

CONFERENCE PROCEEDINGS

The Current Global and European Financial Cycle: Where Do We Stand and How Do We Move Forward?

2019

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BULGARIAN
NATIONAL
BANK

The Current Global and European Financial Cycle: Where Do We Stand and How Do We Move Forward?

Joint Bulgarian National Bank –
Bank for International Settlements
Conference on the Occasion
of the 140th Anniversary
of the Bulgarian National Bank

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Foreword

Since 2014 the Bulgarian National Bank marks its anniversaries by organising high-level conferences as the main commemorative event. In 2019 the Bulgarian National Bank celebrated its 140th anniversary and organised a conference on *‘The current global and European financial cycle: where do we stand and how do we move forward?’*. This volume contains the conference proceedings. Attended by central bankers, academics and policy representatives from across the world, the event was held in Sofia on 8 July 2019.

In preparation for that conference we had been searching for a theme of high current relevance to the central banking community, and the *financial cycle* topic stood out. A year earlier had marked a decade since the collapse of Lehman Brothers which triggered the Great Financial Crisis. The tumultuous period thereafter galvanised a new quest for macroeconomic stability, demonstrating the complexity of this objective going well beyond price stability. Central banks were assigned new macroprudential tasks with a focus on financial stability. In this process, knowledge of the financial cycle became a prerequisite for effectively fulfilling the newly expanding mandates of central banks. Hence, our conference was devoted to this topic.

The timing of the 140th anniversary of the Bulgarian National Bank concurred with expectations then about a forthcoming turn of the global financial cycle. That was another reason to invite leading members of the global central banking and academic communities to discuss the topic in several dimensions, including:

- lessons from past financial cycles to understand the current one;
- features of the global, euro area and non-euro area financial cycles;
- the financial cycle, public and private indebtedness, and monetary policy.

On the eve of the conference day, participants gathered for a dinner speech given by Patrick Honohan from Trinity College, Dublin, former Governor of the Central Bank of Ireland. The conference itself comprised three sessions – focusing respectively on the financial cycle globally, in the euro area, and in EU members outside the euro area. A policy panel, where central bank governors presented their views on these issues, concluded the event.

Like the 2014 anniversary conference, the conference in 2019 was organised jointly with the Bank for International Settlements, where the work on the topic of financial cycles had set the authoritative research standard. The co-organisation of the event continued a decades-long tradition of excellent and diverse cooperation between our two institutions. The Bulgarian National Bank is among the first shareholding members of the Bank for International Settlements, subscribing shares in June 1930 only weeks after the Bank for International Settlements had been founded.

It is worth noting that this volume launches a new publication series in the Bulgarian National Bank – Bulgarian National Bank Conference Proceedings – which will collect the speeches, papers and presentations from conferences organised by our Bank.

Kalin Hristov

Deputy Governor and Chairman of the Publications Council
Bulgarian National Bank

Acknowledgements

The chapters in this volume contain the proceedings from a conference on *‘The current global and European financial cycle: where do we stand and how do we move forward?’*, organised and hosted on 8 July 2019 by the Bulgarian National Bank on the occasion of its 140th anniversary. We would like to thank Claudio Borio and Dubravko Mihaljek from the Bank for International Settlements, who co-organised the conference, and Ivaylo Nikolov, Viktor Iliev, Vladislav Nikolov, Eleonora Nikolova, Lyudmila Dimova, Daniela Dobрева, Lyudmila Doncheva, Angelina Gradeva and Nikolay Rachev from the Bulgarian National Bank for their active, indeed passionate, contribution to the event in all aspects ranging from research to logistics behind it.

The Contributors

Patrick Honohan

Honorary Professor, Trinity College, Dublin

Mr Honohan was Governor of the Central Bank of Ireland and a member of the Governing Council of the European Central Bank from September 2009 to November 2015. He is an honorary professor of economics at Trinity College, Dublin, a non-resident senior fellow at the Peterson Institute for International Economics and a research fellow of CEPR.

Previously he spent twelve years on the staff of the World Bank where he was a Senior Advisor on financial sector issues. During the 1990s he was a Research Professor at Ireland's Economic and Social Research Institute. In the 1980s he was Economic Advisor to the Taoiseach (Irish Prime Minister) Garret FitzGerald.

A graduate of University College Dublin, he received his PhD in Economics from the London School of Economics in 1978 and was elected a member of the Royal Irish Academy in 2002.

Dimitar Radev

Governor, Bulgarian National Bank

Mr Radev is the Governor of the Bulgarian National Bank. He is a Member of the General Council of the European Central Bank and the General Board of the European Systemic Risk Board, and Governor for Bulgaria in the International Monetary Fund (IMF).

His career started in 1980 holding various expert positions at the Ministry of Finance. From 1992 till 2001 he was Deputy Finance Minister in six

consecutive governments in Bulgaria. From 2001 until his appointment in 2015 as Governor of the BNB he worked at the IMF.

Governor Radev studied economics, major Finance and Credit, at the University of National and World Economy in Sofia. During his years of professional experience he was also Deputy Chairman of the Administrative Council of the Council of Europe Development Bank, member of the Supervisory Board of the National Social Security Institute, and member of the Supervisory Board of Expressbank.

Agustín Carstens

General Manager, Bank for International Settlements

Mr Carstens became General Manager of the BIS on 1 December 2017.

Mr Carstens was Governor of the Bank of Mexico from 2010 to 2017. A member of the BIS Board from 2011 to 2017, he was chair of the Global Economy Meeting and the Economic Consultative Council from 2013 until 2017. He also chaired the International Monetary and Financial Committee, the IMF's policy advisory committee from 2015 to 2017.

Mr Carstens began his career in 1980 at the Bank of Mexico. From 1999 to 2000, he was Executive Director at the IMF. He later served as Mexico's Deputy Finance Minister (2000–2003) and as Deputy Managing Director at the IMF (2003–2006). He was Mexico's Finance Minister from 2006 to 2009.

Mr Carstens has been a member of the Financial Stability Board since 2010 and is a member of the Group of Thirty.

Mr Carstens holds an MA and a PhD in Economics from the University of Chicago.

Claudio Borio

*Head of the Monetary and Economic Department,
Bank for International Settlements*

Mr Borio has been at the BIS since 1987, covering various responsibilities in the Monetary and Economic Department, including Director of Research and Statistics and Head of the Secretariat of the Committee on the Global Financial System and the Gold and Foreign Exchange Committee, which examine, inter alia, issues related to financial stability and market functioning.

From 1985–1987, he worked as economist at the OECD in the country studies branch of the Economics and Statistics Department.

Prior to that, he was Lecturer and Research Fellow at Brasenose College, Oxford University.

He holds a DPhil and MPhil in Economics and a BA in Politics, Philosophy and Economics from Oxford University. Author of numerous publications in the fields of monetary policy, banking, finance and issues related to financial stability.

Viral Acharya

Deputy Governor, Reserve Bank of India

Dr Viral V. Acharya is a Deputy Governor at the Reserve Bank of India (RBI) in charge of Monetary Policy, Financial Stability, Financial Markets Operations and Regulation, Research and Statistics, and Human Resource Management.

Prior to joining the RBI, he was the C.V. Starr Professor of Economics at the Department of Finance at New York University Stern School of Business.

His primary research interest is in theoretical and empirical analysis of systemic risk of the financial sector, its regulation and its genesis in government-induced distortions. He has co-edited the books 'Restoring Financial Stability: How to Repair a Failed System', John Wiley & Sons, March 2009, 'Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance', John Wiley & Sons, November 2010, and 'Dodd-Frank: One Year On', NYU-Stern and CEPR (released on voxeu.org), July 2011. He is also the co-author of the book 'Guaranteed to Fail: Fannie Mae, Freddie Mac, and the Debacle of Mortgage Finance', Princeton University Press, March 2011 and Harper Collins (India), June 2011.

He is the recipient of the inaugural Banque de France – Toulouse School of Economics Junior Prize in Monetary Economics and Finance in 2011, and the 2017 Alexandre Lamfalussy Senior Research Fellowship of the Bank for International Settlements (BIS).

Fátima Pires

Deputy Director General, European Central Bank

Ms Pires is currently Deputy Director General of the Directorate General Macroprudential Policy and Financial Stability (DGMPF) at the European Central Bank (ECB). DGMPF provides analyses and policy advice on issues relating to macroprudential policies, financial stability, financial regulation,

supervision, and financial stability arrangements; identifies and monitors potential sources of systemic risk in the euro area financial system and assesses their potential impact on financial stability; prepares the ECB macroprudential policy decisions, and liaises with the ECB's supervisory arm and the relevant national, EU and global authorities.

She was the former Head of the Financial Regulation and Policy Division at the ECB, for four years. The Division assesses and develops the ECB policy stance on discussions of policies relating to regulatory, supervisory and crisis management and resolution arrangements in EU and international fora and conducts impact analysis related to regulatory developments to assess the effectiveness of adopted or proposed reforms from a macroprudential perspective. She joined the ECB in 2003.

Prior to joining the ECB she worked as an Adviser in the Portuguese Ministry of Planning/Finance from 2001 to 2002 and was a banking supervisor at the Banco de Portugal from 1994 to 2000.

She is currently a member of the Policy Development Group of the Basel Committee on Banking Supervision (BCBS) and of the Financial Stability Board's (FSB) Resolution Steering Group; alternate member to BCBS and FSB Standing Committee on Supervisory and Regulatory Cooperation, and is active in a number of other policy fora in the Eurosystem, the European Systemic Risk Board, the EU's Economic and Financial Committee, as well as in the European Commission and European Council working groups.

Fabio Canova

Professor, BI Norwegian Business School

Mr Canova is a professor of Macroeconomics at the Norwegian Business School, a research associate with the Centre for Applied Macroeconomics and Petroleum Studies and the CEPR. He is also a programme director of the Budapest School of Central Bank Studies, and a member of the scientific committee of the Euro Area Business Cycle network.

For the 2019–2020 year he will hold the Santander Excellence Chair at Universidad Carlos III, Madrid.

In the past, he has been the director of Training of the Florence School of Banking and Finance (2015–2018), the Pierre Werner chair in Monetary Union at the Robert Schumann Center for Advanced Studies (2012–2014), the ICREA Research Professor at Universitat Pompeu Fabra (2006–2012), a Professor of Econometrics at the European University Institute (2011–2014)

and Chair in Monetary Economics in the University of Bern (2008). In 2017 he was awarded a honorary professorship from Henin University in China.

He has been a programme committee member of the meetings of the International Association of Applied Econometrics (2014–2017), chair of the European Meetings of the Econometric Society 2014, a panelist of ANVUR in 2013, co-editor of the Journal of the European Economic Association from 2008 to 2013, of the Journal of Applied Econometrics from 2012 to 2017 and a referee for ERC, NSF, ESRC research proposals.

He has taught classes in numerous universities and given professional courses in numerous central banks and international institutions and held consultancy positions with the Bank of England, the ECB, the Bank of Italy, the Bank of Spain, Norge Bank, Bank of Finland, Riksbank, and the IMF.

He has published over 90 articles in international journals and his graduate textbook, 'Methods for Applied Macroeconomic Research', was published in 2007 by Princeton University Press and translated in Chinese in 2010.

Athanasios Orphanides

Professor of the Practice, MIT Sloan School of Management

Mr Orphanides is a Professor of the Practice of Global Economics and Management at the Massachusetts Institute of Technology (MIT) Sloan School of Management and Co-Chair of the Board of Governors of the Asia School of Business.

He is also an Honorary Advisor to the Bank of Japan's Institute for Monetary and Economic Studies, a member of the Shadow Open Market Committee, a Research Fellow at the Centre for Economic Policy Research, a Senior Fellow at the Center for Financial Studies, and a Research Fellow at the Institute for Monetary and Financial Stability.

Before joining MIT Sloan, he held positions at central banks in the United States and in Europe. From May 2007 to May 2012, he served a five-year term as Governor of the Central Bank of Cyprus and was a member of the Governing Council of the European Central Bank. Following the creation of the European Systemic Risk Board in 2010, he was elected a member of its first Steering Committee. Earlier, he served as Senior Advisor at the Board of Governors of the Federal Reserve System, where he had started his professional career as an economist.

Athanasios Orphanides obtained undergraduate degrees in mathematics and economics, as well as a PhD in Economics from MIT.

Lars Rohde

Governor by Royal Appointment, Danmarks Nationalbank

Mr Rohde took office as Governor by Royal Appointment and Chairman of the Board of Governors of Danmarks Nationalbank in 2013.

Lars Rohde has an MSc in Economics from Aarhus University. He has served as Chief Executive Officer of The Danish Labour Market Supplementary Pension Scheme, ATP, from 1998 to 2013. ATP is one of Europe's largest pension providers. The ATP Group is responsible for the management of assets of more than DKK 748 billion.

Lars Rohde was a member of the Executive Board of the mortgage bank Realkredit Danmark from 1992 to 1997 and Deputy Chief Executive Officer from 1997 to 1998. Among other things, Lars Rohde has also been a board member of Copenhagen Stock Exchange and part-time lecturer at Copenhagen Business School.

The career in the financial sector has secured Lars Rohde an extensive experience in ensuring the economic well-being of citizens. In his capacity of Governor of Danmarks Nationalbank and Chairman of the Systemic Risk Council, he monitors that Danmarks Nationalbank meets its three main objectives: stable prices, safe payments and a stable financial system.

Thomas Jordan

Chairman of the Governing Board, Swiss National Bank

Mr Jordan is Chairman of the Governing Board of the Swiss National Bank (SNB).

He received his PhD in economics from the University of Bern in 1993. Following a three-year post-doctoral research position at the Department of Economics at Harvard University, he joined the SNB as an Economic Advisor in 1997.

The University of Bern appointed him lecturer in 1998 and honorary professor in 2003, and he received a honorary doctorate from the University of Basel in 2017.

In 2007 the Federal Council appointed Thomas Jordan to the position of Member of the SNB's Governing Board. In 2010 he was appointed Vice Chairman and in 2012 Chairman of the Governing Board. He is also a member of the Board of Directors of the Bank for International Settlements in Basel and of the Steering Committee of the Financial Stability Board. He

is the Governor of the International Monetary Fund for Switzerland, as well as Chairman of the G-10 Central Bank Counterfeit Deterrence Group.

Ewald Nowotny

Governor, Oesterreichische Nationalbank

Mr Ewald Nowotny is the Governor of the Oesterreichische Nationalbank (OeNB) and a Member of the Governing Council of the European Central Bank (ECB).

Before taking on his current position in September 2008, Ewald Nowotny held a number of high-level positions in financial institutions. He was CEO of the Austrian BAWAG P.S.K. banking group from 2006 to 2007, served as Vice-President and Member of the Management Committee of the European Investment Bank in Luxembourg from 1999 to 2003, and between 1971 and 1979, was first a Member and then President of the Governing Board of Österreichische Postsparkasse (P.S.K.). Moreover, from 1992 to 2008, Ewald Nowotny served on the supervisory boards of several banks and corporations and was a member of the OeNB's General Council from 2007 to 2008.

Ewald Nowotny was born in Vienna, Austria, in 1944. He studied law and political science at the University of Vienna and economics at the Institute for Advanced Studies in Vienna. In 1967, he received his doctorate in law from the University of Vienna. He served as a professor at the University of Linz and at the Vienna University of Economics and Business, where he was also Vice-Rector for Financial Affairs.

Some Caveats for the Late Stage of the Financial Cycle¹

Patrick Honohan

Tomorrow we will discuss the state of the economy and of the financial sector at this point in the financial cycle. There will, no doubt, be some room for differences of opinion on just how long we have to go before the cycle turns and on how severe a setback one might expect to occur when that turning point does arrive. I will not enter that debate tonight: but I would be surprised if most observers do not see the current situation as 'late cycle'. So it is not too early to be brushing-up on financial crisis management tools.

Is this a good time to be in charge of financial stability? From today's perspective, the past five years or so may look like a success story for the financial stability manager. Admittedly there has been a steady drumbeat of problems affecting one bank or another – money laundering being prominent in the list of deficiencies that have cost some senior bankers and some regulators their jobs. But these cases, serious though they have been, have been microeconomic in nature and have not spilled over into a macrofinancial crash. So this may seem to be a good time to have been a financial stability policymaker... as long as it lasts, or as Napoleon's mother put it: *Pourvu que ça dure*.

Where will the next crisis come from and when should we move to high alert? These are the questions all prudent policymakers are asking themselves. Some elements of the current situation are quite different to what we have seen in the past, for example, the growth in the relative importance of non-bank intermediation and the persistence of exceptionally low nominal interest rates. These remind us that 'this time will be different' – though not necessarily in a good way.

¹ Dinner speech given on the eve of the conference day.

Much has been done since the crisis to strengthen the banking system. I am not going to take the time this evening to spell out the improvements, especially in terms of additional capital and otherailable sources of funds, clearer accounting and provisioning, and a more intrusive supervisory style in many jurisdictions. These have all made the system safer.

But I want to argue that in certain respects we still have not fully learnt the lessons of past crises and that, even for banks, we risk seeing problems creep up again on us unawares.

Many of us believe that we are ready, what with bank capital requirements so dramatically increased, what with our ability to read risk signals from market prices, what with our new stress that tests explore the unknown and in general what with our better-than-ever risk-management tools. I want to argue that each of these beliefs is misplaced and that we know less than we think we know. The improvements that have been made – important though they are – do not remove the need for supervisors and financial stability specialists to stay alert and skeptical. Thus, let me propose four caveats.

The first caveat is: *do not place too much reliance on reported bank capital*. Bank capital is a paradoxical concept. On the one hand, it is vitally important that banks hold enough capital to absorb unexpected losses. On the other hand, despite accounting improvements, measuring the true value of bank's capital is still an art rather than a science. Since capital as reported in a bank's accounts is simply what results from subtracting the bank's liabilities from the management's estimate of what the assets are worth, this reported number is only as good as the bank management's estimate of that value. Often it is not even that good, because capital is only a small fraction of total assets: thus, a 1 per cent overestimate error in the value of total assets could imply a 20 per cent error in the quantum of capital. I can not overstate how important this point is. As a result of over-optimism in the upswing of the financial cycle, many a bank failure has been preceded by no early warning signs in the capital ratios – even when the management figures were honestly compiled in line with accounting rules and principles.

The asset quality reviews mandated by the European Banking Authority in recent years represent an attempt to improve on these estimates. They can help, but to the extent that they simply represent a second opinion formed on the basis of a desk study, they are not guaranteed to uncover all of the overoptimism.

One approach to the paradox of bank capital is to ignore the accounting definition and instead ask how much value the financial markets place on

the bank's capital. Here comes my second caveat: *do not rely on market prices for measuring risk*. There has been a flurry of literature advocating the use of market prices of bank equity in preference to accounting and regulatory measures. Of course, this is only available for banks with traded equity, but more importantly it also tends to be a lagging indicator, especially during the upswing of the financial cycle. The financial policymaker that relies on market valuation of banks and other financial intermediaries is likely to detect problems only when it is too late to take preventive measures.

Analysis of changing *quantities* may provide better early warning signs than do market prices. Prices are, of course, informative. A bank which is paying up for wholesale deposits is telling you something about its need for cash and the market's perception of its soundness. But if the market is caught up in a bubble psychology towards the end of the financial cycle upswing, it is not likely to be adequately pricing-in systemic risk until it is too late. Instead, relying on the maxim 'this time it is different' the macrofinancial watchdog may learn more from scrutinising new types of *quantitative* excess in the financial markets. Last time around in the US it was the growth of structured credit, in Iceland, the growth of hedge-fund banking, in Ireland the intermediation of large foreign-sourced flows into the domestic and international property market. This time it will be different: quantitative growth in segments such as private equity or leveraged loans clearly call for close scrutiny: if it is growing fast, look more closely.

And what about stress tests in this context? Newly elevated as the key analytical tool being widely on both sides of the Atlantic since the remarkable success of the US CCAR in 2009, is the stress test the banking Geiger counter we have all been looking for? The 2009 CCAR was a great success, but in my view this was not so much because the market believed in the tests, but more because even though the big banks had already been force-fed with capital, the US Treasury was showing that it had both the willingness and ample funds to fill any plausible additional hole implied by the exercise.

I do not want to be too hard on the stress test movement. I believe that bank supervisors and bankers themselves have learnt a lot from the process of assembling the necessary data, refining models, and detecting hidden sources of vulnerability.² But a number of inescapable limitations must not be ignored. First of all, there is the arbitrary nature of the stress. Banks operate in a multidimensional environment. Each stress test represents one vector in this hyperspace. Passing the test cannot mean that the bank would

² Philippon et al. (2017) show that the European stress tests did a reasonable job of predicting bank vulnerabilities to macro shocks.

survive a shock of a different type, a vector pointing somewhere else in hyperspace. It is true that, with these tests now being conducted every year or two in the major centres, over time a more complete picture is beginning to be formed, but it is still very partial. And the scale of the shock (the length of the vector) is also somewhat arbitrary. Before the great financial crisis, supervisory stress tests specified shocks that were too modest to capture the scale of what subsequently occurred. More light has been thrown on this question of scale by 'reverse stress tests' which ask: how big a macrofinancial shock can each bank survive?

There is another problem with stress tests, and that is the difficulty of estimating with any precision the impact of a particular macroeconomic shock on asset values. Banks have their models for these, but I see no reason to believe that the models are very reliable. Bank internal models before the global financial crisis were certainly defective, and no doubt there have been improvements, but those old models were sophisticated in their way: they were just hopelessly over-optimistic. And there were two reasons for this: first, they were designed in boom times, and, secondly, there was a strong incentive for the risk models not to exaggerate risks as they were also used to define capital requirements.³ Stress test results rely too heavily on such models. Top-down models are also used in official stress tests: they may be free of the incentive bias, but they suffer from lack of granularity and are necessarily fed with less information than the banks have or should have.

All in all, we have here an instance of the third caveat which I would make to both the macroprudential and the microprudential supervisor: *risk management systems are not as good as most people think*. This I would advance as a general proposition, but it is especially true in the late stages of the financial cycle and in particular during an asset price bubble. Indeed, the bursting of a property bubble can result in unexpectedly sudden and sharp erosions of bank capital as happened in the Irish property bubble of 2003–2007.

Let me give you two examples of risk-amplifying mechanisms which were totally underestimated in Ireland.⁴ First is the inadequacy of conventional collateral haircuts. Late in the bubble, the range of possible property price movements becomes very wide: maybe the bubble will continue for a while, maybe it will bust. If the boom has been running at 14 per cent growth per

³ Niepmann and Stebunovs (2018) suggest that the EU bottom-up stress tests could have been vulnerable to manipulation by banks.

⁴ The Irish banking crisis is described in my 2019 book.

annum for several years – as Dublin residential property prices were before the crash – it may continue for another year. But after such a run-up, the fall in prices when the bubble bursts may be precipitous – peak to trough Dublin prices fell almost 58 per cent. Only if the probability of a crash is very low should it make sense for bankers to lend at interest into such a market (after all they will capture little of the price increase). Yet, they did make such loans, because their models did not envisage such a binary future: continued boom versus steep crash.

My second example from Ireland relates to the widespread practice of *cross-collateralization* and the way in which its mindless use by a bank lending into a property bubble can result in spiralling access of developers to loanable funds. Here is how it worked in the Irish property and construction boom. In lending to property developers, the banks did not generally insist that the borrower was putting up additional cash for the new venture. Instead, they were often happy to lend as long as the loan-to-value ratio on the total exposure that would follow the new loan remained below 0.7. As prices increased, all of the estimated increase in the value of the initial investment was credited as additional collateral – even if the capital gain was unrealized. The borrower could then leverage up using the additional collateral. The extent to which this mechanism can generate startlingly rapid accumulation of debt in a rising market was not at all understood. Simple calculation reveals that, used to its maximum during a strong property bubble that lasts for several years, can result in a property developer getting access to funding that multiplies their initial cash contribution as much as a hundredfold even without any new cash injection...and this even though the bank is retaining a seemingly prudent loan-to-value ratio throughout.

That leads me to my fourth and final caveat, where I borrow from the late Rudiger Dornbusch. Be aware that *the boom can go on for longer than you thought possible*. This has several consequences. The skeptics and cassandras who warn that the cycle will turn lose their audience and become discouraged.⁵ The financial supervisor must be careful not to discard the contrarian simply because she forecasts problems too early. A long boom can also subvert the effectiveness of some simple rule-based precautions. For example, the warning signal from the so-called BIS ratio used for the regulatory countercyclical capital buffer may begin to fade in the late stages of a long boom. Recall that this calls for an additional capital buffer if the gap between the ratio of total credit to GDP and its long-term trend is excessive.

⁵ Even if they back their views with contrarian investments, margin calls may ruin them before the cycle does turn.

But the long-term trend edges up as the boom continues: a potentially pernicious defect. This shortcoming could result in capital buffers being reduced in good times and increased in bad. In Ireland, we have bypassed this indicator, using a more restrictive approach to the countercyclical buffer.⁶

I do not wish to be alarmist. The amplitude of this financial cycle may not be as large as the last one and, if the downturn is closer to average experience, it should not be as bad. I am not making any forecast here. A more moderate downturn has its own particular threats for the regulatory authorities. For, whenever an isolated bank has to be intervened by the authorities, such intervention is likely to be interpreted by the owners and senior management as a grossly excessive use of their powers. Legal challenges are likely. Politicians will be enlisted in support of the owners. Here the financial authorities must be ready with their communications strategy. If financial policy is to achieve its goal – ‘safeguarding stability and protecting consumers’ is how we put it in Ireland – it must retain the trust of the people. For that it is vital that the general public is made aware of how the authorities are working to protect society from financial excesses and bad banking.

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⁶ For a discussion of shortcomings of the Basel gap, see also Castro et al. (2016), Repullo and Saurina (2011), Edge and Meisenzahl (2011).

Opening Remarks

Dimitar Radev

Dear colleagues, Distinguished guests,

We are delighted to have you with us to participate and share in our joint BNB–BIS conference organised on the occasion of the 140th anniversary of the Bulgarian National Bank. I would like to extend my special thanks to the General Manager Agustín Carstens and the BIS for their support in organising this event. This is only a latest example in decades of cooperation between our two institutions.

The BNB is among the oldest central banks in the world, 13th by order of establishment¹. Today's conference, therefore, marks a long history of central banking in Bulgaria.

