by inflation is larger when capital is used as collateral.

(Continuing project)

Household Heterogeneity and the Collateral Channel of Monetary Policy

Daria Finocchiaro, Karl Walentin and Andreas Westermark

In standard new Keynesian heterogeneous agent models (HANK), indirect channels of monetary policy transmission linked to general equilibrium changes in labor demand tend to be substantial. In contrast, asset prices movements due to a monetary policy hike have only a small impact on the economy. The existing HANK literature abstracts from several potentially important issues by lumping together business capital and housing while netting out mortgage debt. In this paper, we study how monetary transmission works when we account for household collateral in the form of housing. Specifically, since housing is relatively illiquid, monetary policy shocks can trigger a stronger response of house prices thereby affecting the collateral constraint and borrower consumption. We calibrate the model and then study effects of monetary policy shocks on inflation, output and the distribution of wealth and income.

(New project)

Private Bank Money vs Central Bank Money: A Historical Lesson for CBDC Introduction

Anna Grodecka-Messi and Xin Zhang

We draw lessons from the opening of Bank of Canada in 1935 about the central bank note issuance monopoly and its impact on the banks issued private money. Between 1935 and 1950, Canadian chartered banks had to gradually withdraw their notes from circulation. In a difference-in-differences analysis, we show that chartered banks constrained by new issuance limits experienced higher volatility of return-on-equity in the short run and lower Z-scores and return-on-assets in the longer horizon, suggesting that note issuance was an important source of revenue for private banks and allowed them to smooth the profits. The effect on lending is either non-significant or ambiguous. We further provide supporting evidence using synthetic control methods with historical banking statistics. This study of central bank cash implementation can offer lessons for the current debates on a new form of central bank money - central bank digital currencies - and their potential impacts on commercial banks.

(Continuing project)

The Inflationary Effects of Quantitative Easing

Mathias Klein and Xin Zhang

We provide new evidence on the inflationary effects of Quantitative Easing (QE) using Swedish administrative data at the bank, firm, and product level. For identification, we rely on bank-firm lending relationships and the heterogeneous participation rates of banks in the government bond purchase program. Our results show that the bond purchase program led to a significant and persistent increase in producer price inflation. Importantly, we find that the degree of financial frictions considerably influences firms' price response: low leverage firms do not change their prices, whereas high leverage firms raise their prices significantly. This divergent pricing behaviour can be rationalized by a significant increase in long-term borrowing and interest rate expenses among high leverage firms. The difference in price responses across high and low leverage firms is less pronounced for exogenous changes in the repo rate implying that the transmission mechanism of QE differs from the one of conventional interest rate policy.

(Continuing project)

Inclusive Monetary Policy in a Model with Heterogeneous Workers

Federico Ravenna and Carl Walsh

Central banks are increasingly debating monetary policies aimed at reducing inequality and ensuring employment gains are spread widely across all parts of the labor market. What are the trade-offs faced by 'inclusive policies', and the implications for the efficiency of the aggregate economy? We address this question within a model that allows for workers with different level of productivity competing in the same job market. We compare traditional and 'inclusive' policies in terms of their impact on earnings and employment inequality, on the labor market outcomes of lower-productivity, lower-income workers, and in terms of their inflation outcomes. Inclusive policies come at a high cost in terms of inflation, but can substantially reduce the uneven burden of a recessionary shock for the lowest-productivity workers. We provide a normative assessment, and show that while making monetary policy more inclusive is beneficial for the overall economy, making monetary policy much more inclusive results in deviations from the first best allocation.

(Continuing project)

Monetary Policy Communication and Private Sector Expectations

Oreste Tristani and David Vestin

Financial markets expectations of the future path of policy rates can occasionally decouple from the forecast of the central bank. Episodes of decoupling, such as those observed in Sweden between 2008 and 2013, would be a source of concern if they implied a lack of central bank credibility. This paper constructs a version of the Lorenzoni (2009) model with incomplete and asymmetric information and shows that, as long as the information sets of the private sector and of the central bank are not nested, forecast decouplings can easily occur in equilibrium. More specifically, they can occur even if the central bank publishes its intended future path of policy rates. The model goes a long way in quantitatively replicating the Swedish evidence of decoupling. We conclude that any observed decoupling need not be interpreted a sign of lack of central bank credibility not even if it persists over a prolonged period of time. Allowing for non-nested information sets between the central bank and the private sector also paves the way for a theory of monetary policy shocks.

(Continuing project)

Funding a Central Bank in a Low-Seignorage Environment

David Vestin

This paper examines the various funding sources available to a financially independent central bank and discusses implications of recent trends such as declining real interest rates and usage of cash.

