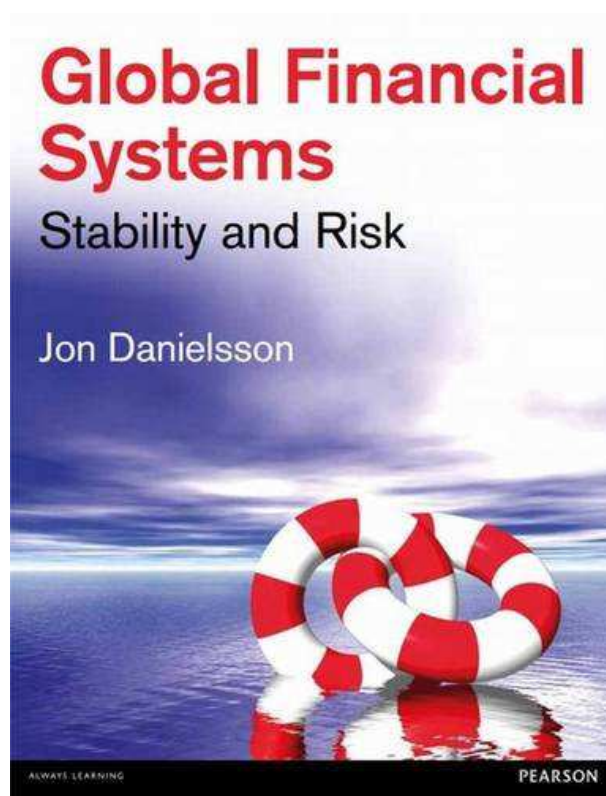


Global Financial Systems: Stability and Risk

On-line chapters
Version 4.1, November, 2016

Jon Danielsson
Systemic Risk Centre
London School of Economics



These chapters contain the latest developments on the European crisis, financial regulations and current challenges in financial policy. The latest version can be found on the book website www.globalfinancialsystems.org.

© Jon Danielsson 2016 (print and electronic)

The right of Jon Danielsson to be identified as author of this work has been asserted by him in accordance with the Copyright, Designs and Patents Act 1998

Acknowledgements

In writing these chapters, I benefited from the assistance of Brock Hoback, Bendik Langfeldt, Kyoungwan Lee, Clement Minaudier, Morgane Fouch, Jihyun Bae, Colin Qiu and Anka Reuel.

Robert Macrae of Arcus Investment who gave me valuable comments on the manuscript of the printed book, also read this manuscript, and made innumerable valuable comments. His insight into the subject matter, and his keen understanding of financial markets from an investor's point of view, made the book much better than it otherwise would have been.

The support of the Economic and Social Research Council (ESRC) is gratefully acknowledged [grant number ES/K002309/1].

Introduction

The focus of this book is on how the world's financial system functions, the various policy choices governments have and how the system has built-in vulnerabilities leading to crises. Financial crises have been our constant companion from the very first time human beings created a financial system. This means that over time, we have accumulated deep knowledge and understanding of the economic forces enabling such crises. This experience shows that financial crises are all fundamentally the same, only the details differ. This is why financial crises are so hard to prevent and so costly to fight. Every time we are faced with new details that enforce age old vulnerabilities.

Any printed book that focuses on current events runs the risk of being out of date before the print is dry, and my book is no exception. For this reason, I decided early on to create these special chapters, only be published on-line and updated frequently, so that obsolescence could be mitigated.

Comments are more than welcome, and if you find any mistakes or have suggestions for improvements, please let me know and I will incorporate your comments into the next release, acknowledging your contribution.

London

November 2016

Jon Danielsson



GLOSSARY

BCBS Basel Committee for Banking Supervision is a group of senior officials that design international financial regulations, best known for the Basel Accords. 506, 514, 515, 521

BCCI Bank of Credit and Commerce International, a Luxembourg registered bank, with head offices in Karachi and London. It was established in 1972 and collapsed in 1991 after massive fraud. 440

BIS Bank for International Settlements. 448, 502, 523, 532, 536, 537, 546

BoE the Bank of England is the central bank of the United Kingdom. 437, 438, 440, 451, 454, 457, 462, 492, 502, 524, 543, 547

BoJ the Bank of Japan is the central bank of Japan. 454, 543

BU banking union. 475, 502, 503

CCP institution that clears trades and acts as a counterparty to all trades. 516, 524

CDS credit default swap. 518

CET1 common equity tier 1, a part of bank capital. 509, 514, 521

CFM macro-prudential tool for open economies. 525

CoCo convertible capital instrument. 539

CPI consumer prices index. 438

Glossary

- CRD** Capital Requirements Directive. 503, 504, 519, 530
- CRT** are a new way banks can manipulate capital. 517, 518
- DB** Deutsche Bank is a large German bank. 508, 509, 521, 529
- DTI** debt-to-income. 527
- EBA** the European Banking Authority is a regulatory agency of the European Union's activities include the stress testing of European banks and harmonization of regulations, and is a part of ESFM. 502, 516, 520, 521
- EC** the European Commission is the executive body of the EU responsible for proposing legislation, implementing decisions, upholding treaties and the day-to-day running of the EU. 464, 465, 468, 481, 495, 502, 506, 532
- ECB** the European Central Bank is the central bank of the euro zone. 439, 446, 448, 454, 455, 462–464, 466, 468, 476, 478, 481, 482, 489, 498, 502, 503, 521, 531, 532, 543, 550
- EDIS** European Deposit Insurance Scheme. 468
- EEA** European economic area. 493
- EFSF** the European Financial Stability Facility is a vehicle set up by euro zone members to finance bailouts. 467, 482
- EFSM** the European Financial Stabilisation Mechanism is a vehicle off the European Union to provide bailouts. 467
- EME** . 451, 510, 524, 525, 536, 537, 541, 543–545, 552
- EP** European Parliament. 474, 519
- ERM** European exchange rate mechanism. 456, 478, 480
- ESCB** includes ECB and European national central banks. 439
- ESM** European Stability Mechanism. 467
- ESRB** European Systemic Risk Board. 502, 524
- EU** European Union. 439, 464, 468, 474, 476, 482, 483, 485–495, 498, 499, 502–504, 514, 519, 520, 529, 530, 532, 552

- FCA** the Financial Conduct Authority is one of the successor to UK's FSA, responsible for micro-prudential regulations. 519
- Fed** the Federal Reserve System is the central bank of the United States. 435, 438, 439, 451, 454, 461, 462, 502, 508, 520, 526, 532, 535, 541–544
- FPC** Financial Policy Committee. 524, 525
- FSB** Financial Stability Board. 502, 506, 507, 509–513, 532
- FSOC** Financial Stability Oversight Council. 504, 524, 526
- FTA** free trade agreement. 494
- G-SIB** global systemically important banks. 506–510
- G20** a group of large countries that include Argentina, Australia, Brazil, Canada, China, European Union, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom and the United States. 506, 507, 511
- GDP** gross domestic product. 442, 446, 459, 466, 471, 473, 476, 477, 480, 481, 485, 495, 507, 508, 524
- HQLA** high quality liquid assets. 516
- HSBC** a large British bank. 529, 530
- IMF** International Monetary Fund. 453, 464, 467, 470, 479, 481, 482, 502, 506, 508, 524, 532
- IOSCO** International Organization of Securities Commissions is an association of organizations that regulate the world's securities and futures markets. 502, 511, 532
- LCR** liquidity coverage ratio. 515, 516, 521
- LOLR** lending of last resort. 438, 453
- LTV** loan to value ratios are policy instruments that aim to limit the amount of money that can be borrowed for a purchase, typically applied to residential mortgages. 525–528
- MiFiD** Markets in Financial Instruments Directive. 503, 504

Glossary

- MMF** a category of US shadow banks that collects deposits and makes low risk short-term investments (loans). 532, 533
- NBNI** non-bank non-insurer. 511
- NPL** non-performing loan. 497, 498
- NSFR** net stable funding ratio. 515, 516, 521
- NYFed** the New York Federal Reserve bank is the most important branch of the Fed. It is the Fed's main interface with financial markets. 438
- O&G** Overend and Gurney. 438, 453
- OECD** Organisation for Economic Co-operation and Development, a Paris based international organization. 451, 481
- OMT** Outright Monetary Transactions. 477
- OTC** over-the-counter. 516
- PRA** the PRA is one of the successors of the FSA, and is a part of the Bank of England. 519
- QE** quantitative easing. 441, 445–449, 451, 460, 468, 531, 535, 541, 543, 547, 548, 550
- QQE** quantitative and qualitative easing. 548
- RWA** risk weighted assets of a bank, used in capital calculations. 509, 510, 533
- SIFI** systemically important financial institution. 504, 506, 507, 509, 511, 513, 515, 526
- SME** small and medium-sized enterprise. 472, 513, 514, 538, 539, 542
- SNB** Swiss National Bank. 459
- SRM** Single Resolution Mechanism. 503
- SSM** the Single Supervisory Mechanism is the proposed setup for ECB's oversight of Europe's most important banks, and is a part of ECB. 439, 503

TBTF too big to fail. 504, 506, 507, 509

TLAC Additional capital type buffer for G-SIBs. 509, 510

UK United Kingdom. 435, 438, 446, 449, 454, 474, 478, 480, 485, 489, 490, 492, 494, 495, 497, 502, 506, 507, 515, 519, 525, 530, 532, 540, 541, 552

US United States. 435, 438, 442, 446, 448, 449, 452–454, 459, 461, 502, 504–508, 515, 520, 524, 525, 529, 530, 532, 533, 536, 538, 539, 541–544, 546, 549–552

USD US dollar. 505, 536

WTO World Trade Organization. 489, 494

WWII Second World War. 455, 474, 491

Glossary

CONTENTS

Introduction	429
20 The Central Bank	435
20.1 The origins of central banks	437
20.2 Banking supervision	439
20.3 Monetary policy	441
20.3.1 Central bank interest rate	441
20.3.2 Open market operations	442
20.3.3 Reserve requirements	443
20.4 Liquidity Provision	443
20.4.1 Quantitative Easing (QE)	445
20.4.2 Bailing out governments	446
20.4.3 Consequences of liquidity provision	447
20.5 Financial stability	451
20.6 Changing role and challenges of central banks	453
20.6.1 Central bank independence	453
20.6.2 ECB	454
20.6.3 Conflicting objectives	455
20.6.4 Forward guidance and central bank communication . .	456

CONTENTS

20.6.5	Losing control of money	457
20.6.6	Risk from balance sheets	459
20.7	Summary	460
Appendices		
A	Central bank interest rate	461
21	The European crisis	463
21.1	Overview of the crisis	465
21.2	Four crises in one	469
21.2.1	The sovereign debt crisis	470
21.2.2	The banking crisis	471
21.2.3	The growth crisis	472
21.2.4	Political crisis	474
21.2.5	The relationship between the crises	476
21.3	Internal devaluation and structural reforms	477
21.3.1	Internal devaluation	478
21.3.2	Structural reforms	479
21.3.3	The austerity debate	479
21.4	The Greek crisis	481
21.5	Summary	483
22	Economic Challenges Facing Europe	485
22.1	Which way for Europe?	486
22.1.1	Fiscal and transfer union	487
22.1.2	Breaking apart	488
22.1.3	Adaptive approach—Muddling through	488
22.2	Brexit	489
22.2.1	How Britain may want to get out	492
22.2.2	Impact on Europe EU	494
22.3	The next crisis country could be Italy	495
22.4	Summary	499
23	Current Regulatory Developments	501

CONTENTS

23.1	Institutions and frameworks	502
23.1.1	Europe	502
23.1.2	United States	504
23.1.3	Global institutions	506
23.2	Systemically important financial institutions (SIFIs)	506
23.2.1	Banks	507
23.2.2	Insurance companies, asset managers and sovereign wealth funds	511
23.3	Regulation of banks under Basel III	514
23.3.1	Capital requirements	514
23.3.2	Liquidity requirements	515
23.3.3	Risk coverage	516
23.3.4	Capital relief trades	517
23.4	Further developments	518
23.4.1	Compensation	518
23.4.2	Stress testing	519
23.5	Macro-prudential policies	522
23.5.1	Emergence of macro-prudential policies	522
23.5.2	The macro-prudential toolkit	523
23.5.3	Challenges	525
23.5.4	The macro—micro conflict	527
23.6	The future of regulation	529
23.7	Summary	530
24	Liquidity and Debt	531
24.1	2000 — 2007: Global flows	532
24.2	2007 – 2009: Financial crisis and policy response	535
24.2.1	Lessons learned from the Great Depression	535
24.2.2	Money intermediation by asset managers	536
24.3	Consequences for the world economy	537
24.3.1	Impact on economic activity	538
24.3.2	Impact on financial markets	539

CONTENTS

24.3.3	Distributional effects	540
24.3.4	Structural reforms	541
24.3.5	Reaction of savers	542
24.4	Ongoing developments & challenges	542
24.4.1	Normalization of interest rates	542
24.4.2	Challenges for emerging market economies	543
24.4.3	Where has inflation gone?	548
24.5	Global savings glut	550
24.6	Summary	553
	Bibliography	554

CHAPTER 20

THE CENTRAL BANK

This Chapter replaces Chapter 5 in the printed book

The most important single institution in the financial system is the *central bank*, also known as a *reserve bank*. Central banks have a monopoly on the creation of money and hence play a key role in ensuring price stability as well as ensuring stable macroeconomic conditions and the soundness of the financial system. Summarized by William McChesney Martin Jr., former head of the US Federal Reserve System (Fed), the Fed’s most important job is to

“take away the punch bowl just as the party gets going.”

Central banks were initially created with a narrow purpose in mind, to help commerce or, like in the case of the UK, to provide stable war funding and support the government in its economic objectives.

Definition 20.1 (The authorities) *are the legal institutions and governmental bodies concerned with setting rules for and monitoring the financial system.*

Over time, the roles of the central banks have expanded significantly. They acquired a monopoly on the printing of banknotes and have significant autonomy in the setting of interest rates. Most central banks started out as private

Chapter 20. The Central Bank

institutions, but all are now directly controlled by the central government, and most are owned by it.

With the expansion of objectives and power of the central banks, they often find it difficult to reconcile the various tools and objectives. For example, the exercise of financial stability may require significant injections of liquidity into the economy, undermining price stability.

Over time, as the nature of the challenges facing the economy has changed, their priorities have shifted. From the second part of the 19th century, until 1914, financial stability was the main objective of most central banks as monetary stability was taken care of by the gold standard. During the Bretton Woods era, and until the 1980s, these roles switched and inflation became the main problem facing central banks, with financial stability becoming less important because heavy regulations limited the scope for financial crisis.

Eventually, this led to the neglect of financial stability, contributing to the build-up of systemic risk, and the crisis starting in 2007. This in turn has made financial stability the main objective of central banks. However, massive injections of liquidity into the financial system in recent years are likely to make monetary policy yet again the main objective of central banks.

Links to other chapters

This chapter directly relates to Chapter 2 (the Great Depression), Chapter 7 (banking crises), Chapter 14 (bailouts).

Key concepts

- Quantitative easing
- Open market operations
- Central bank interest rate
- Objectives of central banks
- Independence of central banks

Readings for this chapter

For a good overview of monetary policy, see IMF (2009) and for banking supervision, especially in Europe, see ECB (2014). For a discussion of quantitative easing in Europe and the US, please refer to ECB (2015) and Boston Fed (2015) respectively.

20.1. THE ORIGINS OF CENTRAL BANKS

Notation specific to this chapter

γ	Money multiplier
δ	Reserve requirement
i_t	Target short-term nominal interest rate
π_t	Inflation rate (GDP deflator)
π_t^*	Desired rate of inflation
r_t^*	Real interest rate
y_t	Logarithm of real GDP
\bar{y}_t	Logarithm of potential output
a_π, a_y	Parameters

20.1 The origins of central banks

The formal objective of the various central banks is specified in their governing law or internal regulations. The first central bank, the Swedish Riksbank established in 1668, engaged in collecting deposits, lending and facilitating trade. It pioneered the practice of *fractional reserve banking*, which meant it was susceptible to bank runs. Indeed, it was created out of Stockholms Banco, which was the first European bank to print banknotes and collapsed because it printed banknotes on a seemingly unlimited scale.

The Bank of England

The second central bank was the Bank of England (BoE), created in 1694, sometimes referred to in Britain as *the Bank*. It was initially a private bank, set up to assist the government with war finance and in order to facilitate that function, it was endowed with certain privileges such as permission to issue bank notes.

The Bank obtained a monopoly on issuing banknotes in England in 1844 with the Peel Act, which fixed the amount of notes that could be issued for a given amount of gold, hence preventing an excessive expansion of the money supply. Existing provincial banks could still issue money, with the last bank in England doing so in 1921. This did not apply to banks in Scotland and

Chapter 20. The Central Bank

Northern Ireland where private banks still issue money, albeit by providing full reserves at the BoE.

The government retained the power to suspend the Peel Act in case of a financial crisis, which happened a few times, including during the 1914 crisis and the 1866 Overend and Gurney (O&G) crisis. After the 1866 crisis, the Bank's role in lending of last resort (LOLR) was formalized. This can be considered the first modern statutory financial stability function of a central bank.

The BoE was nationalized in 1946 and it has now two main objectives — monetary stability and financial stability. The first entails meeting an inflation target set by the government. Subsidiary to that, the bank is to achieve “high economic growth in a low-inflation environment”. The UK inflation target is 2% as measured by the consumer prices index (CPI), but has been significantly below the target in recent times.

The Federal Reserve System

Amongst the major economies, the US was unique in the 19th century for not having a central bank. While that may not have mattered much most of the time, it was increasingly felt that a central bank was needed during financial crises. Ultimately, it was a severe crisis episode in 1907 that convinced lawmakers of the necessity to establish a central bank. During that crisis, the private sector provided LOLR, in particular J. P. Morgan. The authorities at the time felt that it would be better for a government agency to have that role rather than a private individual.

As a consequence, the United States established the Fed in 1913. It could not be called a central bank for political reasons. The system is made up of 12 federal reserve banks, with each being responsible for member banks located in its area. The best known is the *New York Federal Reserve Bank (NYFed)*.

Over time, the Fed's function has evolved and it is now directly under the control of the federal government whilst retaining significant autonomy. It is responsible for monetary policy and financial stability, and is the supervisor for some banks. The formal objective of the Fed is “to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.”

The ownership structure of the Fed is somewhat convoluted. All nationally chartered banks hold stock in one of the Federal Reserve Banks. These are not regular stocks, since they can not be sold or traded nor used to

20.2. BANKING SUPERVISION

exercise control, but provide a dividend of 6%. The remainder of the Fed's profits go to the government. In 2009 over 98% of the dividends went to the government.

The European Central Bank (ECB)

The European Central Bank (ECB) was created as part of the European Union (EU) in 1998 to support European integration. It forms, together with the national central banks, the European System of Central Banks and has been led by Mario Draghi since 2011.

Its main tasks are the definition and implementation of the monetary policy of the euro zone as well as the supervision of the banking system. Furthermore, it conducts macro-prudential policies and manages the euro zone's foreign currency reserves.

The ECB takes a special role in the newly established banking union: It holds the position as central prudential supervisor for the largest financial institutions in the EU under the Single Supervisory Mechanism (SSM), while the national central banks take care of the supervision of the remaining banks.

20.2 Banking supervision

Central banks are sometimes responsible for the supervision of financial institutions, that is the enforcement of financial regulations. It may be felt that supervision is an integral part of the central bank core function, at other times it seems to be more palatable to leave it to a separate institution. The discussion draws on Goodhart and Schoenmaker (1995) and Goodhart (2002).

Arguments for separation

The main argument for separating bank supervision from monetary policy and financial stability is that the combination of the functions may lead to a conflict of interest between the monetary authority and the supervisory authority. The central bank might desire higher interest rates to fight inflation while the supervisor is worried about the adverse impact of high interest rates on solvency and the profitability of the financial sector. Similarly, a central bank may not want to rescue a failing bank because of systemic stability concerns, while banking supervisors may want to prevent it from closing to

Chapter 20. The Central Bank

protect its creditors. Furthermore, the cyclical effects of financial stability and monetary policy tend to be in conflict because monetary policy is usually countercyclical, while the effects of regulation and supervision tend to be procyclical.

Second, if the central bank was the sole supervisor, it would need to be in charge of activities quite distinct from its core mission, such as consumer protection. Having the same government agency in charge of many different functions is not efficient and likely to lead to some being favored and others neglected. This increases the risk of a politicisation of the decision process.

Finally, if central banks would be in charge of supervision, they are also subject to *reputation risk*. When banks fail, the supervisor generally takes the blame, and the credibility of the central bank is dented. This happened to the BoE following the failure of BCCI in 1991. Such reputation risk is inevitable for any supervisor, and since supervisors get blamed for failures but do not tend to get credit for crises prevented, it can make them excessively risk averse. For a central bank that depends on its reputation for competence when it comes to monetary policy, such reputation risk is something they may prefer to do without, and hence the central bank may want to keep supervision in a separate agency.

Arguments against separation

First, if the central bank is only concerned with monetary stability, there is no need for it to be tasked with supervision. However, in reality, central banks will have to engage with financial stability, whether it wants to or not, and may be called upon to provide liquidity support to banks.

In order for the central bank to be responsible for financial stability, it needs to have detailed knowledge of the financial institutions within its domain, exactly the type of information provided to supervisors. It might therefore be more efficient for the central bank to be in charge of supervision.

Secondly, in case of universal banking, the same bank may be engaged in very different activities and therefore fall under the supervision of several different regulatory agencies. Having a multiplicity of supervising entities, all crawling over parts of the same institution, is neither efficient nor cost effective.

20.3 Monetary policy

The main day-to-day function of central banks is monetary policy, the control of the supply of money. Monetary policy is either *expansionary*, where a central bank increases the total supply of money in the economy, *contractionary*, when it decreases the money supply, or neutral.