Evolution of Central Bank's Mandates

A central bank is historically associated with the goal of keeping the national currency and prices stable. After the Great Depression of the 1930s, supervision has become a function entrusted to or taken away from central banks in cycles depending on crisis experiences. With respect to supervision as a central bank function, the 2007–2008 global crisis had two effects. First, it led to bank supervision becoming the responsibility of an increasing number of central banks. Second, the focus on systemic stability led to the emergence of macroprudential supervision as an explicit concept and task for which naturally central banks have become responsible.

In Bulgaria, the monetary regime can be viewed as a rather traditional one, the primary objective of the BNB being to maintain price stability through

¹ See Capie, F., C. Goodhart and N. Schnadt (1994), p. 6.

ensuring the stability of the national currency. For more than 20 years now, our regime has been based on the operation of the currency board. The BNB also conducts micro and macroprudential policies. As a matter of fact, well before the recent global crisis we designed and applied countercyclical macroprudential measures, even though the term ‘macroprudential’ was still not being used. Many other countries in the region, subject to massive capital inflows at the time, did the same.

Therefore, the BNB’s tasks and responsibilities, as we see them today, are an outcome of decades of evolution. And this reflects, and is consistent with, the long-term developments of central banks’ mandates globally. It can be argued from a historical perspective that changes in these mandates follow common evolutionary paths which are often shaped by crises, such as the global one in 2007–2008.

The Financial Stability Focus

That led to reassessing the importance of financial stability as a policy objective of central banks.

Before the 2007–2008 global crisis, central banks focused on price stability as their primary objective. The crisis triggered a change in the broad environment in which central banks operate and thereby also necessitated a continued evolution of the role and governance of our institutions. Concerns were raised regarding the ability of central banks to prevent and manage financial crises. This provoked a discussion of central banks’ role in safeguarding financial stability. Ultimately, there was recognition of the need to reconsider or adjust the central banks’ responsibilities related to financial stability.

A major policy response since the global crisis was the enhancement of macroprudential policy framework and the assignment of additional responsibilities to central banks in the fields of financial stability. Then central banks developed tools for the practical implementation of the macroprudential framework.

Understanding the Financial Cycle

The new policy framework and tools, however, can only be as good as the capability to ‘diagnose’ when their application is needed. They have limited value, if any, for the purpose of safeguarding financial stability unless the macroprudential authority can detect the accumulation of cyclical systemic risk in the financial system.

In other words, achieving the financial stability objective through macroprudential measures cannot be sustainable without understanding the financial cycle. That is why we have considered this to be a topical issue to devote our anniversary conference to.

There is no single generally accepted theoretical basis, nor a dominant method, for measuring the financial cycle. Thus, the role of research becomes significant for policymaking. That is why today's conference is conceived to bring together academic research and central bank practice.

The conference structure reflects an understanding that the global financial cycle affects the euro area and its monetary policy, which in turn affects the financial cycle in Europe beyond the euro area.

Therefore, the first session of the conference is on the current phase of the global financial cycle which is to a large extent driven by the US monetary policy. We recall from the 2007–2008 crisis how the financial disruptions originated and triggered a full-scale global crisis.

The second session is focused on the euro area financial cycle, as influenced by the global financial cycle, and its implications for asset prices and financial stability.

Since the ECB policies also shape the financial cycle in Europe outside the euro area through economic and financial channels, although divergences do exist, our third session is devoted to the financial cycle in the non-euro area EU member states.

By way of example from Bulgaria, the BNB recent research and relevant estimates for the local financial cycle indeed show that we are currently in the upward phase of accumulation of cyclical risk. We have, correspondingly, decided to activate and then raised the rate of our countercyclical capital buffer.

Turning to actual policy reactions in dealing with financial cycles, our conference ends with a panel where Governors will share with us their views.

In conclusion, let me sum up my main points. First, the central banks' objective of financial stability has emerged in the course of the historical evolution of their legal mandates and responsibilities. Second, the application of macroprudential tools to safeguard financial stability requires, as a pre-condition, knowledge of the financial cycle. Third, our conference programme is organised so as to discuss this critical topic in a conceptual sequencing: starting from the global view, elaborating on the euro area, and then turning to the financial cycle in non-euro area Europe.

I believe our speakers and discussants will provide both theoretical insights and first-hand policy experiences, from global and regional perspectives, for all of us to benefit from a frank exchange of ideas and relevant practices today.

Thank you very much once again for joining us and participating in this conference, and I wish you a very pleasant and productive stay in Sofia.

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Opening Remarks

Agustín Carstens

Thank you, Governor Radev.

Introduction

Ladies and gentlemen, it is a great pleasure and privilege for the BIS to co-organise this conference celebrating the 140th anniversary of the Bulgarian National Bank. We congratulate our host on being the 13th oldest central bank in the world!¹ The BIS is a bit younger – next year we will be celebrating our 90th anniversary. But our two institutions have worked closely ever since the founding of the BIS: the Bulgarian National Bank was one of the first 12 central banks invited to subscribe for BIS shares after the founding members did so in 1930.²

Your institution has ably navigated its way through some extremely challenging circumstances that have confronted the Bulgarian economy and Bulgarian society since 1879: periods of war and political instability, systemic transformation and institutional change, hyperinflation and remonetisation, financial booms and collapses.

This rich history ties in nicely with the main theme of our conference – the current global and European financial cycle. Tomorrow we will hear how our keynote speakers assess the current state of financial cycles at the global and euro area levels, as well as in European countries such as Bulgaria that are not part of the euro area. What I would like to highlight in my opening

¹ Capie, F., C. Goodhart and N. Schnadt (1994), p. 6.

² Toniolo, G., P. Clement (2005), p. 69.

remarks is the central bank's role in safeguarding macroeconomic and financial stability. My own experience from Mexico, as well as lessons from Bulgaria's recent economic history, suggest that maintaining that role is essential in dealing with the financial cycle.

Central Banks Encounter the Financial Cycle ...

The concept of the financial cycle is relatively new in central banking circles, but the phenomenon it describes has been with us for quite a while. My predecessor Andrew Crockett used the term for the first time in a speech in 2000.³ Despite much subsequent research at the BIS and around the world, Andrew, already 20 years ago, captured some essential features of the financial cycle.

The core idea is the notion of ebbs and flows in risk-taking. In a boom phase of the cycle, these manifest themselves in a rapid credit expansion, increased leverage and rising asset prices. Peaks in the financial cycle are typically followed by periods of financial stress – or worse, by financial crises.

The ebbs and flows of risk-taking are not necessarily driven by exogenous risk factors or shocks, which typically underpin banks' risk management models and central banks' stress tests. Instead they arise endogenously, from interactions in financial markets. One reason is that financial intermediaries are not as good at projecting the evolution of risk over the entire financial cycle as they may be at assessing relative risks at a point in time. Another is that global and domestic financial conditions interact with each other, often in unpredictable ways. For instance, easy global financial conditions coupled with domestic currency appreciation encourage external borrowing, including by banks. This in turn reinforces domestic credit growth and leverage. The mechanism seems obvious *ex post*, but may be hard to discern *ex ante*.

While I was at the Bank of Mexico, we faced many difficult situations relating to capital flows, exchange rate pressures, financial stability and inflation, often arising from developments in the United States. As in other emerging market economies (EMEs), capital inflows at times threatened to overwhelm the absorptive capacity of our markets – and this despite the best efforts of monetary policy.

And while I was Deputy Managing Director at the IMF, I witnessed a tide of global capital flows rising between 2003 and 2006 and flooding into central and eastern Europe (CEE), including Bulgaria. By 2007, capital inflows to

³ Crockett, A. (2000), Crockett, A. (2000a).

CEE exceeded 15 per cent of combined GDP – per year. This brought strong output and employment growth to the economies in the region, but also led to macroeconomic overheating, large current account deficits and massive bubbles in credit and real estate markets.

With the abrupt halt in capital flows in late 2008, the boom ended and CEE economies had to undertake extensive macroeconomic and financial sector adjustment. But by and large, banking systems remained stable and growth resumed relatively quickly. This stands in contrast to the financial collapse that Bulgaria experienced in 1996–97, when institutional foundations were much weaker and the policy framework inconsistent with underlying cyclical developments. I will return to this point shortly.

More recently, there has been another wave of capital inflows to emerging markets and to CEE, largely reflecting spillovers from extremely easy monetary policies in the United States and the euro area. In Bulgaria, for instance, growth of consumer and mortgage credit has rebounded to nearly double-digit annual rates since 2017, and has again been accompanied by rapid house price increases. But the banking sector has strengthened and macroeconomic imbalances are smaller than a decade ago, making a repeat of the 2009 downturn and financial instability unlikely.

... and Start Learning How to Deal With It

The experience of CEE and other EMEs demonstrates that central banks can over time learn how to attenuate the consequences of the financial cycle. Policies along three dimensions are worth highlighting: institution-building for monetary and fiscal stabilisation; strong banking supervision and macroprudential policies; and developing international supervisory cooperation.

The banking and foreign exchange crises that led to the near collapse of the financial system in Bulgaria in 1996–97 resulted from a lack of the basic institutions required in a market economy. These would have imposed hard budget constraints on public and private enterprises, prevented monetary financing of fiscal deficits, and avoided runaway inflation. Once these institutions were put in place, the authorities could shift from improvised firefighting to normal macroeconomic management. In your case, the introduction of the currency board in 1997 helped stabilise exchange rate and inflation expectations, as well as the fiscal situation. In the financial sector, stability was gradually restored after the privatisation of state-owned banks, the strengthening of banking supervision, and the introduction of

bank bankruptcy legislation. Accession to the European Union has further boosted institutional reforms.

By the start of the Great Financial Crisis of 2007–09, macro and banking stability frameworks in the region were thus approaching international standards. However, supervisors were not sufficiently attuned to the risks associated with the rapid credit growth. In particular, risks associated with carry trades and foreign exchange lending to unhedged borrowers were not adequately priced.

Interestingly, awareness of these risks was greater in countries with fixed exchange rate regimes. Where interest rates could not be hiked to tighten credit, prudential tools were quickly recognised as an alternative. Bulgaria was thus one of the early practitioners of macroprudential policy, deploying the tools ranging from higher capital requirements to differentiated reserve requirements and prudential credit ceilings. Other CEE central banks issued guidelines on household lending standards, or used various capital flow management tools. Separately, but importantly, most CEE governments did not ride the wave of higher boom-related revenues, keeping public spending and deficit growth within limits.

But even relatively prudent monetary and macroprudential policies, and some support from fiscal policy, were not sufficient to tame the financial cycle. One reason is that the activities of foreign banks in CEE did not receive enough scrutiny from supervisors in their western European home countries. In the context of consolidated supervision, those banks were subject to home country oversight, leaving CEE supervisors with the impression that the subsidiaries were monitored adequately at the home country level. But individual CEE subsidiaries were mostly small compared with the overall size of the home country institutions, which limited the extent and intensity of their supervision.⁴ And home country supervisors in CEE had little knowledge of local market conditions in host countries in western Europe.

Luckily, the need for supervisory cooperation was quickly recognised in the immediate aftermath of the crisis. Initially, regulators in a number of home countries pressed for deleveraging from investments in CEE. But following intense international negotiations, notably in the context of the Vienna Initiative, home countries recognised the potential dangers, for both home and host countries, of forcing banks to deleverage too fast. This agreement prevented a sudden withdrawal of western European banks from CEE, and

⁴ Bakker, B., A.-M. Guide (2010).

helped stabilise banking systems in both parts of the continent. It also gave banks in CEE time to run down the high stock of non-performing loans from the crisis, and thereby avoid a repeat of the pre-crisis credit boom in an environment of very low interest rates.

In sum, your experience with stability-oriented institutional reforms, macroprudential policies and international supervisory cooperation is a good example of our need for both consistent policies at home and close cross-border cooperation to deal with the financial cycle.

Closing

In closing, let me thank you all for taking the time to join us here today. Many thanks in particular to our speakers, discussants and session chairs. I wish everyone a productive day, with insightful discussions both on and off the podium. And thanks again to Governor Radev and his colleagues at the Bulgarian National Bank for their cooperation and hospitality.

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Session 1: The Global Financial Cycle

A Tale of Two Financial Cycles: Domestic and Global¹

Claudio Borio

This conference is about domestic and global financial cycles. It indicates how far we have come since the late 1990s, when the notion of the financial cycle was on no one's radar screen. The only 'cycle' macroeconomists would talk about was the business cycle even if, historically, the financial cycle predates the business cycle as an economic concept. Only a few economists, outside the mainstream, kept it alive in the post-war era (e.g. Minsky and Kindleberger), and then not even using the term.

The rise in popularity of the notion has been meteoric, with the Great Financial Crisis (GFC) as the watershed. The number of references to the term 'financial cycle' in the press speaks for itself (*Figure 1*). But behind this simple story, some ambiguity persists. Often people refer simply to the 'financial cycle', at other times to the 'global financial cycle'. In the minds of many, except perhaps the experts, this has created some confusion.

In my speech today, I would like to provide some clarity. Drawing on work under way with some of my BIS colleagues, I will address three questions: How are the two phenomena related analytically? How are they related empirically? And what are some of the policy implications?

I will take as benchmarks for the two: (i) the notion developed at the BIS since the early 2000s, which I will term the 'domestic' financial cycle, and (ii) that proposed by Hélène Rey, which she termed the global financial

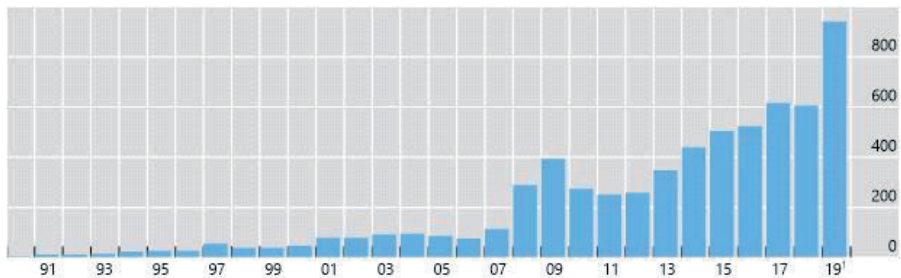
¹ This speech is based on joint work with Iñaki Aldasoro, Stefan Avdjiev and Piti Disyatat; see Aldasoro et al. (forthcoming). Any errors are my sole responsibility.

cycle². Interestingly, both of them came to prominence at Jackson Hole³. The domestic financial cycle in 2003, three years after we first used the term. The global financial cycle in 2013, one decade later, although the notion is of older vintage, as used by Calvo et al. (1993, 1996) among many others.

Figure 1

Growing Popularity of the Term ‘Financial Cycle’

Number of Press Articles



Note: Data until 30 June, annualised.

Source: Factiva.

There are three takeaways from my presentation.

First takeaway: Analytically, the two concepts have a common basis – the ebbs and flows of risk-taking and risk avoidance reflected in funding conditions and asset prices. But there are also substantial differences. Naturally, in terms of geography: the domestic financial cycle describes conditions in individual countries; the global financial cycle, cross-border co-movements, seen as driven largely by how conditions in one country – the United States – spread to the rest of the world. But also, to some extent, in terms of quantities and asset classes. The domestic financial cycle stresses credit and property prices; the global financial cycle, both debt and equity (cross-border) flows and financial market prices.

Second takeaway: Empirically, three features stand out. The domestic financial cycle is typically much longer than the business cycle; the global financial cycle is, at most, as long as the business cycle. Domestic financial cycles may

² Rey (2013, 2016).

³ Borio and White (2004), Rey (2013).

co-move but they can also be highly asynchronous; the global financial cycle is, by definition, global, though often with a pronounced regional dimension. That said, the global financial cycle often fuels (or turbocharges) domestic financial cycles, especially around financial crises.

Third takeaway: Making further policy progress in taming the two cycles calls for more effective anchors in domestic policy regimes and in their interaction through the international monetary and financial system (IMFS).

Let me take each question in turn.

1. The Analytical Relationship

The two notions of cycle share the same analytical basis, which is also the one that underlies the notion of ‘procyclicality’. Procyclicality is another concept that, as applied to finance, has gained ground over the last 20 years, or so, and is defined as the proclivity of financial markets, or financial system more broadly, to amplify rather than dampen economic fluctuations.

The common analytical basis of the two cycles comprises those mechanisms that lead to a self-reinforcing interaction between funding conditions, risk perceptions, attitudes towards risk and asset prices. This interaction has an inherent cyclical character. The contraction phase is a consequence of the expansion phase that precedes it, and vice versa. Hence, terminology like ‘booms and busts’ or ‘surges and reversals’.

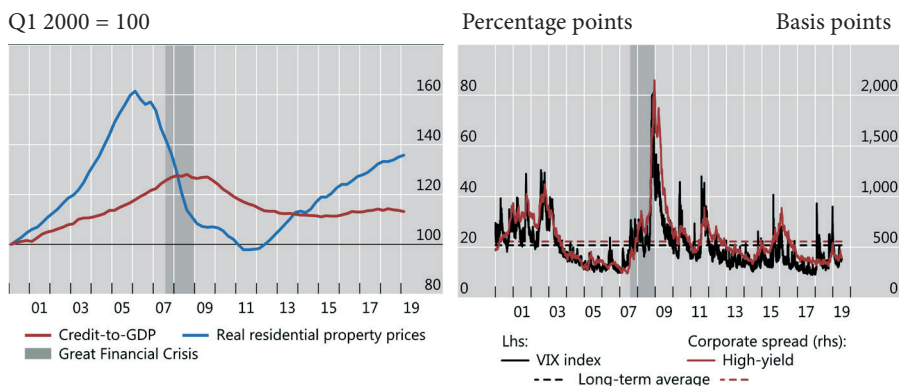
Underlying both cycle concepts is a notion of risk that has a distinct intertemporal dimension. The notion departs radically from that implicit in the literature on ‘efficient’ asset pricing – think ‘random walks’ – or the macroeconomic models that we are still routinely using today – think of ‘shock plus propagation and return to steady state’.

According to this cycle notion, risk is not *low* during expansions and *high* during contractions; rather, risk *builds up* in expansions and *materialises* in contractions. This explains why risk spreads are unusually narrow, volatilities unusually low, asset prices unusually high and credit unusually buoyant before a serious financial stress. And why they adjust sharply in the opposite direction once risk materialises. The pattern in the United States around the GFC is just one such example (*Figure 2*).

Figure 2

Financial Booms, Low Spreads and Volatility Are Signs of High Risk-Taking

US Example



Sources: Bloomberg; ICE; national data; BIS calculations.

What about the differences between the two notions of cycle?

The two cycles differ in terms of the quantities and asset prices to which they pay more attention, although all are relevant for both: in the case of the domestic financial cycle credit and property prices, in that of the global financial cycle debt and equity flows as well as financial asset prices.

The reason for this difference is the original focus of the analysis: for the domestic financial cycle – banking crises, for the global financial cycle – capital flows.

More subtly, the balance of the analysis differs. The domestic financial cycle focuses on the accumulation of vulnerabilities and the underlying imbalances while the global financial cycle more on the propagation of financial conditions across countries and, more specifically, from the United States to the rest of the world. And this carries over to some extent to the policy discussion. That for the domestic financial cycle centres primarily on ways to restrain the expansions and associated risks – the ‘lean versus clean’ debate; that for the global financial cycle primarily on ways in which countries on the receiving end can cope with the cycle’s fallout – the ‘dilemma versus trilemma’ debate.

2. The Empirical Relationship

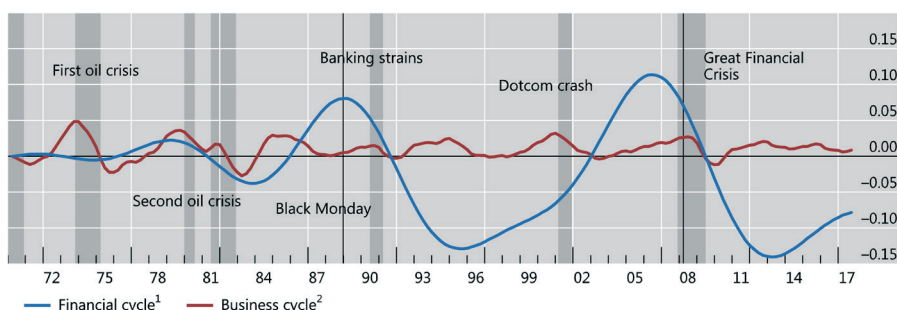
The Features of the Two Financial Cycles

The different focus of the two cycles underlies their different empirical features. To be sure, just as in the case of the business cycle, there is no single way of measuring either of them. Even so, some features appear inherent to each.

Figure 3 shows a simple representation of the domestic financial cycle (blue line), for the United States, going back to the 1970s. Using statistical filters, the representation combines the behaviour of credit, including in relation to GDP, and of property prices. Importantly, it focuses on the longer-term fluctuations that are more closely linked to banking distress and to more serious recessions. Different filters could also uncover cycles of shorter duration.

Figure 3

The Financial and Business Cycles in the United States



¹ The financial cycle as measured by frequency-based (bandpass) filters capturing medium-term cycles in real credit, the credit-to-GDP ratio and real house prices.

² The business cycle as measured by a frequency-based (bandpass) filter capturing fluctuations in real GDP over a period from one to eight years.

Note: The shaded areas indicate recessions, solid black lines indicate the start of a banking crisis as defined by Laeven and Valencia (2018).

Sources: Drehmann et al. (2012); Laeven and Valencia (2018).

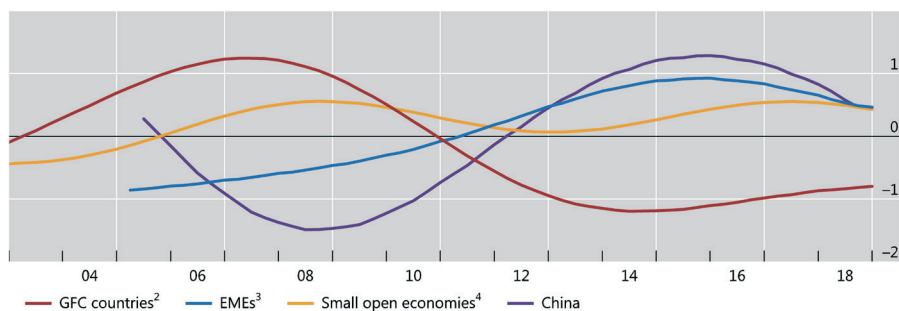
We see two key features. For one, since the early 1980s the domestic financial cycle (blue line) is considerably longer than the business cycle (red line) as traditionally measured. I say ‘as traditionally measured’ because, just as with the financial cycle, different filters could uncover business cycles of longer duration. In addition, financial cycle peaks tend to usher in recessions (grey areas) and to coincide with banking distress (vertical lines). Indeed,

in recent research we have found that domestic financial cycle proxies tend to outperform the term spread for both advanced and emerging market economies (EMEs) as indicators of recession risk, especially beyond a two-year horizon⁴.

Now, while domestic financial cycles may co-move across countries, they can also diverge substantially. The post-crisis experience highlights this point (Figure 4). Countries that suffered the GFC because they had previously experienced a domestic unsustainable boom have seen the private sector as a whole deleverage. The retrenchment of the household sector, which was at the heart of the crisis, has so far offset any leveraging-up of the corporate sector. Examples include the United States, the United Kingdom, Spain and France. By contrast, countries that have not experienced such a domestic boom-bust and that largely imported the crisis through trade have seen their domestic financial cycles expand further and, in many cases, turn recently. This group comprises a number of EMEs, including China, and advanced small open economies. Altogether, this group makes up about one third of global GDP.

Figure 4
Financial Cycles Across Country Groups: Dancing to Different Tunes¹

In standard deviations



¹ Financial cycles are measured by frequency-based (bandpass) filters capturing medium-term cycles in real credit, the credit-to-GDP ratio and real house prices. Financial cycles are normalised by country-specific means and standard deviations before simple averages have been taken for country groupings.

² ES, FR, GB and US.

³ BR, CL, CO, HK, ID, KR, MX, MY, SG and TH.

⁴ AU, CA, CH, FI, NO and SE.

Sources: National data and BIS calculations.

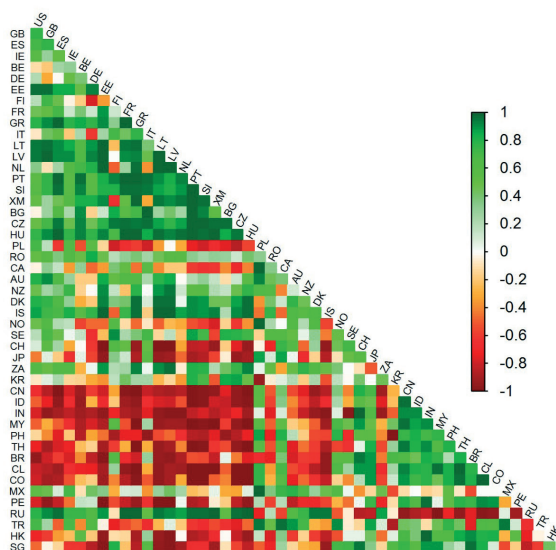
⁴ Borio et al. (2018, 2019).

Figure 5 generalises the point impressionistically through a colour scheme. I order countries roughly in terms of the extent to which they experienced the GFC owing to the reversal of domestic financial expansions, at least partially. The spectrum from dark green to red ranges from highly positive to highly negative correlations. We see how the green dominates in the United States, the euro area and central and eastern Europe, while the red predominates in EMEs and a number of advanced small open economies. *Figure 6* illustrates that, in general, the above correlation patterns strengthened after the GFC.

If we now turn to the global financial cycle, the differences are apparent. Let me start with two measures shown in the top panel of *Figure 7*. The first, by Miranda-Agrippino and Rey (2015), is the best known one and traces the cross-country co-movement of risky financial asset prices. The co-movement is captured by the common factor behind those prices: a factor that explains roughly 20 per cent of their movement (red line). The second is a measure based on quantities. Here I show the first principal component of gross capital inflows (relative to GDP) for 43 countries (blue line): a factor that again explains some 20–25 per cent of their overall movement.

Figure 5

Regional Patterns in Domestic Financial Cycle Correlations



Notes: This figure depicts a correlation matrix of domestic financial cycles as defined by Drehmann et al. (2012). The sample period ranges from Q1 1980 to Q4 2017.