(Continuing project)

Refereed publications accepted in 2022

Ahnert, Toni and Christoph Bertsch, "A Wake-Up Call Theory of Contagion", *Review of Finance*

Billi, Roberto, Ulf Söderström and Carl Walsh, "The Role of Money in Monetary Policy at the Lower Bound", *Journal of Money, Credit and Banking*

Christiansen, Charlotte, Thomas Jansson, Malene Kallestrup-Lamb and Vicke Norén, "Households' Investments in Socially Responsible Mutual Funds", *Quarterly Review of Economics and Finance*

Gabriel, Ricardo, Mathias Klein, and Ana Pessoa, "The Effects of Government Spending in the Eurozone", *Journal of the European Economic Association*

Hassler, John, Conny Olovsson and Per Krusell, "Finite Resources and the World Economy", *Journal of International Economics*

Klein, Mathias, Hamza Polattimur, and Roland Winkler, "Fiscal Spending Multipliers over the Household Leverage Cycle", *European Economic Review*

Working papers

No. 418, Ricardo Duque Gabriel, Mathias Klein and Ana Sofia Pessoa, "The Political Costs of Austerity"

No. 417, Christoph Bertsch, Isaiah Hull, Robin Lumsdaine and Xin Zhang, "Central Bank Mandates and Monetary Policy Stances: through the Lens of Federal Reserve Speeches"

No. 416, Tobias Broer, John Kramer and Kurt Mitman, "The Curious Incidence of Monetary Policy Across the Income Distribution"

No. 415, Davide Cipullo and André Reslow, "Electoral Cycles in Macroeconomic Forecasts"

No. 414, Mikael Carlsson, Alex Clymo and Knut-Eric Joslin, "Dispersion Over the Business Cycle: Pass-through, Productivity, and Demand"

No. 413, Daniele Bianchi, Mykola Babiak and Alexander Dickerson, "Trading volume and liquidity provision in cryptocurrency markets"

No. 412, Roberto Billi, "Inflation Targeting or Fiscal Activism?"

No. 411, Torben Andersen, Joydeep Bhattacharya, Anna Grodecka-Messi and Katja Mann, "Pension Reform and Wealth Inequality: Evidence from Denmark"

No. 410, Roberto Billi and Carl Walsh "Seemingly Irresponsible but Welfare Improving Fiscal Policy at the Lower Bound"

No. 409, Sante Carbone, Margherita Giuzio, Sujit Kapadia, Johannes Sebastian Krämer, Ken Nyholm and Katia Vozian, "The low-carbon transition, climate commitments and firm credit risk"

Non-refereed publications

Toni Ahnert and Christoph Bertsch, "Wake-Up Call Contagion", *SUERF Policy Brief, No. 385*

Johan Almenberg, Mattias Ankarhem, Karl Blom and Thomas Jansson, "House prices and interest rate expectations", *Sveriges Riksbank Economic Commentary No. 10, 2022*

Niklas Amberg, Jieying Li and Jakob Winstrand, "A microdata-based approach to stress testing banks' credit losses from corporate lending", *Sveriges Riksbank Staff Memo, November 2022*

Christoph Bertsch, "Hedging against exchange rate risk – maturity choice and roll-over risk", *Sveriges Riksbank Economic Review 2022:1*

Roberto Billi and Carl Walsh, "Is Super-Active Fiscal Policy Desirable?" *SUERF Policy Brief, No. 323*

Jacob Ewertzh, Mathias Klein and Oskar Tysklind, "Price dynamics in Sweden: Insights from a new dataset", *Sveriges Riksbank Economic Commentary No. 1, 2022*

Stefan Ingves, Eva Julin, Stefan Lindskog, Gabriel Söderberg and David Vestin, "What is money and what is the role of the state in the payments market?", *Sveriges Riksbank Economic Review 2022:2*

Stefan Laséen, Jesper Lindé and Ulf Söderström, "How much is inflation affected by monetary policy?" *Sveriges Riksbank Economic Commentary No. 13, 2022*

Other research activities

Conferences and Events

Together with the Banque de France, the Riksbank organized the sixth annual workshop of the ESCB Research Cluster on "Monetary Economics" in Paris on October 10-11. The cluster coordinators Roberto Billi from the Riksbank Research Division and Klodiana Istrefi (Banque de France) planned the workshop. This year's themes were monetary policy and inequality, inflation expectations of households and firms, and the effectiveness of non-standard monetary policy tools. Giancarlo Corsetti (European University Institute) gave the keynote presentation on price and fiscal stability.