The most commonly used tool for monetary policy is *interest rates*, but central banks may also use *open-market operations*. A traditional method is *reserve requirements*, but this is now more common in emerging markets. A more recent tool is quantitative easing (QE).

20.3.1 Central bank interest rate

The most visible demonstration of monetary policy is the setting of interest rates (for an overview of different terminologies, see appendix A). The central bank rates determine the overnight risk-free market rate, thereby directly influencing the money supply. By increasing the interest rate, banks are more likely to deposit money with the central bank, taking money out of the circulation. This causes borrowing rates to increase throughout the financial system, reducing demand and hence money creation. Interest rates can be raised without limit and thus provide an effective contractionary tool under inflationary conditions.

The contrary is not necessarily true because deflation can require negative interest rates, something difficult to achieve. That means different tools are needed to combat deflation. While central banks can buy bonds, they exercise limited control over longer maturities. The latter are influenced by supply and demand in the bond markets, with inflationary expectations being an important determinant. So is financial repression, the practice of using regulatory tools to force financial entities to hold bonds.

Taylor rule

Having a monetary policy objective, perhaps a formal inflation target, does leave open the question of how the central bank should meet the objective. One approach is the *Taylor rule*, proposed by Taylor (1993), whereby the central bank sets the nominal interest rates based on changes in inflation, output and possibly other economic variables. Under the rule, the central bank should increase nominal interest rates by more than 1% in response to a 1% increase in inflation. By having a formal rule, a central bank may avoid

Chapter 20. The Central Bank

inefficiencies induced by a discretionary policy. Mathematically, we can state the Taylor rule as:

$$i_t = \pi_t + r_t^* + a_\pi(\pi_t - \pi_t^*) + a_y(y_t - \bar{y}_t)$$

where i_t is the target short-term nominal interest rate, π_t the inflation rate (the GDP deflator), π_t^* the desired rate of inflation, r_t^* is the equilibrium real interest rate, y_t an estimate of the logarithm of real GDP and \bar{y}_t is the logarithm of potential output, obtained by a linear trend. $y_t - \bar{y}_t$ is the *output gap*. The parameters are restricted to be positive, $a_\pi, a_y > 0$, and Taylor (1993) proposed setting them at 0.5.

In general terms, the Taylor rule seeks to apply negative feedback to the economy, increasing rates when either capacity is stretched or inflation is above target and reducing them when the opposite applies. This clearly matches central banks' objectives in qualitative terms, but an important practical problem is the dependence of the rule on quantities that can only be approximated. In particular, GDP and inflation rates are only known with considerable lags and are subject to frequent revisions. Even in the long run, they only provide approximate measures of the economy.

Many central banks, explicitly or otherwise, use a form of the Taylor rule to set interest rates. It is however most suited for very large currency areas, such as the US, because it disregards the impact of interest rates on exchange rates. For much smaller countries, higher interest rates may lead to inflows of hot money and carry trading.

20.3.2 Open market operations

Central banks can directly control the supply of money by *open market operations*. This entails buying or selling securities, normally the debt obligations of the central bank's own government, in the open market. The counterparties are typically major banks.

When a central bank buys securities, it pays by increasing the reserve account (a bank's account with the central bank) of the seller's bank. It is not a transfer into the account, rather the central bank simply increases the account balance by some number by *fiat*. Doing so increases the total volume of reserves (money) held collectively by the banking system. This is a modern version of printing money. Similarly, when the central bank sells securities, it deducts the proceeds from the reserve accounts of the buyers', which reduces the total volume of reserves, and hence money.

Expanding or shrinking the total volume of reserves in this way matters because banks can trade reserves among one another or exchange them for other assets. Because the central bank pays only a low rate of interest (often zero or slightly negative, as currently in Switzerland, Japan and the euro zone) on these balances, any bank that has more reserves than it needs typically will try to exchange them for some interest-bearing asset.

Expansionary open market operations, when the central bank buys short dated securities, create a downward pressure on short-term interest rates via two main routes. A direct impact occurs because an instrument is removed from the market, increasing its price and lowering yields. An indirect effect arises because the bank now has cash instead of a security, and hence has a greater capacity to lend and also lower interest rates.

20.3.3 Reserve requirements

Reserve requirements give the central bank a degree of control over the money supply. Recall Example 1.1:

$$M1 = \gamma \times M0 = \frac{1}{\delta} M0.$$

Changes in the reserve requirements, δ , lead to changes in the money multiplier, γ , and the volume of M1 given an amount of M0. Lowering the reserve requirement has a similar effect as an expansionary open market operation, provided that banks are constrained by reserve requirements. Altering the reserve requirement used to be relatively common, but nowadays most central banks rely on other methods. The main exceptions are in less developed economies, for example Brazil, China, India, Russia and Uruguay. For an example of the Chinese use of reserve requirements see Figure 20.1.

20.4 Liquidity Provision

The monetary policy measures discussed above can be expected to be successful when an economy is not in a recession and inflation is comfortably above zero. If the economy is close to deflation, traditional monetary policy tools may not be effective, because the central bank interest rate cannot be negative, and deflation provides an incentive to banks to hold on to funds and do not lend them out, making open market operations ineffective. This can be viewed as a form of a *liquidity trap*, as illustrated in the following example.

Chapter 20. The Central Bank

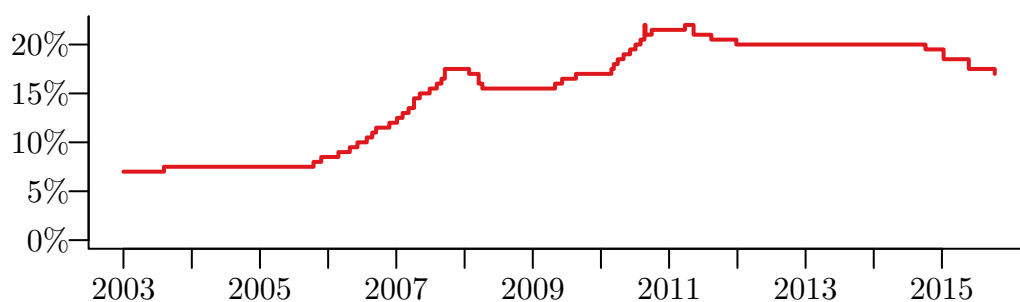


Figure 20.1: Chinese reserve requirements

Source: The People's Bank of China

Example 20.1 (liquidity traps) *John Maynard Keynes (1936) identified the pathological case of liquidity traps, illustrated in Figure 20.2. The supply of money intersects the demand for money (D) on the perfectly elastic part of the demand curve (the flat part to the right), and an increase in money supply from S^1 to S^2 does therefore not change the interest rate. That means conventional monetary policy tools are unable to stimulate an economy.*

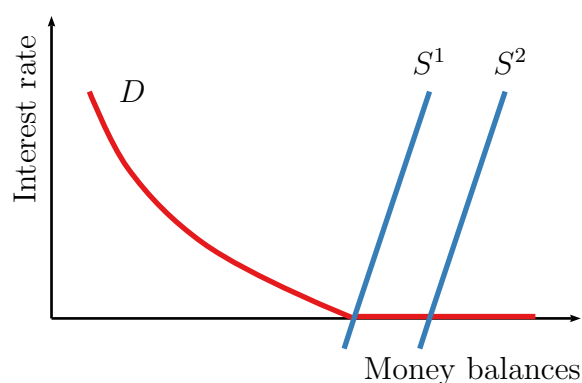


Figure 20.2: Liquidity trap

20.4.1 Quantitative Easing (QE)

The current low-interest environment can be viewed as such a liquidity trap, with the economy being represented by S1 in Figure 20.2. In order to prevent the economy from sliding into deflation and to provide an economic stimulus, some central banks have resorted to a more direct control of the quantity of money called QE.

Conceptually, open market operations and QE may seem to be the same, because in both cases the central bank is purchasing assets from banks using money (M0 or M1) it has created *ex nihilo* (out of nothing). In practice, the difference between these two operations is significant, in scale, frequency, asset composition, maturities and motivation.

We might say that while open market operations are a scalpel, QE is more like a sledgehammer. In QE, the central bank buys short-dated government bonds, just like under open market operations, but also engages in a broader ranged purchase of assets, including longer-dated securities and even non-government assets, such as corporate bonds. In general, open market operations tend to be more frequent, involve much smaller amounts and shorter maturity assets than QE.

The motivation between open market operations and QE also differs. In the former, the explicit objective is to fine tune the quantity of money supplied to the economy, while QE is presented as a way to stimulate the economy and as a means of emergency to directly support the government. It should also be noted that QE is a very recent invention compared to open market operations.

The stimulus happens for several reasons, for example because the increased money supply encourages demand, whilst it also puts downward pressure on exchange rates, helping exporters and the trade balance. The direct support of governments happens because the central banks have become significant purchasers of government bonds in some countries, helping to keep yields and government debt down. Even though central bank holdings of government debt count as any other holding of government debt, one has to keep in mind that the central bank is owned by the government.

A recent example of this is provided by the Bank of Japan. The Japanese government considers issuing 50 year bonds, which will mainly be bought by the central bank. Thus, government debt will shift from private hands to a public institutions.

Box 20.1 (Friedman’s helicopter) *Milton Friedman proposed an innovative solution to the problem of liquidity traps whereby the central bank bypasses banks and gives money directly to consumers and businesses.*

“Let us suppose now that one day a helicopter flies over this community and drops an additional \$1000 in bills from the sky, ... Let us suppose further that everyone is convinced that this is a unique event which will never be repeated,”
— Milton Friedman (1969)

This approach might have been more effective than the QE program employed by the authorities.

20.4.2 Bailing out governments

One of the core functions of central banks is printing money and it is not surprising that governments, upon finding themselves in a spot of financial trouble, resort to money printing as a revenue source — the *central banks bail out the government*.

The obvious way to do this is for the central bank to print money and purchase government bonds. As an emergency device, this is a core function of central banks, but if abused, leads to inflation and economic difficulties.

A second way for central banks to bail out governments is by creating unexpected inflation and reducing the real value of past borrowing. Of course for this to be fully effective, the central banks must first invest many years of effort in establishing the strength of their commitment to fighting inflation.

While any government with its own central bank enjoys the benefits of *seigniorage* — revenue from printing money — explicitly using the central bank to finance the government has long been considered a taboo amongst developed economies because of inflationary fears, particularly in Germany and Japan due to the experience of hyperinflation that could result. However, following the recent financial crisis, several governments such as those of the US, the UK and the officials of the ECB, have resorted to extensive QE to prop up their economies.

Caused by political opposition mainly from Germany, the ECB has engaged initially on a much smaller scale, around 2% of GDP, while it has lent massively to the banking sector and hence indirectly to governments. It only

20.4. LIQUIDITY PROVISION

started a full-scale QE program worth €1.1 trillion in 2014, buying bonds of its member states. Since 2015, the program furthermore includes asset-backed securities and corporate debt purchases.

Pros and cons

Printing money to finance a government is not recommended except in exceptional circumstances. When done as a routine response to an economic downturn, it locks in inflationary expectations and increases government financing costs, causing instability and frictional costs. When inflation eventually becomes a priority for the central bank, it will find it very costly to fight. There are, however, special cases where a central bank bailout of the government may be justified.

If inflation is low during deep recessions and the economy is comfortably below its output potential, printing money to finance the government carries with it two significant benefits. First, it relieves the pressure on the government's budget and secondly, it reverses a contracting money supply. This should only be done when the economy is below the output potential, because newly printed money will increase demand and if the economy is close to its output potential, the demand will pass directly through to increased prices. However, if the economy is operating below its output potential, such price increases are much less likely. Given the fact that output potential is hard to estimate, it is difficult for the central bank to decide upon the bailout of governments.

20.4.3 Consequences of liquidity provision

Liquidity creation has the explicit intention of distorting the market, encouraging risk-taking that private entities do not wish to take, and altering the payoffs that risk takers receive. Given its long duration, global scope and vast scale it seems inevitable that the distortions will be profound and long-lasting, though their nature is hard to predict.

Market distortions and bubbles

Ideally, one would want asset prices to reflect underlying fundamental values derived from future earnings potential, appropriately discounted. If, however, liquidity creation creates a bubble, it drives prices away from their fundamental value, a concern expressed in the 2015 annual report of the

Chapter 20. The Central Bank

Bank for International Settlements (BIS), observing euphoric markets falling under the spell of the central bankers.

One implication is that asset prices get into a bubble while the real economy suffers. This is a reminiscence of challenges facing the US authorities in the 1920s as discussed in Chapter 2 and the need for different monetary policy for Wall Street and Main Street. Over time, the divergence between Wall Street and Main Street became bigger and bigger, with increasingly contractionary monetary policy needed for Wall Street, that could not be implemented because of concerns about the Main Street. Similar concerns have been expressed in the current climate, in countries such as China, the US and the euro zone, with many real estate markets appearing to be at levels that look rather high compared to their ability to support economic activity. This is a natural and direct consequence of low interest rates.

In addition, the financial markets have become less likely to appropriately react to good or bad economic news affecting the fundamental value of an asset, as one would expect for rational agents who have become accustomed to risks being shouldered by other agents. For example, negative macro-economic news in Europe in 2014 led to a market rally rather than a drop, as deteriorating economic conditions increased the likelihood of the ECB adopting QE.

Deflation and inflation

Theoretically, accommodative monetary policies are supposed to create inflationary pressures by increasing the money supply in the economy. Nevertheless, since the financial crisis, the primary motivation for liquidity provision has actually shifted to the prevention of deflation, or at least *lowflation*, as well as the bailout of sovereign actors and overall economic stimulus.

The problem of inflation is well understood as a result of the experience of the 1970s and 80s. We know that in simple systems with few assets, increasing the money supply increases the equilibrium price of those assets and for sensible assumptions about participant preferences it increases them all by similar amounts. This is inflation.

In the real world, we have a much more complex situation, in which there are many heterogeneous participants and a vast range of goods and services, many of which are not interchangeable or traded, and may not be very price elastic. While it must remain true that in aggregate, an increase in money supply increases prices, it can do so in very uneven ways.

It seems clear that QE has supported the prices of liquid financial assets,

particularly real estate, at prices far above those that would have ruled if the banking system had collapsed. To date, this seems to have had little impact on the nonfinancial assets, such as manufactured goods, that are traditionally used as measures of inflation. However, in the long-run it is usual for price elasticities to rise — for example because while house owners are reluctant to move and will not do so purely in response to a move in price, they are occasionally forced to move and their decision on where to move will then be influenced by price. This suggests that we should at some stage expect to see non-financial assets start to move in the same direction as financials have.

Where has inflation gone?

The target rate for inflation in the US, UK and the euro zone is 2%, and at the time of writing inflation is well below the level in each of these countries. Within the euro zone, the distribution of inflation is uneven, with some members, such as Greece, Italy, and Spain suffering from deflation. As Figure 2.3 depicts, a deflationary spiral can hurt the economy.

However, convincing counterarguments have been made, for example by Atkeson and Kehoe (2004), who find that empirically there is no link between deflation and economic growth, outside of the Great Depression. Bordo and Filardo (2005) further observe that we have seen several periods of good deflation, such as in the late 19th century in the US, when output rose by 2%-3% a year in times of deflation.

The 2014 annual report of the BIS reaches similar conclusions, noting that both Sweden and Switzerland have recently experienced deflation yet were also among the fastest growing economies in Europe. Furthermore, the BIS notes that long-term European inflation expectations in financial markets point towards the rate remaining positive in the long-term. One explanation is that deflation due to strong currency is tolerable provided it can coexist with a good level of corporate profitability and employment. We also need to be careful about how deflation arrives. If price levels fall overall because of a big drop in prices of important imported commodities, such as oil, as has been happening recently, it has positive economic consequences, even if it leads to short-term deflation. The negative consequences are mainly felt by commodity producers.

Ever since the authorities embarked on their QE and low interest rate program in 2008, the various pundits have been predicting that this would lead to very high inflation, even hyperinflation. This has not happened. While

the reason is not clearly understood, important factors are that banks have not been lending out the freshly created money, instead keeping it in their central bank reserve accounts. Meanwhile, poor labour market conditions have prevented salary growth. The absence of inflation has then led to the widespread belief that somehow things were different, one can keep rates very low indefinitely, with no inflation emerging.

This view is incorrect, because inflation is only low because economic activity slowed down and economic agents believe inflation will stay low. However, we do know that expectations can shift quite rapidly, and if the economic agents come to believe that inflation is around the corner, that will immediately affect funding costs and investment, with prices and wages soon to follow. We therefore shift from a self-reinforcing low interest rate environment to another self-reinforcing high inflation environment. This is depicted in figure 24.9.

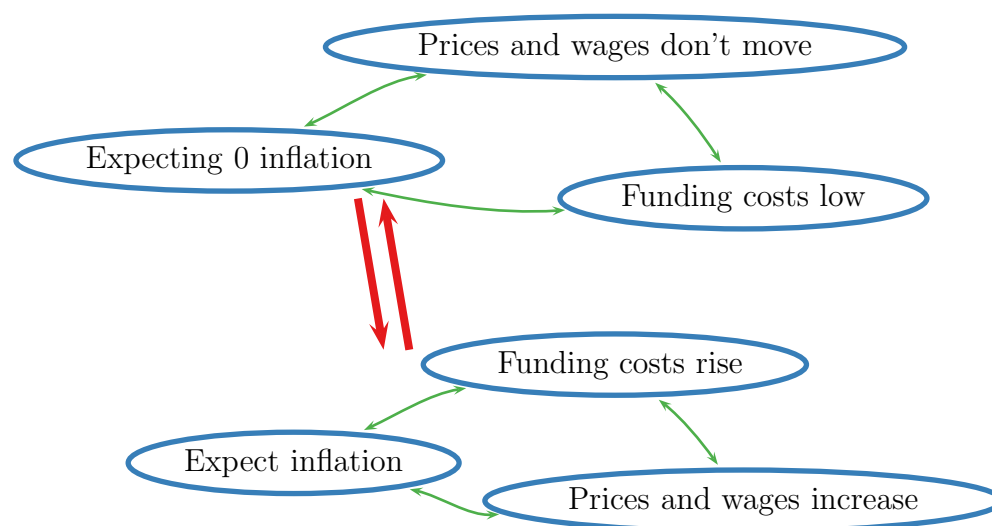


Figure 20.3: Inflation expectation jumps

Long-term effects

The post crisis liquidity creation programs would have been highly inflationary if implemented before 2007, and the low inflation generally observed since the crisis suggests that there are strong deflationary forces pushing in the other direction. Clearly, if two large forces are so precariously balanced, there must be the possibility of a sudden acceleration in one direction or the

other. As we have seen repeatedly in this book, it often takes very little to significantly shift the expectations of economic agents.

Empirical research on interest rates suggests that they are mean-reverting and extreme deviations from the mean, such as hyperinflations, notwithstanding. Considering the long history of interest rates in the developed world, such as the BoE rates in figure 24.8, the average is 5.25%, and both in the three century context and more recent history, the current near zero rate is quite anomalous. Of course, it is hard to imagine rates being set close to zero without the existence of a central bank operating for non-commercial objectives, and these are relatively recent innovations.

The long-term inflationary consequences of the extensive liquidity programs are unknown. Some commentators have expressed concerns that the liquidity programs may lead to higher levels of inflation, an argument dismissed by others based on the experience of Japan, which implemented QE for several years without much effect on inflation. However, the Japanese QE was always moderate, too small to have a substantial impact.

A key channel for the current equilibrium's fragility is that recent monetary policies have made the private and public sectors dependent on low interest rates, making it difficult to increase them if and when inflation increases. The Fed already increased the rate by a quarter point in December 2015. If the European economies start picking up growth, inflation may well follow. In that case, it seems unlikely that interest rates will stay at the level shown in figure 24.8 forever. Unprofitable borrowers, which are currently able to make interest payments because interest rates are so low, may get into serious difficulties.

This seems to have the potential to re-ignite many aftereffects of the crisis that are currently being ignored, such as the vast amount of poorly collateralised real estate lending on which banks are currently able to “extend and pretend”. Because any rapid recognition of these problems might in turn reignite concerns over sovereigns such as Spain, Italy and China, and causes certain risks for emerging market economy (EME)s, the Fed is certainly taking a measured approach (see Chapter 24).

20.5 Financial stability

The term financial stability originates from the convention establishing the OECD in 1960, and the concept has been an integral part of central banking from the beginning and certainly through the Great Depression and its

Chapter 20. The Central Bank

aftermath discussed in Chapter 2 (the Great Depression). However, it came to play a reduced role during the highly regulated Bretton Woods era and it was only with the crises starting 2007 that financial stability again become a core function of central banks.

Definition 20.2 (Financial stability) *refers to policies aiming to moderate the extremes of financial volatility, prevent crises or contain systemic risk, keep financial markets functioning efficiently and resolve financial crises.*

Financial stability ends up being a responsibility of central banks in part by default. Governments need to implement financial stability policies and the *only* government organization capable of doing so is the central bank because it is the only entity capable of printing money at will. This also means it is often difficult to separate out the monetary policy and financial stability functions of the central banks. In particular, they often use monetary instruments to implement financial stability and in some cases the particular implementation may be in conflict with either the financial stability or monetary policy objective.

Implementing financial stability

While the concept of financial stability is quite broad and touches on many different aspects of policymaking, we can delineate it into three different components: *passive prevention*, *active prevention* and *resolution*.

Passive prevention refers to the prevention of adverse outcomes *ex ante* to enhance financial stability before a crisis actually takes place. This can take many different forms. Just to name a few, they include loan to value ratios, central counterparties and limits on how much a bank can lend to a single counterparty. Some of the clearest examples of passive prevention policies were implemented in the US following the Great Depression and include regulations on buying equities on the margin, the Glass–Steagall Act keeping the commercial banking separate from investment banking and rules aiming at minimizing liquidity risk in mortgages.