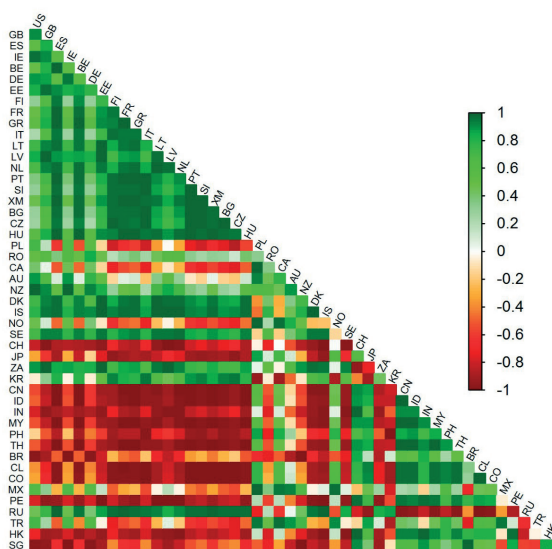
Sources: Drehmann, M., C. Borio and K. Tsatsaronis (2012), BIS calculations.

Three points stand out.

First, there exist distinct cycles in both prices and quantities. The two cycles are remarkably similar.⁵ It thus makes sense to combine them (yellow line). Oddly enough, I do not think this has been done before. Shorter ones aside, the fluctuations are at business cycle frequencies, roughly eight years, and hence considerably shorter than the domestic financial cycle. This is not entirely surprising, since equity prices naturally co-move closely with the business cycle, i.e. more than property prices. It may be more surprising for quantities, however.

Figure 6

Domestic Financial Cycle Correlations Intensified Post-GFC



Notes: This figure depicts a correlation matrix of domestic financial cycles as defined by Drehmann et al. (2012). The sample period ranges from Q1 2009 to Q4 2017.

Sources: Drehmann, M., C. Borio and K. Tsatsaronis (2012); BIS calculations.

One can show the relative length of the domestic and global financial cycles even more clearly in two steps. We take the composite measure of the global financial cycle, combining asset prices and quantities. We then choose a filter that allows for durations at business cycle frequencies (one to eight years) and we superimpose the US business cycle on the resulting global

⁵ Recent studies have confirmed this finding (Davis et al. (2019), Habib and Venditti (2019)).

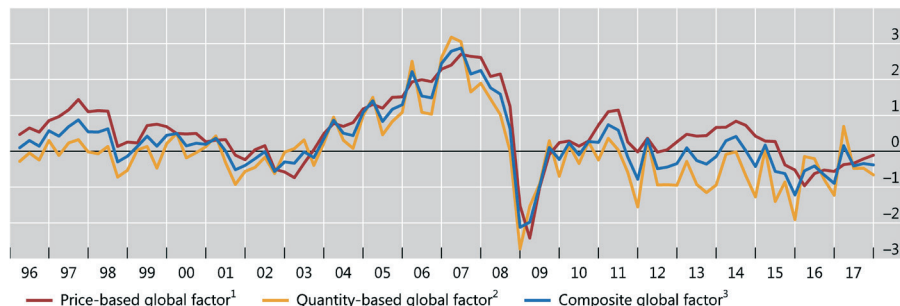
financial cycle (*Figure 7, middle panel*). We see that the average lengths of the two cycles are very similar.

Figure 7

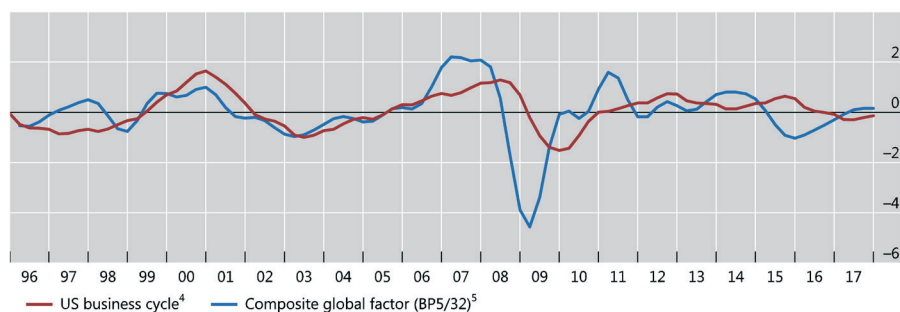
Global Financial Cycle: Closer to Business Cycle than Domestic Financial Cycle

In standard deviations

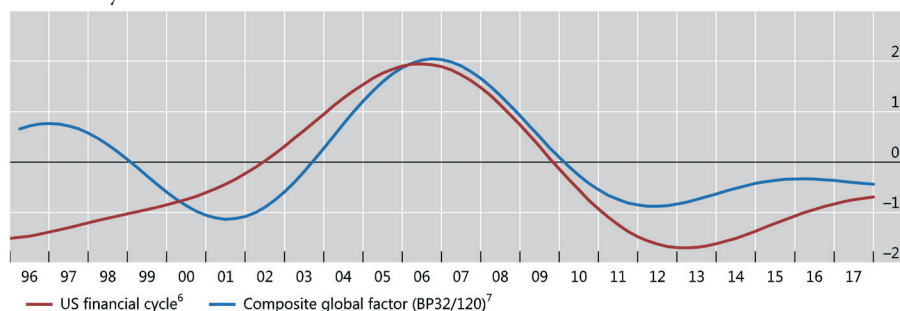
There is a global financial cycle in both prices and quantities.



... which moves at business cycle frequencies...



... and even when forced to have a very low frequency, it is still 'shorter' than the US financial cycle



¹ Miranda-Agrippino and Rey global financial factor.

² First principle component of total external flows of 43 countries.

³ Average of the price-based global factor and the quantity-based global factor.

⁴ The business cycle as measured by a frequency-based (bandpass) filter capturing fluctuations in real GDP over a period from one to eight years.

⁵ Frequency-based (bandpass) filter of the composite global factor, at business cycle frequencies (between five and 32 quarters).

⁶ The financial cycle as measured by frequency-based (bandpass) filters capturing medium-term cycles in real credit, the credit-to-GDP ratio and real house prices.

⁷ Frequency-based (bandpass) filter of the composite global factor, at financial cycle frequencies (between 32 and 120 quarters).

Sources: Miranda-Agrippino, S. and H. Rey (2015); IMF Balance of Payments; BIS calculations.

Lest you think this is just by construction, let us allow the data speak and compare the global financial cycle with the domestic financial cycle. Here I apply to the raw data of the global financial cycle the filter used to derive the domestic financial cycle, forcing the data to choose from durations between 8 and 30 years. We find that the filter ‘chooses’ a global financial cycle whose duration is very close to the lower end of the allowable range – approximately nine years, i.e. very close to a typical business cycle length (*Figure 7*, bottom panel).

What about the co-movement between the two cycles? Despite their different duration, their relationship is not trivial. In particular, the global financial cycle can turbocharge the domestic financial cycle. This is especially evident during the credit booms that have ended in financial crises (*Figure 8*). Following a strong expansion, the domestic financial cycle (red line) and global financial cycle (blue line) turn before the crises (vertical lines) in both advanced economies (left-hand panel) and EMEs (right-hand panel). The main difference between the two sets of countries is that the appreciation and then sharp depreciation of the domestic currency (yellow line) is only visible in EMEs. This is consistent with more formal empirical evidence, which indicates that the combination of strong credit growth and exchange rate appreciation is a useful leading indicator of banking stress in EMEs but not in advanced economies⁶. Moreover, as analysed in the latest BIS *Annual Economic Report*, this probably reflects the important role of currency mismatches in EMEs⁷. I will come back to this.

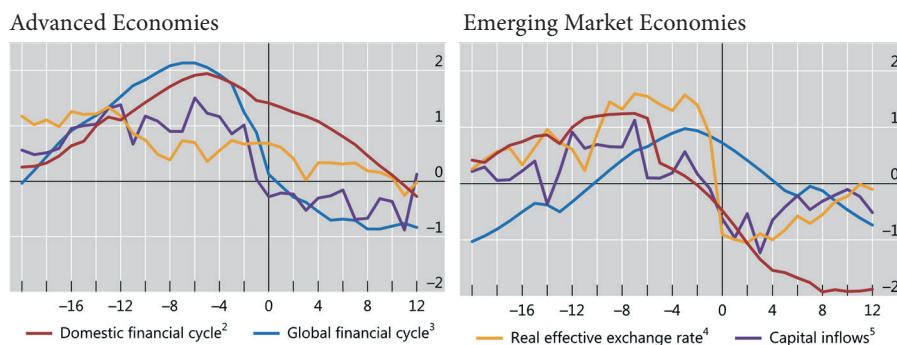
⁶ Borio and Lowe (2002) and Gourinchas and Obstfeld (2012).

⁷ BIS (2019).

Figure 8

Behaviour of Selected Variables around Crises¹

Country Group Medians (in Standard Deviations)



¹ The horizontal axis denotes quarters around crises, with the start date set at zero (vertical lines). The median of the relevant variable is taken at the specific quarter across all crisis episodes available for the respective indicator.

² Composite financial cycle proxy calculated from frequency-based (bandpass) filters capturing medium-term cycles in real credit, the credit-to-GDP ratio and real house prices, normalised by country-specific mean and standard deviation.

³ Frequency-based (bandpass) filter of the composite global factor, at financial cycle frequencies (between 32 and 120 quarters). The composite global factor combines the price-based global financial factor of Miranda-Agrippino and Rey (2015) with a quantity-based factor based on total external flows to 31 countries.

⁴ Geometric trade-weighted averages of bilateral exchange rates adjusted by consumer prices, normalised by country-specific mean and standard deviation.

⁵ Gross capital inflows, scaled by GDP, normalised by country-specific mean and standard deviation.

Sources: Miranda-Agrippino, S. and H. Rey (2015); IMF Balance of Payments; national data; BIS exchange rate statistics; BIS calculations.

Drivers of the Global Financial Cycle

What about the proximate determinants of the global financial cycle and, finally, its ultimate policy drivers? As you know, as regards proximate determinants, most of the attention has focused on risk appetite, typically approximated with the VIX. Historically, the correlation of the global financial cycle (*Figure 9*, top panel, blue line) with the VIX (red line) has indeed been negative and highly statistically significant, e.g. risk-on phases

coincide with upswings in the cycle. But the link seems to have weakened after the global financial cycle.⁸

The reasons for the weakening deserve further examination. One possible explanation is that post-crisis many internationally active banks, especially from the euro area, retrenched, so that aggregate cross-border flows proved less sensitive to the VIX even as portfolio flows grew.⁹

By contrast, the relationship with the US dollar exchange rate has remained stable pre and post-GFC (*Figure 9*, middle panel). A weaker US dollar coincides with upswings in the global financial cycle.

Why? The reasons are not yet entirely clear, as the US dollar embodies many things, including risk sentiment and US monetary policy. One possibility is that a weaker US dollar improves the balance sheets of currency-mismatched borrowers and raises the portfolio returns of unhedged dollar-based investors in local assets, boosting the cycle (Bruno and Shin (2015a,b)). This is the so-called ‘financial channel of the exchange rate’ (BIS (2019)). The channel is likely to be more relevant for EMEs. Indeed, the relationship between the strength of the US dollar and US dollar credit outside the United States – a BIS global liquidity indicator – is stronger for EME than advanced economy borrowers (not shown). More generally, a weaker dollar could reflect heightened global risk appetite or easier US monetary policy, both of which would boost cross-border lending.

Thus, we need to go beyond proximate factors and examine the relationship with US monetary policy. After all, the global financial cycle is fundamentally about how financial conditions in the financial world’s ‘anchor’ country – the United States, given the dollar’s dominance – spread to the rest of the world.

This is a bit harder to document. Miranda-Agrippino and Rey (2015) document that asset prices, volatility and a mix of quantity variables, such as credit and banks’ leverage, respond to ‘shocks’ in US monetary policy, i.e. to the non-systematic component of the Fed’s policy. For illustrative purposes, and to deal with the complications raised by quantitative easing, here I look simply at correlations between the global financial cycle (*Figure 9*, bottom panel, blue line) and two alternative measures of the US monetary policy: the two-year Treasury rate (solid red line) and the Wu and Xia (2016) shadow policy rate (dashed red line).

⁸ This weakening has been documented in the past; e.g. Shin (2016); Avdjiev et al. (2017).

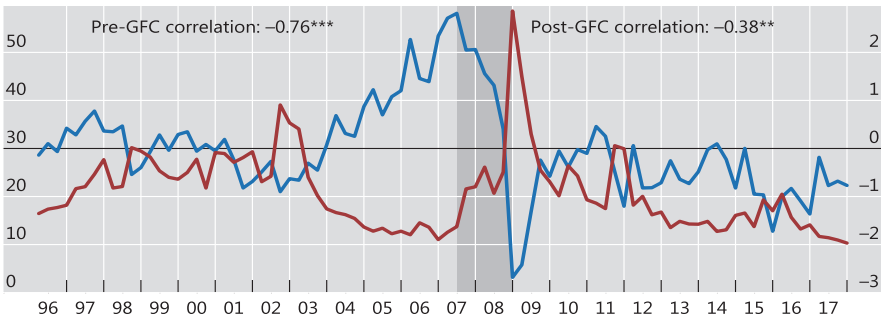
⁹ See Bénétrix et al. (2019) for the retrenchment of euro area banks.

Figure 9

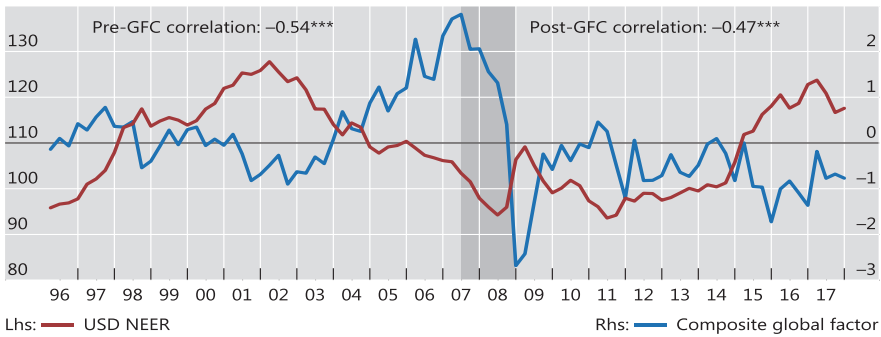
Drivers of the Global Financial Cycle

In per cent

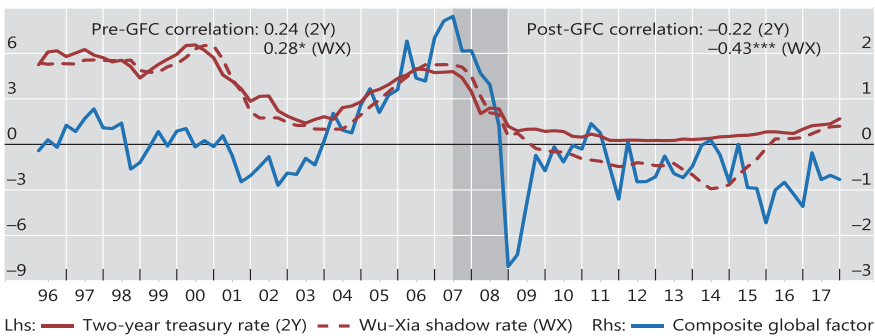
The strong pre-crisis correlation with global risk aversion has weakened



Relation with the dollar remains strong: a higher USD coincides with downswings in the global financial cycle



The link between the US monetary policy and the global financial cycle is far from stable

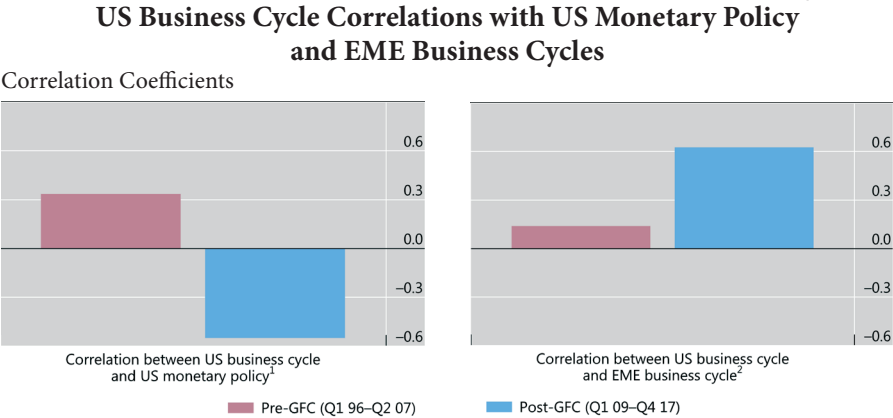


Note: The shaded area shows the Great Financial Crisis (GFC).
Sources: Miranda-Agrippino, S. and H. Rey (2015); Bloomberg; national data; BIS locational banking statistics; BIS effective exchange rate statistics; BIS calculations.

The relationship, in fact, is not stable (*Figure 9*, bottom panel). Pre-GFC, easier policy (lower rates) coincides with a weaker global financial cycle; post-GFC, with a stronger one.¹⁰ What might explain all this? I suspect it has to do with the conduct of the US monetary policy. Specifically, the pre-crisis policy was leaning against US business cycle expansions, which in turn co-moved closely with those in other advanced economies and EMEs. Thus, higher interest rates coincided with global business cycle upswings and global financial cycle expansions. The post-crisis US monetary policy has diverged considerably from the US business cycle, which has continued to co-move closely with those in other advanced economies and EMEs, i.e. the post-crisis inflation has been stubbornly low and the Fed has been very cautious in order to promote the recovery, keeping the monetary policy accommodative even during the business cycle upswing. Recall that real interest rates are now roughly zero or negative even as the US economy is operating close to, or above, standard estimates of potential. Thus, post-crisis lower (and stable) rates plus a growing balance sheet coincided with a global financial cycle expansion.

A simple set of correlations is consistent with this interpretation (*Figure 10*). The correlation between the US interest rate and the business cycle turns from positive to negative after the GFC and is statistically significant (compare the left-hand and right-hand panels). By contrast, the correlation of business cycles remains positive.

Figure 10



¹ Two-year Treasury rate.

² Median of correlation coefficients between the US business cycle and the business cycles of 20 EMEs.

Source: BIS calculations.

¹⁰ Another possible explanation is that the ‘easier’ monetary policy should be measured not by changes in the level of the interest rate but its divergence from a ‘neutral’ rate that measures the monetary policy stance, e.g. the deviation from a Taylor rule (Taylor (1993)). By this measure, Maddaloni and Peydró (2011), for example, found that the US monetary policy was relatively loose in the lead up to the GFC.

What I conclude from all this is that the US monetary policy is by no means the only factor, but it does matter. Moreover, as I shall argue next, it may matter more than Rey's econometric analysis, focused on 'shocks', suggests.

3. The Policy Implications

What are the policy implications of the analysis so far? Policy can play a dual role: at the domestic level and through the interaction of domestic choices. And in both cases, what matters most is the policy regime, i.e., the rules of the game and policymakers' systematic response to the economy.

This is important, because the empirical evidence, I mentioned earlier, examines something quite different, i.e. the (random) deviations of policy decisions from their systematic pattern, that is, monetary policy 'shocks'. Intuitively, such deviations cannot tell us much, if anything, about the impact of systematic policy. A number of economists and econometricians are fully aware of this¹¹. But since measuring the impact of the systematic component empirically is very hard – recall the Lucas critique – the issue is generally ignored. So, I will offer a tentative narrative about why regimes may be important and provide some indirect or less formal evidence.

To start with, note that domestic policies have so far been unable to tame the domestic financial cycle. Hence, the cycle's growing amplitude and disruptive impact have occurred since the early 1980s. The long shadow of the GFC is still with us. Indeed, there is evidence that since the mid-1980s we have shifted from inflation-induced to domestic financial cycle-induced recessions in advanced economies, notably the largest (*Figure 11*). Recessions have no longer been triggered by a monetary policy tightening to quell inflation but, rather by a financial cycle expansion that ushers in a contraction. This explains why domestic financial cycle-based leading indicators of recessions outperform the term spread since the mid-1980s¹².

There are many reasons for this failure to tame the domestic financial cycle¹³. For one, the prudential policy was not fully up to the task. Hence, the major post-crisis efforts to strengthen individual financial institutions ('microprudential' regulation) and those put in place for the first time to tackle the impact of the domestic financial cycle head-on ('macroprudential' regulation) failed. But arguably the monetary policy has had a role to play, too. For one, given subdued inflation and disregard for monetary and credit aggregates, central banks had no reason to tighten during financial expansions as long as inflation remained low and stable. But they naturally eased strongly and persistently following financial

¹¹ E.g. Sims (1998), Cochrane (1998), Hoover and Jordà (2001).

¹² Borio et al. (2018, 2019).

¹³ Borio (2014a).

contractions to shore up the economy and lay the basis for the recovery. Over time, and successive financial and business cycles, this asymmetric behaviour can induce a trend decline in interest rates, and post-crisis it prompted the adoption of unprecedented balance sheet policies – a development also encouraged by how unresponsive low inflation has been to monetary stimulus.¹⁴

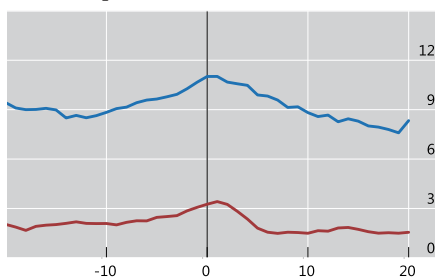
Hence, the last step in the argument: countries' monetary policies have interacted through the international monetary and financial system, tying together the global financial cycle and domestic financial cycles. Very easy monetary policy conditions in the core economies, most notably the United States, spread across the world, even in countries at very different points in their domestic financial cycle, through the global financial cycle turbocharging domestic financial cycles.

Figure 11

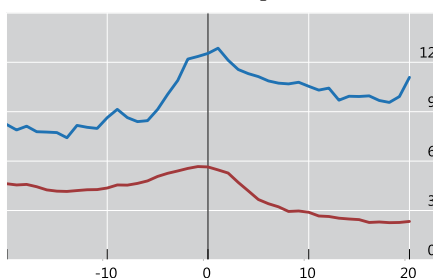
The Changing Nature of the Business Cycle

Average of the Variables Indicated over the Selected Periods

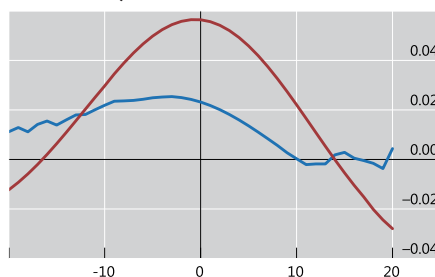
Inflation, per cent



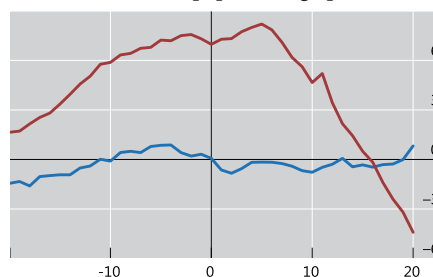
Short-term Interest Rate, per cent



Financial Cycle, standard deviations



Credit-to-GDP Gap, percentage points



— 1970-85 — Since 1985

Notes: The horizontal axis denotes quarters around recessions in the business cycles, with the trough date set at zero (vertical lines). Lines show the median evolution across the advanced economies in our sample and events in the respective time period.

Source: Borio et al. (2018).

¹⁴ For a theoretical model that yields such a behaviour, see Rungcharoenkitkul et al. (2019).

There are at least three mechanisms at work, reflecting how domestic investors and financial institutions go out in search of higher returns and how foreign players have an incentive to borrow in the cheaper currency. There is a direct effect: since financial conditions in US dollars directly affect financial conditions for borrowers in that currency around the globe. There is an indirect effect: policymakers in countries at the receiving end faced with unwelcome appreciation pressure may initially respond through FX intervention but, ultimately, they will find it very hard to keep interest rates at very different levels from those in the anchor country. This is true regardless of the reasons for wishing to resist appreciation – inflation below target, financial stability considerations or competitiveness. As a result, the monetary policy eases also in other currencies, in turn loosening domestic financial conditions. Finally, there is an amplification effect via the US exchange rate – the financial channel of the exchange rate: as noted, a depreciation encourages further lending and borrowing in the presence of currency mismatches. This is true for those who borrow in dollars, largely firms, and for those who invest in local currency securities on an unhedged basis. My colleagues have been documenting this in their research¹⁵.

The bottom line is that in order to address more effectively both the domestic and global financial cycles we need stronger anchors for domestic policy regimes and for their interaction¹⁶. In other words, we need to keep one's own house as well as the global village in order.

Stronger anchors domestically will already be a major step forward, since they would limit the incidence of unwelcome spillovers. Recall the 'envelope theorem' of welfare economics: if each country is already doing what is best for itself, the additional gains from cooperation are naturally smaller.

At the BIS we have argued that the way forward involves setting up a more holistic macro-financial stability framework, involving the monetary policy, prudential policy, both micro and macro- and fiscal policy. For instance, the latest BIS Annual Economic Report¹⁷ discusses in more detail how in EMEs a combination of flexible inflation targeting, FX intervention and macroprudential measures can help achieve this objective.

In addition, stronger anchors internationally would help better internalise spillovers. There are various degrees of ambition here. They range from enlightened self-interest – taking into account spillbacks – to joint actions

¹⁵ Bruno and Shin (2015a,b), Hofmann et al. (2016), Avdjiev et al. (2018).

¹⁶ Borio (2014b).

¹⁷ BIS (2019).

and even new rules of the game¹⁸. But, of course, exploring how to do all this would require a whole presentation by itself.

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¹⁸ E.g. BIS (2015).

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Session 1: The Global Financial Cycle

Commentary

Viral Acharya

I am excited to discuss Claudio Borio's excellent work on the tale of two financial cycles – the global and the domestic. Before I present my comments and offer an emerging market's perspective on Claudio's ideas, let me add the disclaimer that whatever I say in this discussion reflects my own views and not necessarily the views of the Reserve Bank of India.

Let us start by thinking about what is special about the emerging markets. In my view, emerging markets are characterised by several features that make them vulnerable to external sector stress. Two most important characteristics are a fiscal deficit and a current account deficit. These are often referred to in economic literature as the 'twin deficits' that make emerging markets vulnerable to the risk of a 'sudden stop': adverse global financial conditions interact with domestic stresses of the emerging market, resulting in an outflow of foreign capital or, at a minimum, ebbing of inflows into the emerging market.