The Riksbank hosted a research conference on "Evaluating the monetary-policy toolkit: Lessons for the future" on September 1-2. This conference was jointly organized by the Research Division and the Monetary Policy Department. The conference included keynote speeches by Silvana Tenreyro (Bank of England and the London School of Economics) and Arvind Krishnamurthy (Stanford Graduate School of Business), as well as a policy panel including Lucrezia Reichlin (London Business School), Athanasios Orphanides (MIT Sloan School of Management) and Deputy Governor Martin Flodén.

The Research Division organized a research conference on "Non-traditional Data, Machine Learning and Natural Language Processing in Macroeconomics" on October 3-4, jointly with the Bank of Canada, the Bank of Italy, and the Federal Reserve. The conference was attended by around 90 participants from central banks and academic institutions. The goal of the conference was to promote the discussion and dissemination of innovative research on theoretical and empirical advances in macroeconomics, financial economics and climate economics that are based on non-traditional data, machine learning, and natural language processing.

Together with the Center for Monetary Policy and Financial Stability (CeMoF) at Stockholm University, the Research Division organized an international workshop for PhD students in Money and Finance on May 18.
Christoph Bertsch, Ulf Söderström, and Xin Zhang organized the session "Payment Innovations and Financial Stability" at the annual meeting of the Central Bank Research Association (CEBRA) in Barcelona on August 29-31. Xin Zhang was on the scientific committees of the ASSA-IBEFA annual meeting and on the organizing committee of the online seminar series "Applied Machine Learning, Economics, and Data Science".

Greater Stockholm Macro Group

Together with Per Krusell (IIES, Stockholm University), the Research Division has been organizing a monthly internal seminar series for macro researchers from all major institutions in Stockholm and Uppsala. This series is known as "Greater Stockholm Macro Group" (GSMG) and aims at fostering exchange of ideas and cooperation among macro researchers in the Stockholm area.

Internship Program

The Riksbank's PhD internship program was restarted this year after being cancelled during 2020 and 2021. The Riksbank welcomed 10 interns in total. Six interns were hosted by the Research Division: Florencia Airaudo (Universidad Carlos III de Madrid), Sascha Keweloh (TU Dortmund University), Markus Pettersson (Stockholm School of Economics), Maxime Phillot (University of Lausanne), Vera Baye (Osnabrück University), and Vanessa Schmidt (Berlin School of Economics). Four interns were hosted by the Monetary Policy Department: Tommaso Tornese (Queen Mary University of London), Oliwer Silfverberg (Örebro University), Johanna Saecker (Goethe University Frankfurt), and Patrik Gorse (Vienna Graduate School of Economics).

Research Seminars

The Research Division organizes weekly research seminars, mainly with international speakers. The seminars usually take place on Tuesdays, and attendance is open to Riksbank employees as well as to academics. Seminars have been in-person and virtual events. A complete list of both upcoming and past seminars is available on the homepage of the Research Division at www.riksbank.se.

Teaching and Advising

Several staff members taught monetary economics to PhD students from Stockholm University. Conny Olovsson taught the course "The Climate and the Economy" at Stockholm University, together with John Hassler and Per Krusell; Conny also gave guest lectures on the same topic at Uppsala University and the Royal Institute of Technology. Marianna Blix Grimaldi gave guest lectures on "Central banking and monetary policy" (Bachelor's level) at Linköping University. Ulf Söderström advised a PhD student at Uppsala University, while Andreas Westermark advised a master student at the Stockholm School of Economics.

Miscellanea

Thomas Jansson participated in the ECB Household Finance and Consumption Network (HFCN) meetings, while Xin Zhang participated in the International Banking Research Network (IBRN) meetings.

Upcoming events in 2023

Together with the Sustainable Finance Lab, the Research Division will organize a conference on "Climate change and the financial system: Challenges and opportunities for central banks" on May 2-3. In late September we are organizing the 3rd "WE_ARE_IN Macroeconomics and Finance" conference, jointly with the BIS, CEPR and the ECB. We are also planning for the second PhD workshop in Money and Finance, jointly with CeMoF.

The Research Division will teach again a second-year PhD course on monetary economics, in cooperation with faculty from Stockholm University. The purpose of the course is to introduce students to modern New Keynesian models for monetary policy and business-cycle analysis. We will also organize and teach at an internal Riksbank course on central banking.

Correspondence to the editor:

Roberto Billi
Research Division
Sveriges Riksbank
SE-103 37 Stockholm
Sweden
Email: roberto.billi@riksbank.se

This newsletter, as well as other information about the Research Division at Sveriges Riksbank, is available online at
https://www.riksbank.se/en-gb/about-the-riksbank/the-tasks-of-the-riksbank/research/