Active prevention relates to policies designed to smooth outcomes in financial markets *in real-time*, making sure that regular activity does not get out of hand. Active prevention is intended to be reactive to the situation at hand rather than being an essentially static framework like passive pre-

20.6. CHANGING ROLE AND CHALLENGES OF CENTRAL BANKS

vention. Examples include rules specifying the minimum bank capital and reserves, the amount of liquidity or maximum leverage. These are generally based on a dynamic assessment of bank activities, and nowadays may involve sophisticated financial models.

Finally, **resolution** refers to dealing with a crisis already underway — *ex-post*. Such policies were first formalized after the O&G failure in 1866 which led to the establishment of LOLR, aiming to provide liquidity to solvent but illiquid banks. Resolution also relates to having a *special resolution regime* for failed banks, such as *prompt corrective action* in the US. Policies like living wills and bail-ins also fall under this category.

Resolution and passive prevention share in the advantage that the key decisions are made during previous crises, with policies less exposed to shifting priorities than in active prevention.

The introduction of new financial stability tools often follows when the authorities do a postmortem analysis on a crisis. Besides the examples mentioned above, a prominent case is establishment of the Bretton Woods system, especially the World Bank and the International Monetary Fund (IMF).

20.6 Changing role and challenges of central banks

Central banks often find it difficult to reconcile the various conflicting objectives they have to meet. Traditionally, the main disputes involved those in charge of the macroeconomic objectives and monetary policy. The former demanded low interest rates to stimulate the economy and the latter high interest rates to prevent inflation. During the 1980s, when the defeat of inflation was a key goal, the debate was settled in favor of monetary policy, which central banks made to prevent political interference. More recently, financial stability has become a priority, not only threatening the primacy of monetary policy but also the independence of central banks.

20.6.1 Central bank independence

We dare not exercise our independence for fear of losing it.
— Arthur Burns, former Fed Chairman

Politicians take great interest in the setting of interest rates. Low rates stimulate the economy in the short run, and therefore help the prospects of

Chapter 20. The Central Bank

unpopular governments facing election. For this reason, central banks are often under considerable pressure to keep interest rates low. While tempting politically, it is an undesirable economic policy, except under special circumstances, since any temporary well-being is outweighed by the costs of long-term inflation. This might be prevented by central bank independence, and most countries have made significant steps in that direction over the past decades. It is essential for central bankers, who do not seek re-election and are thereby under less pressure to implement popular policies, to be independent to effectively implement monetary policy and retain their credibility to effectively fight inflation when necessary.

However, they cannot be fully independent when it comes to implementing financial stability. Some compromise is called for, perhaps leaving the central banks in charge most of the time, but yielding to the treasury when needed. This seems to be the direction taken by the governments of the UK and the US and arguably Europe. When the authorities are called upon to fight financial crises, it necessitates deep involvement in the structure of the financial system and the use of public money to bail out private sector institutions. The ultimate guardian of the public purse is the treasury, or the ministry of finance, and it should assume the pivotal role when it comes to using significant amounts of public money to fight a financial crisis. This places the treasury directly above the central bank, which then cannot be considered independent. The supervisor, the central bank and the treasury all need to cooperate in implementing financial stability, and the treasury has to have the ultimate power. However, this does not mean the treasury is better at exercising financial stability than the central bank. The opposite is more likely to be true. The central bank is more likely to have the necessary expertise and to be less sensitive to cronyism and corruption.

In a crisis it is quite often the treasury that ends up playing the pivotal role.

20.6.2 ECB

The ECB faces multiple challenges due to its unique structure compared to the BoE, Bank of Japan (BoJ) or the Fed.

Private Sector Bailouts: If a national central bank bails out financial institutions in its home country, this is directly paid for by the population of that country, either via taxes or currency debasement. This is different if the central bank is owned by many countries, like the ECB. Bank bailouts by the ECB imply that taxpayers of one country have to support a financial institution in another country. This can easily lead to political opposition.

20.6. CHANGING ROLE AND CHALLENGES OF CENTRAL BANKS

Especially in a country where banks are sound and well supervised, people are less willing to pay for bank bailouts in countries with unsound banks because they are imprudently run and supervised. That means that bailouts by the ECB cannot have as much political support as bailouts by the national central banks.

Ownership and operational independence: A national central bank has direct connections to the national government, tying it close into the national power structure. The governor and board members are generally residents of that country and appointed by the government. The ties between a multinational central bank and the political superstructure are not as strong. This can make it easier for the political leaders to use, or abuse, an international central bank to provide bailouts. While this can be prevented by strict rules, it reduces the flexibility of the central bank, making the ECB less effective as guarantor of financial stability. On the other hand, this structure makes the ECB less prone to governments trying to take control of it, guaranteeing its independence from national governments.

20.6.3 Conflicting objectives

Until the recent financial crisis, priority was mainly given to either the financial stability or the monetary policy objective. During the gold standard, monetary policy took care of itself, while in the highly regulated area after the Second World War (WWII), systemic risk was limited and thereby financial stability lost its importance. Conquering inflation during the 1980s gave monetary policy the lead again. Central banks were faced with the simultaneous pursuit of both after the recent crisis started in 2007.

Financial stability operations often require the injection of liquidity or the lowering of interest rates. This, however, is often in conflict with the monetary policy objective. Of course, these objectives may coincide. Economic agents may deleverage during a crisis, converting illiquid funds into liquid cash, resulting in a sharp reduction in the money supply, with the end result being deflation. In this case, an increase in liquidity is needed for both the monetary policy objective of meeting a target inflation rate and the financial stability objective of providing liquidity to an economy in distress.

There is also the risk that at certain points in time, financial stability and monetary policy may call for opposite solutions, for example if inflationary pressures begin to rise while the financial system is still fragile. In such a case, the objective of monetary policy would be to maintain price stability by raising interest rates. However, higher interest rates may increase the

Chapter 20. The Central Bank

fragility of the financial sector. If it chooses to prioritize financial stability over monetary policy, the central bank might lose its credibility as an enforcer of price stability or vice versa. At worst it would lead to paralysis or the adoption of conflicting and self defeating policies that achieve little beyond an increase in costs and uncertainty.

Black Wednesday — the ejection of Sterling from the European exchange rate mechanism (ERM) in 1992 (see Section 12.4) — illustrates the likely difficulties when conflicting objectives must be met. In that case, the objectives were maintaining interest rates low enough to avoid recession while retaining ERM membership, and eventually the latter had to be sacrificed. Even allowing for the advantage of hindsight it seems reasonable to ask whether this result could have been achieved at a lower cost

Generally, however, the financial stability objective and the monetary policy objective are quite different. Central bank employees are likely to be specialized in one field or the other, but not both, leading to the danger of silos within the central banks, one with the monetary policy staff and the other with the financial stability employees, who may not talk much to each other even if both functions reside within the same institution. One reason is that we are trying to do two different things with one tool — interest rates. With interest rates fundamental to monetary policy, it would be better for the financial stability policy makers to have access to independent tools, if these can be developed, in order to make it more practicable to pursue both sets of objectives at the same time.

20.6.4 Forward guidance and central bank communication

“If you want to make God laugh tell him about your plans.”
— Woody Allen

Central banks face a difficult task in communicating their objectives to the outside economy. They would like economic agents to operate in a stable and predictable environment and for that reason would want to communicate the direction of their policy to the outside community. However, since the future is uncertain, the central banks cannot commit to a future action, it has to be contingent on what happens. Therefore, all the central banks can really do is to commit to a policy reaction function. However, even that is problematic since the central banks are continually gathering new information and evolving the technical toolkits, so they cannot even credibly commit to a policy reaction function.

20.6. CHANGING ROLE AND CHALLENGES OF CENTRAL BANKS

Central banks have come to rely on what is called *forward guidance* as an additional monetary policy tool. It is an explicit provision of information about the future conduct of monetary policy and particularly the forecast of central bank's policy rate. There are two different sets of motivations for this.

First, by giving explicit forward guidance of the future evolution of the short-term policy rate, banks could in theory lower the expected value of future interest rates, easing financial conditions. Second, forward guidance clarifies uncertainty about the central bank's reaction function, making current monetary policy more effective.

The implementation of forward guidance is hotly debated. For example, the BoE signalled in August 2013 that it would not even consider raising interest rates until the unemployment rate dropped back beneath 7%, at the time when the rate was close to 8%. Soon, unemployment rate dropped to under 6%. The Bank was forced to revise its guidance, explaining that the decision was also based on other economic factors. A similar situation happened in the US and other countries. In this case, the forward guidance may end up doing the opposite of what is intended, confusing rather than clarifying.

20.6.5 Losing control of money

Many governments have used massive amounts of money creation as part of the resolution of the 2007 crisis, obeying the imperative need to prevent a systemic collapse, stimulate their economies, and pay for the large amounts of debt assumed by the government. In the short run, printing money has been a success and has prevented the financial system from collapsing, the economy from sliding into a fullblown depression, and governments from defaulting. In the long run, this will make it very hard for the authorities to credibly forswear the further use of monetary policy for such purposes: financial entities will simply assume that if the need is sufficient, governments will do what it takes.

This has serious implications. At present, contractionary influences remain strong and there is little evidence that inflationary expectations are building up, but the threat and the associated costs are clear. It took many years to defeat the 1970s inflation, with central bank independence and credibility playing a vital role in that fight.

Hyperinflation

Governments sometimes completely lose control of money. The reason might be that as inflation increases, government revenue decrease, so the government needs to print money to finance itself. That, however, leads to more inflation, and a vicious cycle is formed. This process was modeled by Cagan (1956) who showed that it is necessary to increase the money supply at a double exponential rate for the government’s revenue to keep up.

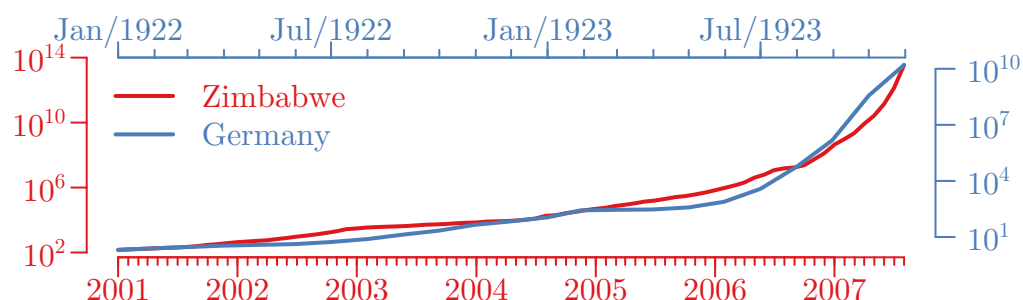


Figure 20.4: Hyperinflation in Germany and Zimbabwe

The empirical evidence is consistent with his model, as seen by Figure 20.4 showing the growth of money supply during the German and Zimbabwean hyperinflations. Even though the y-axis is on a logarithmic scale, the growth is exponential, so inflation is growing at a double exponential rate. Besides Zimbabwe and Germany, many countries have experienced hyperinflation, as seen in Table 20.6.5.

Country	Month with highest inflation rate	Highest monthly inflation rate	Equivalent daily inflation rate	Time required for prices to double
Hungary	Jul 1946	$4.19 \times 10^{16}\%$	207%	15.0 hours
Zimbabwe	Nov 2008	$7.96 \times 10^{10}\%$	98.00%	24.7 hours
Yugoslavia	Jan 1994	$3.13 \times 10^8\%$	64.60%	1.4 days
Germany	Oct 1923	29,500%	20.90%	3.7 days
Greece	Oct 1944	13,800%	17.90%	4.3 days
China	May 1949	2,178%	11.00%	6.7 days

Table 20.2: Highest monthly inflation rates in history

Source: Table 2 in Hanke and Kwok (2009).

The general reason a country ends up with hyperinflation is that the government surrenders control of money creation because it is under some imperative to raise revenue at all costs. In the end, hyperinflation is extremely

20.6. CHANGING ROLE AND CHALLENGES OF CENTRAL BANKS

costly. As Vladimir Lenin said: “The best way to destroy the capitalist system is to debauch the currency,” as quoted by Keynes (1920).

20.6.6 Risk from balance sheets

Large scale asset purchases put the financial strength of central banks in three main ways at risk. First, *interest rate risk*: when the interest rate rises in the future, the value of central bank holdings of bonds will fall. Second, *default risk*: some holdings of bonds, especially risky ones, will be likely to default in case the economic situation deteriorates. And last, *exchange-rate risk*: when central banks hold foreign currency in their assets, the volatility of exchange rates might affect the health of their balance sheet.

Box 20.2 (The Swiss Central Bank) *The balance sheet of its central bank, the Swiss National Bank (SNB), expanded dramatically during and after the crisis. To counteract the financial crisis, they purchased foreign exchange assets, mainly in the form of € and US dollar, in order to inject liquidity into the economy and to fight against the threat of deflation. But in January 2015, the Swiss decided to allow their currency, the franc, to float more or less freely on currency markets. The roots of the announcement lie in their relative success compared to their euro zone neighbours. Before the crisis started in 2007, the euro was a success, a stable currency investors wanted to be exposed to. The crisis put paid to that, and investors with liquid funds started looking for new destinations. Money poured into Switzerland, as a safe economy, and as in any market, when there are more buyers than sellers, prices go up. For some years before that, the Swiss had been pegging the exchange rate to the euro at 1.2 francs. Immediately after the franc was set free, it appreciated by 16%. The euro-denominated assets held by the SNB depreciated in value, generating loss to the income of the SNB. By the time this book was written, SNB’s losses so far for 2015 amount to 50.1 billion franc, equivalent to 7.5% of Switzerland’s GDP.*

However, since central banks can print money, does that mean they can never be insolvent? No. For example, the Icelandic central bank had to be bailed out in 2008. A central bank gets seignorage but this does not mean they are not restrained. One reason is that the mandate of central banks involve price stability. If forestalling bankruptcy only comes at the expense

Chapter 20. The Central Bank

of hyperinflation, the owner of the central bank, the government, may prefer bankruptcy. Ultimately, therefore, the central bank is backed by the tax raising powers of the government.

20.7 Summary

The central bank is the most important institution in the financial system because it has a monopoly on creating money. It generally has five objectives: price stability, macroeconomic performance, financial stability, banking supervision and liquidity provision. The balance struck between these competing objectives varies between countries and over time.

The first two objectives are likely to be legal objectives but financial stability has risen in prominence during the recent crises. The supervisory function remains controversial with good arguments for and against the central bank taking on the responsibility. Another contentious issue is central bank independence, considered desirable for monetary policy but not entirely compatible with financial stability.

Central banks control the supply of money either directly or indirectly to achieve price stability. They have resorted to unconventional methods like QE since 2007 to stimulate the economy and finance the government. Their long term impacts are unclear but include a substantial risk of inflation.

Appendices

A Central bank interest rate

The most visible demonstration of monetary policy is the setting of interest rates. There is a number of different terminologies used when referring to central bank interest rates and these often can be confusing and even contradictory. Common names are the target rate, the short rate, the risk-free rate and in the US the Fed funds rate.

The interest rate set by a central bank is typically a short term rate, usually overnight rates for secured or unsecured large institutional borrowers and depositors with the central bank. It is often called the target rate because it is the interest target for the central bank, the short rate because it refers to short maturities, the risk-free rate because the government is risk-free, discount rate for historical reasons and the Fed funds rate in the US because the Fed stands for the federal reserve which sets the rates.

Confusingly, the short rate could also refer to the interest rate on short maturities bonds issued by commercial entities, while the risk-free rate could also refer to the interest rate paid by the government on any of its borrowings, regardless of maturity.

The term discount rate has multiple meanings. It originates from an old type of loan where a borrower would sell an obligation at a discount, promising to buy it at the full price in the future, what might be called a repo today. The effective interest rate is the discount rate. This term is most commonly used nowadays for short-term borrowing from the discount window of the Fed. However, it could just as easily be used for the interest rate used in regular present value calculations.

The term prime rate also has multiple meanings, traditionally it referred to the interest rate charged by banks to their best clients, hence the word prime. It now means generally interest rates paid by somebody who is very low risk, but we could easily see interest rates below the prime rate. Furthermore, in different countries it can refer to particular institutional setups. The US prime rate is not a single standardized rate. Each bank has its own prime rate, and the one that is quoted most frequently comes from the Wall Street Journal, which polls the thirty largest banks in the country.

Chapter 20. The Central Bank

Benchmark interest rates

We outline the terminologies of the three major central banks here. The Fed sets a *target* federal funds rate. This is the unsecured rate banks charge each other in the interbank market for borrowing reserves held at the Fed (known as federal funds), usually overnight. The federal funds rate is determined in the market, but the Fed can influence this rate through open market operations, reserve requirements and the discount rate. The discount rate is the interest rate charged to banks when they borrow overnight directly from the Fed, through the Fed’s discount window.

The main interest rate for the ECB is known as the main refinancing operations fixed rate, this is essentially an one week repo rate where banks put up acceptable collateral with the ECB and get a loan in return. Refinancing operations are conducted via auctions, the ECB specifies the rate at which it is willing to lend money and the amount of liquidity available, and the banks then express their interest. The ECB also sets the “marginal lending facility”, which is a secured overnight rate. Banks can use this facility to borrow overnight from their national central banks after providing acceptable collateral. This rate provides a ceiling for the overnight market interest rate, and is similar in nature to the discount rate used by the Fed. There is also a deposit facility where banks can make overnight deposits with their national central banks. The interest rate on this facility similarly provides a floor for the overnight market interest rate.

The benchmark interest rate for BoE is known as the BoE base rate, which is the rate that BoE charges banks for secured overnight borrowing. It is usually transacted as an overnight repo against high quality collateral. This is more comparable to the Fed’s discount rate rather than the federal funds rate.

CHAPTER 21

THE EUROPEAN CRISIS

The global financial crisis that started in 2007 originated within the financial system, as discussed in Chapter 17 (the ongoing crisis: 2007–2009 phase), it reached its peak in the second part of 2008, and by 2009 it looked like the crisis was over. However, for parts of Europe the worst was yet to come, since soon afterwards a sovereign debt crisis erupted, strongly affecting the European economies and spilling over to the rest of the world.

The crisis started when Greece was unable to meet its sovereign debt obligations in 2010, eventually receiving a bailout. It was followed in short order by Ireland, Portugal, Spain and Cyprus all being bailed out as well. However, while the crisis is often referred to as a *sovereign debt crisis*, that term is a misnomer, because just as important are the banking and the growth crisis, as well as the political crisis.

We might just as well just call the crisis the *European crisis*, or even the *euro zone crisis*. However, those terms are also not strictly correct since only some European countries have been seriously affected while others have enjoyed positive economic performance throughout.

The European crisis reached its peak in 2012. At that time, the European authorities took the necessary steps to stop the crisis, manifested in an announcement from European Central Bank (ECB) president Mario Draghi in July 2012:

“Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough.”

Chapter 21. The European crisis

Here, Draghi is speaking with the full backing of the key European governments and the European Union (EU). This speech marked a key turning point. From that point, speculation about a break-up of the euro zone receded and the economic situation stabilized.

Three different bodies have come together under the name of *Troika* in fighting the crisis:

Definition 21.1 (Troika) *Most bailout loans have been jointly provided by the International Monetary Fund (IMF), the European Commission (EC) and the ECB, who took a lead role in evaluating, choosing and supervising the implementation of the bailout packages and required reforms, whilst also providing advice. These three entities came to be known as the Troika. This term has recently fallen out of favor.*

Links to other chapters

This chapter makes use of important concepts from Chapter 7 (banking crises), which also relate to the concepts of Chapter 4 (liquidity) and Chapter 14 (bailouts). The role of the ECB in the crisis was discussed in Chapter 20 (the central bank), and the role of the IMF was developed in Chapter 6 (the Asian crisis). Bank runs and deposit insurance Chapter 8 (bank runs) and probability of default, presented in Chapter 10 (credit markets) are concepts relevant to this chapter. The first part of the crisis was analyzed in Chapter 17 (the ongoing crisis: 2007–2009 phase).

Key concepts

- Monetary union
- Common market in banking services
- Banking crises
- Sovereign debt
- Growth crisis
- Political crisis
- Deposit insurance
- Crisis resolution

21.1. OVERVIEW OF THE CRISIS

Readings for this chapter

Due to the recent and ongoing nature of the crisis, there are few general papers that conclusively analyze and draw conclusions from the crisis. General overviews of the crisis are provided by Lane (2012) and Shambaugh (2012), while its political aspects are covered by Hall (2012). Thorough descriptions and analyzes of the problems faced by the countries in crisis and details on the financial assistance and stabilization programs are provided by the EC.

21.1 Overview of the crisis

The European crisis started with the Greek bailout in 2010, as seen in the timeline in Figure 21.1. However, as so often is the case with crises, the underlying problems started long before. While there are several causal factors, perhaps the most important is the monetary union followed by the common market in banking services.