What are the implications of these characteristics of emerging markets? One important consequence of a sizeable fiscal deficit is the crowding-out¹ of investments of the economy's private sector. Typically, in emerging markets, saving rates are not high relative to the investment needs. In fact, savings may not even be financialised. All and this makes it hard for the private sector to borrow because most of the domestic savings are consumed by borrowings of the public sector. Those corporations in the private sector

¹ For more details, please refer the speech on '[Why Less Can be More: On the Crowding-out Effects of Government Financing](#)', delivered at the 16th K P Hormis Commemorative Lecture organised by the Federal Bank Hormis Memorial Foundation on November 17, 2018 at Kochi.

that have adequately high credit ratings (or credit quality, in general) tap into foreign markets by borrowing abroad. Thus, one characteristic of the emerging market – the fiscal deficit – results in borrowing abroad by the private sector, which increases the vulnerability of the country to the global financial cycle.

The *global financial cycle* means different things to different people. In my own research, I have found that some combination of the Federal Reserve's interest rate stance, measures of global stock market volatility (notably the VIX in the United States), measures of the commodity price cycle, perhaps some indicators of flows into emerging markets – or a principal component or a common factor of all these variables – is what one can consider operationally as reflecting the state of the global financial cycle. If you are a market practitioner, this is essentially something like a 'risk-on' or a 'risk-off' sentiment indicator.

The *global financial cycle* is important because it interacts with the crowding-out risks and other characteristics of emerging markets. This interaction can, however, be tricky to fathom.

To see this, consider an emerging market where the fiscal deficit is high and there is crowding-out of the private sector at work. Suppose the easing of the global financial cycle primarily allows the sovereign to borrow more from abroad, possibly in foreign-currency denominated debt. If that happens, then the global financial cycle makes the country more vulnerable in a 'sudden stop' sense in case the sovereign bonds run into a roll-over problem. This does not then have any beneficial outcome for the crowded-out private sector, if anything, because the sudden-stop risks will become amplified when the global financial cycle turns adverse, the sovereign borrowing abroad can add to the country risk-premium and crowding-out risk, in turn, forcing the private sector to invest even less.

There is another possibility though – in case of some emerging markets, sovereigns do not borrow abroad or allow foreign investors to invest in domestically issued government bonds (more generally, impose some macroprudential caps on foreign ownership of government debt). If the private sector can borrow abroad, then this at least has the good fortune of relaxing the crowding-out problem of these corporates to the extent that they had been unable to tap adequately into domestic savings; in other words, the easing of the global financial cycle enables the private sector to get its hands on to foreign savings for making its investments. Nevertheless, there could be adverse consequences if the economy gets over-heated during the

global financial cycles and imports expand faster than exports, widening the economy's current account deficit (the second characteristic I highlighted about the emerging markets). So, on the one hand, the crowding-out restrictions get relaxed when the global financial cycle eases, but the external sector vulnerability indicators can get worse and amplify sudden-stop risks when the global financial cycle turns adverse.

What causes the global financial cycle to turn adverse? There could be an increase in interest rates globally, a rise in uncertainty or VIX, a surge in commodity prices such as oil, a default on a sovereign bond, or a revision of emerging markets' growth prospects. Such shocks can lead to a generalised pull-back of foreign capital flows from emerging markets. Somewhat perversely, countries vulnerable to the twin deficits are likely to be the most affected as they are also the most likely to have increased their vulnerability during the benign phase of the global financial crisis. In turn, these are also the countries to experience a larger correction when the global financial cycle turns adverse.

The correction manifests itself most notably in terms of depreciation of the exchange rate. To borrow an analogy from Hyun Shin of the Bank for International Settlements regarding the behaviour of the exchange rate of an emerging market during the global financial cycle – in good times, the currency appreciates 'up the stairs', and in bad times, it comes 'down the escalator'. In other words, the exchange rate of an emerging market could experience a seemingly calm episode of steady appreciation, but when the global financial cycle turns, it depreciates sharply, resulting in greater imported inflation as well as higher roll-over costs for corporations and sovereign that have issued bonds to foreign capital providers. The resulting spillovers accentuate the sudden-stop risks substantially.

Now, let us switch attention to the *domestic financial cycle* of the emerging markets. I will focus on how the domestic financial cycle could be modulated through policy interventions of regulators such as the central bank in order to dampen the impact of the global financial cycle. This is indeed one of the core themes of Claudio Borio's work.

- I. First, I will discuss the monetary policy decisions of the domestic emerging market economy. Whether the monetary policy is counter-cyclical or procyclical to the global financial cycle depends strongly on whether the monetary authority, typically the central bank, adopts a financial stability perspective against the global financial cycle, or it views the global financial cycle as a form of relaxation of the emerging market's crowding-out problems.

Let me elaborate. Suppose the domestic monetary policy leans against the wind of the global financial cycle. That is, during the benign phase of the global financial cycle when foreign capital chases emerging markets, domestic interest rates are either raised or maintained steady. In this case, foreign flows into sovereign or corporate borrowing could amplify some domestic growth, but not overly so as the domestic financial cycle is acting in a manner countercyclical to the global financial cycle. When the reversal of the global financial cycle occurs, the domestic monetary policy would benefit from having preserved policy buffer space to accommodate and deal with the risk that the economy may have a hard landing from the withdrawal of foreign flows.

However, the converse is possible if crowding-out effects in the emerging market are strong, the global financial cycle substantially relaxes the private sector's financial constraints, and the domestic monetary authorities emphasise growth instead of financial stability, accommodating at a time when the global financial cycle is in the benign phase. This can potentially cause the economy to overheat and widen the current account deficit. This procyclical strategy may work out okay if inflationary pressures in the economy are not too strong; nevertheless, it renders the economy more vulnerable to a reversal of the global financial cycle and could end up being a myopic strategy if no policy buffer has been left to accommodate in such a reversal scenario.

There is an important message herein regarding how the domestic and the global financial cycles interact in emerging markets. My view is that emerging markets with large twin deficits should factor in financial stability considerations and adopt a countercyclical approach in their domestic cycle relative to the global financial cycle.

- II. The second important part of the domestic financial cycle is what I am going to call as external sector management, typically undertaken by the central bank. This includes the building up of foreign exchange reserves to stem sharp currency depreciation and the use of macroprudential restrictions on the extent of foreign capital flows into sovereign and corporate debt markets. In joint work with Arvind Krishnamurthy of the Graduate School of Business at Stanford University, Arvind and I argue that while a number of central banks in emerging markets accumulate reserves when the global financial cycle is benign, hoping to deploy these reserves to stabilise the currency when the global financial cycle reverses, this strategy does not quite work well unless there are macroprudential quantity restrictions on the inflows of

foreign capital. Put simply, reserves and macroprudential restrictions on foreign capital flows act as complementary tools for external sector management.

Our simple idea is that the reserves accumulated by the central bank, by being deployed to stem sharp currency depreciation, are essentially an insurance for all those who would have been hit adversely by the depreciation of the exchange rate (for example, the importers or corporates and the sovereign that have borrowed abroad). Knowing that the central bank has provided an implicit put option to stabilise the currency, they will rationally anticipate that the currency will not depreciate as much as it would have if the reserves were lower. Therefore, the reserves engender a moral hazard in the form of a build-up of large unhedged positions by importers or excessive foreign borrowing by corporates and the sovereign in terms of the resulting exposure to the risk of sudden-stop or currency depreciation.

In turn, unless the central bank employs macroprudential limits on the extent of capital inflows via foreign borrowing or requires hedging by the importers (or imposes restrictions on the size of unhedged positions of the importers), benefits of the reserves can get ‘undone’. When the global financial cycle turns adverse, the central bank will have more reserves but also a greater demand for the reserves relative to the domestic currency. Recognising this, optimal external sector management by the central bank requires *both* reserves accumulation and macroprudential constraints on sudden-stop vulnerability that builds up during the benign phase of the global financial cycle.

Conversely, if the central bank engages in reserves accumulation *without* macroprudential controls on foreign capital flows, then the outcome can be destabilising, especially if it is not recognised that the vulnerabilities are increasing precisely because the reserves are being accumulated.

To summarise, countercyclical monetary policy – which Claudio Borio stresses as being quite crucial – and reserves management along with macroprudential controls on capital flows could both be effective in leaning against the wind of the global financial cycle.²

² Other researchers such as Hyun Shin and Helene Rey (of London Business School) have taken some of these insights to make sense of asset prices, volatility in financial markets, and ‘risk-on/off’ effects of dollar appreciation, all stemming from the movement in global financial cycle.

Overall, I would like for this literature to explore more the microfoundations of financial constraints faced by the emerging markets:

- (1) As I have stressed emerging markets are characterised by fiscal deficits and current account deficits. The fiscal deficit leads to a crowding-out problem that induces the private sector to borrow abroad. Furthermore, the fiscal deficit may be funded via the issuance of sovereign debt to foreign capital providers. These are two key problems of external sector vulnerability worth providing microfoundations for. These problems interact with the global financial cycle and understanding this interaction in both theoretical and empirical settings would be a fruitful exercise.
- (2) In the same vein, my second recommendation would be to model the microeconomics of how the amplification of the global financial cycle by the domestic cycle (through procyclical monetary policy and/or external sector management) can lead to a widening of the current account deficit, resulting in greater external sector vulnerability and necessitating a stronger policy response when the global financial cycle reverses.
- (3) Finally, I would like to suggest that researchers investigate further how the level of central bank reserves and its macroprudential toolkit for capital controls interact with the monetary policy decisions in diffusing or amplifying the global financial cycle. Are external sector management tools and monetary policy complements or substitutes?

Let me conclude, I am a big fan of this research track that Claudio Borio is pursuing. I believe it is extremely pertinent to the emerging markets. I learn much from it every time I think about it, read it or see it presented. I look forward to seeing more microfoundations being built into the interaction of the global and the domestic financial cycles.

Session 2: The Euro Area Financial Cycle

The Euro Area Financial Cycle

Fátima Pires

Understanding the upturns, downturns, surges and plateaus – the cycles that we see in core euro area financial markets for household credit, corporate debt, real estate and sovereigns, is at the heart of the financial stability mandate of the ECB. We have seen many times, around the world, periods of sharp increases in financial asset prices, especially real estate prices and strong credit growth that have been followed by financial crises. It is our assessment of vulnerabilities in these markets that informs our assessment of the macroprudential policy response.

Today I would like to share my views on where we stand in the financial cycle, and macroprudential policy options for the future. In particular, despite the moderate slowdown in euro area growth envisaged for this year, I will argue that vulnerabilities are continuing to build and so it would be beneficial to financial and economic stability for bank resilience to be strengthened further by building up macroprudential buffers such as the Countercyclical Capital Buffer (CCyB).

How Do We Assess the State of the Financial Cycle(s) in the Euro Area?

As in business cycle analysis, there is not a unique definition of the financial cycle. Here, I think of financial cycles as the fluctuations that can occur, sometimes separately and sometimes coincidentally, in the credit and real estate markets that are most closely associated with financial crises.

The excessive fluctuations in these markets usually emanate from two closely related factors. The first is our human tendency towards overoptimistic

expectations for future performance, for example in relation to technological advances or as a result of long-lasting economic upturns. The second is the financial sector's tendency to behave pro-cyclically by building on our optimism for future performance, and fueling these cycles by excessive risktaking.

ECB research suggests that financial cycles exhibit larger amplitudes and tend to be longer than business cycles. For example, estimations of household credit cycles across EU countries suggest durations of 15 to 25 years and amplitudes in the range of 15 to 25 per cent relative to normal levels.¹

Since the length of business cycles on average tends to be in the range of 2 to 8 years, it would appear at first sight that they are unrelated to financial cycles.

However, evidence from a recent research project of the European System of Central Banks suggests that there is a slower-moving component in GDP fluctuations of 8 to 15 years that is more closely related to financial cycles.² That would suggest that real and financial developments at lower frequency may have a closer association.

Indeed, we do see examples where overoptimism in financial markets can also be amplified by conditions in the real economy – or the phase of the business cycle. We have seen such dynamics in real estate markets in a number of countries, where the expectation of increasing house prices fuelled additional real estate construction. These developments culminated in higher, ultimately unsustainable levels of leverage on the financial side and into an unhealthy fraction of real estate production in the overall economy.

Generally, we rely on a broad range of statistical measures of financial variables such as various credit aggregates, real estate and financial asset prices to gauge the state of the financial cycle.

For brevity today, I will focus on one summary measure of the financial cycle that we use at the ECB: it aggregates growth rates of credit to the non-financial private sector and house prices in real terms as deviations from historical averages.³ The figure shows the measure for the euro area as well as the median and the range of measures across euro area countries.

¹ Lang, J.-H., P. Welz (2018).

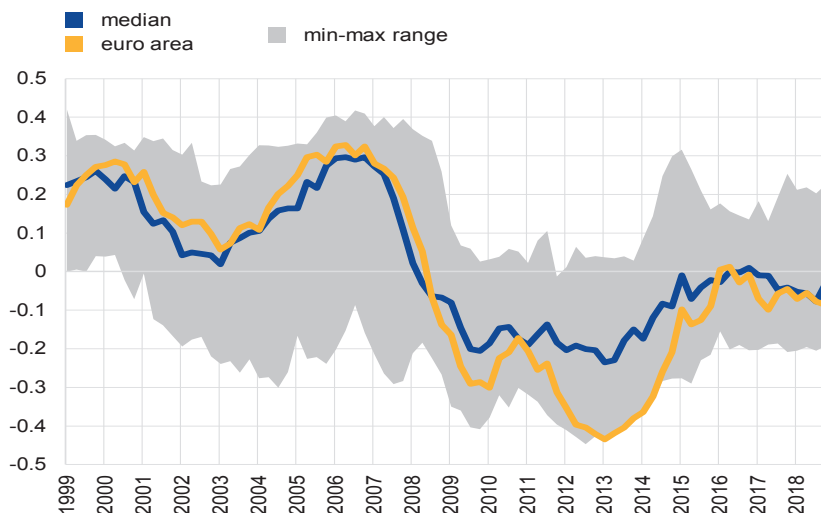
² Runstler, G. et al. (2018).

³ Schuler, Yv.-St., P. Hiebert, T.-A. Peltonen (2017, 2019). Available at SSRN: <https://ssrn.com/abstract=2539717>.

Figure 1

Heterogeneity of Financial Cycles across EA Countries

Deviations from Historical Median



Notes: Latest observations Q4 2018. Based on six-quarter moving averages of quarter-on-quarter growth rates of total real credit to the non-financial private sector and real house prices and using as y-scale historical ‘percentiles’. Equal weights of both components.

Sources: ECB and ECB calculations.

There are two major features that stand out from this time series. First, over the past two decades we have basically only observed one full cycle. Second, heterogeneity across euro area countries is sizeable over the entire history of this series.

Looking at the current level of this financial cycle indicator in a number of euro area countries, it suggests that risks are in a build-up phase. When you then take this together with the more granular evidence of underpricing of risk in some financial assets, signs of search for yield, rising leverage in the corporate sector, still high sovereign indebtedness and rising real estate prices across euro area countries – we get an overall picture that we are still in an expansionary phase of the financial cycle in a number of euro area countries.

This view is despite the fact that – as set out in our latest Financial Stability Review – the wider context also bears signs of weaker real economy growth

prospects in the euro area and globally, with risks to growth tilted to the downside. If economic growth in coming years does disappoint, this could renew debt sustainability concerns in a number of euro area economies, and make it harder for euro area banks to address the problem of structurally weak profitability. All in all, slower growth makes the financial stability environment more challenging.

What does This Imply for Policy?

An increase in risks to financial stability means that there is a need to take out more insurance against those risks materialising.

Macroprudential policy can play an important role in providing such insurance – it allows us to mitigate risks to financial stability, thereby letting monetary policy focus on the primary objective of price stability.

Macroprudential bank capital buffers that are sufficiently high in good times provide scope for releasing capital requirements in a large downturn, which can help avoiding an unnecessary credit squeeze. In other words, such releasable buffers provide insurance against tail risk at a time that business cycle developments have weakened but risks from the financial cycle continue to be present or may even be increasing.

What is the role of the ECB in all this? The ECB shares responsibility for macroprudential policy in the euro area with the national authorities. Macroprudential powers were conferred on the ECB in 2014 when the supervisory arm of the ECB was set up. National authorities notify the ECB about intended macroprudential measures. The ECB's Governing Council may object to those measures and it can set higher macroprudential requirements than those set by national authorities, also known as a 'top-up'.

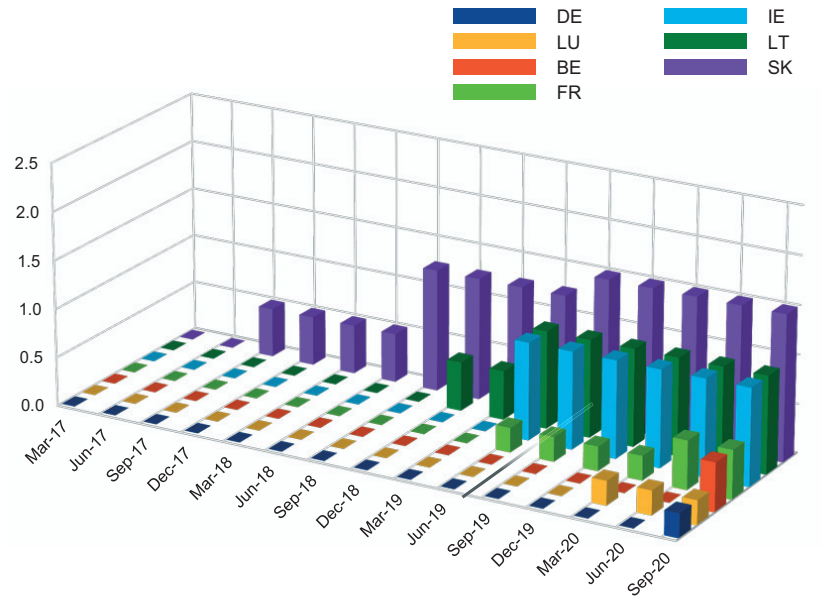
In the current risk environment, macroprudential policy can be important in two directions. First, it can contribute to strengthening the resilience of the financial sector by promoting the accumulation of sufficient capital buffers that can be released, if needed, to prevent a credit squeeze. Second, macroprudential policy can address, with targeted measures, some sector-specific risks, in particular in real estate markets. In particular in member states with favourable macro-financial conditions, further macroprudential steps are desirable.

On the first point, the Countercyclical Capital Buffer (CCyB) should play a prominent role. The CCyB has now been activated in seven countries.

Figure 2

Countercyclical Capital Buffers in Countries
that have Announced an Activation of the CCyB

In Percentage Points of Risk-weighted Assets



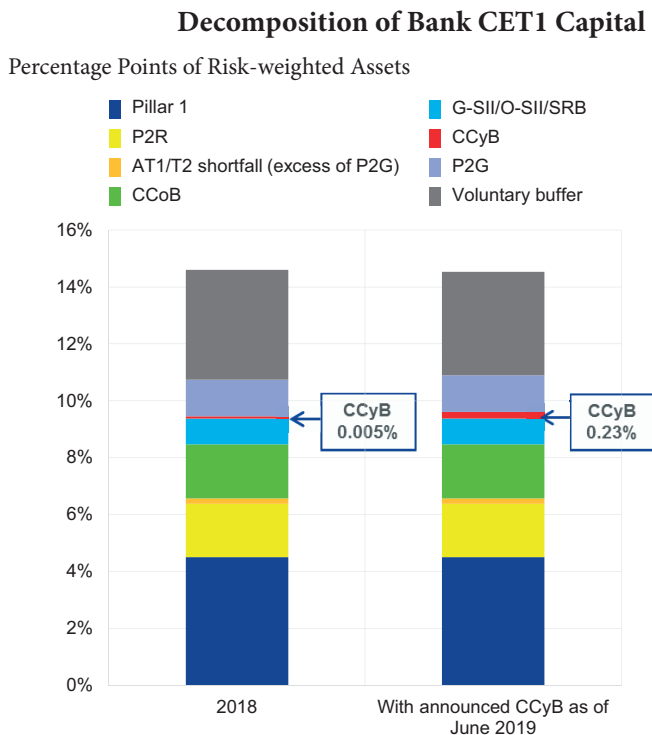
Note: Q1 2017–Q3 2020, (planned) implementation dates.

Sources: ECB and national authorities.

It is good that macroprudential authorities are becoming gradually more active. It helps to build resilience for when the downturn comes. The level of the CCyB is generally quite low, however, and it is still zero in the majority of the member states. My concern is that there is a lack of ‘macroprudential space’ that can be used in case the cycle turns to ensure that a smooth provision of credit continues. National authorities have implemented various buffers over the past years and that has strengthened the resilience of the banking system. But the CCyB, which is the key tool to address the predominantly cyclical systemic risks to financial stability that I mentioned at the beginning and to limit the financial system’s tendency to act in a pro-cyclical manner, is still a very small part of the combined buffer requirement of banks. It is important to keep in mind that the CCyB is better suited than other macroprudential buffers

to limit pro-cyclicality given that other buffers cannot easily be released in a downturn or banks may be reluctant to use those buffers.⁴ The usability of other buffers may, for example, be constrained by the possibility that their use may restrict banks' ability to distribute profits. This could, in turn, lead to negative market reactions vis-à-vis such a bank.

Figure 3



Notes: AT1 stands for additional Tier 1, T2 for Tier 2 and P2R for Pillar 2 requirement. CCyB and SRB requirements are not adjusted for exposures, but are considered at the consolidated level. The buffers for 2018 refer to the end of the year.

Sources: ECB.

Some people may argue that we need to be careful with raising the CCyB. They argue that a higher CCyB could make banks more reluctant to lend, thereby worsening the economic slowdown. They also argue that there is a

⁴ See the speech by De Guindos, Lisbon 4 July 2019, for more details on the various types of capital buffers and their motivations.

risk that macroprudential policy could be perceived as acting too late and that it could contribute to the risks it is meant to mitigate. Of course a careful cost-benefit analysis, taking into account the actual conditions and outlook of each country is always necessary before taking any policy action. However, one point is important to stress: many policy-makers have interpreted the notion of excessive credit growth, which is a key concept in the literature on financial cycles and in the calibration of the CCyB in the Basel framework, as referring to excessive increases in the flow of credit. But excessive credit growth can also refer to the stock of credit, in other words to the accumulated flow of credit in the past. And as I mentioned at the beginning, the high levels of indebtedness are a key concern for financial stability at the current juncture.

In an environment where market interest rates are expected to be low for longer, macroprudential policy should also address emerging risks via more targeted measures. This is the second way in which macroprudential policy can help to safeguard financial stability at the current juncture. More targeted measures may be needed in real estate markets, where prices and lending have continued to rise despite the more challenging macroeconomic environment. High levels of indebtedness in some countries make households vulnerable to adverse shocks to income or interest rates. Measures targeting lending standards, such as ceilings for loan-to-income or loan-to-value ratios, could strengthen the resilience of borrowers. They could also relate to risk weights floors that banks use for real estate exposures.

Conclusions

The concept of the financial cycle provides us with a useful framework to assess risks to financial stability and implications for macroprudential policy. Measures of financial conditions and the financial cycle in the euro area indicate that we are still in a phase of vulnerabilities building up. These measures are consistent with the evidence we see of pockets of vulnerabilities in some sectors of corporate credit markets, real estate markets and for some sovereigns.

With monetary policy focussed on price stability in the euro area as a whole, macroprudential policy tools are better placed to mitigate risks from the financial cycle developments across euro area countries in a more targeted manner.

At the current juncture, it is key to ensure that macroprudential authorities have enough margin of manoeuvre to confront a downturn in financial cycles, and downside risks to economic growth, in the future. In other

words, there need to be large enough capital buffers to release in case the cycles turn. Especially in countries with relatively strong macrofinancial developments there is scope for a higher Countercyclical Capital Buffer. Recent steps towards more activism in some countries are welcome, but there is a need to build more macroprudential space.

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Session 2: The Euro Area Financial Cycle

Commentary: The Financial and the Real Cycle in the Euro Area

Fabio Canova

Introduction

I will focus my comments on three issues which are important for policymakers. I will start discussing the measurement of the financial and the real cycle. I will emphasize that there is considerable uncertainty in the current state of the two cycles because of two facts. First, trend-cycle decompositions require assumptions which are hard to verify in practice, unless an infinite sample of data is available. Because different assumptions imply different cycle measurements, policymakers should be aware of the assumptions that are made and of their consequences on the two cycles. Second, most decompositions suffer end-of-the-sample problems, making them unsuitable for a real time assessment of the current state of the cycle, and reliable only to the extent that the underlying components do not change over time. For these two reasons, policy actions which may be taken, for example, to curb the financial cycle must take uncertainties into account.

I will then provide evidence that when discussing the financial and the real cycle in the euro area, it is important to take into account fluctuations with 8 to 15 years periodicity. These fluctuations are typically left into the trend because they are longer than the typical business cycle fluctuations (2 to 8 years) the literature emphasizes. However, these fluctuations account for a large portion of total variability of both real and financial variables, making it unwise to disregard them for policy purposes. Once these fluctuations are taken into account, it turns out that the financial and real cycles in the euro area are correlated, that the correlation is stronger in period of financial stress, and has decreased since the 2008 financial crisis. Furthermore, there

are considerable heterogeneities in the relationship between financial and real cycles across countries, heterogeneities which make the design of prudential policies for the euro area difficult.

Third, Ms. Pires has emphasized that the low level of bank profitability preoccupies ECB officials as funds to build new capital are short and banks may take on risky projects to increase their benefits. I agree that bank profitability in the euro area is low, at least since the start of the massive unconventional policy programmes adopted by the ECB. I will show that there is a link between current monetary policy decisions and the fall in one important component of bank profits. Thus, monetary policies and macroprudential policies can not be treated separately – one safeguarding price stability, the other insuring financial stability – and a tight coordination between various authorities is necessary whenever sound monetary policy choices affect the balance sheet of banks.

The Measurement of the Cycle

It is well known that trend and cycles are unobservables. Thus, to separate one observable time series, say, real GDP or credit, into the underlying components one has to make assumptions. Typically, one posits that only two unobservable components are present, and in my discussion today I will follow this tradition, even if one may argue that fluctuations with short periodicity (say, less than one year) are uninteresting and should be captured separately from the trend and the cycle. For the sake of presentation, I will focus on univariate methods, but the same problems I highlight are present when multivariate decompositions are used.

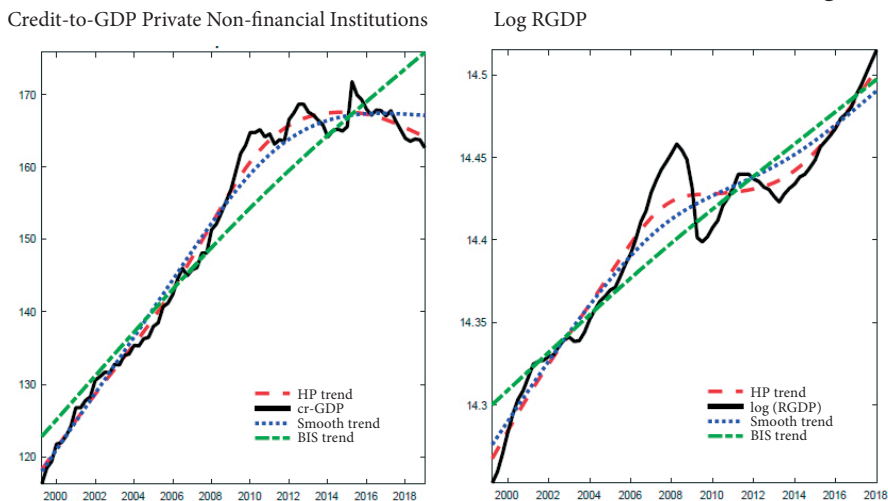
What assumptions one can make to separate trends and cycles? The most common are that the trend is deterministic (i.e. it displays no variability); that it is smooth (i.e. it has low variability); that it displays some breaks (i.e. there are slope changes only in a limited number of periods); or that it is a random walk (i.e. it displays plenty of variability). Because these assumptions determine how volatile the cycle is relative to the trend and the type of fluctuations present in the cycle, the interpretation of the evidence depends on the assumptions made. Clearly, one would like to have statistical methods to choose the more likely setup. Unfortunately, with the samples typically available in macroeconomic exercises this is not possible as it is very hard to distinguish trend-stationary, difference stationary or break stationary time series in short samples. Furthermore, because most of the available procedures employ past, current and future values of the observables, the assessment of the current state of cycle is difficult and measurement errors

are likely to be present. To be clear, while historical evaluations of the state of the financial and the business cycle are less affected, real time predictions are subject to considerable uncertainty, which will be compounded whenever macroeconomic time series are revised over time.

To show how these issues may alter our perception of the state of the economy, I plot in Figure 1 the trends obtained from the credit-to-GDP to private non-financial institutions and the log of real GDP in the euro area using different assumptions. I use the credit-to-GDP to measure the financial cycle because, despite recent developments in capital market, credit is crucial in the euro area. In fact, over 50 per cent of external firm financing is done through banks; in the US the proportion of external finance which goes through banks is less than 25 per cent and involves primarily small and young firms. Also, while there is important information in the housing market, fluctuations in this market are closely connected with those of credit and, for the purpose of this discussion, considering the latter is sufficient.

In each panel of Figure 1 there are three trends. One is constructed using the BIS methodology (which forces the cycle to capture almost entirely the volatility of the series); the second employs the HP filter with smoothing parameter $\lambda = 1600$, which leaves fluctuations with periodicity of 8 to 15 years in the trend; and the third instead includes fluctuations with periodicity of 8 to 15 years in the cycle.

Figure 1



While the assumptions made do not make a big difference when it comes to measure output gaps, both historically and at the end of the sample, they are crucial when it comes to measure the credit-to-GDP gap.

For example, during the 2008–2009 financial crisis the recorded value of credit-to-GDP was considerably above the trend if the BIS methodology was employed, signaling potential risks to policymakers, but it was only mildly above trend with the other two alternatives. Furthermore, while a signal indicating a potentially stressful situation was present the magnitude of this signal was much less concerning. Similarly, while in 2018 the credit-to-GDP gap is huge (about 4 per cent) when the BIS definition of trend is employed, it is inexistent when the HP filter is used and much smaller when the cyclical component includes fluctuations with 8–15 years periodicity.

Given that in 2008–2009 the BIS assumptions seem to have accurately informed policymakers, should we trust them also at the end of the sample? Should we think that in the last few years the trend in credit-to-GDP has changed and it is now lower than it used to be? Is there a chance that data revisions will give us numbers for the credit-to-GDP which are considerably higher than we have recorded now?

Uncertainties about the properties of trend, their continuation value and data revisions make estimates obtained in real time noisy indicators to the point that it is very hard to assess not only the magnitude of the current gap but also its sign. In this situation, decision-making is difficult, and great caution should be used, fostering deferral of important decision until more information is available.

Financial and Real Cycles in Euro Area

As I have already mentioned, it is very important to carefully look at cycles with 8–15 years periodicity, when assessing the size of the gaps. These fluctuations are traditionally not interesting from the point of view of business cycles because they are longer than what are typically considered interesting cyclical fluctuations. For example, the NBER classifies business cycle as those fluctuations in US variables with 1.5–8 years periodicity and the CEPR calls euro area business cycles fluctuations with 2–8 years periodicity. This means that cycles lasting 8–15 are typically merged into the trend. The BIS has recently emphasized in many publications that there is considerable information about financial stability in these fluctuations. I will show next that, in the euro area, these fluctuations are important also for real variables, that properly treating them makes a difference for the interpretation of the

evidence, and that policymakers should carefully monitor them for both financial and price stability considerations.

Table 1 reports the percentage of the variance of three credit aggregates and three important real variables accounted for by business cycle fluctuations (2–8 years) and by low frequency fluctuations (8–15 years) and the persistence of the various series.

Table 1

Variable	% of variance 2–8 years cycles	% of variance 8–15 years cycles	Persistence AR1
Credit/GDP Total	1.5	18.3	0.99
Credit/GDP Households	1.6	19.0	0.99
Credit/GDP Private Non-financial Institutions	1.7	19.1	0.99
log (real GDP)	2.1	20.3	0.99
Labor Productivity	2.2	20.4	0.99
Unemployment Rate	1.6	18.1	0.98

Two important features emerge from the table. First, the proportion of the variance accounted for by business cycle fluctuations is small, while the one accounted for by medium cycles is significant. Second, no matter whether we look at the proportion of the explained variability or at the persistence of the series, financial and real cycles in the euro area look very similar. Thus, it makes sense to use the same assumptions and the same filters to relate their properties.

For the rest of this section, I will use a filter which emphasizes low frequency fluctuations to understand better the real-financial relationship, and I will compare the outcomes with two benchmark setups. The first is obtained applying the BIS approach to both series. As mentioned, the procedure basically assumes that the cycle captures all the volatility of the series (see third panel of *Figure 2*). The second is obtained applying the HP filter. This procedure instead leaves cycles 8–15 years into the trend (see first panel of *Figure 2*). For the sake of space, the comparison is limited to real GDP cycle and to credit-to-GDP to private non-financial agents cycles. The relationship between other credit aggregates and other real variables is similar.

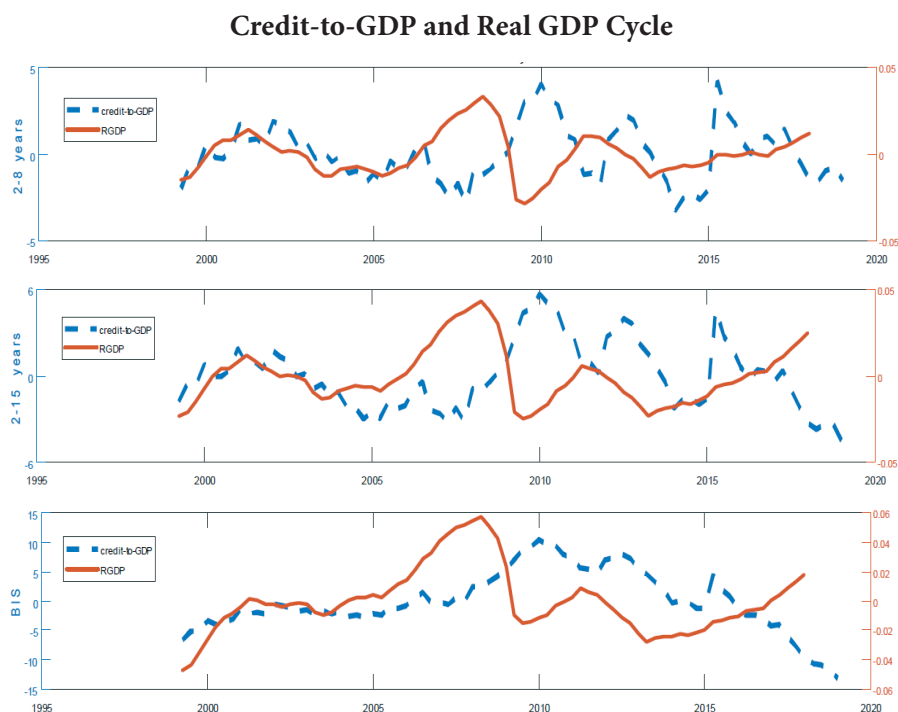
Figure 2

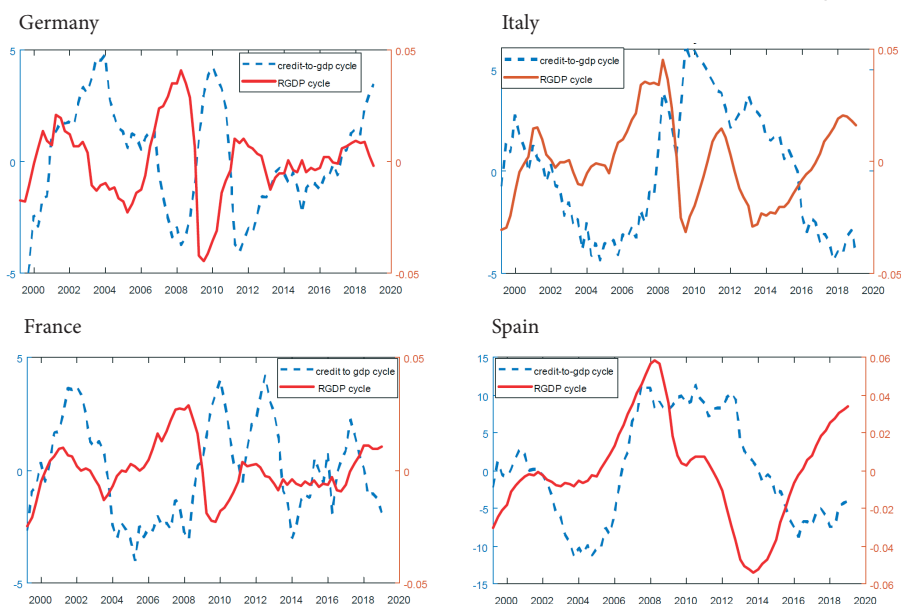
Figure 2 highlights that when only business cycle periodicities are considered (first panel), the relationship is not very clear: it is present during the financial crisis period but is not very strong otherwise. When medium cycles are considered (second panel) the relationship becomes stronger both during and outside the financial crisis period and it is similar to the one derived with the BIS approach (third panel). Thus, there exists a relationship between financial and real cycles but it is not at standard business cycle periodicities. Instead, as mentioned by Ms. Pires, there is an important correlation for cycles of 8–15 years. This is different from what happens in the US and grants further investigation on the causes and the consequences it may lead.

Euro Area Heterogeneities

After 20 years since its inception, the euro area is still heterogeneous in many respects. Does this applies also to the relationship between credit-to-GDP and real variables?

Figure 3 shows that indeed this is the case. For example, in Germany, the relationship between credit-to-GDP and the log of real GDP looks pretty much like the one in the euro area, but in Spain it is hard to find any link between the two cycles. In France, there is a relationship up to the financial crisis, but it seems to vain afterwards.

Figure 3



This heterogeneity creates headaches for policymakers who are interested in designing policies that work for the area as a whole. Note also that more targeted prudential measures have to be designed not only for different financial markets but also for different countries and this further complicates the task of policymakers striving to achieve some form of banking integration.

Monetary Policy and Bank Profitability

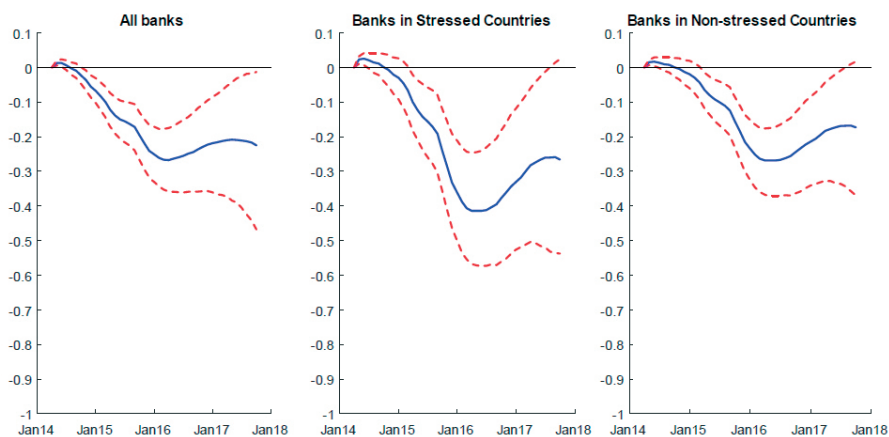
A central theme in the debate on the effects of a low or a negative interest rate environment is how it affects bank profitability. A number of ECB papers have discussed this issue and policymakers are keenly aware that low bank profitability may create problems when it comes to build prudential capital ratios.

What is perhaps less known is the fact that the current stance of monetary policy has implications for prudential measures and I would like to spend a few words discussing this issue. In a recent work of mine with two ECB

coauthors¹ we have analyzed how conventional and unconventional ECB monetary policy decisions were passed through lending rates charged by banks to firms and households in the euro area using proprietary ECB balance sheet data for 325 system banks. The main result of the paper was that unconventional monetary policy decisions helped to re-establish the ‘normal’ pass-through mechanism that was broken during and after the 2011 debt crisis. In particular, the paper shows that the policy benefited primarily lending rates of banks with weak capital position, a large exposure to sovereign debt, and large share of non-performing loans.

The paper also looked at how lending margins, defined as the difference between lending and deposit rates, behaved in response to unconventional monetary policy surprises. Lending margins are an important component of bank profitability in the euro area and give an idea of how stocks of non-quoted institutions should have evolved over time. *Figure 4* shows that lending margins fell significantly and persistently, and that the fall is larger for banks operating in stressed countries (Portugal, Spain, Italy, Greece and Ireland). This fall is due to the fact that, contrary to lending rates, deposit rates were extremely sluggish in responding to the policy changes, probably because banks set them with strategic considerations in mind.

Figure 4

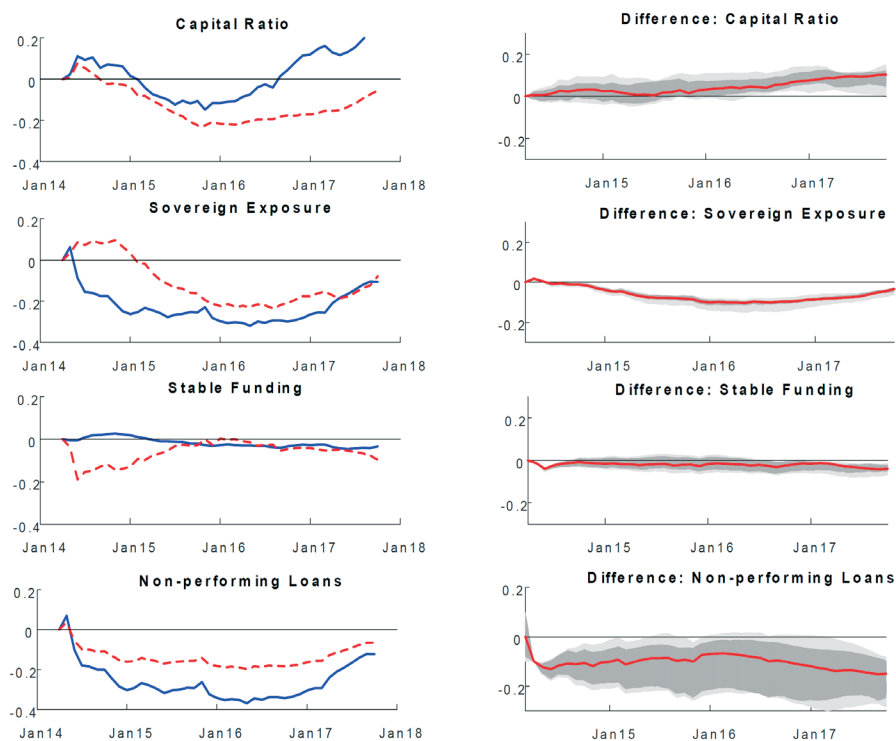


Perhaps, more importantly, *Figure 5* shows that the profit margins of banks with different balance sheet characteristics reacted differently to the unconventional policy measures. For example, banks with high capital ratios display an initial fall in lending margins which then turned into an increase

¹ Altavilla et al.

by the end of 2018. On the contrary, the lending margin of banks with poor capital ratios fell throughout the period and by the end of the sample the differences between the two types of banks were very significant (see first row, right box). Similarly, the lending margin of banks with a large share of non-performing loans fell more than that of banks with a smaller share of non-performing loans (see last row). Thus, while unconventional monetary policy actions improved the lending capabilities of banks with poor balance sheet characteristics prior to the 2008 crisis, it also built the seed for trouble in the future by decreasing their profitability and their ability to use lending margins to comply with the new prudential regulations.

Figure 5



What does this all mean? In my opinion the idea that monetary policy should be concerned with price stability and macroprudential policy with financial stability is far-sighted. The interactions between the two policy choices should be carefully considered to avoid that decisions that appear to be sound when designed with one goal in mind, turned to be flawed when evaluated in the

multidimensional worlds of financial, real and price stability and when risks build in one sector of the economy spill to others and affect the domestic and the international economy.

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Session 3: The Financial Cycle in the Non-euro Area EU Member States

Assessing Financial Stability: Stars, Gaps, Cycles and Other Challenges

Athanasios Orphanides

1. Introduction

The theme of this conference is the current global and European financial cycle. In my contribution, I discuss the broader challenge of assessing financial stability, which is the main objective of analysis relating to the financial cycle. In keeping with the theme of the session, I also cover some of the specific issues arising from the current governance of the European Union that pose critical challenges for the financial stability of smaller member states outside the euro area.

2. The Quest for Stability

Central banking is defined by the quest for stability. In the European Union, the primary objective of central banks is to maintain price stability. However, price stability should not be understood as the sole objective. Central banks have considerable power and are expected to contribute to maintaining stability in a broader sense.

Two additional elements of stability stand out. First, economic stability, which could be described as aiming to maintain the maximum sustainable economic growth and employment over time, consistent with price stability. This is associated with milder business cycle fluctuations. Second, financial stability, which could be described as contributing to the resilience of the financial system. This reduces the frequency and severity of financial crises.

In some countries, these broader stability objectives are explicitly written in Central Bank law. In other cases this may be less explicit but remains important nonetheless.

As it is well known, when the current mandate of central banks was formulated in Europe, as incorporated in the 1992 Maastricht Treaty, the broad understanding was that it would be beneficial to stress the primacy of price stability as a central bank objective. This was based on the practical experience and academic contributions drawing on the lessons of previous decades, importantly the economic instability associated with high inflation in many advanced economies from the 1960s to the 1980s. I believe the emphasis on price stability was and remains appropriate but the formulation in the Treaty may have underemphasized the role of central bank policy in also maintaining other concepts of stability – importantly financial stability, which is the focus of our discussion today.

To be sure, maintaining price stability contributes to other aspects of stability. As a practical matter, the best operational guideline for the central bank is to focus on maintaining price stability over time. Without price stability, neither economic stability nor financial stability can be securely defended. Over time, there need not be any meaningful tradeoff between price stability and either economic or financial stability. In most circumstances, maintaining price stability contributes to sustainable growth and employment and contributes to financial stability.

But not always! In some circumstances, conflicts may emerge in the achievement of multiple goals. Adverse supply shock episodes may create short-term tradeoffs between price stability and growth. Irrational exuberance episodes may similarly create a tension between maintaining price stability and avoiding the risk of financial instability.

Focusing exclusively on price stability is insufficient to protect against the overall stability of the economy. If we view central banking as the quest for overall stability in the economy, then economic stability and financial stability must also be monitored. Depending on the environment attention is required on additional sources of potential imbalances, beyond threats to price stability.

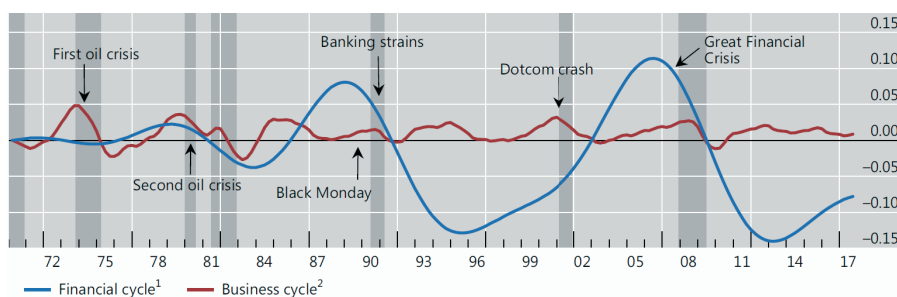
When it comes to financial stability, it is essential to build buffers and to monitor imbalances that may give rise to financial vulnerabilities. One source of such vulnerabilities is excessive credit growth, leverage and asset price exuberance. Another source, especially critical for small open

economies, is external imbalances, which may be reflected in real exchange rate overvaluations.

The financial cycle is meant to offer a summary measure of internal imbalances such as excessive credit growth and leverage that might give rise to financial vulnerabilities, similar to the role of business cycle measures of economic boom and busts. Seen in this light, monitoring the financial cycle can be an important component of a broader strategy aiming to safeguard financial stability.

Figure 1

The Business Cycle and the Financial Cycle: United States



¹ The financial cycle as measured by a frequency-based (bandpass) filters capturing medium-term cycles in real credit, the credit-to-GDP ratio and real house prices.

² The business cycle as measured by a frequency-based (bandpass) filter capturing fluctuations in real GDP over a period from one to eight years.

Note: Reproduced from Filardo, Lombardi, Rackzo (2018).

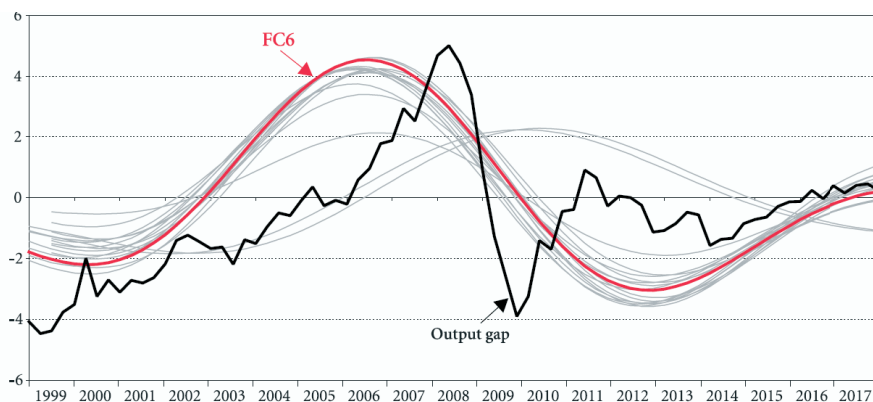
Source: Drehmann et al. (2012).

Figures 1 and 2 compare estimates of the business cycle and financial cycle for the United States and for Bulgaria, respectively. The financial cycle, reproduced from the recent BIS study by Filardo et al. (2018), updates the preferred BIS measure of the financial cycle for the United States. The financial cycle concept has a long history and the methodology which is currently in use at the BIS draws on the work of Claudio Borio and his co-authors over the years. The methodology of the estimates shown in the figure was originally introduced at the BIS in Drehmann et al. (2012).

The example of the US that is presented in Figure 1 illustrates a simple but important point: the financial cycle exhibits behavior which is quite distinct from that of the business cycle. The message is simple: while monitoring the business cycle may help identify risks to economic stability, this is not sufficient to provide appropriate signals regarding financial stability.

Figure 2

The Business Cycle and the Financial Cycle: Bulgaria
Output Gap, Financial Cycle Measure FC6 and Alternatives



Notes: The grey lines show all possible alternatives to the selected potential measure of the financial cycle in Bulgaria (FC6), derived by combining the selected indicators.

Source: Reproduced from Karamisheva, Markova, Zahariev, Pachedzhiev (2019).

This holds more generally. *Figure 2* compares measures of the business cycle and financial cycle for Bulgaria and offers another illustration of this point. This figure is reproduced from a recent study at the Bulgarian National Bank by Tania Karamisheva and colleagues. The study is a wonderful application of alternative methodologies for Bulgaria and provides a very nice analysis of the financial cycle concept and the methodological issues that arise in its measurement. I will return to these issues shortly as this careful analysis is useful to understand some of the challenges associated with policy application of the financial cycle concept. For now, let me note that the preferred methodology for the financial cycle in Bulgaria is the FC6 measure, highlighted in the figure, and that this differs notably from the output gap measure for Bulgaria.

3. Measurement Challenges for Policy Analysis

Comparing and contrasting the business cycle with the financial cycle can be a valuable input for policies that foster stability. But when I reflect on how to employ such concepts in policy analysis, I am reminded of the challenges of policy analysis I encountered at the Federal Reserve many years ago, when I was a youngster in central banking. How should policy advice be formulated to be as robust as possible to practical considerations? In some of my work

at the Federal Reserve, the focus was on elements that could be considered mundane, such as measurement challenges that are frequently assumed away in theoretical formulations of the policy problem. However, understanding practical challenges is critical for avoiding mistakes. Understanding the limits of our knowledge is essential to assess the confidence with which estimates of useful concepts can be utilized for policy in practice. This simple point is sometimes missed by academic economists but anybody who has been involved in actual policy, even for a short period of time, quickly becomes aware of the extent of measurement challenges in practice.

One way to frame the discussion is by identifying the difference between historical analysis and policy analysis. For historical analysis, we can assess imbalances and disequilibria *ex post*, years after the event. Measurement difficulties and methodological choices are far simpler to resolve with the benefit of hindsight. In contrast, for policy analysis, we need reliable real-time assessments. And here lies a major challenge: reliable assessments may not be feasible to obtain in real time. What may be useful for historical analysis may be useless for policy analysis.

Measures of the 'business cycle' and the 'financial cycle' may be perfectly adequate for historical analysis once the practical issues relating to their measurement are settled, at least to some considerable degree. But this is insufficient to determine whether they can be useful for real-time policy advice.