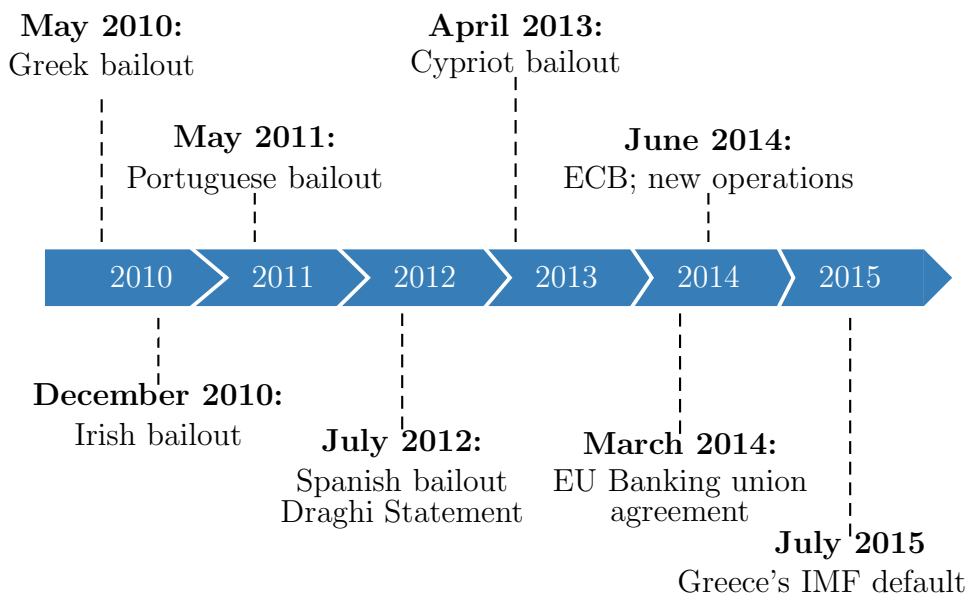


Figure 21.1: Timeline of the crisis

Convergence of interest rates

The general market perception before the crisis was that loans to euro zone sovereigns were all somehow backed by all the members, so that regardless

Chapter 21. The European crisis

of the underlying structural problems, loans ended up carrying the same interest rate, as seen in Figure 21.2.

The history of convergence in bond yields goes back to the Maastricht Treaty, see Section 19.4.4, after which European sovereign bonds became seen as essentially interchangeable, so that there was little difference in rates paid by the strongest and weakest members. Market participants seem to have assumed that government bonds of the weakest members were backed by the stronger members, explaining anomalies such that when in 2003, Italy had a debt level of 97% of GDP, compared to 38% in Germany, the spread on Italian 10-year bonds was less than 20 basis points.

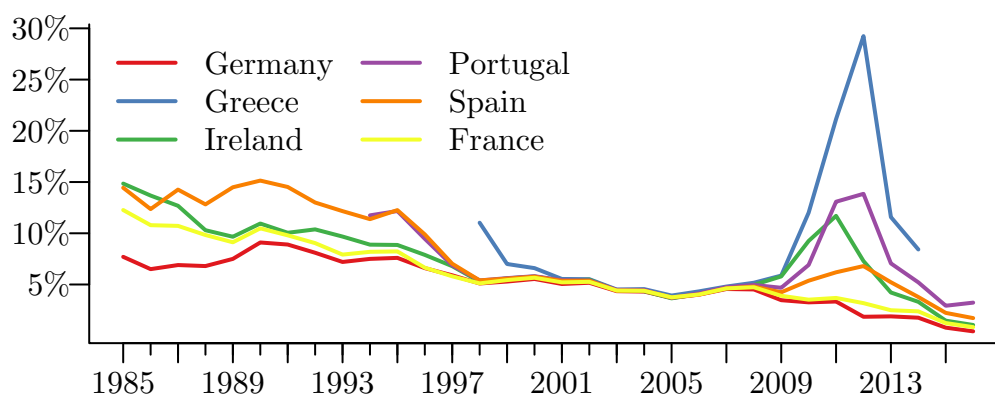


Figure 21.2: Selected European long-term bond rates (annual max).

Datasource: ECB

Only some members of the euro zone have been seriously affected by the crisis as seen in Figure 21.5. By far the worst affected is Greece, having seen its GDP drop by a quarter, followed by Italy which fell back into recession in the first half of 2014 and is still in a fragile state (see Section 22.3). By contrast, Germany has shown moderate growth across the crisis period, as have some other euro zone members like Austria and Belgium.

Financing the sovereign bailouts

The initial motivation for providing support to the crisis countries was the belief that the affected states were facing a liquidity crisis, not a structural or a solvency crisis. Once the need for liquidity was acknowledged, all the European countries had to agree on both the size of the financial assistance packages and the structure of the funding.

21.1. OVERVIEW OF THE CRISIS

If the problem facing the crisis countries is really just liquidity shortage, a particular type of crisis response is called for: Liquidity support (see Chapter 4 (liquidity)). In particular, the experience from the Asian crisis, (Chapter 6 (the Asian crisis)) and the theoretic discussion in Chapter 4 (liquidity), indicates that the size and credibility of a liquidity support package needs to be very large, with immediate availability. In other words, a liquidity support package has to demonstrate “*shock and awe*”.

The inability of the Troika to provide sufficiently large packages led to avoidable repeated crisis events, with Greece requiring three bailouts. However, while liquidity played an important role in the crisis, structural problems seem to be even more important. In that case, bailing out countries risks removing the pressure for implementing structural reforms. Therefore, the objective of a rescue package should not just be to increase the confidence of investors, but also to implement reforms so that a country can sustainably grow and meet its obligations.

Box 21.1 (European financing programs) *The crisis led to the development of two euro zone financing programs: The European Financial Stability Facility (EFSF) and the European Financial Stabilisation Mechanism (EFSM). The EFSF and the EFSM were transformed into the permanent European Stability Mechanism (ESM) in October 2012.*

In 2013, the IMF criticized its own performance concerning the Greek first bailout, especially the lack of sustainability in the level of public debt and the importance of spreading the burden of adjustments across different sections of the society in order to gain popular support and credibility. The report also underlined the importance of being more critical about official data from sovereign governments. In a 2016 report, the IMF commits to continuing support for Greece, while admitting that the country is still in need of more IMF support to overcome the current economic turmoil.

The handling of bank failures

One of the most dangerous aspects of any banking crisis are bank runs, and following the experience of the widespread runs in the Great Depression, most countries have taken measures to prevent runs, most importantly deposit insurance, discussed in Chapter 8 (bank runs). The run on Northern Rock in 2007 demonstrated the importance of high quality and credible deposit

Chapter 21. The European crisis

insurance schemes, and consequently, the integrity of the deposit insurance scheme in Europe became the first order priority, especially in the critical fall of 2008. Before the crisis, minimum deposit insurance in Europe was around €21,000, and it could take considerable time for depositors to receive those funds. Now, minimum deposit insurance is €100,000, and most countries will pay it out quite quickly.

In June 2015, a report published jointly by the presidents of five EU authorities (including the ECB, the EC and the European Parliament) suggested the creation of a European Deposit Insurance Scheme (EDIS) by mid-2017. The EDIS would consist of a re-insurance system, complementary to the pre-existing national schemes. It would also be financed through ex-ante risk-based fees charged on participating banks in all member countries of the banking union.

Box 21.2 (Who pays?) *Early on in the crisis, the European governments decided the taxpayers should shoulder the entire burden of bailouts, shielding creditors. Reasons for this were as follows:*

First, governments thought the eventual amounts would not be too large and recoverable and that there might be unacceptable disruptions in the financial markets, especially after the near-shutdown of financial markets caused by collapse of Lehman. Second, there were systemic and political concerns about individual creditors like vulnerable banks and insurance companies.

The “taxpayers pay all” position was only ever seen as an emergency measure and over time became increasingly unpopular, with increased emphasis on burden sharing with shareholders and creditors.

How the ECB contributed to the banking fragilities

The constitution of the ECB (in)directly contributed to increasing fragilities in the European banking sector. Under EU law, the ECB was forbidden to directly finance member countries. The ECB actively encouraged European banks, and particularly Greek banks, to increase their holdings of their country’s government bonds to prop up the country’s debt, as presented in table 21.1. In other words, the ECB encouraged a quantitative easing (QE) program by the backdoor. It was not until March 2015, in the context of its newly implemented QE program, that the ECB started outright purchases of

German and Italian bonds. But with the key difference that risk was being transferred to commercial banks rather than being taken by a state entity as European banks accumulated risky Greek bonds.

21.2 Four crises in one

Although sovereign debt is at the heart of the crisis, only some member states of the euro zone have excessive debt levels. Instead, it is the confluence of four interrelated crises — banking, debt, growth and political — that come together in the European crisis, as depicted in Figure 21.3. The common factor is the interconnectedness of European economies due to the common market in financial services and especially the common currency, as discussed in Chapter 19 (sovereign debt crises). The common currency prevents countries from responding individually and optimally to the crisis, handicapping monetary policy as a crisis-fighting tool, leaving only fiscal policy, internal devaluation and structural adjustments. However, fiscal policy cannot easily be used in many cases because of high debt levels and falling fiscal revenues.

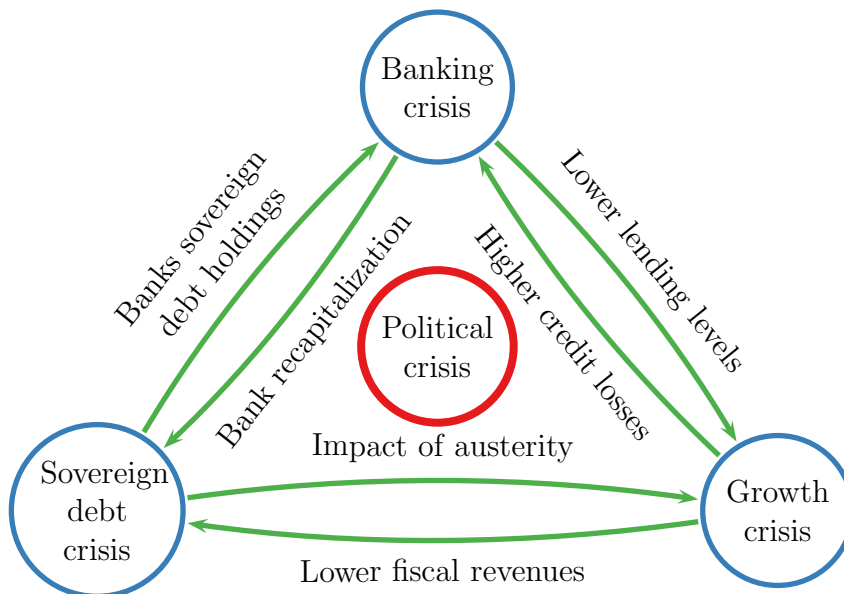


Figure 21.3: Relationships between the crises

21.2.1 The sovereign debt crisis

The European crisis first became visible when some member states were unable to meet their sovereign obligations and had to be bailed out by the Troika. However, public debt levels in Europe and the euro zone are not out of the ordinary on the global scale. Figure 21.4 shows the debt of selected countries, and while some member states are amongst the most indebted, many have averages similar to non-European developed countries, and some enjoy very low debt levels.

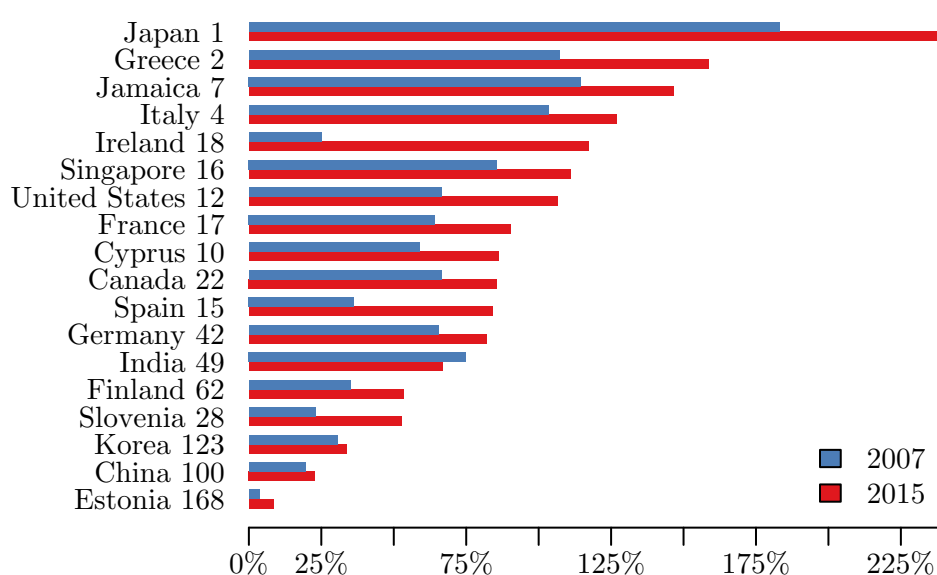


Figure 21.4: Gross debt of selected countries and global rank out of 173 countries, 2007, 2015

Datasource: IMF

Furthermore, a country's debt levels may be seen as safe when economic conditions are benign, but if the environment turns, the same debt level quickly becomes unsustainable. That is what happened to some European countries. See the discussion in Section ?? on debt intolerance.

The business and credit cycle

Rapid credit growth has throughout history been a powerful indicator of upcoming financial crisis (see e.g. Schularick and Taylor, 2009), and the European crisis is no different. In the boom years before a crisis, credit grows

rapidly, but is increasingly directed to unprofitable investments, often in real estate. Eventually, the level of credit becomes unsustainable and a crisis ensues.

In the case of Europe, this was fueled by international capital flows. Prior to the crisis, the countries on the periphery borrowed large amounts from the core countries. In Spain and Ireland, these funds went largely into real estate, while in Greece most financed public spending. When the collateral for these loans fell in value in Ireland and Spain, the banks were hit by the large amount of non-performing loans deteriorating their capital levels and threatening their solvency.

21.2.2 The banking crisis

Due to its colonial history and substantial cross-border trade, Europe has always had more than its fair share of large internationally active banks and the global banking crisis, discussed in 17, affected Europe especially strongly. As noted in Table 18.3 and Figure 1.2, Europe's banks and banking systems are very large compared to GDP.

With the establishment of the common market, European banks took full advantage of the new opportunities to expand across Europe. Funding costs converged across the Union and exchange rate risks as well as previous market-based restrictions on lending activity were eliminated. Core countries intermediated savings throughout the euro zone, giving rise to increasing interconnectedness and interdependence, thereby creating stronger channels for contagion. As noted by Goodhart and Schoenmaker (2009), by 2006, European banks had on average 26% of their activities in European countries other than their home country, with some reaching 70%. Furthermore, as noted in Section 24.1, the European banks were active in mediating funds between American savers and borrowers, creating vulnerabilities that were hard to detect.

Inevitably, any failure of a sizable European bank was likely to adversely affect several member states. Unfortunately, regulations did not keep up with the international operational scope, and national governments were often responsible for supervising both the domestic and international operations of their banks, whilst ultimately being responsible for the fallout from their failures.

The periphery nations attracted large amounts of capital in a short period of time, increasing investment and consumption. For example, net foreign liabilities of the Irish banking system increased from 10% of GDP in 2003,

Chapter 21. The European crisis

to 55% in 2007, while the corresponding numbers for Spain are 35% to 65%. Since the crisis, European banks in core countries have been retrenching away from the crisis countries, adversely affecting small and medium-sized enterprise (SME) lending in those countries and hence holding back recovery. There are two different explanations for the banking crisis. In some countries, the banks were the culprit, with excessively loose lending without adequate standards, insufficient regulatory oversight and high levels of leverage. In other cases, the banks were more prudently run and regulated, but fell victim to the sovereign debt crisis, partly because they placed too much faith in the risk-free status of government debt. The first category includes Ireland and Spain, but also Belgium, Germany, France and Denmark, while Italy and Greece fall into the second, with Portugal leaning that way as well.

21.2.3 The growth crisis

Underpinning the banking and debt crises is a deeply rooted structural problem in many European countries, which are increasingly seen as uncompetitive globally. While this is a long-running problem, it has become especially problematic after the crisis started, since these countries have experienced anaemic growth post 2007.

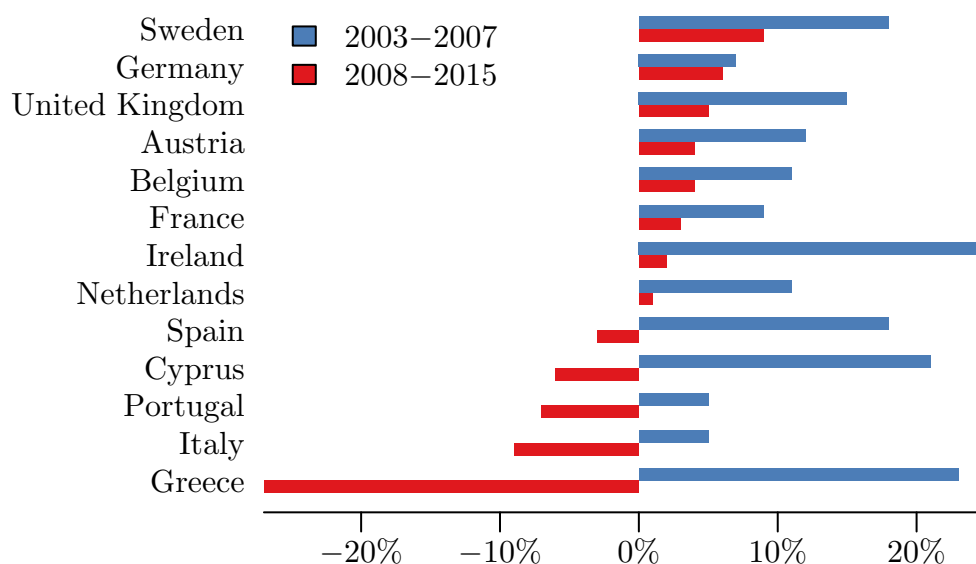


Figure 21.5: Economic growth

Datasource: Eurostat

21.2. FOUR CRISES IN ONE

The structure of the European economy changed significantly with the rise of Asian economies. The former European low cost-producers, like Italy and Portugal, faced new competition, especially from China, and failed to implement structural reforms to maintain competitiveness.

Before the introduction of the Euro, those countries tended to use currency devaluations as the main mechanism for maintaining price competitiveness, being unwilling to match government revenues with expenditures, consistently increasing sovereign debt levels. This is problematic for high debt countries not the least because a slowdown in GDP growth will contribute to increasing debt/GDP ratios, all else equal, leading to a vicious feedback loop.

There are two main reasons for this. *First*, as a country's economic situation deteriorates, the revenues from taxation also decrease. As a result, the fiscal deficit grows larger, contributing to increased debt levels (or constraining debt repayment), unless the decrease in revenues is offset by a decrease in expenditure. *Second*, as the growth prospects of an economy appear negative, investors become more wary of the capacity of the sovereign to repay their debt, and start asking for higher interest rates to compensate for the higher risk. When the rating agencies assess the quality of sovereign debt, one of the criteria they use is growth prospects. This exacerbates the negative feedback loop.

The uneven distribution of growth across member states contributes to the problem. Any country suffering large current account deficits is accumulating debt, and becoming increasingly vulnerable to changes in capital flows. Even though such debt is private, there is always the chance that the sovereign will have to take some of this private debt onto its own balance sheet, as often happened in this crisis.

While countries with large current account deficits are most at risk, those with a current account surplus are not immune either, both because their economic activity is highly dependent on demand from abroad and they often hold the debt of the high current account deficit countries. Large — and even small if over a long period of time — differences in growth patterns can therefore create instabilities within a currency union, unless they are countered by some balancing effect such as the migration of labour to wealthier economies, or internal subsidies. This in turn contributes to a deepening of the crisis. It is for this reason that it is difficult to maintain a currency union without some transfer mechanisms.

21.2.4 Political crisis

“There are no new issues in economic theory with Europe and the Euro [...] the difficult thing is the politics.”

Thomas Sargent (2011)

The three economic crises are well understood, and whilst there are disagreements as to what economic track to take to solve the crisis, many of the conflicting proposals are individually sensible. What is lacking is the political capacity to achieve a coordinated response to the crisis.

The original motivations for creating the EU were never economic. The EU was created in the 1950s because European leaders believed that the best way to prevent another war was European integration. In this, the generation that decided on and implemented the monetary union and the common market in banking services, was the last generation of European leaders directly affected by the Second World War (WWII). For them, the political reasons dominated the economic. This meant that key issues were swept under the carpet, as noted in Section 19.4, leaving institutional flaws that are now at the root of the European crisis. Politics has therefore not only become the main factor in preventing a resolution of the crisis, but also a direct cause.

The Union mainly faces two political challenges:

Decision lags

Whilst there are many clear economic advantages from greater integration like a common market and the coordination of policies, this also has created multiple layers of decision-making. That increases the amount of bargaining frictions as well as political differences between nations and lengthens the policy-making process. For an overview of European decision-making, see Figure 21.6.

These frictions have significantly impacted the resolution of the crisis in Europe and explain why the euro zone was not able to react as swiftly as nation states, such as the US or the UK have. In any nation state, the government can directly address economic problems, and in a crisis can react very quickly.

By contrast, passing a simple law in the EU requires the EU to submit a bill to both the European Parliament (EP) and the Council of the EU representing the governments of all 28 members, all catering at the same time to their national electorates. Therefore, for future crises, it is important to have the

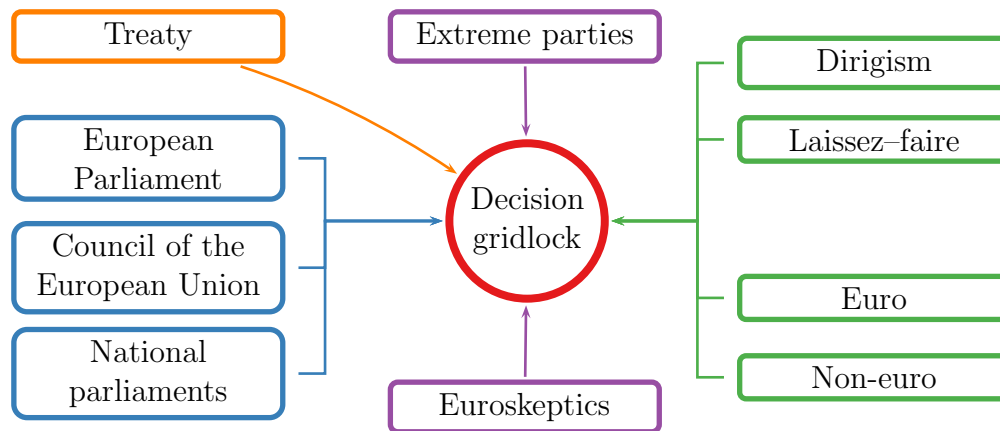


Figure 21.6: Politics

necessary set of rules and resolution mechanisms in place prior to a crisis. A concerted effort to achieve this has been made in the rules concerning banking union (BU); however as indicated in Box 21.2 there must be some doubts as to whether this has been entirely achieved.