Consider the challenge of the business cycle: if one wishes to describe what has been happening in the economy over the past 50 years, this can be adequately done with the benefit of hindsight, using an estimate drawn from an established methodology. Many *ex post* measures provide reasonable outlines of expansions and recessions in historical data, even if they differ with each other due to methodological differences. But this differs from what is needed for policy advice in real time. Suppose you ask for an estimate of the output gap in the current quarter to employ for current policy. The latest data available might be for the previous year. The most recent estimates that might be remotely reliable may be for year prior to that. From past experience, we can expect estimates for the current quarter to be substantially revised in the future. With what confidence could one use such measures for current policy advice?

Careful validation of empirical measures of the 'business cycle' and the 'financial cycle', is needed before their policy usefulness is established. Real-time robustness is critical for good policy.

3.1. The ‘Stars,’ the ‘Gaps,’ and the ‘Cycles’

The policy challenge just described is common in macroeconomics. Many economic models, including models used in central banks, tend to oversimplify the policy problem by abstracting from real-time measurement complications.

Models always reflect simplifications. For countercyclical policy analysis – financial or monetary – one way to start is by defining concepts that correspond to the equilibrium state of the economy abstracting from cycles: π^* for inflation, u^* for the unemployment rate, r^* for the real rate of interest and so forth. For any target or indicator variable, x , we would wish to know its ‘normal’ or ‘equilibrium’ or ‘natural’ value, x^* , so we can study fluctuations around it. Economic theory and models help us understand the co-movements of variables from their ‘natural’ rates over time and help us think through how policy choices influence these comovements.

Consider just how many ‘stars’ enter our discussions of the macroeconomy and, potentially, policy deliberations:

- inflation target (precise, numerical definition of price stability)
- natural rate of unemployment/potential output,
- natural rate of interest,
- equilibrium debt/credit ratio,
- equilibrium housing and other asset prices,
- equilibrium interest rate risk/term spreads,
- equilibrium real exchange rate.

In economic models, all these ‘stars’ can be viewed as known (by assumption). One can then build cyclical analysis around the ‘stars’. This is how theory can be employed to formulate macroeconomic problems. While it may be useful to assume that we know the equilibrium values of star concepts for modelling purposes and historical analysis, is this formulation useful for policy advice in practice?

Assuming knowledge of the ‘stars’, as is common in economic models, allows easy measurement of ‘gaps’, $x - x^*$, which can serve as indicators of imbalances, fragilities and disequilibria. By construction, the ‘gaps’ exhibit cyclical behavior. Consider the business ‘cycle’ example: the output ‘gap’ moves gradually from negative to positive during expansions, and back to negative during recessions.

In theory, guided by the 'stars' and the 'cycles', policymakers can easily design monetary, fiscal and macroprudential policies to close the 'gaps'. Policy can tighten when the economy is 'overheated' and ease when there is 'slack' so as to guide the target variables to their equilibrium values.

In practice? How should policy be formulated if the 'stars' are unknown in real time, when policy decisions must be made?

3.2. Real-time Vs Ex-post Measurement

Ultimately, the usefulness of 'gaps' and 'cycles', including the business cycle and the financial cycle, is critically dependent on the confidence we have in the real-time measurement of these concepts. In practice, the 'stars' are unobservable variables. Estimating the cycle is immensely more difficult in real time, when the estimation requires simultaneous reassessment/learning of the current equilibrium.

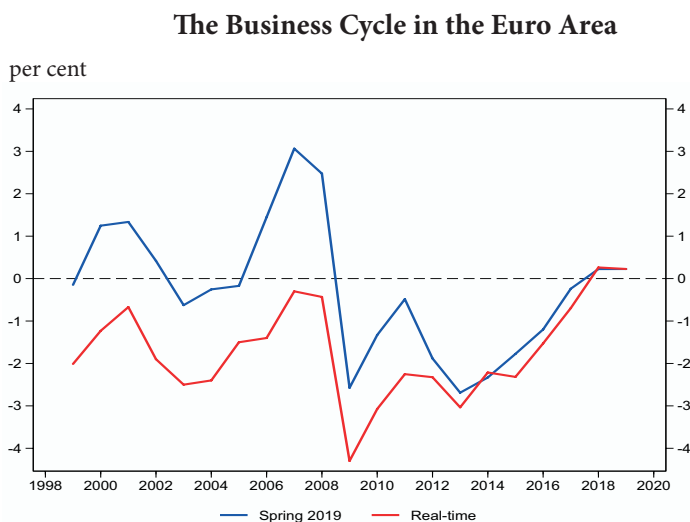
Consider the business cycle: it is well known that in real time, most often we cannot even tell whether the output gap or unemployment gap is positive or negative.¹ To see why, reflect on the challenge faced by central bank staff tasked to formulate policy advice in real time: On the basis of the latest information available, the staff must reassess what is 'normal', reestimating concepts such as the level of potential output and the natural rate of unemployment. At the same time the staff must reassess the cyclical position of the economy: Is output much above or below the revised estimate of potential? Is unemployment much above or below its revised estimate of the natural rate? And the staff must also assess whether policy has been accommodating or restricting, which will depend on the policy setting relative to revised estimates of 'neutral' policy. This is a hard problem to tackle without the benefit of hindsight. In real-time, answers are inherently uncertain. Ultimately, it is the realization of subsequent data that will help resolve the uncertainty and inform the Central Bank staff about the current cyclical position of the economy.

It is essential to be aware of the limitations inherent in real-time analysis. A couple simple illustrations can help visualize the magnitude of the problem.

¹ See Orphanides and van Norden (2002) for an illustration of this problem with several alternative methodologies.

3.3. The Business Cycle in the Euro Area

Figure 3



Notes: Output gap as a per cent of GDP. Real-time vs Spring 2019 IMF WEO estimates. Real-time estimates shown in each year are as published in IMF WEO in the Spring of that year.

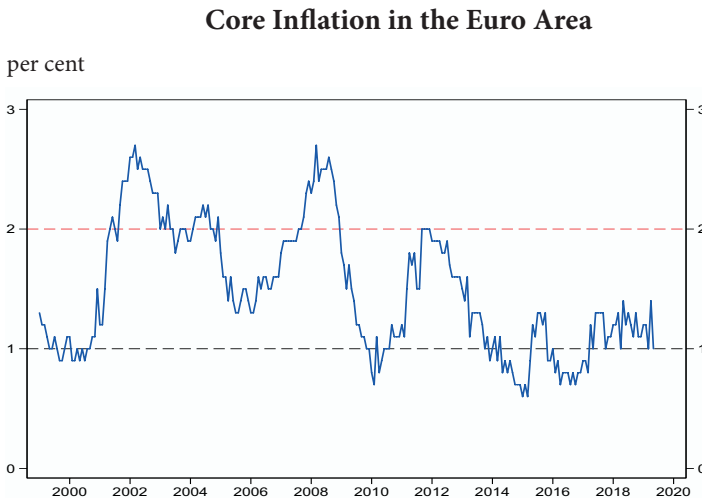
Let's start with the euro area. The blue line in *Figure 3* presents IMF estimates of the output gap published in the latest World Economic Outlook (WEO) in Spring 2019. As can be seen, this is nicely centered around zero. Now focus on the information for the period right before the Global Financial Crisis, around 2007. The 2019 estimate of the historical output gap clearly shows that the economy was severely overheated in 2007. What was the ECB thinking at the time? According to this measure of the business cycle, as presented by the IMF this year, the ECB should have been aggressively tightening policy in 2006 and 2007 to counteract this overheating. But I recall back in 2006 I was already tracking IMF estimates of the euroarea output gap and this is not the advice that was forthcoming from the IMF. Indeed, in 2006 I first put together a series of real-time output estimates of the output gap from the Spring WEO published in each year. This is shown in the red line in *Figure 3* (with updates to the latest WEO). What was the real-time estimate in 2006 and 2007? Back then, the IMF suggested that there was 'slack' in the euro area economy, and, if anything, policy should be eased to promote economic stability. Indeed, as I first noted in 2006, the real-time estimates of the output gap published by the IMF had been consistently negative since the introduction of the euro in 1999. Not nicely centered around zero. In real time, not even the sign of the estimated gap could be trusted. In light of this unreliability, it would be better for the ECB

to ignore the implicit policy advice from real-time output gaps.² Remarkably, the IMF consistently published negative real-time estimates for the output gap for the euro area for almost two decades. Quite different from current estimates of the historical series, 2018 was the first year in which the IMF suggested its real-time estimate of the output gap in the euro area was not negative.

This is a big deal for policy. Had the ECB taken seriously the advice from the IMF estimates of the output gap in 2006, it would have pursued more accommodative policy, leading to an even worse overheating of the economy than the IMF now suggests materialized. And this is the problem. If real-time estimates of the output gap cannot be trusted to even have the correct sign, policymakers cannot determine if they need to ease or tighten policy on the basis of these estimates.

Should the most recent IMF estimates of the euro area output gap be trusted? I have my doubts. According to the most recent estimates, the output gap in the euro area was positive in 2018 and is projected to be positive this year as well. But the suggestion that the euro area economy has been overheated, is not trivial to reconcile with the recent weakness in inflation. On the basis of the evolution of core inflation, shown in *Figure 4*, I am not sure the IMF estimates of the output gap have the correct sign for 2018 and 2019. But this is an issue we can revisit in a decade. With the benefit of hindsight, the sign of the output gap today will be clearer.

Figure 4

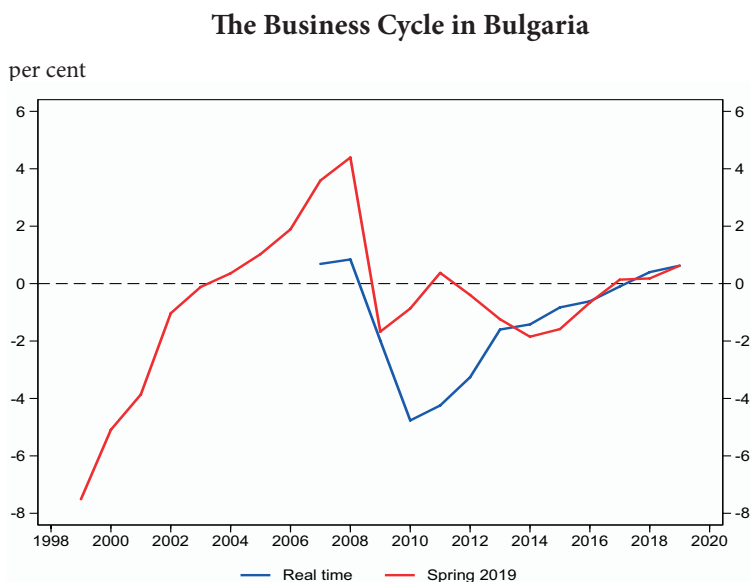


² The observation was made in the context of a review of the ECB's policy strategy at the 2006 ECB Watcher's conference, Orphanides (2006).

3.4. The Business Cycle in Bulgaria

Is the unreliability of output gap estimates in real time a problem unique to the IMF or unique to the euro area? The answer is ‘No.’ The problem is pervasive to real-time estimates of gaps. Similar unreliability hampers estimates by the IMF as well as other institutions for any economy.

Figure 5



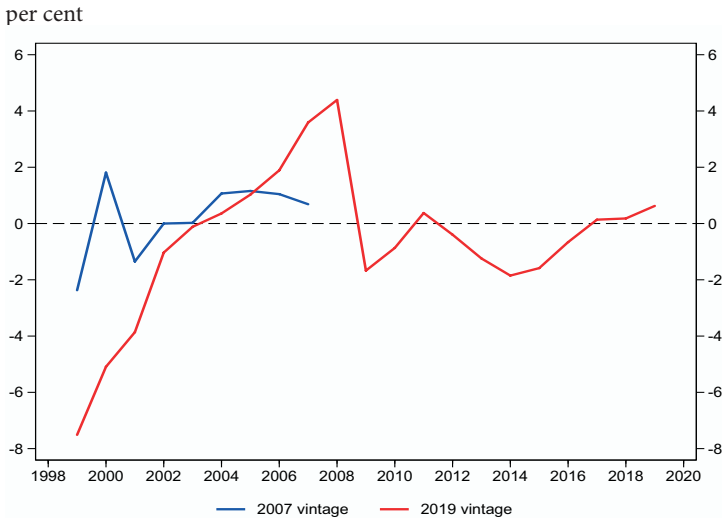
Notes: Output gap as a per cent of GDP. Real-time vs Spring 2019 EC estimates.

Figure 5 provides an illustration for Bulgaria using the European Commission's estimates of the output gap. The blue line shows the real-time estimates published in the Spring Forecast in each year. The red line shows the latest historical estimates, published in Spring 2019. Note that in real time, in 2007 and 2008, the Commission had the same slightly positive number that is shown for 2019 in the most recent estimates. This raises a question: were the real-time estimates trustworthy in 2008 and are they trustworthy for 2019? Well, for 2008, the Commission is now telling us 'No, no!' According to the Spring 2019 estimates, the output gap in 2008 was not slightly positive, it was quite large – over four percentage points. Obviously, on the basis of the 2019 estimates, the

Bulgarian National Bank should have been tightening policy in 2007 and 2008. But this is not the message provided when it mattered in 2007 and 2008. So, how is a central bank supposed to use such estimates for policy purposes?

Figure 6

The Business Cycle in Bulgaria: 2007 and 2019 Perspectives

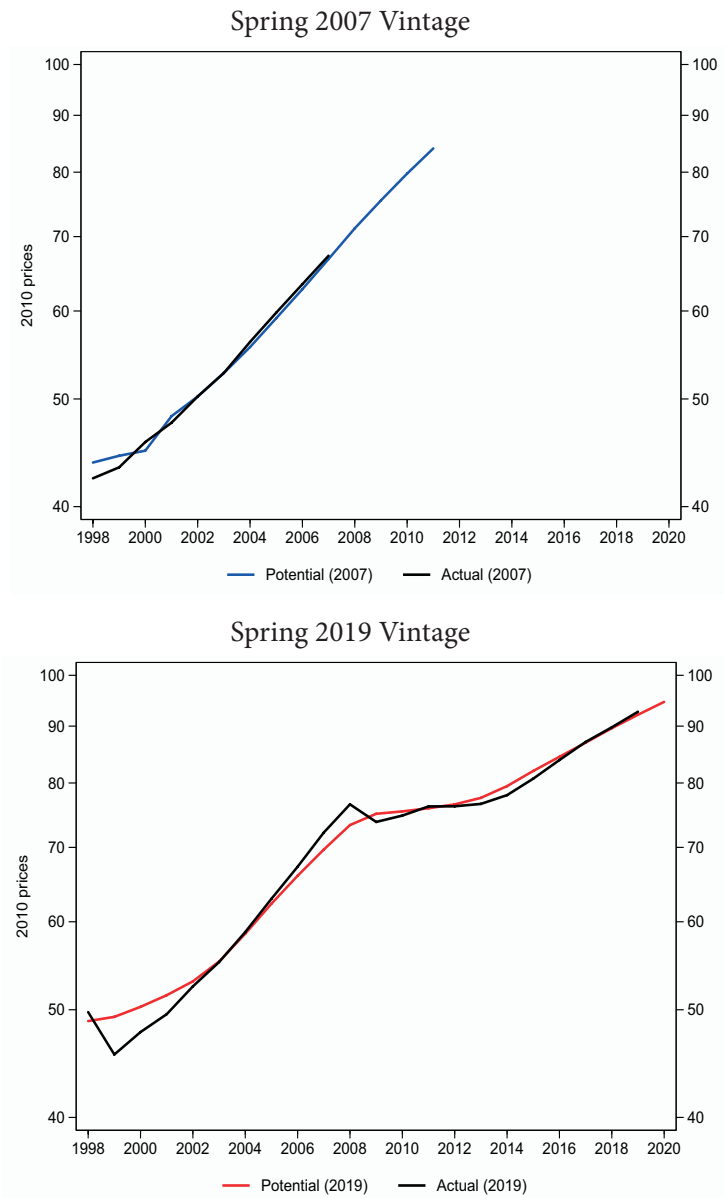


Notes: Output gap as a per cent of GDP. Estimates from the Spring Forecasts of the European Commission, as published in 2007 and 2019.

Figure 6 focuses on two vintages of historical estimates to highlight another aspect of the measurement problem. The blue line shows the Spring 2007 estimate of the output gap from 1999 to 2007. As can be seen, the 2007 estimates are rather close to zero for all years shown. In contrast, the 2019 estimates (shown in red) suggest a very different picture. According to the 2019 vintage, the output gap swung massively by about 12 percentage points, from about minus 8 per cent in 1999 to about 4 per cent in 2007. With hindsight, economic imbalances that were not evident in the 2007 estimates became visible. But the imbalances only became evident in these estimates after the Global Financial Crisis. A clear example of measurement that can be useful for historical analysis but is plainly not useful for policy in real time.

Figure 7

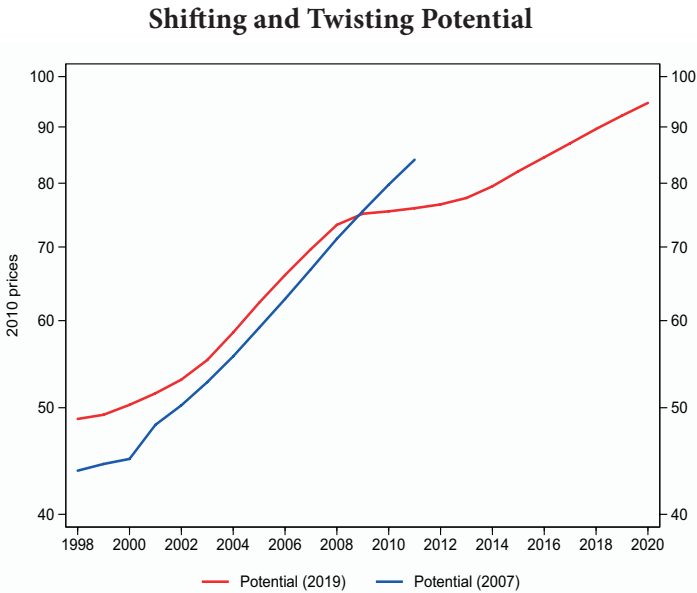
The Business Cycle in Bulgaria: 2007 and 2019 Perspectives



Sources: European Commission, AMECO database, Spring 2007 and Spring 2019.

One of the problems associated with gap estimates is the tendency to project trends in good times. This is highlighted in *Figure 7*. The top panel shows the Spring 2007 vintage of the European Commission's estimate of potential output (blue line) together with the historical GDP data as available at the time (black line). The 2007 vintage of the output gap shown in *Figure 6* equals the percentage difference between the actual and potential GDP series shown in this panel. As can be seen, before the Global Financial Crisis, GDP in Bulgaria was growing at a fairly smooth and steady pace – no business cycle was evident. Naturally, the European Commission's estimates of potential GDP simply reflected the calm of these years and projected the same trend forward. In retrospect we had a global crisis and this revealed how misleading it was to project trends in good times. The bottom panel of *Figure 7* compares the GDP data as available in 2019 (black line), including the severe contraction in 2008, together with the revised potential output estimates (red line).

Figure 8



Note: Potential output, Spring 2007 and Spring 2019 Forecasts of the European Commission.

To make sense of the crisis, potential GDP needed to be shifted and twisted relative to the pre-crisis estimates, as shown in *Figure 8*. The shifting and twisting of potential GDP reflected in the retrospective estimates is what led to the major changes in the estimated output gap shown in *Figure 6*.

These examples are suggestive of challenges associated with real-time policy.

4. Unknown Reliability of the ‘Financial Cycle’

Overall, research over the past few decades has established that real-time estimates of the output gap and related business cycle measures are simply not reliable for policy purposes. This is not universally well understood and has not stopped bad policy practice everywhere. But it should! A well-known example of malpractice in Europe is the elevation of real-time estimates of the output gap for monitoring the fiscal behavior of member states in the context of the Stability and Growth Pact. Unreliable real-time estimates of potential GDP are at the center of the cyclical adjustments that are required to arrive at the so called medium term budgetary objective (MTO).

With respect to the financial cycle, comparable evidence is not yet available. As a concept, the financial cycle is too recent for such analysis. It may well prove to be the case that in contrast to the business cycle the financial cycle is less sensitive to the problems associated with real-time measurement. But to establish reliability, much more data is required. In many cases, for example relating to the application of the BIS preferred methodology, we only have one cycle in the data since the adoption of the methodology. But one or two cycles are insufficient for validation.

So where do we stand with respect to the financial cycle? Are we more confident about the measurement of the financial cycle than the measurement of the business cycle for real time policy applications? My answer is that we cannot yet know. More evidence is needed before we can say with much confidence that the financial cycle concept is more useful than the business cycle concept for real-time policy applications.

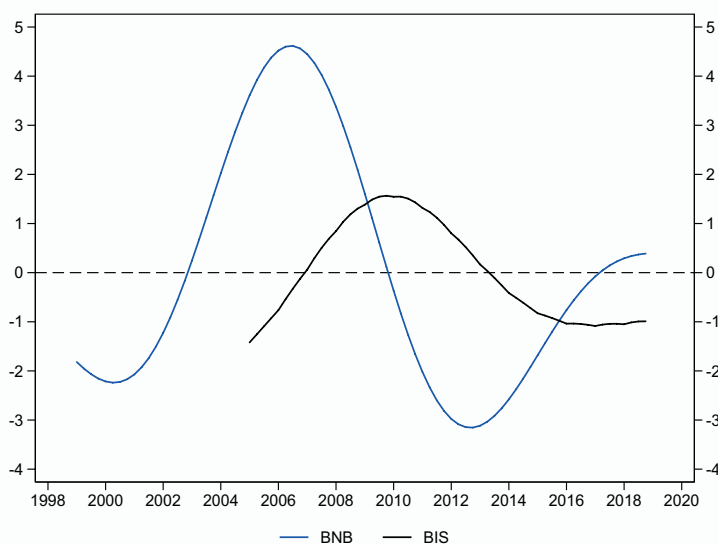
To be sure, the financial cycle remains a very important concept for historical analysis and continued monitoring is well advised. But we must be sensitive to the uncertainties involved in how we measure the financial cycle in practice and how we interpret the results for real time policy analysis. We also need to consider that, similar to business cycles analysis, alternative methodologies that can give us different answers. To illustrate, let me return to the recent estimates of the financial cycle for Bulgaria discussed earlier. *Figure 9* provides an example of the challenge by comparing the preferred methodologies according to the

BIS and according to the Bulgarian National Bank. The blue line in the figure corresponds to the preferred estimate in the recent work by the Bulgarian National Bank while the black line corresponds to the methodology preferred by the BIS. Focusing on the latest data (the estimates of the financial cycle for 2018), note that the two methodologies are on opposite sides of zero. In light of this basic disagreement in the two preferred methodologies, it is not entirely clear how this information can be used for policy analysis.

While the financial cycle may be an attractive concept in principle, it is not straightforward to apply in practice.

Figure 9

The Financial Cycle in Bulgaria: Alternative Methodologies



Note: Financial cycle measures based on BIS and BNB methodologies.

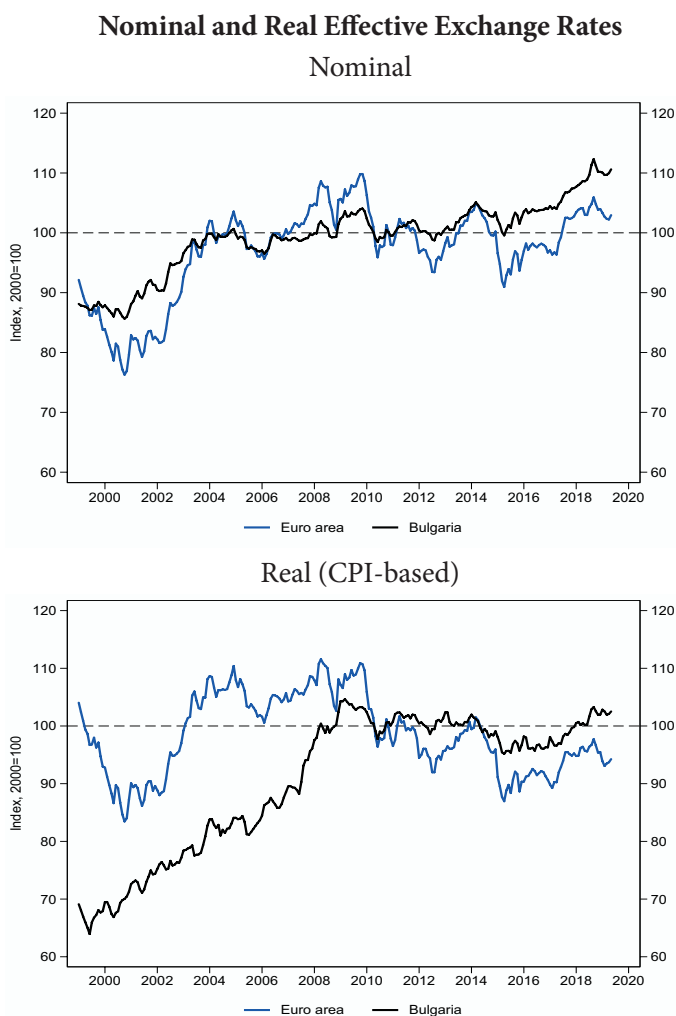
5. Europe Beyond the Euro Area

5.1. The Role of the Exchange Rate

Let me now briefly turn to a discussion of financial stability issues in Europe, beyond the euro area, specifically some challenges for smaller open economies. An important issue, and one that was nicely highlighted in Chapter 2 of the most recent BIS Annual Economic Review, is the role of vulnerabilities relating to the exchange rate. I would like to focus, in particular, on the risks associated with imbalances that can arise when the exchange rate becomes overvalued for a time.

Exchange-rate related vulnerabilities are not adequately reflected in analyses of the financial cycle that tend to focus on internal imbalances. In my view, it would be useful to expand the concept of the financial cycle to also include, in a more holistic manner, the risks associated with external imbalances of a small open economy. Conceptually, one can formulate the problem in terms the 'stars', specifically the 'star' associated with the concept of the equilibrium of real exchange rate. Once again, the basic difficulty is that it is not straightforward to know in real time what this equilibrium 'star' is.

Figure 10



Notes: BIS effective exchange rate, broad indices. Monthly averages, 2010=100.

To illustrate the potential usefulness of paying attention to the exchange rate, *Figure 10* compares the nominal and real effective exchange rates for the euro area and for Bulgaria, as compiled by the BIS. Examination of the nominal exchange rates, which often commands most attention, is not particularly informative as difference in relative prices and wages are important to incorporate in the analysis. For example, examine what happened to the real exchange rate right before the Global Financial Crisis, in 2007 and 2008. As can be seen, the real exchange rate exhibited a substantial real appreciation. Even if one had no firm assessment of what the equilibrium real exchange rate was at the time, this real exchange rate appreciation should have raised red flags. It suggested the risk of accumulating vulnerability – a deterioration in competitiveness. That alone would have demanded a closer look. Why was the real exchange rate appreciating so much? Was it consistent with a rapid improvement in fundamentals? Or accumulating imbalances? In retrospect we know the answer. The crisis that followed provides the answer. Though the output gap estimates available in 2007 did not provide warning of the overheating, the real exchange rate appreciation did. It would have been immensely useful if the information from the real exchange rate had been an element of a broader financial cycle indicator available at that time.

The key question is how to identify the vulnerabilities in real time when policy can be adjusted to contain the accumulating imbalances. This is what measures of the financial cycle that focus on internal imbalances aim to do, and this is what should also include information from the risk of real exchange rate overvaluation.

5.2. Cross-border Vulnerabilities

The last point I would like to discuss relates to cross-border vulnerabilities. In the European context, imported vulnerabilities are particularly dangerous for small member states. Why is that? Three factors: first, the extreme openness in capital flows (one of the defining elements of the European Union) creates the risk of cycles of excessive inflows and sudden stops. Second, the differences in size of member states and lack of tools to protect against destabilizing flows in the smaller states. Large states are less open due to their size and thus less vulnerable to external imbalances. And third, the lack of risk sharing arrangements for crisis management across EU member states that are naturally available within larger member states.

This design benefits the larger member states in the European Union. Larger member states are effectively systemic and can feel secure and protected through their outsized influence on common European institutions. Being less vulnerable

to external imbalances due their size, larger member states can pursue policies that may create collateral damage to the smaller states around them. How can the smaller member states be protected from such collateral damage?

Consider, for example, what may happen when a large member state pursues mercantilist policies accumulating sizable current account surpluses for a time. Sooner or later, smaller states around the larger state will become vulnerable to a sudden stop. But with no tools to discourage capital inflows, they cannot defend against the imported vulnerability. The capital inflows from the large member state cannot be tempered during the boom, so a cyclical downturn will precipitate a flow reversal and crisis. Indeed, this echoes the experience of numerous smaller European Union member states in the aftermath of the Global Financial Crisis.

How to move forward? There is a need to counterbalance financial fragilities induced in small member states by free capital mobility in the European Union. Free trade can ultimately benefit all and should be supported. At the same time, the framework must be improved to offer to smaller member states similar protection and crisis management tools that are available by default to larger member states due to their size. Consider the role of a true banking union, with common rules and common protection across borders. Consider integrated financial markets across borders within the Union. And consider common crisis management with equitable risk-sharing arrangements, not under the control of larger member states as is currently the case. We do not have any of these in Europe at the moment and this is a source of vulnerability and threat to the success of the European Union. The problem is certainly more intense in the euro area, but the need to better protect against cross-border vulnerabilities applies more generally within the European Union.

6. Towards Robust Strategies for Financial Stability

What lessons can be drawn from this discussion towards robust strategies for financial stability? Let me focus on three points.

First, we need to be aware of the informational limitations of real-time policy analysis. This pertains to the business cycle, the financial cycle and pretty much any form of analysis based on stars, gaps and cycles. In assessing the costs of real-time mismeasurement we must also understand that these are not symmetric. The costs of underestimating vulnerabilities can be larger than the costs of overestimating vulnerabilities.

An important implication is that accounting for real-time uncertainty argues for stronger permanent buffers in our financial system. This also relates to discussions about countercyclical buffers in capital regulation. With what confidence can countercyclical buffers be calibrated when our confidence in real-time estimates of the business cycle and financial cycle is not very high. Taking into account this uncertainty argues for permanently higher capital buffers, even if this may be politically difficult to implement.

Second, even without knowing the 'equilibrium', and even if we cannot be certain of our current cyclical position with respect to the business cycle and financial cycle, we can lean against changes in trends that raise risk of accumulating vulnerabilities. Element of a robust policy would include leaning against a persistent strengthening of the real exchange rate and persistent exuberance in credit growth.

Third, for small open economies, it should be acknowledged that at the moment challenges are more daunting inside Europe than outside. Tools that can be activated to protect against destabilizing capital flows by small states outside Europe are not permissible in Europe. Hopefully, recognition of this suboptimal state of affairs will lead to improvements of the European Union framework, but until that happens, extra precautions are required to maintain stability in the smaller states of the Union.

7. Concluding Remarks

In conclusion, monitoring the financial cycle can be an important component of a broader strategy aiming to safeguard financial stability.

That said, care is needed to account for real-time unreliability and asymmetric costs. We do not yet have sufficient data to evaluate the reliability of real-time measures of the financial cycle. Similar to what has already been established for the business cycle, the practical utility of real-time estimates of the financial cycle may prove less promising than its conceptual appeal.

Under current arrangements, small European member states are disadvantaged in defending financial stability relative to larger member states. Extreme openness in capital flows, combined with the lack of meaningful integration in financial markets and banking complicates the task of maintaining financial stability. Smaller states have limited defenses against imported vulnerabilities from the larger member states. Better risk-sharing and crisis management arrangements than those currently in place could enhance financial stability in Europe. There are no magic bullets in preserving financial stability.

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Session 3: The Financial Cycle in the Non-euro Area EU Member States Commentary

Lars Rohde

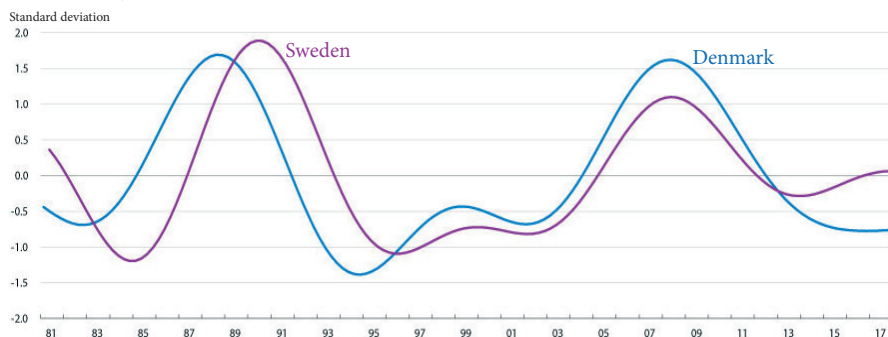
What we have just seen in the very interesting and thought-provoking presentation of Professor Orphanides has a huge impact on policy-making in the broad sense. My first thought is that you have to be very humble about what you know, and especially what you do not know. Coming from small country outside the euro area, let me start by making a few general observations on the financial cycles in the small open economies. After that I will make some general remarks on how we use the financial cycle in our policy considerations in Denmark, taking into account some of Professor Orphanides' key points.

Figure 1 shows the estimated financial cycles in Denmark and Sweden.

Figure 1

Co-movements Between Financial Cycles The Role Played by Monetary Policy?

Financial Cycles in Denmark and Sweden



Source: Financial cycles as early warning indicators: Lessons from the Nordic Region, Working Paper, No. 80, March 2019, Central Bank of Iceland.

The estimates are based on a study conducted by the Central Bank of Iceland. I should add that these are not the estimates of neither the Danish Central Bank nor the Swedish Central Bank. But it is an estimate. As you can see there seems to be a very high correlation between the financial cycles in these two countries and that is despite the fundamentally different monetary policy regimes. As you might already know the Danish National Bank has maintained a fixed exchange rate regime over the last three decades.

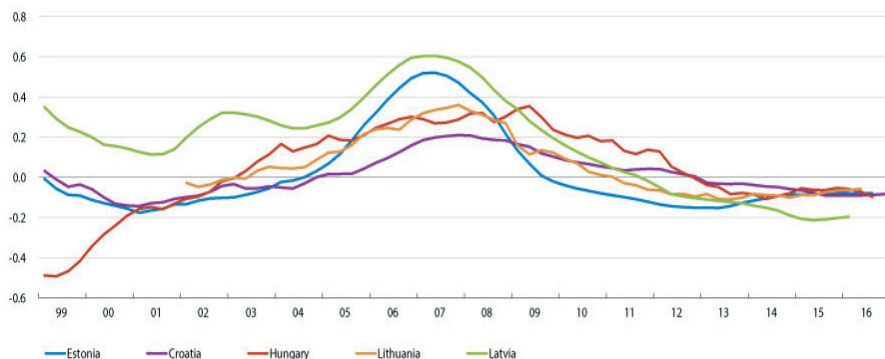
We are for the time being, and hopefully not for long, the only member of the so-called ERMII. I have been told that there are some new candidates... the Bulgarian Central Bank may be. Sweden on the other hand conducts monetary policy based on inflation target with a flexible exchange rate and an independent monetary policy.

However, the difference in our monetary policy regimes does not seem to matter much for the financial cycles, considering both the high correlation between the financial cycles and the high correlation between our monetary policy rates. They differ so little right now and for quite a long time. This might indicate that small open economies like Denmark and Sweden are highly influenced by global financial conditions. For example, a study made by Hélène Rey, a well-known study, finds that one global factor, let's call it the U.S., explains a major part of last cross-sections of the returns on risky financial assets around the world. We are so to speak in the receiving end of the large monetary areas' monetary policy.

You might say that small open economies to a high degree import the financial conditions set by the largest central banks and this seems to apply for countries with fixed, as well as floating exchange rates. Rey's research has put into question the old Trilemma. You can only have two out of the following three: independent monetary policy, free capital flows and a flexible exchange rate. Rey points out that this trilemma has been reduced, to a great extent at least, to a dilemma due to the developments in the global financial system. In other words independent monetary policies are possible if and only if the capital account is managed. Therefore, domestic monetary policy might not be able to tame the financial cycle in small open economies. The same picture seems to apply for the financial cycles in the Baltic countries, Croatia and Hungary, as illustrated on the *Figure 2*. All of these financial cycles are estimated by using the same methodology. The figure shows rather large positive gaps before the financial crisis and high degree of co-movements, as we also saw in the case of Denmark and Sweden.

Figure 2**High Correlation Between Financial Cycles in Eastern Europe****Financial Cycles in Selected Countries**

Percentage deviation from trend



Source: Real and financial cycles in EU countries: Stylised facts and modelling implications, ECB Occasional Paper Series, January 2018.

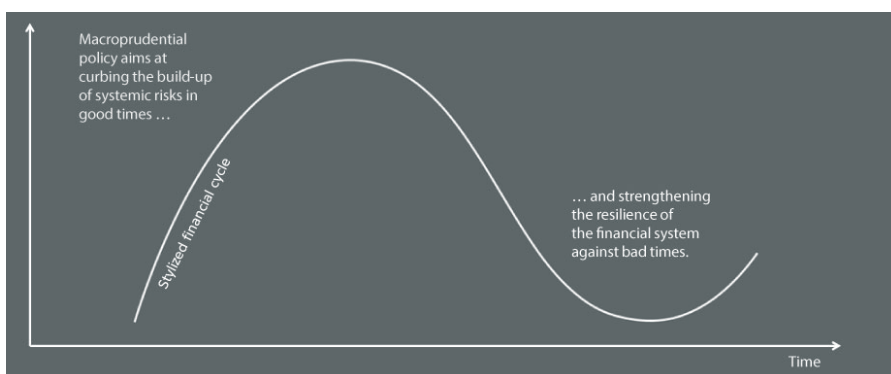
According to a study conducted by the ECB, where the illustrated cycles are taken from, credit and house price cycles are weakly synchronous across countries compared to the business cycles. In other words, the correlation between credit cycles and house price cycles across countries is lower than the correlation between the GDP cycles.

Furthermore, the level of fluctuations also varies across countries. These differences could be related, for example, to the structural properties of the housing and mortgage markets, the degree of private home ownership, fixed versus flexible rate mortgage contracts, LTV ratios, etc. For one thing, a high ownership ratio seems to correlate with cyclical volatility. Higher ownership ratio coincides with large standard deviations of house price cycles. I think that is quite interesting. Hence, even though financial cycles co-vary, as they might be driven by a global component, there is room for national macroprudential policies.

On the next page a stylized financial cycle is shown.

Figure 3

Macroprudential Policymaking Requires an Ongoing Assessment of the Financial Cycle



The cross-country differences in the historical movements of the financial cycles may also reflect different policy actions. Those are the right ones and the wrong. The global financial crisis highlights the close link between the financial sector and the real economy. The crisis reminded us of the potential for macroprudential policies to deliver on this objective.

Macroprudential policies aim to limit the build-up of financial risks in good times and they aim at reducing the depth and the duration of financial stress in bad times. The policies will thereby dampen some of the large movements in the financial cycle. This will, I hope, help the Danish economy prepare for the next financial downturn. The policies need to be implemented in good times, to be prudential in principle, and this requires an ongoing assessment of the financial cycle. However, as it has already been said, this is not easy. Policymakers have to use real time estimates when assessing economy's position in the financial cycle. Real-time estimates of the financial cycle are subject to uncertainties, real uncertainties. This uncertainty comes from the low reliability of end-of-sample estimates and also from modelling uncertainties. The low reliability of the end-of-sample estimates come from the impact of data revisions and end-point biases.

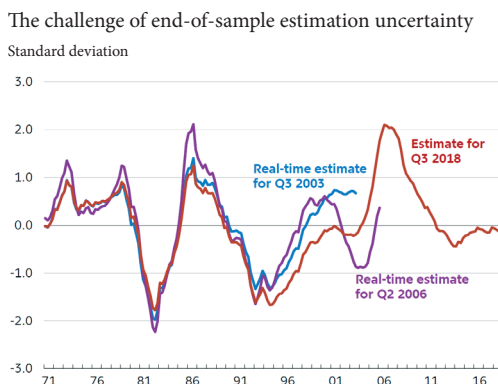
The problem of end-point bias can be considerable. This figure illustrates the end-point bias problem by comparing our current estimates of the financial cycle with those obtained using data until 2003 and 2006.

Figure 4

Policymakers Face Real-time Estimates of the Financial Cycle That Are Subject to Uncertainty

Real-time estimates are subject to different sources of uncertainty:

- Data revisions
- End-of-sample estimation uncertainty
- Weights and method uncertainty



Note: Financial cycle estimate using unobserved component model.

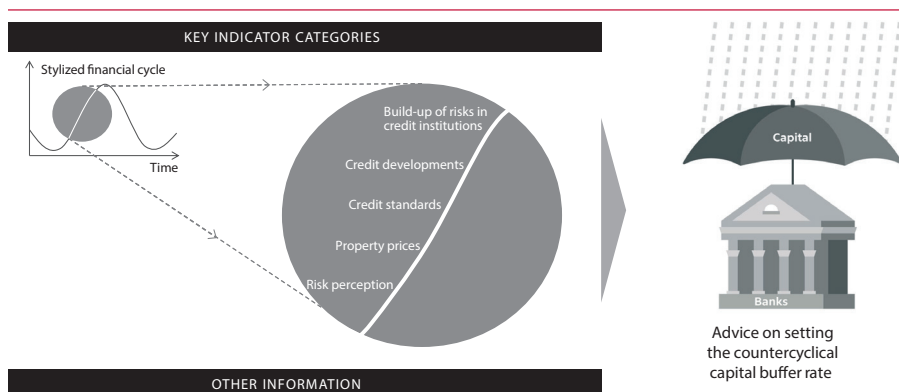
Source: Own calculations.

An additional source of uncertainty concerns the weights and the methods which are used to construct the financial cycle. This source of uncertainty impacts, not just the new estimates, but also the estimates of the financial cycle. The uncertainty surrounding these estimates makes it difficult for the policymakers to detect the boom-and-bust phase of the financial cycle in real time. Of course this entails true potential for mistakes in policy action – taking action when it is not needed or fail to take action when it is needed. It is quite obvious that I would rather be remembered for making mistake number one than mistake number two. The costs of acting in absence of a crisis are likely to be far smaller than the benefits of avoiding or reducing an actual crisis. This relates back to the point made in the former presentation on the asymmetric costs of underestimating financial vulnerabilities compared to overestimating them. So we agree on the problem. I will now share how we try to overcome it.

Our best solution to these issues is to rely on a broader information basis. The joint signal from this information set shapes our perception of Denmark's current cyclical position. We use this joint signal when giving advice on macroprudential instruments. As an example here I show the information set for assessing the rate of the countercyclical capital buffer.

Figure 5

A Broader Information Basis Is Needed to Determine the Current Position in the Financial Cycle

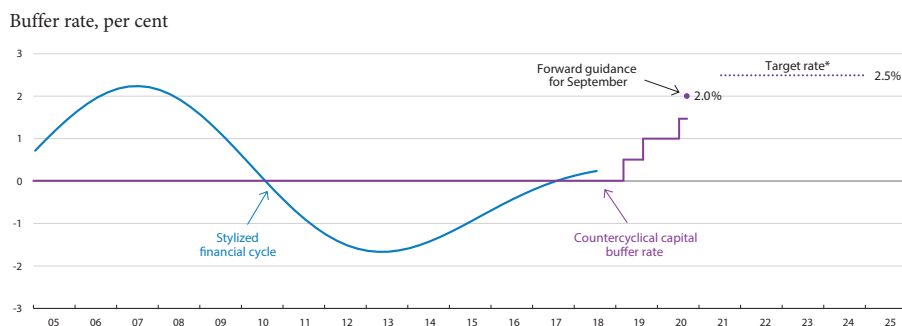


The buffer is essentially a rainy day buffer for the banks and mortgage banks. Our assessment of the appropriate buffer rate uses six categories of indicators and supplementary information. The indicator categories are intended to capture different financial vulnerabilities related to property prices, credit standards and so on. These indicators signal different stages of the financial cycle. Our model-based estimates of the financial cycle are also included in this assessment. We also take supplementary information into account. This information is used to put the developments in the key indicators into perspective. Such information includes different procedures for estimating the financial cycle, decomposing key indicators and conducting stress tests.

Our assessment right now on Denmark's position in the financial cycle, broadly speaking, has led us to start building up the countercyclical capital buffer. The buffer is increased gradually as long as we are on the upper sloping part of the financial cycle. The Danish Systemic Risk Council, which I chair, uses forward guidance and buffer target. This ensures that credit institutions and all stakeholders are informed about our planned action. This will also give them time to prepare. As one can see in this figure, Denmark has gradually raised the buffer and the announced buffer rate is 1.5 per cent in mid-2020.

Figure 6

Denmark Is Currently in the Phase of Building Up the Countercyclical Capital Buffer



* Unless the risk build-up in the financial system slows down considerably.

The Systemic Risk Council has already made a press-release stating that it intends to publish a recommendation to raise the buffer to 2 per cent later this year, unless the risk build-up in the financial system slows down considerably. The target rate is 2.5 per cent. This broad perspective reflects the uncertainty about evaluating the most appropriate buffer rate each quarter. In order to make a difference, the countercyclical capital buffer must be of a certain size when you need it. The need for countercyclical capital requirements can be lessened by aligning the incentives of credit institutions with those of society. In my view, the most important EU initiative since the crisis is the Bank Recovery and Resolution Directive. And why is that? The purpose of credible resolution plans is to ensure that all credit institutions, including the biggest ones, can be resolved without the use of taxpayers' funds and without distressing the whole economy.

The Directive paves the way for credit institutions to be treated just like all other private sector corporations. Their shareholders and creditors risk losing money. Hereby the Directive helps align the incentives of shareholders, creditors and management with those of the broader society by ensuring that all credit institutions can be resolved.

If we as policymakers cast out about our intention to stand by these basic rules, we contribute to the build-up of same systemic risks that we are trying to address.

Policy Panel Discussion

Mr Radev: We have a very impressive group of panelists – General Manager Carstens, Chairman Jordan, and Governor Nowotny. I do not think they need further introduction especially before this audience. All of them are very well known and highly respected professional and public figures. Without further ado I give the floor to General Manager Carstens. We will follow the structure of our seminar starting with the global view.

After that we will discuss the implications of the financial cycle from the point of view of the euro area and the ECB policies, which Governor Nowotny will present to us, and after it the policy response of a major central bank outside the euro area will be presented by Chairman Jordan.

So I give the floor now to Mr Carstens and in a sequential order to Mr Jordan and Mr Nowotny.

Summary of Introductory Remarks

Agustín Carstens

I think the financial cycle paradigm is an interesting and important analytical construct, which provides us with a useful framework to identify risks and vulnerabilities. It also lends itself to some important policy analysis and design. The assessment of financial cycles versus business cycles, which, as we well know, do not always co-move and coincide, is a useful way to illustrate the policy dilemmas confronting policymakers. To be sure, as we have seen today, there are many questions regarding the practical implementation of the financial cycle concept. There are still numerous challenges in terms of providing a solid analytical and theoretical underpinning to this construct. However, that does not mean that we should not use it or that it is a useless tool. The BIS has put a lot of weight on this, and we will continue to do so, but I think it is relevant in a meeting like this to be aware of the scope for further progress. This comment is not meant to discourage the use of these tools. It is more of a call for further analysis and further debate, because at the end of the day we just want to have a framework to think about these issues. The bottom line is – and this is something Athanasios said in his presentation – that this is more of an art than a science, especially if you think about the uncertainties that many of these constructs present. At the end of the day, your gut feeling and your sensibility about the markets and the economy should generate action.

There are issues regarding the econometrics of these gap models, star models and financial cycle models which are related to the identification of critical points and other issues. If we take into account the confidence intervals of all

these estimates, they tend to be wide, and you do not really know where you are.

My point is that, at the end of the day, there is no substitute for good economic analysis, healthy thinking and debate, because we are dealing with gelatinous terrain.

The issue of price stability in the context of uncertainty and in the context of where financial problems can arise, as well as the issue that monetary policy may have unintended consequences that can manifest themselves as financial stability problems, is of the essence.

At the same time, a major problem for many economies is accepting massive capital inflows that in the short run might be good for price stability. Many emerging market economies have brought down inflation (let's say from above 5 per cent to close to 2 per cent) by accepting massive capital inflows and massive real exchange rate appreciation. Then the problems of overvaluation can kick in. Eventually you might have a depreciation and all that you have gained in principle becomes ephemeral. At the end of the day, you might have a more serious price stability issue, because the movement of the exchange rate might affect inflationary expectations. Anchoring inflationary expectations then becomes very complex.

The issue of how to deal with these trade-offs is of the essence. A major part of the most recent BIS Annual Economic Report addressed these trade-offs, both for advanced economies in the implementation of monetary policies, and for emerging market economies in terms of how to deal with massive capital inflows: is it better to allow the flow and let its consequences play out, or to intervene out of prudence?

In both cases, I think that there is a clear need to complement our toolbox. In terms of advanced economies' frameworks, it is very important not to continue viewing the monetary policy space as self-contained, which I think has been happening over the last 10 years. As a matter of fact, there is an expression now that even non-economists use: 'Monetary policy is the only game in town'. That vividly illustrates how monetary policy has come to dominate the policy space, and I think that we need to make an effort to reach a more balanced approach in terms of policy signs and policy debate. I remember that 10-15 years ago there was intense discussion about optimal policy mixes. Now that discussion has been pretty much abandoned. Let's maximise monetary policy and then consider fiscal policy, structural reforms or macroprudential policy, which can play a role.

So, I think that the call for a more balanced approach between fiscal and structural policies is of the essence. Growth has become too dependent on monetary policy. Fiscal policy can do a better job in some countries, and decisions have to be taken judiciously. But there is some space left there. And there is also space in the area of structural policies. Of course, that is not good for countercyclical horizons. It is more for increasing long-term sustainable growth. But if we had started moving eight years ago, we would have been in a much better position today and would have more inflationary pressures and a higher sustainable rate of growth, and in the policy debate, we have been too complacent in allowing the burden on monetary policy to accumulate.

We are now at the point where the efficacy of stimulating growth with monetary policy has come into question. That is the way I conceptualise the impact of monetary policy in advanced economies today: in terms of how it affects the GDP cycle. I would say that monetary policy is more of a backstop. It has a marginal impact, it keeps the music going and people dancing, but it will not make a major difference in terms of growth. It is important to start rethinking how we are going to really manage growth in the long term.

There are clear dangers in terms of how to determine monetary policy in the face of financial vulnerabilities. The most important ones are related to the very low interest rate margins for banks that reduce their profitability. Profits are the main source of capital. If we keep profits very low, capital buffers will be difficult to build up. Then, the possibility of debt servicing burdens can weaken the balance sheets of both the private and the sovereign sector, and that can be a major burden in the future. We now even have MMT (modern monetary theory), which argues that debt servicing will be permanently below growth and that, as interest rates are low, debt sustainability will not be an issue. We know that this is most likely not true. There is also the issue of the effect on resource allocation and profitability. It is very likely that such low levels of interest may lead to misallocation of resources. Finally, there is the danger of monetary policy becoming hostage to market conditions. As monetary policy has become very accommodative, the search for yield has become aggressive. As soon as there is any hint that monetary policy might be tightened, the markets cry wolf and it becomes difficult to implement monetary policy.

It is important to adopt the practice of gradual but sustainable normalisation, which, from my point of view, is what the most immediate objective should be in terms of finding a better monetary policy framework and monetary policy environment. We need to act on the other policies to sustain growth. We need to start with the normalisation as soon as possible. Of course, we

need to make sure that normalisation in terms of its effect on GDP growth and inflation will not generate costs that are higher than the benefits, and the benefits come more than anything in terms of gaining policy space into the future (because that is the other problem). If we keep depending on monetary policy and its firepower has been used up, we might end up without any policy instruments. From a prudential point of view, accumulating that space is of the essence. Macroprudential policy has to be implemented, and we need to be more creative in that respect. It has to be used not only in times of expansion, but also when there might be some capital adjustments.

In terms of emerging market economies, the issue of foreign exchange intervention is key. The coordination between forex intervention and macroprudential policy is important in terms of the paradigms that were used in the past. What makes the current era unique is the sheer size of the capital flows and the stocks that are already invested in some countries. That is what defines the potential size of capital reallocation. And many countries just do not have the capacity to handle the capital inflows coming in at a fast pace and in such quantities, or the capacity to handle the situation when there are capital outflows. So I think that some form of quantitative intervention on both sides is needed. Here I would like to echo Athanasios by saying that coordination and cooperation are important. It is important to increment buffers, for example, international reserves, but for many emerging market economies it is extremely expensive to accumulate international reserves. The carry cost is huge, and it becomes a significant political issue.