Balance of power

One can also define the euro zone loosely as two opposing camps, crisis and non-crisis countries. The non-crisis block includes countries such as Germany, Belgium, the Netherlands, Luxembourg, Finland and Austria, while the second block was composed of countries like Greece, Italy, Ireland, Spain, Portugal and Cyprus. When a country exits the bailout process, and hence ceases to be a crisis country, it often takes a very strong position against other countries in crisis. This became very clear in the attitudes of Ireland, Spain and Portugal towards Greece. The reason is that the political justification for undergoing the crisis resolution process and the accompanying austerity is only validated if the crisis ends. Therefore, the austerity becomes seen as the necessary condition for ending a crisis, and consequently other countries who as unwilling to do the same become seen as irresponsible.

Both set of countries have a position that gives them some leverage in bargaining. Obviously, if the crisis countries refuse the conditions imposed by the non-crisis countries, they face the risk of not receiving aid. However, if non-crisis countries fail to reach an agreement on the terms of the financial assistance, and let the countries in crisis fail, they would themselves be severely impacted by these failures. That could happen for several reasons,

Chapter 21. The European crisis

for example if their own banks get into difficulties or the the currency unit is threatened.

Several observations may have tilted the balance in favour of the non-crisis countries. *First*, as providers of the loans, a failure to reach an agreement has a less severe impact on their economies than on the economies of the recipients and they are generally adequately placed to bail out their own banks if required. *Second*, the way the crisis was seen by the electorate of the respective countries. The revelations about Greece's fiscal mismanagement and misreporting of their budget deficits made the Southern countries appear economically irresponsible. It became difficult both for crisis countries to impose conditions and for Northern countries to accept them. *Lastly*, the elites of the indebted countries see joining the EU as having been beneficial and consequently fear being kicked out.

21.2.5 The relationship between the crises

The key feature of the European crisis is that all three economic crises (banking, growth and sovereign debt) feed into each other, as illustrated in Figure 21.3. Initially, the banking crisis affected sovereigns. Both Ireland and Spain had fiscal surpluses prior to the crisis, and decreased their debt to GDP ratios. But as the banking crisis struck, bank recapitalizations and guarantees quickly demanded large amounts of financing, increasing deficits and the accumulation of public debt, at the same time as the recession lowered tax incomes, further exacerbating the deficit. Countries hit by a banking or sovereign crisis are likely to implement austerity programs to curtail deficits and increase confidence in the markets, either because they themselves believe this to be good policy or because they are forced to do so by their creditors.

The constitution of the ECB is strictly opposed to suffering losses from providing credit to the crisis countries. Therefore, like any creditor, it is naturally inclined to demand implementation of policies it sees as maximizing its chance of recovery.

While the European banking sector is retrenching into the core, the banks are hoarding pre-dominantly domestic sovereign bonds with help from the ECB liquidity programs, see Table 21.1. There is an important distinction between holding domestic government bonds and the bonds of other euro zone member states.

21.3. INTERNAL DEVALUATION AND STRUCTURAL REFORMS

	Italy	Portugal	Spain	Germany	Total euro zone
January 2012	6.8	4.6	6.3	3.5	4.6
February 2014	10.2	7.4	9.5	4.6	5.8

Table 21.1: Own government debt as percentage of bank assets

Data source: ECB

21.3 Internal devaluation and structural reforms

The crisis has not affected all European countries equally. Following the crisis, severely-hit members of the euro zone were unable to devalue their currency to inflate their debt away. Therefore, they usually resorted to internal devaluation to maintain their competitiveness and support their economic activity. They were also required by non-crisis countries to implement structural reforms and austerity measures, which were usually contested by local populations and had severe domestic political costs.

Box 21.3 (The crisis debate: (Ir-)Rationality?) *While there are many competing hypotheses on the cause of the crisis, some commentators look for an explanation in the irrationality of financial markets, using arguments similar to those in the Asian crisis of 1998, see Section 6.3.2. For example, Grauwe and Ji (2013) see the pre-crisis rate convergence as the norm with the crisis-spread as a divergence. While they accept that fundamentals matter, they recognize that collective movements of fear and panic can have dramatic effects on spreads.*

In their view, market agents panicked, demanding irrationally large yields. They find that the spread on a country's bond, relative to German yields, was highly correlated with the degree of the austerity, which had a further negative impact on GDP growth and hence were counter-productive in reducing debt levels. Therefore, the commitment to unlimited support via the Outright Monetary Transactions (OMT) in 2012 provided necessary calming to panicking markets.

An opposite conclusion is reached by Buti and Carnot (2013) who argue that the loss on Greek bonds proved that market participants were

Chapter 21. The European crisis

not panicking and that spreads were correlated with the underlying fundamentals.

Ultimately, the irrationality arguments are not convincing for the same reasons we did not find them convincing as explanations for the Asian crisis (Section 6.3.2).

21.3.1 Internal devaluation

An obvious way to increase the competitiveness of a country is to devalue its currency. The option to devalue is not open to individual euro zone members since they do not have control over their currency, and is disliked by those who seek to join the euro, because the associated commitment not to devalue is expected to reduce financing costs and increase financial stability. The main alternative is internal devaluation, i.e. lowering domestic factor costs through targeted government policies so that domestic prices decrease. The end result of internal devaluation is thus similar to a currency devaluation. An important early case is the Hartz reforms in Germany during the mid-2000s, and several European crisis countries, including Ireland and Spain have done the same, to varying degrees.

The Baltic countries (Latvia, Lithuania and Estonia) also carried out internal devaluation in response to the dramatic decrease in external demand they faced as a result of the 2008 crisis. At the time, these countries had their currency pegged to the euro as part of the European exchange rate mechanism (ERM)–II mechanism, and were candidates for accession to the euro zone. Hence they were determined to show that they could handle the crisis without the need to devalue their currency. They successfully managed to reduce labour costs, although this came at the expense of a significant drop in output, high unemployment and lower standards of living. This has led some commentators to reject the idea that the Baltic countries were a successful example of internal devaluations.

However, this is often quite difficult, especially in countries with unreformed labour markets. The UK experience between 1925 and 1931 of an overvalued currency was almost continuous labour strife and recession.

One possible way to ease the process of internal devaluation would be to generate a euro zone-wide controlled inflation, thus lowering the real wages for the countries concerned. Countries such as Germany, however, are strongly opposed to such a solution and action beyond the pursuit of a 2% inflation target seems to be outside the scope of the ECB.

21.3. INTERNAL DEVALUATION AND STRUCTURAL REFORMS

21.3.2 Structural reforms

Internal devaluation can have negative implications in the long-run as much as in the short-run if not complemented by effective structural reforms. Non-crisis countries have demanded structural reforms as a condition for the bailout packages. Common examples include the liberalization of services and utility sectors or changes in the wage-bargaining system in order to increase productivity and reduce labour costs.

The labour market in the periphery countries is often singled out as being especially in need of reform, and some countries have already attempted some policy changes. Examples include Italy's labour and product market liberalization in 2011 and 2012 and Spain's labour market reforms. However, any such reforms are strongly resisted by vested interests. Reforms are often painful in the short-run, and, if any, beneficial effect is only realized in the long-run. For nations with high unemployment, removing obstacles for firing employees can lead to further unemployment in the short-run, especially for low-skilled labour, in a situation where the social needs are already desperate. Therefore, reforms require a broad political agreement, which can be difficult to achieve in countries that are experiencing a harsh recession.

It is unclear whether poorly paid workers can expect to benefit much from these kinds of reforms because the worsening in their bargaining position may easily outweigh any gains in the wealth of the economy as a whole. What is clear, however, is that they tend not to believe they will benefit and the rise of populism, anti-globalization and anti-EU sentiments are the result.

21.3.3 The austerity debate

Central to the resolution of the European crisis is the notion that austerity is necessary. A country is supposed to sharply curtail government expenditures and increase taxes, turning a deficit into a surplus. Applying such a rigor would then lay the foundations for future economic prosperity. Austerity finds some support in standard economic theory, but most mainstream economists are skeptical. The main support comes from the uniquely German economic school, *Ordoliberalism*.

The notion of austerity is highly controversial, Northern European policymakers are strongly in favor, as is the IMF, but others are more skeptical.

Not surprisingly, austerity measures have come under strong criticism, as voiced by Paul Krugman as early as 2010, which has since grown into a wider academic debate, see for example Cottarelli (2013) or Corsetti (2012).

Chapter 21. The European crisis

The austerity debate has strong echoes to the Great Depression (Chapter 2). At that time, countries on the gold standard, such as the UK, suffered from recession until they devalued their currencies, and became competitive. Under this argument, structural reforms were not needed, simply a realignment of prices, achieved by devaluation. Similar effects were at work during the ERM crisis in 1992, discussed in section 12.4.

Critics

The critics find the austerity measures to be too stringent, severely impacting efforts to revive GDP growth. They maintain that cutting government expenditure during a recession will aggravate the downturn and therefore be counterproductive. A decreasing level of GDP would counteract any efforts to reduce the debt/GDP ratio through debt reduction, and result in a decrease in living standards (through higher taxes or lower levels of public services and transfers), with no improvement in debt sustainability. In this, government spending is assumed to have a positive multiplier effect, where a change of one unit in government expenditures would affect GDP by more than one unit.

In normal times, government expenditures might crowd out private investment, but in times of crises, the multiplier might be much higher. This is backed up by evidence from the Great Depression where the rapid increase in government expenditures by the incoming Roosevelt administration from 1933 is seen as key in helping the US escape from the Depression. Therefore, economic stimulus is then better than austerity. Ideally, the exchange rate should be adjusted to make these countries more competitive, considering the negative experiences of the UK currency overvaluation between 1925 and 1931. However, since the majority of the euro zone countries is not in a recession, that is difficult to justify.

Proponents

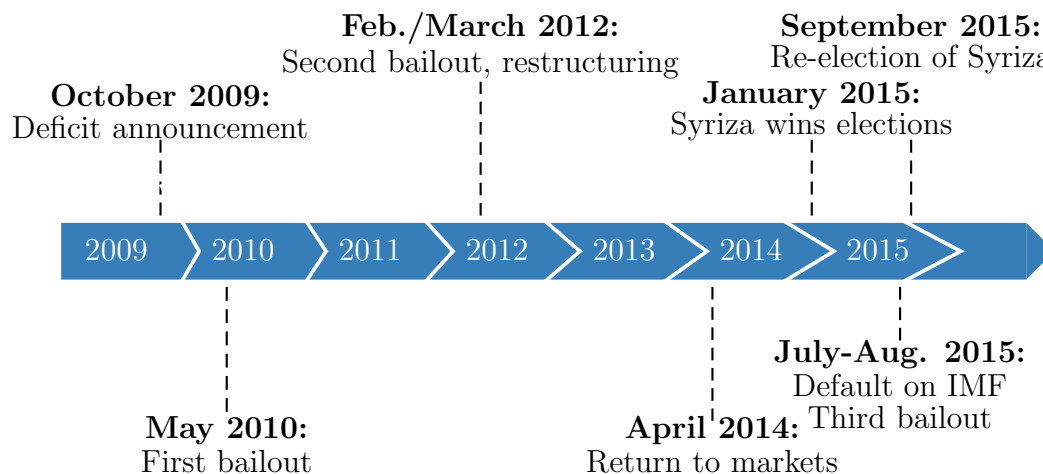
The proponents of austerity counter with two main arguments. *First*, that the stimulus multiplier is quite low, since the stimulus uses resources that could otherwise be used for more productive uses by private firms — the crowding out effect. In addition, any stimulus might just lead to increased savings if seen as temporary. *Second*, any increase in government debt might simply encourage lenders to demand higher interest rates, which in turn would drag down growth. Therefore, credible fiscal adjustments are seen as necessary to make the debt sustainable and keep interest rates low. This

21.4. THE GREEK CRISIS

might be relevant for some of the countries in difficulty, such as Portugal, Spain and Italy, but not for Greece given the ownership, maturity and interest rate of its debt. The austerity proponents have praised the strict austerity measures undertaken in Latvia, especially as these were accompanied by the highest GDP growth rate in Europe.

The IMF has historically been a strong proponent of austerity policies, but did admit they might have gone too far in the case of Greece, finding in a 2013 report that “Greece’s recent experience demonstrates the importance of spreading the burden of adjustment across different strata of society in order to build support for a program”. More recently, the Fund also advised France to slow the pace of austerity, though insisting on rebalancing the revenue side and the expenditure side (IMF, 2013a). However, the EC reacted to these criticisms by pointing out that the fiscal policy strategies that were being carried out were in line with other international organizations (such as the IMF and the OECD), and that the EC’s position was generally more flexible and less one-sided than commentators believed.

21.4 The Greek crisis



Every European crisis country has, at least for the moment (there are worries about Portugal), overcome its main difficulties, except Greece. When it adopted the euro in 2001, Greece did not comply with convergence criteria imposed under the Maastricht Treaty. But the entrance of Greece in the euro zone implied that it shared the same monetary policy as wealthier countries such as Germany or France, through the authority of the independent ECB

Chapter 21. The European crisis

and the use of the same currency. This caused the risk perception by international investors to decline and Greek interest rates to converge to those of wealthier countries. This gave the government the opportunity to improve its debt levels and finance structural reforms, but it chose not to. Instead, it took advantage of reduced interest rates to increase debt substantially, while economic growth was hindered by administrative barriers, protected oligopolies and corruption.

The spark starting the Greek crisis occurred when a newly elected Prime Minister revealed that the previous administration had falsified financial data and that public debt and budget deficit were actually much higher than initially announced. At that time, the benefit of being in the euro zone became a hindrance, as Greece could neither devalue nor use the central bank to monetize the debt. When it became clear that Greece could no longer meet its debt obligations in 2010, it got the first rescue package worth €110bn from other euro zone members and the IMF, conditional on strict austerity measures.

This soon proved insufficient, and Greece received a second bailout in 2012, accompanied by a private sector haircut, and a third bailout in 2015, after defaulting on its IMF obligations in 2015. The government implemented two new austerity packages as a condition for the third bailout, including higher and more uniform VAT, increased corporate tax rate and pension reforms.

The option of a *Grexit*, meaning that Greece leaves the EU, has been raised, but is not under discussion any more. Many Greek citizens fear that by leaving the euro zone, the country would also lose the discipline and the anchor of the monetary policy as conducted by the ECB. Even though the latter has been accused of managing poorly the European sovereign debt crisis, it is still regarded by a major part of the Greek population as more competent than national politicians in managing domestic economic affairs. Despite being elected on a populist platform including renegotiation or repudiation of European debts, Syriza has in fact proved willing to maintain the status quo.

Box 21.4 (Who owns the Greek debt?) *The composition and ownership of the Greek government's debt has changed following the rescue packages. First, the ownership shifted from private to official creditors. At the end of 2013, official creditors represented 94% of total loans and 89% of total securities both owned by non-residents. Second, euro zone members owned 60% of the Greek debt through the EFSF and the Greek Loan Facility. The IMF holds roughly 10% of the Greek debt, the ECB 6% and Greek banks 3%. Among euro zone members, Germany is by*

far the largest creditor, through the EU bailout fund but also through its national banks.

21.5 Summary

This chapter provided an overview of the many aspects of the European crisis. The central element of the crisis is the presence of feedback loops between the three economic crises (growth, banking, sovereign) and the political crisis. The crisis, however, only directly involved a relatively small part of the Union with the rest having done well economically.

Chapter 21. The European crisis

CHAPTER 22

ECONOMIC CHALLENGES FACING EUROPE

Most member countries of the EU have come out of the 2007/8 and the European crisis relatively unscathed. While they are not growing as rapidly as before, the fact that they have continued to grow indicates the two crisis were not as damaging as feared at the time and some commentators continue to argue even now.

The countries that did get into a crisis, notably Cyprus, Ireland and Spain have all successfully come out of it, Portugal has come out but remains very unstable and may well get back into crisis, while there is no end in sight for Greece.

However, with Portugal's and Greece's GDP each being only 1.6% of that of Europe, the economic consequences of crises in those two countries for the rest of the Union are relatively insignificant, if the special issue of the common currency is addressed, as it looks to be.

The individual countries that really matter are Germany with 20.1%, France at 14%, the UK at 13.3% and Italy at 11.8%. It is therefore a concern that the latter two present considerable challenges for European stability.

There are many competing hypotheses for the low growth in Europe and the rest of the world, often generally expressed as *secular stagnation*. In order to overcome that countries would need to embark on difficult reforms that only promise to deliver benefits far into the future, and that is just as politically

Chapter 22. Economic Challenges Facing Europe

difficult in Europe as it is in north America and the developed countries in Asia, like Japan and Korea.

Europe faces several difficult challenges above and beyond other developed countries in the world. While Korea or Canada can develop individual policies and if Korea is able to reform but Japan is not, it will not have all that much impact on anyone except the Japanese. It is not the same in Europe. Because of the structure tying the European countries together in the EU, and especially in the euro zone, a problem in any member state will have a direct impact on the rest.

Therefore, the asymmetric growth prospects and growing discontent with the European project cause considerable concerns.

Links to other chapters

This chapter is the sequel to Chapter 21 (European crisis). It also draws on inputs from Chapter 14 (bailouts).

Key concepts

- Direction for Europe
- Brexit
- Italy

Readings for this chapter

For further evaluation of the exit process, exit options and consequences of the Brexit, see Global Counsel (2015) and Centre for Economic Performance (2016). For a discussion on future challenges of Europe, see Reflection Group on the Future of the EU 2030 (2010). The topic of nationalism is discussed in Calance (2012).

22.1 Which way for Europe?

The major challenge for European countries remains political integration. Considering the divergences in economic fundamentals among member states, the sustainability of the monetary union would appear to depend on increasing fiscal integration, so lasting stability may depend on the establishment of a political union.

22.1. WHICH WAY FOR EUROPE?

A major issue for future European integration is the recent strength of nationalism and Eurosceptic forces within the EU, as shown in table 22.1.

Party	Outcome in last elections
Danish People's Party (Denmark)	29.4%
Freedom Party of Austria (Austria)	20.5%
Finns Party (Finland)	17.7%
National Front (France)	13.6%
Sweden Democrats (Sweden)	12.9%
United Kingdom Independence Party (United Kingdom)	12.6%
Alternative for Germany (Germany)	7.1%

Table 22.1: Active national parties in Europe and their latest electoral results

22.1.1 Fiscal and transfer union

A clear and direct way to enhance the ability of Europe is to implement a *transfer union* (see Section 19.4.3) and a *fiscal union*. This could take many forms. One early step would be *Eurobonds*, loosely defined as bonds issued by the EU to fund member states and backed by all member states. On a deeper level, it could also involve increasing tax raising powers of the EU institutions and redistribution across member states. This would be a key step towards what is sometimes called the “*United States of Europe*”, making Europe a single political and economic entity.

Significant steps in this direction might help resolve the crisis. Any country in difficulty would be able to rely on the support of the collective, and the most adverse effects of the austerity programs would be mitigated.

The key obstacle is political. A high and increasing proportion of European citizens are hostile to the idea of the EU, as can be seen by the recent voting results in major European member states and the recent Brexit vote. However, the prospect of Brexit has strengthened pro European feels throughout the Union.

Conflicts of interest over even one of the apparently less contentious steps, the issue of Eurobonds, illustrate the difficulties in implementing a fiscal union. The crisis countries would be happy to issue Eurobonds, but are not so keen on giving up sovereignty in economic decision-making. By contrast, the coun-

Chapter 22. Economic Challenges Facing Europe

tries that are performing well economically are deeply reluctant to guarantee bonds that would finance the crisis countries, and would only agree if accompanied by structural reforms and central control of fiscal and economic policy.

Any common fiscal policy would necessitate a consensus among European citizens on the level of redistribution and the form of a welfare state they would like to support. Such a consensus currently seems to be a distant reality.

22.1.2 Breaking apart

On the other extreme, the euro zone, and even the EU, could break up in its current form. Countries would revert to their own national currencies, and many of the elements of the Union would disappear, perhaps even the common market. Individual countries might want to retain a common currency and a common market, but on a smaller scale and probably less ambitious form than the current Union. The crisis countries would then be able to manage their currencies in the best way for their economies, devaluing to achieve competitiveness. This would be disruptive and recessionary in the short run, due to the substantial uncertainties created. However, once these losses had been recognized, it would insulate the non-crisis countries from the future activities of the crisis countries and would probably force the recognition of the immense transfers that have already taken place from core to crisis countries.

Consequently, it might create longer-term conditions for prosperity and stability. This is the approach advocated by a number of anti-EU political parties. A more limited form of this scenario that has been suggested in the past, is for individual countries (Greece for example) to leave the euro zone, so that the common currency area becomes a more homogeneous group.

However, this solution is disliked by most mainstream political parties and appears to be unlikely in the current political environment unless nationalist parties manage to gain significant shares in their countries. There is a strong desire to keep the Union together, and preserve the euro, and unless that sentiment changes significantly, a breakup is not on the cards.

22.1.3 Adaptive approach—Muddling through

The more likely alternative is to continue as Europe has for the past years. European policymakers have in effect tied themselves together and then cho-

sen to walk blindfolded through a minefield, and so far have survived despite many painful discoveries and difficult decisions that have had to be made. The general approach has been to circumvent the most difficult questions whilst taking small but important steps towards European integration.

The ECB has become the main crisis fighting and growth stimulating institution, helping to encourage economic activity with liquidity substituting for structural reforms. This approach leaves countries with more successful economies somewhat insulated from the rest. The danger is that over time, more and more countries may face severe economic difficulties, with Italy, Portugal, Slovenia and even France at risk.

While muddling through is not likely to lead to any clear-cut resolution, it is by far the most likely outcome. The real question is whether the EU can be held together for long enough for time, increasing wealth and perhaps inflation to heal the problems of the past, or whether discontent in the crisis countries boils over first. The precedents of Greece, Ireland and Spain are encouraging though even though Brexit is not.

22.2 Brexit

The UK has been a member of the EU and its predecessors since 1973. It had expressed willingness to join much earlier, but ascension was vetoed by the French president Charles de Gaulle who worried that the UK was incompatible with the objectives of the Union.

The general shorthand for British exit from the EU is *brexit*.

The possibility of exiting is formalized under article 50 of the Lisbon Treaty.

Definition 22.1 *Article 50 is part of the Lisbon Treaty, which is an international agreement signed in 2007, amending the EU's fundamental Maastricht Treaty of 1993. Article 50 sets out rules and processes for a legal EU exit. It has never been used to date.*

Once the British government sends a note to the European Council, stating its intention to leave the European Union, a deadline of two years is applied to the exit negotiations. If an agreement is not reached after two years, Britain will be leaving the EU automatically and World Trade Organization (WTO) external tariffs will be applied.

Chapter 22. Economic Challenges Facing Europe

While membership of the EU has been contentious in most member states, by and large they have limited themselves to grumble about membership. In the UK by contrast, over the past years, a growing coalition of individuals with very different agendas, but unified in their opposition to membership were able to make membership a major political issue and eventually force a referendum on membership in June 2016.

The question put to the voters was whether they wanted to remain or leave, and 48% voted to remain and 52% to leave. The vote set in motion a process that is expected to see the UK leave the EU by 2019.

Demographics of the referendum

While support for remain and leaving was found in every demographic in the country, they tended to concentrate in particular demographics. The remainers were stronger in Scotland and Northern Ireland but the leavers in England and Wales. London is one exception, giving strong support for remain.

Generally speaking, younger voters favored remain and older leaving as seen in Figure 22.4.

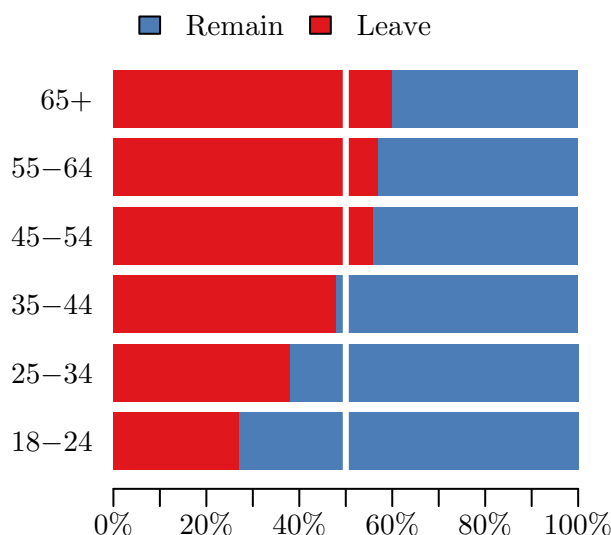


Figure 22.1: Voting behavior by age

Datasource: Financial Times

The most pro-remain party is the Green, followed by the liberal Democrats,

with conservatives and especially UKIP strongly in favor of leaving, (see Figure 22.2).

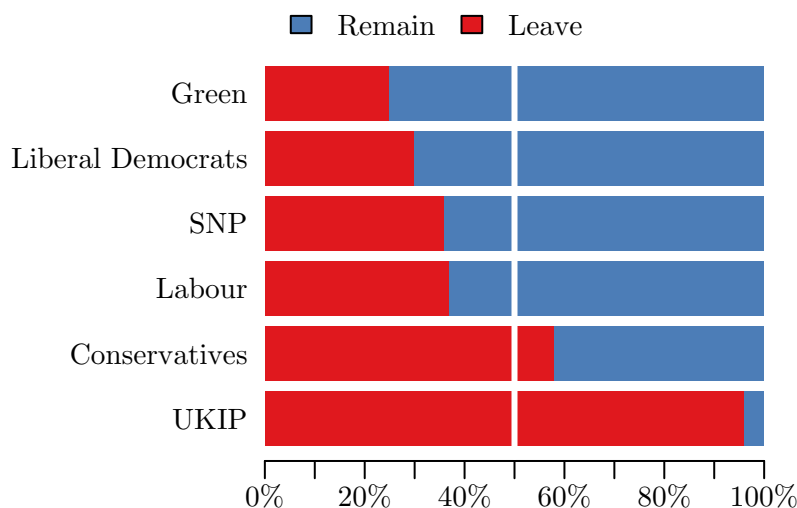


Figure 22.2: Voting behaviour according to affiliation with political party

Datasource: Financial Times

The most contentious issue in the campaign was immigration. A major principle of Europe, and one of its four freedoms is the free movement of labor. This comes about because of the common market implemented from the 1990s. In that, any citizen of a European country can move to any other country without any restrictions, find work and benefit from public services.

This is motivated by several reasons. One is memories of WWII and the large number of displaced people in Europe. Another is a general view that Europeans are the same people and should be able to move between countries. Yet another is economic, where people can move from country to country to find employment.

Both camps were driven by a range of objectives. Remain voters might see Europe in a more positive light, they value the economic benefit they see from membership, the younger part of the population might want to live in Europe and many saw positive benefits from immigration. Furthermore, some argued that Britain has more political and economic power within the EU and that it is more secure within the alliance of 28 member states.

The leave camp was similarly driven by different objectives. We can simplify the arguments into two distinct lines. The first was concern about immigra-

Chapter 22. Economic Challenges Facing Europe

tion and the erosion of traditional values. The number of immigrants as a fraction of the population of the UK is 8.4%, of which 4.6% come from other EU countries. That makes the UK the country with the 10th largest relative immigrant population in Europe, as seen in Figure 22.3. The strong opposition to immigration represents a reversal of the traditional British position on the issue. It was the largest country most strongly in favor of the ascension of the Eastern European countries that make up the bulk of immigrants, and both opposed and did not avail itself of tools to limit immigration. Therefore, until quite recently it had been the most pro-immigration of the large countries in Europe.

The second reason for leaving is more focused on issues on sovereignty, not being subject to European rules and regulations, in particular European courts, not having to make large net contributions to Union budget, as well as the belief that Britain would get a stronger competitive position globally if it was outside of the Union.

In the Brexit campaign the bulk of the economic arguments were on the remain side, with a number of large countries and international organization warning against leaving. Similarly, most economic experts within Britain, as well as a number of institutions including the Treasury and the Bank of England (BoE) warning against the consequences of Brexit. This led to strong attacks on economic specialists and the various institutions, with the following quote representative:

“I think people in this country have had enough of experts.”
— Michael Grove, Secretary of State for Justice

22.2.1 How Britain may want to get out

With Britain having been a member of the EU for 40 years its economy and rules and regulations are highly intertwined with that of the Union. The process of leaving is highly uncertain and important constituencies in Britain are pulling in different directions.

There are several important questions that will need to be addressed.

The most important is whether Britain would continue to be a member of the common market. The most important aspect of that would be to be a member of a *customs union* with the EU

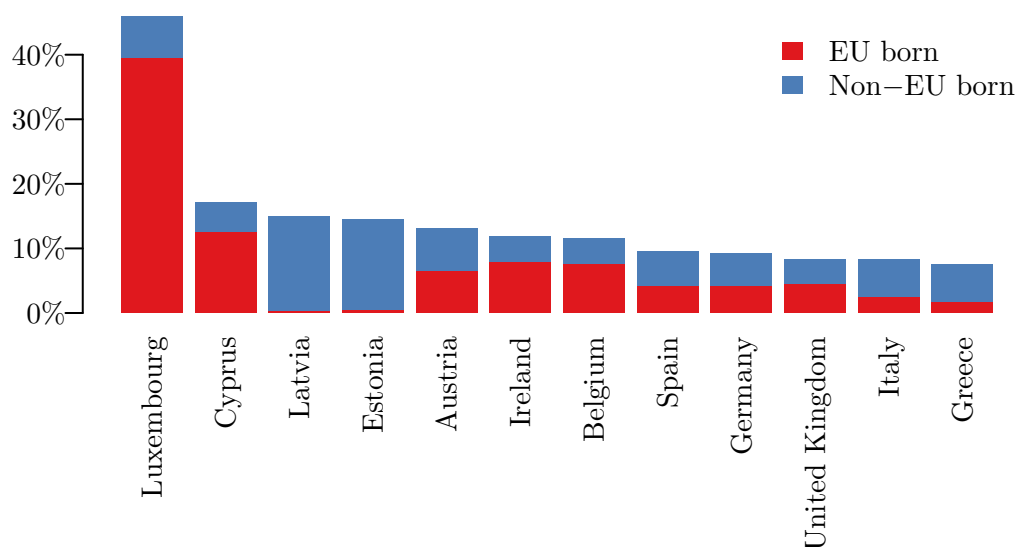


Figure 22.3: Fraction of immigrants in population

Datascource: Eurostat

Definition 22.2 (Customs union) *An arrangement between a group of countries where they agree to to fully free trade within the countries having a common external tariffs and trade policy to outside countries. As a part of the arrangement it becomes necessary to have common rules and regulations, for example competition policy because otherwise member countries could use non-trade barriers to favor their home countries.*

Another important question for Britain is whether it retains what is called the *financial passport*, which is the ability of the important British financial sector to continue to sell into Europe as if it was based there.

Possible exit options include

Membership in all but name: Britain would continue to be a member of the common market. In practice, that would most likely mean membership in all but name, including allowing full labor mobility, net payments to the Union and accepting EU rules;

European economic area (EEA)/Swiss model: Britain would join the EEA, or get similar agreements as Switzerland. This would mean that it would contribute to the EU budget, have to accept free movement

Chapter 22. Economic Challenges Facing Europe

of labor and continue to follow most European rules and regulations without the ability to influence them. This allows for mostly free-trade but not membership of the customs union;

Turkish model: Like Turkey, Britain could accept the EU's external tariffs while facing no extra tariffs within the EU, i.e. keeping the access to the single market for goods. This option does not cover free trade agreements (FTAs) between the EU and other parts of the world;

Canadian model: The EU and Britain sign agreed to mostly free trade in goods and services, but with each aspect negotiated separately;

Default WTO: Free trade agreements with the EU and trading under WTO rules. This however is complicated by the fact that Britain's membership of WTO is through the EU and it might have to join it before their rules apply;

Hard Brexit: Britain retains no special trade agreements with Union.

Key different voices within Britain strongly advocate one of these options, and both Parliament and the government are very split on the issue.

22.2.2 Impact on Europe EU

Britain is currently the third largest member of the Union, after France and Germany and ahead of Italy. These four countries are the most dominant when it comes to determining economic policy and each supported by a number of smaller countries.

Among those four, the UK has been the most liberal and is supported by countries like Sweden, Denmark, Finland, the Netherlands and the Baltic states. These countries are generally in favor of free-trade and minimum state intervention in the economy.

By contrast, France and Italy are much more statist and opposed to liberalism and free-trade. They are supported by members such as Portugal, Spain and Greece in the overall approach to economic policy.

With Britain gone, so will be the strongest liberal voice, with European policymaking pulled to the left, with France and Italy much better able to get their vision of economic policy implemented. The end result will be a Union which is more anti-globalist, more wary of free trade agreement and more open to internal restrictions to trade, especially services.

22.3. THE NEXT CRISIS COUNTRY COULD BE ITALY

Merkels vs. Junckers

Just like Britain, the EU has many different voices pulling it into various directions. Some would want Britain punished so as to dissuade other members from leaving, while others are more concerned about the disruption to the already fragile European economy and would want to minimize in a disruption.

The main camps in this debate could be named the Merkels, named after the German Federal Chancellor Angela Merkel, and the Junckers, getting their name from Jean Claude Juncker, current President of the EC.

The Merkels are likely to want to negotiate rigid but fair terms instead of punishing Britain. The British have long been an ally for Angela Merkel against an overly powerful EU institutional body, advocating leadership through its member states, and against too lenient fiscal policies as promoted by France and the Southern countries.

The Junckers, on the other hand, want to use the Brexit to promote their vision of a more federal Europe, transforming the EC into a “European government”, since the UK has long been one of the most insistent opponents to a more powerful Europe. They want to be inflexible in the Brexit negotiations to make an example of Britain and prevent other countries from following.

At the time of writing, the outcome of this disagreement is open. It remains to be seen how the authorities on both sides will respond within the EU and towards the UK in the Brexit negotiations, and how this will affect the future position of the European Union.

22.3 The next crisis country could be Italy

Italy is a founding member of the EU, currently with the fifth biggest economy in Europe. It faces difficult economic problems, its sovereign debt is 135% of GDP and rising, while the employment rate one of the lowest in Europe. Productivity has been declining since the 1990s and economic growth has been essentially stagnant over this time period. Meanwhile it is one of the few countries whose population is declining.

On top of all the structural problems, it is also facing major problems in its banking sector. While Italy has some world-class financial institutions it also has a large number of small local financial institutions with close ties to their communities. Many of these banks are highly uncompetitive in a very

Chapter 22. Economic Challenges Facing Europe

fragile financial situation.

Causes of the problems

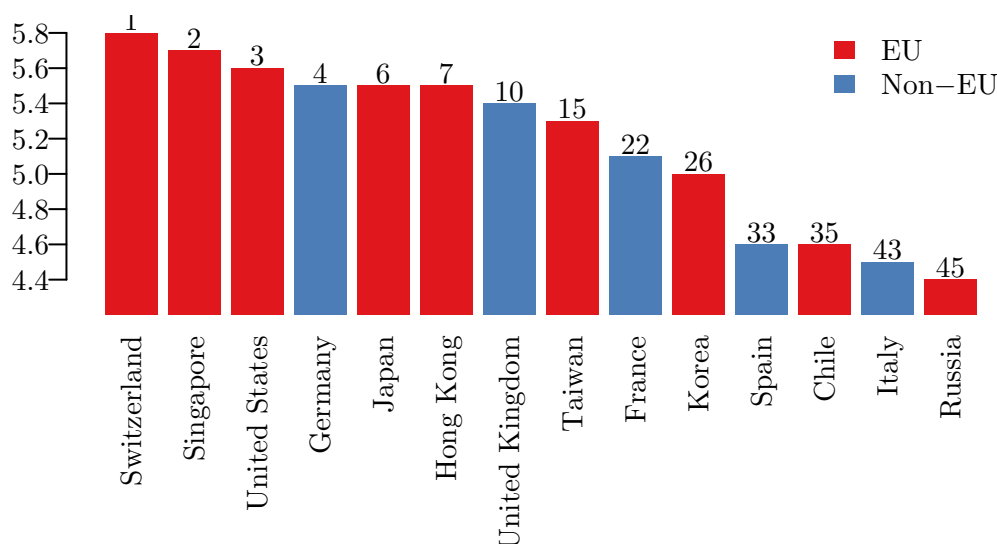


Figure 22.4: Competitiveness

Datasource: World Economic Forum

Italy's problems stem from a variety of reasons, including over-regulation, low productivity and stagnation. Many of the problems date back to the 1950s and 60s when Italy became an industrial powerhouse based on its export industry. In that, it occupied the lower tier positioning international capital markets, below countries like Germany. At the time, there was no competition from any of the Asian countries, but over time Italy, like other European lower tier exporters have met increasing competition, e.g. China. These European exporters were in effect squeezed from the top and the bottom, as seen in Figure 22.5.

Before the advent of the euro, Italy relied on currency devaluations to make its economy competitive, finding them an easy way to change relative prices. Meanwhile, it ran persistently large deficits, accumulating ever-increasing solvent debt.

These problems were masked in the early years of the euro, while Italy could not use competitive the evaluations as a policy tool anymore, it did find its

22.3. THE NEXT CRISIS COUNTRY COULD BE ITALY

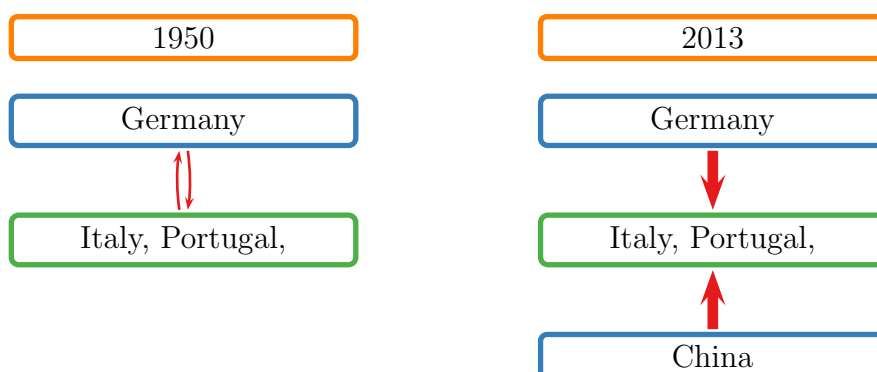


Figure 22.5: Squeeze

borrowing costs sharply reduced, and borrowing became a substitute way to stimulate the economy.

This was always unsustainable, and with the global economy not performing all that well, with competition from Asia steadily increasing and debt to GDP reaching 135%, Italy is in a highly vulnerable position. It will not take very much to trigger it into a sovereign debt crisis.

Meanwhile, Italy finds it impossible to implement the necessary economic reforms. Major issues include the labor market, corruption and tax collection, inefficient financial sector, bloated and inefficient public sector, and inflexible and costly bureaucratic system. The current main problem is the banks.

Italian banks

Italian banks have been suffering from a variety of issues: They face low yields on Italian government bonds, falling interest rates and, most importantly, a large amount of non-performing loans (NPLs), partially due to the anaemic growth that Italy experienced during the past decade.

NPLs sum up to around €360bn, i.e. 18% of the banks' assets. However, the lenders only have capital reserves to cope with about half of that amount. This level of NPLs is unmatched in Europe: For example, in France NPLs add up to 5% of banks' assets, and only 1.5% in the UK.

Another problem is that the current reported capital figures of Italian banks include deferred tax assets, making up 2–2.5% of their underlying equity. Those assets will not count as such under the new Basel III standards by the full implementation in 2019, as they are seen as unreliable capital sources.

Chapter 22. Economic Challenges Facing Europe

The omission of this item will cause capital figures to worsen further and increase market uncertainty about the solvency of Italian banks.

Example 22.1 *The Banca Monte dei Paschi is Italy's oldest and third largest bank. In 2015, it held €46.9bn of NPLs, one of the highest numbers in the domestic sector. In 2016, the ECB asked the bank to decrease its NPLs to €14.6 by 2018. This immediately amplified worries about the banks solvency and caused shares to drop down by more than 24% since June 2016.*

The Italian authorities failed to restructure the banking sector after the crises. The government's current preferred solution to save its banks and its economy is a bail out by the government. However, in 2009, the EU implemented a rule stating that existing bondholders have to take losses first before the state and thereby the taxpayers assume losses. It is questionable whether major governments are ever likely to stick to these rules when the incentives to find a way round them are strong. This is particularly so in the case of Italy, where about €200 billion are held by retail investors. In case of the EU-required bail-in by bondholders, a large portion of ordinary small investors would be badly hurt.

This is further made complicated because the Italian banking sector is politicized to an unusual level, with very close connections between the political leadership and the banking sector.

In addition, many Italian banks are very small and have very close connections to the local communities, with local residents both owning the bank's equity and providing funding. Consequently, the failure of such local banks is likely to have political repercussions much beyond what one would see in most other countries.

Political issues

Another banking crisis would have serious consequences

1. It would damage prime minister Mario Renzi's political reputation. No politician ever likes to be seen to be powerless in a crisis and at the moment he particularly needs public support to bring through a constitutional reform in autumn 2016;
2. The Italian economy would have to take another hit, as a bail-in would

even further damage market confidence and cause investors to retrench. The end result might even be a sovereign default;

3. If the Italian authorities are unable to implement popular bailouts because of EU rules, it is likely to fuel populism and resentment against both the Italian authorities and the EU, perhaps benefitting the Five Star Movement.

The EU authorities are in the similarly difficult situation. With Italy a founding member and the fifth-largest economy of the Union, any serious political and economic crisis in Italy will directly and strongly spill over to the rest of Europe

22.4 Summary

This chapter approached the question of how Europe will evolve during the next years and which current challenges it has to face.

The future of the EU is open — it can either try to continue its adaptive approach, split up entirely or make significant steps towards a fiscal union. It seems clear that muddling through will be attempted, although either of the other futures may impose itself at some stage.

With Brexit, Britain will be the first country to leave the EU leaving difficult and economic questions. Italy similarly presents difficult challenges. Its vulnerabilities have been building up for decades and it has been unable to reform itself.

Chapter 22. Economic Challenges Facing Europe

CHAPTER 23

CURRENT REGULATORY DEVELOPMENTS

This chapter replaces Chapter 18 in the printed version of the book.

Government policies towards the financial system have three high level objectives: Monetary policy, micro-prudential regulations and macro-prudential regulations. While monetary policy was discussed in Chapter 20 (the central bank), the focus in this Chapter is on macro-prudential and micro policies. Note that it is common to abbreviate micro-prudential regulations as micro-pru, or just micro, and macro-prudential regulations similarly as macropru or just macro.

Both macro and micro serve the same ultimate policy objective of ensuring that the financial system provides the best service to the real economy, but in detail their objectives are quite different.

Links to other chapters

This chapter gives an overview of the current developments in financial regulation. Thus, it builds on key concepts introduced in previous chapters Chapter 1 (systemic risk), Chapter 9 (trading and speculation), Chapter 8 (bank runs), Chapter 14 (bailouts) and Chapter 18 (ongoing developments in financial regulations).