The point that was made on the European Stability Mechanism is valid, but having a better fitted IMF is also of the essence. There is space for additional policy coordination and cooperation in all of these areas, just because the size of the capital flow adjustments can be deleterious, in particular in the face of stock adjustments. In the near term, we will continue to depend on art, to depend on the instincts of many of you sitting in this room. For us at the BIS the task is to do our best and to give more theoretical support to much of what you are doing (something that we mentioned in the first two chapters of our Annual Economic Report), we need theory to pick up where practice leaves off.

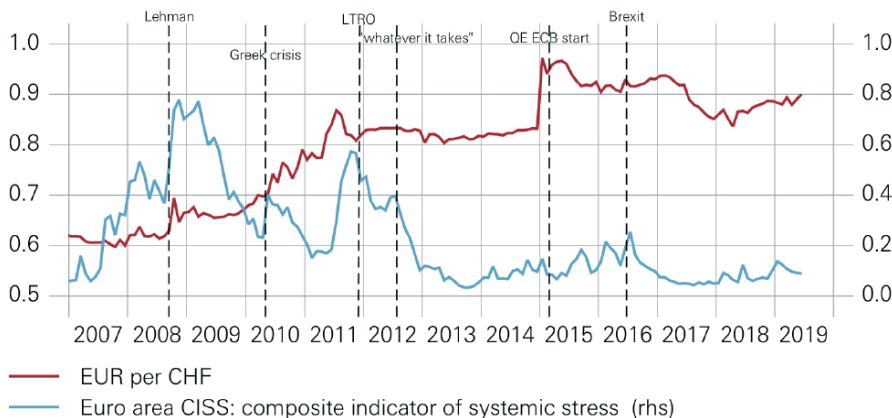
Summary of Introductory Remarks

Thomas Jordan

The topic of this conference, the current global and European financial cycle, is extremely relevant from the Swiss National Bank's (SNB) perspective. As a small open economy, Switzerland has deep real and financial linkages abroad. Moreover, the Swiss franc has a long track record as a safe haven currency. For these reasons, shocks to the global financial cycle typically transmit quickly to the Swiss economy, especially via the exchange rate. In order to achieve its price stability objective, the SNB must therefore take the global financial cycle into account when setting monetary policy.

During my remarks today, I will first provide an example of how the SNB reacted to global financial cycle shocks during the financial and euro area crises. I will then briefly discuss some of the challenges currently facing the SNB that stem from the international environment.

The economic literature identifies two types of drivers of the global financial cycle: global risk aversion shocks and monetary policy easing by major central banks. These two drivers typically have contrary effects on financial stress in the euro area, as measured by the CISS indicator from Holló et al. 2012 (*Figure 1*).

Figure 1**Euro Area Financial System Stress and Swiss Franc**

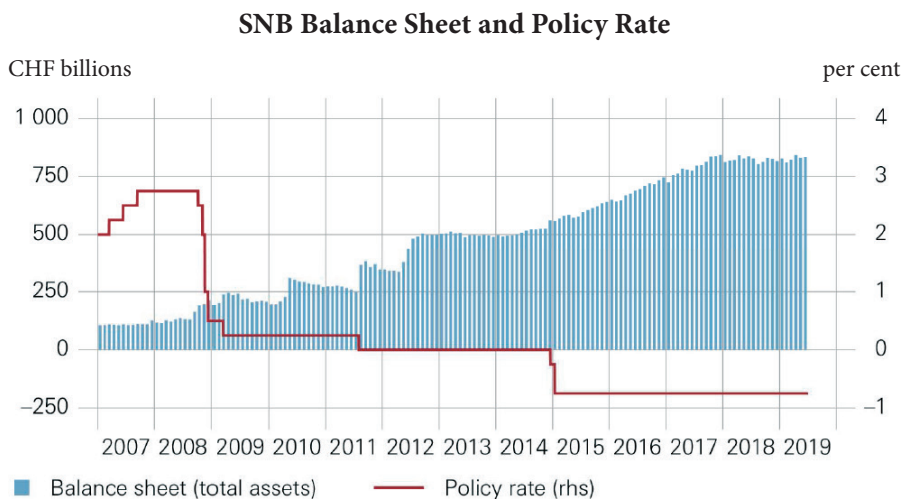
Sources: ECB, Thomson Reuters Datastream.

On the one hand, global risk aversion shocks, such as those that marked the beginning of the 2008 financial crisis and the day of the Brexit referendum, increase euro area financial stress. On the other hand, monetary policy easing measures implemented by the ECB since 2008 have successfully lowered financial stress. Importantly, however, both drivers of the global financial cycle typically put upward pressure on the Swiss franc. The global financial cycle led to a strong appreciation of the Swiss franc vis-à-vis the euro in the wake of the financial and euro area crises (*Figure 1*). This created deflationary pressures, due to the substantial share of imported goods inflation in Swiss consumer price inflation. The strong appreciation of the Swiss franc also created recessionary pressures – demand for Swiss exports, already declining due to weak growth in our export markets, fell further, with serious consequences for output growth and inflation. How did the SNB react to these challenges?

The SNB responded by deploying a variety of conventional and unconventional policy tools. In a first phase, the SNB cut its policy rate to very low levels, in an effort to maintain a positive interest rate differential between foreign countries and Switzerland. Once the policy rate approached zero, the SNB resorted to unconventional monetary policy tools. These included liquidity injections, a temporary minimum exchange rate for the Swiss franc against the euro and, since the discontinuation of the minimum exchange rate, a

negative interest rate and a willingness to intervene in the foreign exchange market, as necessary. All these tools have inevitably led to an expansion of the SNB's balance sheet (*Figure 2*). At the same time, they have allowed the SNB to respond to global factors in a timely and effective manner.

Figure 2



These unconventional policy tools have helped the SNB to reduce the attractiveness of Swiss franc investments, limiting upward pressure on our currency and associated negative consequences for inflation and the real economy. The real effective exchange rate has been remarkably stable over the whole period (*Figure 3*) and the SNB has managed to control medium-term inflation dynamics in Switzerland (*Figure 4*).

Figure 3**Real Effective Franc Exchange Rate**

Index, January 2007 = 100



Source: SNB.

Figure 4**Swiss CPI Inflation**

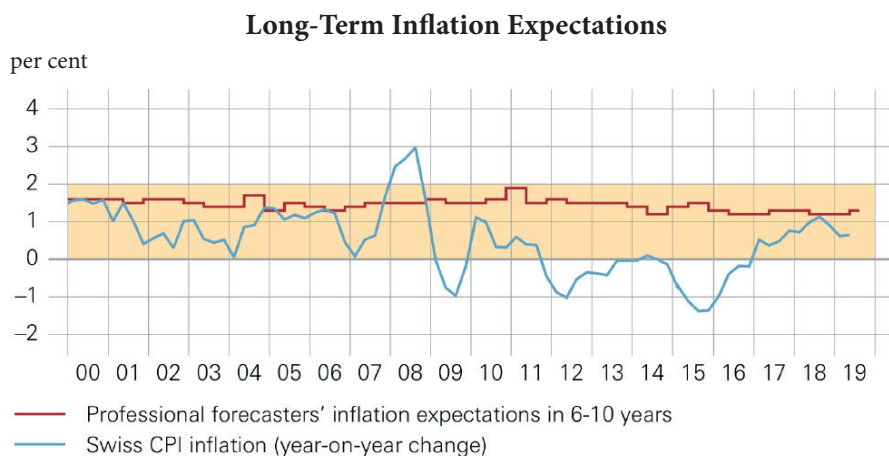
Year-on-year change, per cent



Sources: SFSO, SNB.

In some instances the nominal appreciation of the Swiss franc nevertheless led to temporary phases of negative inflation, however all in all these were short-lived and thus unproblematic. Long-term inflation expectations have remained well anchored (*Figure 5*), which has limited second-round effects from lower import prices on wage and price dynamics. Such temporary phases of negative inflation can therefore be seen as part of the adjustment process, contributing to the stabilisation of the real exchange rate and preventing a more severe economic slowdown.

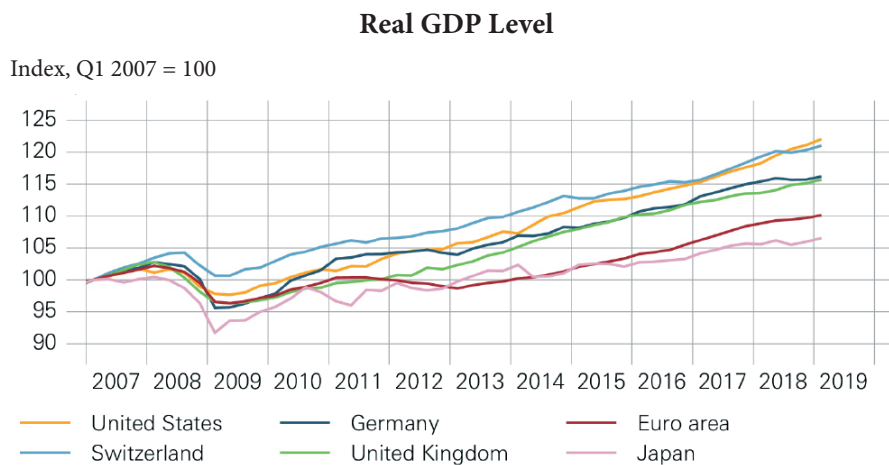
Figure 5



Sources: Consensus Economics, SFSO, SNB.

Overall, the SNB's monetary policy strategy has helped to cushion spillovers from the global financial cycle in the aftermath of the financial and euro area crises, contributing to a relatively strong performance of the Swiss economy compared with other countries (*Figure 6*) and ensuring price stability.

Figure 6



Sources: SECO, SNB, Thomson Reuters Datastream.

I would like to conclude with a few words on the challenges that the SNB is currently facing. The international environment continues to call for an expansionary monetary policy stance in Switzerland. In particular, the situation on the foreign exchange market remains fragile. Policy uncertainty and geopolitical tensions have already led to a further appreciation of the Swiss franc. In addition, the Fed and the ECB have recently both signalled further monetary policy accommodation to sustain the expansion. This puts additional upward pressure on the franc. At the same time, inflationary pressures in Switzerland remain subdued. Against this backdrop, the SNB's expansionary monetary policy continues to be necessary. With its current, two-pronged approach, based on a negative interest rate and a willingness to intervene in the foreign exchange market as necessary, the SNB can continue to support economic activity and ensure price stability.

References

Holló, D., M. Kremer and M. Lo Duca (2012) 'CISS – A Composite Indicator of Systemic Stress in the Financial System.' *ECB Working Paper*, No. 1426.

Summary of Introductory Remarks

Ewald Nowotny

Being here the only one on the podium from the euro area, I would like to share with you some of the experiences we have had at the ECB. As you know, the ECB reacted to the crisis of 2007–2008 like other central banks with radically lowering interest rates. But in the context of the discussion we have had today, I want to put your attention on what happened in the period 2011–2012. The ECB then increased interest rates. I think this is a very good example for the problems of real-time analysis. We were trying to normalise monetary policy, but this was clearly premature. It was an economic policy mistake. I myself was part of the decision, so I can say, because of the perspective that there would be inflationary risks coming ahead. The effect of this was that the euro area stumbled into a second recession. It was not only because of that but the decision for increasing interest rates was part of it. And this was the main reason why the euro area recovered much later as compared to the US. This kind of real-time analysis can have quite dramatic effects and we have experiences in this way. This also explains why today the ECB is very cautious with regard to monetary policy normalisation. We do not want to repeat the mistake that we have made in the past.

What you also see, of course, is that now we are in the area of ‘low for long’. We are in fact in uncharted waters. Nobody knows how long this will last and I just want to add to what Lars just said. Of course, one answer is more capital for the banks, but we also should be aware that this will also mean different business models for the banks. We had a very interesting conference at the BIS recently, when an American speaker told us that about 50 per cent of retail lending in the US is already done by Fintechs. That means that we

are really entering very new fields with respect to both monetary policy and financial stability. With regard to financial stability, the second way how the ECB reacted was the unconventional way – by asset purchases. Up to now the asset purchases altogether amount to EUR 2572 billion. We have invested huge amounts and we have substantial surplus liquidity again. This creates a big discussion on what is the effect of these measures. Within this liquidity the main asset purchases are public sector securities, but we have also bought EUR 178 billion of corporate sector bonds. These purchases create substantial influences also on the financial stability side. And we are still, in some way, in the process of really trying to understand all this. It is also quite important to distinguish between what are the long-term economic trends and what are the specific aspects of such a programme. Clearly, the long-term economic trends are that we have a long-term trend of low interest rates. But the question is how low? These are the numbers for the euro area, which I have just looked up at one o'clock p.m. today. Six euro area countries have negative interest rates on their 10-year government bonds. Of course the deepest one is Germany with -0.38 per cent. Italy has 1.74 per cent and the 10-year US government bond is at 1.55 per cent. This is very difficult to explain if you just look at the numbers. You could of course say that the real interest rate is different, because the inflation rate in the US is higher. Markets usually do not see it in this way. I think we are really in a very new field of financial stability concerns. And I can not give you answers. Some of the answers have been given at this conference, but it is just important to have a look at this.

We have spoken already about the macroeconomic side. The last point that I would like to mention is related to the micro-side of financial stability. The point is about the role of central banks as a lender of last resort. This is a traditional role, which has come, at least in the euro area discussion, a bit under controversy. Some people think that this is not a role for a central bank and it is only for the state to intervene. I strongly disagree. I think that this is clearly a role for central banks, because nobody else has the information that is needed in such a critical moment and nobody else can move as fast as central banks. In the context of the ECB this means the role of ELA (emergency liquidity assistance). It is true that it might have been given for quite a long time and with high numbers, but I think it is an adequate instrument if it helps to preserve the financial stability in the euro area. I think one has to be aware that we have this macro-side, but central banks have also a micro-responsibility and therefore they should be given the means to really fulfil this responsibility.

General Panel Discussion

Mr Radev: I will do something that chairs do not usually do: enter into a role of a panelist. I just wanted to give you a flavor of what the central bank of Bulgaria is doing in this area. This in my view is indicative of what EU members outside the euro area are doing, as discussed about Denmark during the previous session. We do not explicitly apply the forward guidance approach like Denmark but, this observation aside, I see a lot of similarities. Our starting position of this issue was very much in line with the leading question of our conference ‘Where do we stand, how do we move forward?’. One of our main conclusions was that we need first and foremost a better understanding of the financial cycle. Why? Because the macroprudential policy framework and related tools could be effective only if you are capable to diagnose when their application is needed. To keep the long story short, our policy response included several actions. I will refer to three of them. First, we further strengthened the macroprudential powers of the central bank. To this end we introduced legal changes, adopted last year, thus establishing a legislative basis for borrower-based measures requirements such as LTV and LTI in addition to the already existing capital-based measures. Second, we devoted resources to research on the financial cycle. One of the main products of this exercise is the paper of our research department that was recently published and to which Athanasios referred to. The aggregate estimate of the current financial cycle, made in this research paper, clearly indicates that we are currently in the upward phase of accumulation of cyclical risks. And third, we activated the countercyclical capital buffer, setting it at a rate at 0.5 per cent in effect from October this year, and after that increasing to 1 per cent in effect from April 2020. I would like to emphasise that our policy

actions and our research agenda also benefitted from what the BIS and the ECB are doing. I would like to refer specifically to the very impressive work of Claudio and his colleagues, but also to the ECB work as presented by Fatima this morning. We also benefited a lot from the academic work in this area and I am glad that we can hear today the views and suggestions, made by Athanasios and Fabio, and also by Patrick yesterday.

Mr Nowotny: I want to pick up on two aspects. First, with regard to comparing the experiences of the Swiss National Bank and the European Central Bank, it is quite important to be aware that the ECB has no foreign exchange rate goal. Our goal is price stability. This gives us a different kind of approach in selecting instruments, the use of which has in fact resulted in rather strong fluctuations, especially in the Euro-Dollar exchange rate. This may create some, let's say, structural tensions, but not as concentrated as they have been in the case of the Swiss National Bank. Second, as Governor Radev said, we all have learned that it is very important for central banks to have, on the one hand, the responsibility for monetary policy, and on the other – for macroprudential supervision. These two responsibilities have to go together. In many cases, it is important at least some aspects of the microprudential supervisory functions to be also performed by the central banks as these are closely related to their macroprudential responsibilities. In fact, one of the most important developments related to the evolution of the ECB responsibilities has been the entrusting of the central bank with the responsibility for the microprudential supervision of the euro area banking system with the creation of the Single Supervisory Mechanism (SSM). We have, of course, the so-called separation principle¹, but at the end of the day, the final decision has to be taken by the Governing Council of the ECB. The creation of the SSM is one of the most important developments in the European banking system because now we have a single supervisor for the 'financial core' of Europe that applies the same rules (mainly coming from the European Banking Authority – EBA) for all members. It is also a very important step for the completion of the Banking Union, which is at the centre of the Economic and Monetary Union of the European Union. We have made quite a substantial progress in this regard and my opinion is that we will continue this way. The next step would be to implement the idea of the European Capital Markets Union (CMU). In my view, the CMU

¹ To prevent conflicts of interest between monetary policy and supervisory responsibilities, the ECB ensures a separation of objectives, decision-making processes and tasks. This includes strict separation of the Governing Council's meetings.

is an essential element for the proper functioning of the European Common Market. If you look at these developments in a greater perspective, you will see a very clear and positive one.

Mr Nikolov: I wanted to take advantage of the fact that we have a central banker from the euro area, but I think my question can also be answered in a more general way. We have been discussing the financial cycles and explicit or implicit links to monetary policy. Now, monetary policy has other goals, including price stability, not smoothing the cycle. But we have been discussing it as if it can have some effects on the financial cycle. The way we structured our conference, we assumed a global cycle which goes through the euro area and the euro area reacts and this goes to EU countries beyond the euro area. But in the euro area we do not have one financial cycle. In professor Canova's presentation there was one slide which explicitly showed divergence of financial cycles within a monetary union with the example of the euro area. Do you think this lack of synchronicity of financial cycles within the euro area is an issue? If it is, do you think that the common monetary policy should do something about it? Should it account for this in its operations including QE, because QE can amplify or smooth it?

Participant: There is a wide literature about time inconsistency and the reasons for delegating monetary policy to central banks. Given that the financial cycles are typically longer than the monetary policy cycle, I was wondering whether there is an economic argument for delegating the macroprudential supervision to a separate macroprudential authority outside the central bank. This entity however might not be isolated from political influence. How do you see this trade-off? This is my first question. My second question is the following. We have heard a lot of calls for ensuring more bank capital. I was wondering how can we achieve this goal?

Participant: Mr Castens, you were referring to the need for a more balanced approach, given that monetary policy is trapped at the zero lower bound and there is not much room to manoeuvre on the fiscal policy side either. We often refer to Germany, but we cannot come up with many other examples. Therefore, we are left with the macroprudential policies. But if we consider all of the vulnerabilities that are building up in banks' balance sheets (the increasing leverage, the maturity mismatch, foreign exchange mismatch and so on) and we add on the other side the financial position of households,

non-bank financial institutions and corporates, then it seems that the existing macroprudential toolkit is rather empty, especially if we want to implement more targeted measures. So, if we are to develop this toolkit further, in order to achieve more balanced approach, where do you see room for improvement in the medium term?

Participant: Sometimes there are contrasting views between the central banks and the international organisations when it comes to the use of the different policy instruments. For example, before the financial crisis many central banks were having capital flow management as well as macroprudential measures. After the crisis the views of the international institutions, in particular the IMF, have changed. The IMF started recommending mostly the use of capital flow management measures. Given the experience of Mr Carstens, being a practitioner and now part of an international organisation, what is his opinion about a situation in which there are contrasting views between the central banks and the international organisations when it comes to the use of capital flow management and macroprudential measures?

Mr Carstens: With respect to the first question, I think the issue of the lack of synchronicity in the euro area applies to everything. Monetary policy has one price stability objective, while inflation is not the same everywhere. Of course, they have settled for a monetary policy that is best for the entire euro area. My sense is that is probably also what would happen in the management of the financial cycle. If the vulnerabilities and the potential for financial instability in the area are systemic, I think that monetary policy would be called for. We saw from Fatima's presentation that the ECB has clearly in mind the issue of heterogeneity and that there is room for applying macroprudential measures in a differentiated way. She presented what is happening with capital buffers, the difference between their levels in the various countries. The ECB has to perform a balancing act, and that is how this heterogeneity should be dealt with.

Regarding the question of whether macroprudential supervision should be delegated to central banks, I think that from a political and economic point of view, central banks are the best recipient of those faculties and responsibilities. We have seen that many macroprudential measures are not politically palatable. One of the problems that we have faced is that it has taken a long time to get the governance right. If experience has told us anything, it is not that these instruments have been abused, but the contrary.

Also, just to get the ball rolling, I think that the political interference has been important. I would say that central banks should have more macroprudential power. Again, this is not a guarantee, but our strongest bet would be to give this authority to central banks. From an analytical point of view, that would be the best role.

Regarding the question about the scarcity of effective macroeconomic tools, I would not completely abandon the fiscal aspect. We should consider not only the aggregate fiscal balance but also the composition and type of government expenditures. Also, we still have a bias in many countries' tax regimes, where debt is privileged over equity. Therefore, there are two fiscal aspects: making government expenditure more growth-friendly and making the tax regime more neutral with regard to its tendency to stimulate over-indebtedness. It is clear that if you impose restrictions on the heavily regulated banking system, other activities will pick up the slack. Therefore, we need to make a stronger effort to avoid that arbitrage. There are some issues in the asset management area that have to be addressed, especially in the area of liquidity management. I am also very concerned about the commercial real estate sector; more can be done there as well. In addition, even though it is not politically encouraging for many countries, we should consider and try to implement macroprudential policies with respect to the countries of origin.

We should also consider the possible spillback effects that might originate from some emerging market economies, which have accumulated a lot of risk because of the 'low-for-long' conditions. As we have not seen the complete financial cycle yet, these spillback effects are currently considered mainly a theoretical possibility, but in several years we might have more evidence on their significance. An example of such effects is the emerging market debt accumulation in the 1980s. This debt was financed by bank lending, and it is clear that the lending to emerging market economies in the 1980s – mostly in Latin America – was excessive. The fact that these countries, including Mexico and Brazil, had difficulties afterwards really put the global financial system at risk. Now, of course, we are prepared for those aspects, but if we consider all the different sectors into which the search for yield has gone, there might be a need for more aggressive macroprudential measures that have to be implemented to achieve an overall balance. Currently, there is a lot of pressure coming from the emerging market economies and even from the small open economies, asking the very large central banks to internalise the spillover effects from their policies. The most that we have managed to achieve so far in this respect is to persuade the large central banks to complement their communication by including language about observing and analysing

the impacts of their actions on innocent bystanders. I do not think that this is sufficient, but it is difficult to think that anything more will be done, as the political economy becomes very complicated.

Regarding the question about capital flow management measures, I am a little bit more open to them. Still, I think that these measures would be pretty much at the end of my list. If there is nothing more you can do, you should implement them. However, more than anything one should consider these measures as transitory, because they are distortive and it is hard to ensure that they are appropriately observed.

Mr Jordan: Let me make some brief remarks, echoing what Governor Nowotny has said. The Swiss National Bank does not have an exchange rate target, but the exchange rate is very important for monetary conditions in Switzerland. Given the extreme pressure on the Swiss franc, we have made FX interventions in order to control the monetary conditions in the country. The main target of the Swiss National Bank is, of course, price stability. We have two channels – the interest rate and the exchange rate – to influence price stability in Switzerland.

Now to return to the questions. I cannot comment on the situation in other currency areas, but I would like to take the first and the third question together and make a more general comment. There was a question regarding the fiscal and monetary policy mix and its influence on macroprudential decisions. In my view, there is one main problem. In many regions there is a lack of political will to implement structural reforms. This harms the development of the economy. And often the lack of structural reforms is also combined with the conduct of inefficient fiscal policy that does not promote future growth. Then, given this unfavourable starting position, the central bank is asked to conduct an extreme monetary policy in order to stimulate growth. Extreme monetary policy, however, creates distortions elsewhere and macroprudential measures are needed in order to compensate for them. This practice might be helpful for some time but, obviously, it is not optimal in the medium to long term, where growth-friendly fiscal policy and especially the implementation of structural reforms are needed in order to increase the potential of the economy. We all know that this is politically very difficult to implement but, in the medium to long term, there is no way around it.

Then there was a question regarding macroprudential policy and time inconsistency. The development of a macroprudential framework is a very difficult task. I can give you a sense of what we are currently discussing in

Switzerland. From a political point of view, leaving the central bank in charge of the entire macroprudential policy might not be the optimal solution. There are usually three players – the ministry of finance, the central bank and, in our case, the Financial Market Supervisory Authority (FINMA). In Switzerland, the central bank has the leading role using the instruments that have a cyclical character – instruments you change over time, so that you have to make a decision whether to activate or deactivate, to increase or decrease the respective measure. Of course, for more structural issues that are in place all the time or for a very long time, the responsibility is shared among the institutions, though FINMA and the Ministry of Finance have larger roles in this respect.

There is a second dimension to this question. The macroprudential measures do not only affect the economic and financial cycle. These measures also have a socio-political dimension. For example, we are currently discussing the imposition of loan-to-income and loan-to-value ratios, which basically means excluding certain layers of the population from access to loans, such as a mortgage loan to buy a house. Certainly, the more you take such decisions, the more political they become. It might be more appropriate if the final decision is taken by a political body and not by an independent central bank. From our point of view, it is also important not to fall into an inaction trap. The proposition to introduce, to change or to adjust these measures should come from the central bank, but then it is up to the government to take the final decision of whether to follow the proposition of the central bank or not, and to bear the responsibility if things go wrong. Nevertheless, this might not be an optimal solution for every country. The discussions related to this issue are still ongoing in Switzerland.

There was a question: ‘Where would the additional bank capital come from?’ Currently we are at the end of a long journey of adjusting capital requirements. In Switzerland we have the Basel III framework and the ‘Too big to fail’ regulations that go beyond international standards. These regulations are in their final phase of implementation. We believe that it is very important to finalise the implementation of all of these regulations and to make sure that everything that was intended is put in place. On the other hand, we have to make sure that we maintain an appropriate degree of regulatory certainty. We cannot change the rules of the game every year or every other year. Otherwise, the banks will not be able to adjust and in the end they will not know exactly what the rules and regulations are. We intend to finalise the implementation of these regulations and we are convinced that we are now in a much better situation than before, although even more capital would certainly be helpful.

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