Key concepts

Chapter 23. Current Regulatory Developments

- UK, US, European Union (EU) changes in regulatory framework
- Extraterritoriality
- Basel III
- Resolution
- Credit rating agencies
- Compensation
- Banking union
- Too big to fail

Readings for this chapter

A good starting point for keeping up-to-date on recent changes in financial regulation is to read articles and papers such as those found in the Financial Times and the Economist. More in-depth publications and studies can be found on the websites of national institutions (UK: Bank of England (BoE), US: US Federal Reserve System (Fed) or Congressional Research Service, EU: European Central Bank (ECB) or European Commission (EC)), international standard-setting bodies (Financial Stability Board (FSB), Bank for International Settlements (BIS), IOSCO) and international financial institutions (International Monetary Fund (IMF) and the World Bank).

23.1 Institutions and frameworks

23.1.1 Europe

Financial regulations have generally been designed and implemented on a Union level, but only implemented on a state level, but this is now changing. Before the crisis, different national supervisors had limited interactions with each other and often applied widely differing standards to regulations. The ECB was only focused on monetary stability, and there was almost no macro-prudential policy making within the EU.

The EU has been addressing this problem since 2008, and has taken major steps towards more centralized European supervision via new institutions like the European Systemic Risk Board (ESRB), the European Banking Authority (EBA) and the banking union (BU).

23.1. INSTITUTIONS AND FRAMEWORKS

European Banking Union (BU)

The creation of the BU was motivated by the fact that a more consolidated banking system and supervision were needed. The BU aims to make the European banking system unified, more transparent, and safer. It is composed of the Single Supervisory Mechanism (SSM) and the Single Resolution Mechanism (SRM) which are expected to allow for centralized supervision and resolution for banks in the euro zone. All euro zone members are part of the BU and all other countries in the EU can join if they wish to.

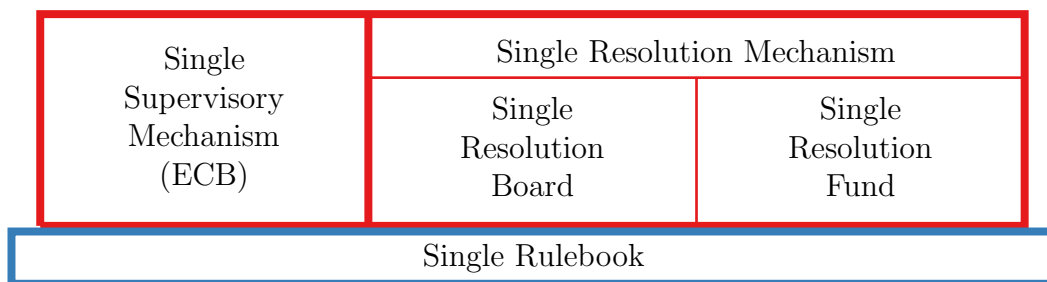


Figure 23.1: Banking Union

The SSM became operational in November 2014 and the ECB has become the prudential supervisor of many financial institutions, including roughly 6,000 banks, in the euro zone. The ECB takes direct responsibility for supervising the 123 most important banks, which hold about 82% of banking assets in the euro area. It also indirectly supervises ‘less significant’ institutions which are in turn supervised by their national supervisors.

National supervisors will still play an important role in the SSM, but having less power than in the past. They will assist in monitoring day-to-day operations of banks and enforcing rules set by the ECB.

Both the SSM and SRM are built on a set of common rules, known as the ‘*single rulebook*’, which is applied to all banks in 28 member states. The main objectives are preventing bank crises from happening, providing a common framework to resolve bank failures and protecting consumers when banks get into trouble. Capital Requirements Directive (CRD) IV, the Directive on Bank Recovery and Resolution, and the deposit insurance scheme are the main contents of the single rulebook.

Markets in Financial Instruments Directive (MiFID)

The Markets in Financial Instruments Directive (MiFiD) is one of the EU legislations. It contains regulations for financial services provided by investment

Chapter 23. Current Regulatory Developments

intermediaries and the operation of markets. The original MiFiD (MiFiD I) was implemented in 2007. It regulated the competition of services in the EU area and provided investor protection by strengthening the single market for investment services. The new directive is designed to enhance market transparency and supervisory power by requiring all organized trading to be conducted on regulated trading venues. Once a firm is covered by MiFiD, it is authorized and regulated in their home state but able to provide services to customers in other EU member states — an example of the passport.

Capital Requirements Directive IV (CRD IV)

One of the main initiatives of EU legislation is CRD IV, which is supposed to be fully implemented by 2019. CRD IV covers not only enhanced requirements for quality and quantity of capital, leverage, liquidity, a countercyclical capital buffer and capital surcharges for systemically important financial institutions (SIFIs), as proposed by the Basel III recommendations, but also tackles controversial issues such as limits to bankers' compensation which are broader than its Basel counterpart. CRD IV and Basel III are discussed in section 23.3 of this chapter.

23.1.2 United States

Regulation in the US has always been a complicated, multi-layered processes.

Dodd-Frank Act

The US has seen a radical readjustment of financial sector regulation and the centerpiece of these adjustments is the Dodd-Frank Act, signed into law in 2010 with over 2,300 pages.

Main contents of the Act include, among others, stronger consumer protection, an advanced warning system to protect against systemic risk, monitoring financial institutions from being too big to fail (TBTF), protection of investors by regulating credit ratings agencies, increasing supervision on insurers and increasing transparency and accountability for exotic instruments.

Financial Stability Oversight Council (FSOC)

The Financial Stability Oversight Council (FSOC) was established under the Dodd-Frank Act and is constituted of the Secretary of the Treasury,

23.1. INSTITUTIONS AND FRAMEWORKS

the federal financial regulators, independent insurance experts and the state regulators. It has a collective accountability for identifying and responding to risks for financial stability from financial and non-financial institutions in the US. To fulfill this objective, it is supposed to facilitate information sharing among member agencies as well as coordination among the regulatory bodies with the aim of preventing regulatory loopholes and blind spots. It can propose stricter regulatory standards and, if deemed necessary, break-up firms which pose a too high risk for financial stability.

Box 23.1 (Extraterritorial Rule in the US) *Extraterritoriality is the claim by a nation of direct legal authority over conduct that occurs outside of its borders. Recently, the US has actively sought to enforce its domestic rules on sanctions, counter-terrorism and international taxation.*

The American authorities argue that since banking is international, banks are used, unwittingly or otherwise, by international crime syndicates and terrorists. It therefore deems it necessary to ensure banking activities globally comply with its objectives. US authorities have handed large fines to its banks, and have not been shy to extend these fines to international banks. For example, in July 2014, the French BNP Paribas settled with the US Department of Justice for violating sanctions. The penalty was a fine of \$8.9 billion and a ban from some American clearing operations for one year. This was despite the fact that BNP as a French company carried out these activities from their European offices. Nor did it break French or European law. However, the transactions in question took place in USD and were cleared by the NYFed. American law states that private banks ‘anywhere in the world’ are prohibited from transacting in USD with any proscribed country.

They are able to push through with extraterritoriality and secure their foreign policy objectives because of the importance of the American financial system, especially due to the status of the US dollar as the reserve currency and, ultimately, due to having a sufficiently powerful military force and domestic economy to be able to ignore any objections.

In some cases European authorities may want to be seen as being publicly opposed to American laws being imposed on their institutions, while privately applauding the American’s initiatives. This is because in some respects the Americans are leading the way for global reform that may not have happened without them. For example, new American rules on the reporting of international assets and earnings have significantly moved

Chapter 23. Current Regulatory Developments

forward the process of sharing cross border banking information and thus reducing tax avoidance.

23.1.3 Global institutions

Financial regulations have been designed and coordinated internationally since the early 1970s. This is mostly done under the auspices of the Basel Committee on Banking Supervision (BCBS), most importantly with the Basel Accords, but also under the G20 and the FSB

Since the crisis, the lead in coordinating the international efforts in financial regulations and crisis response has been taken by the G20. The G20 consist of the twenty most important industrialized and emergent countries, among others the US, China, Japan, Germany and the UK.

In a summit in 2009, the G20 called for the establishment of the FSB. The mandate of the FSB is to monitor the global financial system, to coordinate with other relevant bodies like the IMF, the World Bank and the EC, and to make recommendations to member states.

23.2 Systemically important financial institutions (SIFIs)

Before the crisis, almost nobody worried about financial institutions being too large. Many countries aimed to have *national champions* capable of competing in international markets and projecting the prestige of the home country. However, after the crisis, the authorities have become quite concerned about SIFI, and launched a number of initiatives to deal with the negative externalities they pose and their unfavorable systemic impacts on the economy in case of distress. The G20 called for policies to prevent “Too Big To Fail” in 2010.

SIFIs are financial institutions whose failures can cause a systemic crisis. The importance of SIFIs relates to the TBTF problem discussed in Section 18.6. The failure of a TBTF institution creates significant problems for the real economy, and they tend to be bailed out by the government because of their threat to the real economy.

For global systemically important banks (G-SIB), but unlike other SIFIs like insurance companies and asset managers, a SIFI status can bring considerable

23.2. SYSTEMICALLY IMPORTANT FINANCIAL INSTITUTIONS (SIFIS)

benefits. If they are seen as being bailed out if they fail so their funding costs may be lower. In addition, there is a significant fixed cost element in financial regulations, so the bigger they are the better they can afford to comply. And more controversially, banks may be incentivized to become SIFIs, and that might entail both growing and increasing risk, but not the quality the internal organization.

The various TBTF initiatives aim to address those problems. Following G20 summits, the FSB has developed policy measure to address SIFIs which aim to be fully implemented by 2019.

23.2.1 Banks

The size and composition of the financial system are key factors affecting the systemic importance of individual financial institutions. As discussed in chapter 1, all things being equal, a country with a more heterogeneous financial system with many small institutions is less vulnerable to systemic risk than one more homogeneous with few large institutions. Figure 1.2 provides some guidance as to which European countries are more at risk. It suggests that generally, the US should be less vulnerable to systemic risk than most European, Asian and Latin American countries.

Regardless, most advanced economies contain banks that are especially large and therefore could be classified as G-SIBs. One of the main criteria is the ability of the government to bail out the bank in a worst-case scenario. Even though the amount of bank assets is a stock measure and the GDP is a flow measure, the ratio of bank assets to GDP of each country is one of the indicators for the size of its banking system. As can be shown in Figure 23.2, these ratios of major developed/developing countries are over 100% as of 2012 except the US which was 100.12% in 2008 and 89.4% in 2012.

European countries are ranked high in terms of bank assets to GDP ratio. The size of the banking system in the US has remained roughly constant while it has grown very rapidly in the UK. The most notable growth can, however, be seen in Brazil.

When the banking sector is relatively large compared to the GDP of the country, it does not necessarily mean high fiscal costs to save its distress banks. In terms of fiscal costs or the G-SIB problem, the ownership of each bank (domestic vs. foreign) or the number of banks in the banking system should be considered at the same time. When a bank is large enough, its failure could threaten macroeconomic outcomes even in the absence of spill over effects since it can drive variation in the aggregate supply of credit to

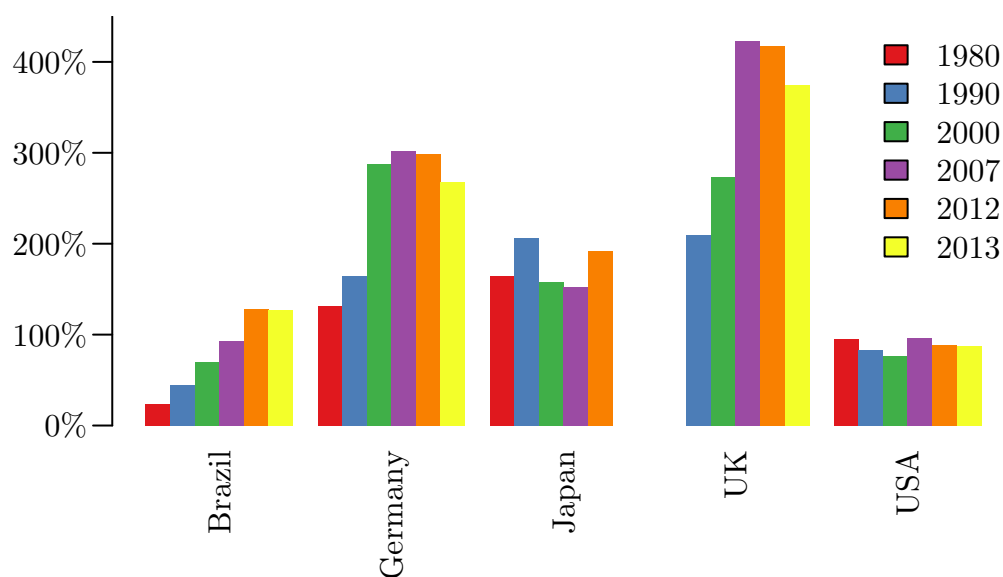


Figure 23.2: Bank assets to GDP

HELGI library

real economy.

Though the G-SIB concept is linked to the relative importance of each financial institution to the economy, attention is still paid to the size of banking system, as the larger the banking system, the more likely the failure of its banks would harm the real economy (too connected to fail).

Example 23.1 (Deutsche Bank (DB)) *According to a report by the IMF in 2016, DB is one of the biggest contributors to systemic risk alongside HSBC and Credit Swiss. All of them possess a high degree of possible outward contagion in case of failure, making intense supervision, monitoring of cross-border exposures and higher capital requirements necessary to contain the possibility of a taxpayer-funded bail out.*

In the case of DB, the risk is especially high because it links the world's largest financial lenders while in case of severe difficulties, the German government would not be capable to finance a bailout. Recently, DB has been a source of concern as its stock price hit an all-time low after the failure of the DB Trust Corporation in the US to pass the Fed stress test and several legal disputes. Furthermore, when the US authorities discussed leveling a \$14 billion fine on DB in the autumn of 2016, it

23.2. SYSTEMICALLY IMPORTANT FINANCIAL INSTITUTIONS (SIFIS)

stock price fell sharply and there were widespread discussions about its solvency.

Despite its difficulties, DB seems to be well capitalized following the risk weighted assets (RWA) approach with a common equity tier 1 (CET1) of 11.1%, compared to a minimum of 4.5% set by Basel III. However, when looking at the leverage ratio of 3.1%, it is half a percent behind its closest competitors (BNP/Societe General), meaning that it would either need to increase capital by €7 billion or decrease assets by €178 billion to match them. Although this may in part accurately reflect different riskiness in the loan books run by these banks, it does also suggest that banks have a significant leeway when it comes to manipulating the Basel ratio.

What we are doing with the banks

At the root of the G-SIB problem is the desire of most national governments to have *national champions* that can compete with foreign banks. This means that it becomes a high-level political objective to have institutions classified as G-SIB which then frustrates policymakers aiming to reduce the TBTF problem.

The FSB has identified several policies to address SIFIs, which aim to reduce their systemic importance as well as reducing the probability and impact of failures of SIFIs. Examples include the G-SIB surcharge, additional capital requirements for G-SIBs and the total loss-absorbing capacities (TLACs) which are imposed on G-SIBs.

An indicator-based measurement approach is used to assess the systemic importance of G-SIBs. The data is related to the consolidated group since the focus is on negative global externalities from a globally active bank. The indicators used for the 2015 list of G-SIBs are presented in Table 23.1.

The recent list of the G-SIBs using end-2015 data is presented in Table 23.2.

Total Loss Absorbing Capacity (TLAC)

The FSB announced in the fall of 2014 a set of important rules for the 30 global G-SIBs under the rubric of TLAC which sets a minimum amount of capital and liabilities that can be written off when a bank gets into difficulty.

The reason for requiring TLACs for G-SIBs is to make those institutions maintain enough loss absorbing buffer which can be written down or converted into equity once their Basel III minimum required capital is eroded.

Chapter 23. Current Regulatory Developments

Category	Indicator weight	Individual indicator
Size	1/5	Total exposures
Interconnectedness	1/15	Intra-financial system assets Intra-financial system liabilities Securities outstanding
Substitutability/financial institution infrastructure	1/15	Payment activity Assets under custody Underwritten transactions in debt and equity markets
Complexity	1/15	Notional amount of OTC derivatives Trading and AFS securities Level 3 assets
Cross-jurisdictional activity	1/10	Cross-jurisdictional claims Cross-jurisdictional liabilities

Table 23.1: Indicator-based measurement approach

Source: BCBS (2014)

The FSB proposal suggests that a common Pillar 1 minimum TLAC requirement is set in the range of 16%-20% of a bank's risk RWAs and at a minimum twice the Basel III leverage requirement. Proponents hope that TLAC will resolve globally systemic banks without recourse to public subsidy and without disruption to the wider financial system. It is also expected to give incentives to creditors to better monitor G-SIBs' risk-taking. The new rules will apply from 2019.

The FSB suggested the initial exclusion of G-SIBs headquartered in emerging market economies (EMEs) from meeting the Common Pillar 1 Minimum TLACs requirement to appropriately reflect the different market conditions affecting those G-SIBs.

23.2. SYSTEMICALLY IMPORTANT FINANCIAL INSTITUTIONS (SIFIS)

Bucket	G-SIBs
5 (3.5%)	(Empty)
4 (2.5%)	HSBC, JP Morgan Chase
3 (2.0%)	Barclays, BNP Paribas, Citigroup, Deutsche Bank
2 (1.5%)	Bank of America, Credit Suisse, Goldman Sachs, Mitsubishi UFJ FG, Morgan Stanley
1 (1.0%)	Agricultural Bank of China, Bank of China, Bank of New York Mellon, Groupe BPCE, Group Crdit Agricole, Industrial and Commercial Bank of China Limited, ING Bank, Mizuho FG, Nordea, Royal Bank of Scotland, Santander, Socit Gnrale, Standard Chartered, State Street, Sumitomo Mitsui FG, UBS, Unicredit Group, Wells Fargo

Table 23.2: 2015 list of G-SIBs and the capital surcharge to each bucket

Source: FSB (2015)

23.2.2 Insurance companies, asset managers and sovereign wealth funds

The authorities have recently become concerned with those financial institutions that may be systemically important but are not banks.

This mainly targets insurance companies, asset managers and sovereign wealth funds. All three types are not necessarily leveraged nor are they subject to maturity mismatches during their day-to-day activities, two characteristics that classify banks clearly as SIFI. Instead, the current discussion evolves about other factors that might make them systemically important.

Asset managers

The G20 asked the FSB and IOSCO in 2011 to prepare methodologies to identify systemically important non-bank non-insurers (NBNIs). They came out with analysis in 2015 and again in 2016.

These two reports, and other similar, suggest that the authorities find it difficult to identify what would make asset managers systemic, but also that they are unable to conclusively say that they are not. One could say that it is the fear of the “unknown unknowns” that has not inconsiderable impact on the policy discussion.

Chapter 23. Current Regulatory Developments

Asset managers are very large, in the sense that they hold large amounts of funds on behalf of clients. However, unlike banks or insurance, they do not hold these assets on their books. Therefore, the vulnerability associated with the fall in the value of assets which is so important for banks is not present for asset managers.

Instead, the FSB focuses on several issues,

- Liquidity mismatch between fund investments and redemption terms and conditions for open-ended fund units;
- Leverage within investment funds;
- Operational risk and challenges in transferring investment mandates in stressed conditions;
- Securities lending activities of asset managers and funds.

Of these, the first two are seen as the most important.

There are certainly many concerns about asset managers, they can be destabilizing, but just as easily do the opposite and stabilize, for example by buying distressed loans from banks. What is harder to argue is that they are systemic. Traditional banking vulnerabilities such as direct interconnected policy exposures, maturity mismatches, runs and leverage are broadly absent from most mutual funds, ETFs and pension funds. While up to 12 times leverage is allowed for Basel regulated banks, the vast majority of funds and all the passive or tightly benchmarked managers use no leverage

There are similar concerns about liquidity mismatches. While these are not present for most funds, including almost all equity funds, the market for all but the smallest equities has continued to function quite well throughout crisis episodes, these concerns are more relating to particular illiquid assets, such as real estate and certain fixed income products, especially of smaller companies. These imply large liquidity mismatches whereby clients are able to get the money on demand but the fund is invested in assets that may take weeks or months to liquidate in a stress scenario.

This gives rise to many micro-prudential concerns that in turn have micro-prudential solutions, for example swing pricing (not favor those who redeem in stress), side pockets (separate illiquid, hard-to-value assets from liquid assets), gates (limiting the amount of withdrawals), redemption in kind and suspension of redemptions.

In June 2016, the FSB proposed that asset managers should undergo stress testing in a similar manner big banks do to assess possible threats to the

23.2. SYSTEMICALLY IMPORTANT FINANCIAL INSTITUTIONS (SIFIS)

industry and the economy as a result. They furthermore proposed a redemption fee for the clients of asset managers to limit outflows in times of crisis and reduce the first mover advantage. At the time of writing, no definite implementations regarding those suggestions have been passed.

Insurance companies

The traditional role of insurance companies does not involve credit intermediation or investment banking. Insurance companies pool risks of policyholders and provide protections to them. In particular, insurance companies write policies that create future liabilities, these can be in the immediate future, perhaps travel insurance, or years and decades into the future with fire and catastrophe insurance. By and large, the value of these liabilities is uncorrelated with the financial markets.

In order to meet those future liabilities, insurance companies hold reserves, which can take many forms including government bonds, real estate, small and medium-sized enterprise (SME) loans and private equity. Many of these are directly market-based. Furthermore, unlike asset managers but like banks, the assets are on the books of the insurance companies, so if they fall in value, they start to threaten solvency ratios. However, unlike both banks and asset managers, insurance companies are unlikely to be hit by client withdrawals or runs in a stress test scenario. Furthermore, because they can liquidity match assets and liabilities, liquidity concerns and fire sales should not be a major worry.

Recently, the FSB has classified five European, three American and one Chinese insurance company as systemically important, based on the fact that they are large players in the financial market.

Sovereign wealth funds

Sovereign wealth funds, as a third potential SIFI candidate, are funds that invest capital on behalf of their sovereign. Together with pension funds, they have recently been exempted by the FSB from being systemically important. Reasons for considering them as SIFIs were that they hold \$7 trillion and \$35 trillion of global assets respectively, while being blamed in 2015 for exacerbating market volatility as they withdrew \$46.5 billion from asset managers following the decline in oil prices. However, those reasons were not enough to overturn their status as non-systemically important institutions according to FSB assessment.

23.3 Regulation of banks under Basel III

Following the crisis, the BCBS proposed significant changes to the global capital Accords under the rubric of Basel III. The Basel III recommendations include the strengthening of quality and quantity of regulatory capital and the introduction of the leverage ratio. The latter remains controversial, since some banks have argued that it would require a very large increase in capital, affecting the banks' profitability and ability to provide SME lending. All member countries of the BCBS (alongside the EU) have agreed to adopt the standards set by Basel III.

While it is often argued that the Basel Accords are essentially micro-prudential, that has never been strictly true, and with Basel III it is even less so. Basel III can be roughly split into more micro and more macro-prudential components. The focus in this section is more on the micro aspects of Basel III, while the later section addresses the macro-prudential aspect.

23.3.1 Capital requirements

One of the major Basel III reforms was concerned with capital requirements. It aims to increase the quality, consistency and transparency of the equity capital base of financial institutions. Within Basel III, there are two different capital tiers which are used to calculate the Basel ratios. The former tier 3 capital used in Basel II was eliminated.

- Tier 1 capital: Cash, central bank reserves, and marketable securities backed by central banks and sovereigns;
- Tier 2 capital: Government securities, covered bonds and corporate debt securities of AA- or higher ratings;

Furthermore, Basel III introduced relative buffers to further strengthen the soundness of banks in times of crisis:

- Capital conservation buffer: 2.5%. Buffer of common equity that can be used to absorb losses during distress;
- Countercyclical capital buffer: 0% – 2.5% of CET1. Based on national circumstances. It can be released during times of distress by the authorities;

23.3. REGULATION OF BANKS UNDER BASEL III

- G-SIBs surcharge: 2.5% + 1%. Only applies to institutions classified as SIFIs;

The total regulatory capital ratio equals the sum of tier 1 capital, tier 2 capital, the capital conservation buffer, the countercyclical capital buffer and the surcharge for SIFIs.

Leverage ratio

The leverage ratio, see 18.2.2, has become an increasingly important component of the post crisis regulatory environment. Some national jurisdictions are going beyond the Basel ratio of minimum 3%. The UK mandates 4.05% and in the US, bank holding companies are required to maintain more than 5%, with their insured depository subsidiaries 6%. The BCBS had announced that the ratio would be finalized by 2017.

Furthermore, the Committee is expected to announce further “hard floors” for bank capitals, thereby limiting the potential for the banks internal models to reduce capital.

23.3.2 Liquidity requirements

As suggested in Section 18.3, liquidity ratios such as the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR) are key components of Basel III. In addition, the Committee has developed several monitoring tools to control liquidity risk.

Net stable funding ratio

The standard for the NSFR was released in October 2014 and the NSFR will be introduced as a minimum standard by 1 January 2018. The NSFR requires banks to secure stable funding sources in relation to the composition of their assets and off-balance sheet activities. As in Section 18.3, the NSFR is defined as a ratio of the amount of available stable funding over the amount of required stable funding.

Liquidity coverage ratio

The Basel Committee issued the final form of Basel III’s LCR in January 2013 to ensure that a bank has sufficient liquid assets to meet its liquidity needs

Chapter 23. Current Regulatory Developments

over a 30-day period in a liquidity stress scenario. The LCR is calculated by dividing the stock of high quality liquid assets (HQLA) by the total net cash outflows over the next 30 calendar days. HQLA consist of cash or assets such as central bank reserves and certain marketable securities that can be converted easily and quickly into cash at little or no loss of value in private markets.

The LCR came into effect on 1 January 2015 and is subject to phase-in arrangements before its full implementation in 2019 (minimum requirement of 60% in 2015, 70% in 2016, 80% in 2017, 90% in 2018, and 100% from 2019). The EBA will furthermore develop guidelines on the LCR disclosure during the course of 2016.

One of the important monitoring tools to complement the LCR and NSFR is the *contractual maturity mismatch metric* which considers the gaps between the contractual inflows and outflows of liquidity for defined time bands and the liquidity a bank would need if all outflows occurred at the earliest possible date.

The second metric is the *concentration of funding* which identifies significant sources of funding by its counterparty, product/instrument and currency to encourage the sources of wholesale funding to be diversified.

The third are the *available unencumbered assets* which provide supervisors with data on assets that can be used as potential additional sources of liquidity.

Lastly, the *LCR by significant currency* complements the tools mentioned above. It captures potential currency mismatches and market data that can be used as early warning indicators.

23.3.3 Risk coverage

One of the main sources of the instability in the financial system during the 2008 global financial crisis was the failure to capture risk exposures regarding on- and off-balance sheet activities and derivatives.

Enhanced risk coverages incorporated in Basel III are summarized as strengthening the capital treatment for certain complex securitization, the counterparty credit risk and trading and derivatives activities as well as providing incentives to conduct over-the-counter (OTC) transactions via central counterparties (CCPs). The former is to mitigate procyclicality of bank capital and the latter is to reduce systemic risk across the financial system. Key features of the enhanced risk coverage framework of Basel III are presented

23.3. REGULATION OF BANKS UNDER BASEL III

in Table 23.3.

Securitisation	Strengthens the capital treatment for certain complex securitisations. Requires banks to conduct more rigorous credit analyses of externally rated securitisation exposures.	
Trading book	Higher capital for complex securitisations held in the trading book and trading and derivatives activities. Stressed risk framework to get better risk measures and reduce procyclicality.	
Counterparty credit risk	Strengthening of the counterparty credit risk: more stringent requirements for measuring exposure; capital incentives for banks to use CCPs for derivatives; and higher capital for inter-financial sector exposures.	
Exposures to CCPs	Exposures to qualifying CCPs	- Trade exposures to QCCPs: 2% risk weight - Default fund exposures to QCCPs: will be capitalised according to a risk-based method that consistently and simply estimates risk arising from such default fund
	Exposures to non-qualifying CCPs	Banks are required to use the Standardised Approach for credit risk and a risk weight of 1250% to their default fund contributions to a non-qualifying CCPs

Table 23.3: Enhanced risk coverage of capital in Basel III

23.3.4 Capital relief trades

Basel III enhances the capital regime of its predecessor while further adopting the leverage ratio as additional form of capital requirement. This new global requirements are forcing banks to increase their capital ratio.

However, regulators still need to keep their eyes on unregulated parts of the financial system. There are various ways for banks to accumulate risk without damping their regulatory capital ratio. One example of those tactics are Capital relief trades (CRTs), in which a bank can keep a risky asset on the balance sheet and transfer some of its risk to other investors using credit derivatives or securitization.

Case 23.1 (Capital-relief trades) *With CRT, banks or investors, such as hedge funds or pension funds, agree on a formal alignment of interest. The bank pays the investors to take over risk of its loans. This trade helps the bank meet the regulatory risk-based capital ratio. Investors could make annual returns as high as 15 to 20 percent on each deal.*

One concern of the Basel Committee is that a bank might overpay for the risk transfer if it uses CRTs as a tool to buy credit protection on exposures which are bad but which it does not want to write-down immediately. In other words, the cost of credit protection would outweigh the expected losses on the assets themselves. Since CRTs use the same instruments such as credit default swap (CDS), which exacerbated the global financial crisis, regulators need to recognize the systemic risk they might pose, even though the advocates of CRTs say that hedge funds rarely threaten the overall financial system. A higher leverage ratio, which is not related to risk weights on assets, would make CRTs less attractive for banks.

23.4 Further developments

Within the post crisis regulatory agenda, the authorities have been focused on a number of different areas. While the Basel Accords might be the most important, areas such as stress testing and compensation all have received increased attention recently.

23.4.1 Compensation

Bonuses were discussed in the financial sector earlier in the book (see Section 9.4.2) and economic analysis for the effectiveness of restrictions on bonuses as well as a discussion about moral aspects (see chapter 14.6) was provided. This discussion follows on from that, adding in recent developments after the book went to print.

Traditionally, there has been strong reluctance to limit private sector salaries, in part because it is extremely difficult to interfere effectively with contracts that both parties wish to enter without an extremely expensive and intrusive enforcement. At least when it comes to banking, this reluctance has been overcome, for a variety of reasons, typically emphasizing fairness and egalitarianism over economic, prudential or game-theoretic considerations. Many

23.4. FURTHER DEVELOPMENTS

observers consider large bonuses, paid by an industry that was at the heart of a major financial crisis and received massive public support, to be unacceptable. As a consequence, the European Parliament (EP) inserted bonus caps into the CRD IV legislation specifying that the level of bonuses with respect to base salary should be limited to a ratio of 1:1, which could be raised to 2:1 should shareholders agree. Furthermore, 25% of the bonus has to be paid as a long-term deferred asset.

This element of the Directive is still a source of debate. Proponents argue that reducing bonus sizes relative to income will limit excessive, short-term oriented risk taking. Furthermore, the deferral of a portion of bonuses will incentivize staff to apply more sustainable, long-term oriented business strategies. On the other hand, banks in the EU warn that this bonus cap would make it more difficult for smaller banks to hire good experts. Regarding this, the Financial Conduct Authority (FCA) allowed some institutions in UK not to be subject to this measure.

Another concern is that financial institutions might migrate to other jurisdictions, which is especially worrying for countries that depend on finance, like the UK. However, the Prudential Regulation Authority (PRA) and FCA have announced new regulations on remuneration in June 2015 which apply to banks, building societies and some investment firms in UK. The new rules require more accountability of senior managers so that they behave in a way that enhances safety and soundness of individual institutions. With the new rules, managers and material risk takers face extended deferral of their variable remuneration up to seven years and clawback of bonuses for up to 10 years if misconduct comes to light.

Banks appear to have met the letter of the regulations mainly by increasing the base salary of their employees. Whilst this partially decouples compensation from risk-taking and performance, it also increases the fixed costs of banks, making them more fragile. Ultimately, this means that the bonus cap might not have the desired effect while adversely affecting the financial system. Nor is it clear how long these unpopular restrictions will be enforced in the face of commercial pressure and the wish of most countries to retain a competitive domestic financial sector.

23.4.2 Stress testing

Stress testing is a quantitative analysis tool to assess the resilience of financial institutions to hypothetical stress scenarios. Those scenarios are assumed to be ‘extreme but plausible’ economic events, such as severely impeded

Chapter 23. Current Regulatory Developments

economic growth of the home or world economy, a large depreciation of the domestic currency, a hike in interest rates or plummeting housing prices. The scenarios are not economic forecasts but designed to capture tail-risk of macroeconomic and financial conditions.

United States

The stress tests of the US have been executed by the Fed on a regular basis since after the crisis. The recent results show that the tested banks strengthened their capital positions while they improved their risk management capacities, meaning that the banks significantly enhanced their resilience to economic shocks in the aftermath of the crisis. This year's test was the sixth of its kind, testing 33 banks in the US which represent more than 80% of the domestic banking assets.

Recent results show that only two banks' capital distribution plans were objected by the Fed, namely the US operations of Deutsche Bank Trust and Santander bank. Both are currently working on revised plans for approval by the supervisor.

European Union

Following the crisis, the EBA, established in 2011, executed several stress tests on European banks and released the recent results in July 2016. The EBA provides a common analytical framework to assess the resilience of EU banks to economic shocks. It tests credit, operational, market and funding risk among others.

The EU stress tests also disclose the bank-by-bank data and methodology to ensure transparency and compatibility of stress test results across EU-banks. However, the results of these tests were widely criticized for two main reasons. First, they considered sovereign debt to be risk-free. One reason is that the EU by law considers the sovereign debt of its member states to be risk-free (as discussed in chapter 13.3.4). Since European banks have large holdings of government bonds, this made them look artificially safe. The folly of this approach became especially apparent following the second Greek bailout when private bondholders were forced to accept a haircut, hitting Cypriot banks especially hard.

The second criticism of the stress tests was that the national regulators, who provided the information about the situation of each bank, were in some cases seen as incompetent and even captured, and under political pressure

23.4. FURTHER DEVELOPMENTS

to make their banks look better than they actually were. Since then, the ECB has received a mandate to evaluate banks in member countries, and in July 2016 concluded its most recent audit of euro zone banks. Although there was not a threshold to pass or fail the test, European banks seem to be sound according to the EBA. The results suggested that the majority of the 51 banks that were tested improved their capital resources since the last stress test 2014. For example, the average starting point CET1 went up by 200bps.

Furthermore, European stress test seems to be subject to political manipulation. It was revealed in the autumn of 2016 that DB had been allowed to classify some future income as present income, apparently violating the spirit if not the letter of the stress test. In turn, this made the bank look stronger than it otherwise would have and some commentators have argued that it could have failed the last stress test if the rules had been applied correctly.

Liquidity stress tests

Liquidity shortage of a financial institution can cause its failure even though it is solvent in terms of the capital ratio. Liquidity shortage of financial institutions is more problematic for emerging countries which are subject to rapid in- and outflows of foreign currency-denominated funds since they are directly related to unstable foreign exchange markets which are highly likely to harm the real economic activities.

The BCBS suggests LCR and NSFR as liquidity standards but the liquidity stress test offers additional valuable information of a financial institution which those liquidity standards cannot capture. For example, liquidity stress tests can be conducted over various time horizons compared to the 30-day horizon of the LCR. Even though liquidity stress tests and solvency stress tests are conducted separately by supervisors currently, the integration of those two stress tests in the future would give additional information once their interlinkage is properly modelled.

Macro-prudential stress tests

In addition to micro-prudential stress tests, macro-prudential stress tests are being discussed. The aim of those tests is, in contrast to other stress tests which only focus on the soundness of individual institutions, to monitor the entire financial system and to reveal inherent fragilities and possible weaknesses in crisis times. However, at the time of writing a well-engineered

model is still in development and yet to be applied in a real-world context.

23.5 Macro-prudential policies

The Macro-prudential is focused on systemic risk and the stability of the entire financial system. It is more supportive, being based on support for the financial system as a whole and the need to maintain its healthy operation at times and under circumstances when market forces do not on their own appear capable of achieving this. The institution is conceptually the smallest unit considered and it is interactions between institutions rather than their internal functions that are of most interest. Micro-prudential, in contrast, is motivated by consumer and client protection and aims to encourage confidence in banking services.

Borio (2003) noted that the micro-prudential is bottom-up, with the focus on individual behavior aggregated up to the level of the institution. In some circumstances the legal person that is regulated is the institution and it takes responsibility for the behavior of its employees and the institution may both be regulated and share responsibility. Implemented by lawyers and accountants, micro-prudential is essentially retributive rather than supportive.

23.5.1 Emergence of macro-prudential policies

Macro-prudential policies emerged after the crisis because of the recognition that the pre-crisis period had been marked by a so-called benign neglect, whereby central bankers focused exclusively on monetary policy and micro-prudential regulators focused exclusively on the regulation of individual institutions, with no interaction between each policy field. This prevented policymakers from understanding the dynamics of the financial system as a whole and therefore made them unable to anticipate the risk that was progressively building up.

Monetary policy, macro and micro are not distinct, each impacts and sometimes conflicts the others and it can be hard to classify particular policies as one of those three. In the decades before the crisis, the main policy focus was on monetary policy and micro-prudential regulations. A reason for this was that we had not experienced many system wide crises for some time, leading to the de-emphasis of macro-prudential. Since the crisis, this has changed rapidly. Micro-prudential has expanded in scope and macro-prudential has become one of the three pillars of financial policy. There have been significant

23.5. MACRO-PRUDENTIAL POLICIES

changes on the national and supranational stage.

Box 23.2 *Crockett (then head of the BIS), 2000* “The macro-prudential objective can be defined as limiting the costs to the economy from financial distress, including those that arise from any moral hazard induced by the policies pursued. One could think of this objective as limiting the likelihood of the failure, and corresponding costs, of significant portions of the financial system. This is often loosely referred to as limiting systemic risk”.

In terms of risk modelling, the macro-prudential approach considers risk as endogenous, following a general equilibrium model, while the micro-prudential approach considers risk as exogenous, following a partial equilibrium model.

	Macro-prudential	Micro-prudential
Proximate objective	Limit financial system-wide distress	Limit distress of individual institutions
Ultimate objective	Avoid output (GDP) costs	Consumer (investor/depositor) protection
Model of risk	(in part) endogenous	Exogenous
Common exposures and correlations among institutions	Important	Irrelevant
Calibration of prudential controls	Top-down	Bottom-up

23.5.2 The macro-prudential toolkit

The authorities have a wide range of policy tools to implement macro-prudential policies. Macro-prudential instruments can be classified into two categories, depending on the the dimension of systemic risk they are targeting. These generally fall under the category of the macro-prudential toolkit. The various tools aim to create buffers to make financial institutions more resilient and reduce leverage (i.e. risk), reduce interconnectedness between financial institutions and ensure the supply of credit and liquidity to the real economy in case of a crisis. Macro-prudential policy makers focus on a variety of variables deemed important for financial stability. For example,

Chapter 23. Current Regulatory Developments

the ESRB has identified over two dozen variables that it considers important for financial stability including: deviations in credit-to-GDP ratios, changes in house price trends, credit growth, changes in term and credit spreads, intra-financial credit and credit risk conditions, contagion risk, bank leverage ratios, global credit growth, among others. The BoEs Financial Policy Committee (FPC) and the USs FSOC have similar lists.

Definition 23.1 (IMF toolkit Claessens (2014)) *The IMF has developed a macro-prudential toolkit indicating the various instruments available to ensure better protection against systemic risk. The Fund classifies the tools along two risk dimensions. The first is a time-dimension, which includes tools aiming to mitigate the magnitude of procyclical movements occurring within the financial cycle. This category encompasses countercyclical buffers, time-varying liquidity surcharges, levy on bank's non-core liabilities or countercyclical risk valuation methods for exposures to certain sectors. The second is a cross-sectional dimension, including instruments expected to protect against the excessive concentration in the distribution of risks (resulting from the interconnectedness of financial institutions). Such tools gather systemic capital and liquidity surcharges, or capital surcharges imposed on trades not cleared through CCPs.*

The list of macro-prudential tools and the dimension of systemic risk they target can be summed up in the following table.

Flow management

Despite recent improvements in their financial systems and economic fundamentals, EME remain fragile to volatile capital flows, as the recent Taper Tantrum in 2013 proved. Such vulnerability may well persist longer in a context of unsynchronized monetary policy normalization in advanced economies. Moreover, large exposure, large foreign presence, high degree of dollarization in emerging markets should particularly be closely monitored and managed by macro-prudential policymakers. Those specific vulnerabilities also require specific instruments and in this perspective, emerging markets have promoted the use of capital flow management to reduce their fragilities to asset price dynamics and monetary policies implemented in advanced economies.

23.5. MACRO-PRUDENTIAL POLICIES

Definition 23.2 (Capital Flow Management instruments)

According to the Claessens and Ghosh (2012), there are two types of capital flow management (CFM) measures.

Residency-based CFMs which encompass a variety of measures (including taxes and regulations) affecting cross-border financial activity that discriminate on the basis of residency. These measures are also generally referred to as capital controls;

Other CFMs, which do not discriminate on the basis of residency, but are nonetheless designed to limit capital flows. These other CFMs typically include measures, such as some prudential measures, that differentiate transactions on the basis of currency as well as other measures (for example, minimum holding periods) that typically are applied to the non-financial sector. Other prudential measures such as capital or liquidity requirements or loan to value ratios (LTVs) that do not explicitly aim at reducing capital flows but rather at improving financial stability are not considered as CFMs.

In itself, implementing CFMs brings challenges. Controlling capital flows can also be used to prevent rapid appreciation of domestic currency in case of hot money inflows. In other words, the dividing line between financial stability and macroeconomics objectives of CFM policies may become blurred. Although EME must keep on developing a broad range of macro-prudential tools, the latter are not the panacea. A broader combination of monetary, fiscal, macro-prudential and micro-prudential policies will be necessary to really reinforce EME resilience to evolutions on financial markets.

23.5.3 Challenges

While some parts of macro-prudential policy making have been well-established for a number of decades, others are quite new. Not surprisingly, there are many challenges in implementing such policy, relating to both institution design and instrument design.

Institutional design

The question of who should be in charge is far from being settled. In most Asian countries it is the central bank, in the UK it is now also the central bank (the FPC), in the US it is split between various bodies, most importantly the

Chapter 23. Current Regulatory Developments

FSOC and the Fed. The main reason to leave it to the central bank is that it is the only institution that can create liquidity on demand and therefore has to be at the centre of fighting any financial crisis. If it has that role, it needs to be prepared and know the vulnerabilities of the system. However, it does create problems because there is a continuous conflict between the monetary policy objectives and the financial stability objective, and the same institution may find it hard to address both. It might be possible to delegate macro-prudential policy to the micro-prudential regulator despite some overlap in tools and instruments, but that is also problematic. Not the least because the methodological approaches and objectives of micro-prudential policy and macro-prudential policy are quite different.

Instrument design

It is quite difficult to design effective macro-prudential tools. The financial sector is continually evolving, and so are the macro-prudential challenges. The instruments need to be flexible enough to adopt to all the changes. Similarly, different tools are needed in different countries. Ultimately this means that there is no such thing as a “one size fits all” process. Identifying the right tools is difficult. While monetary policy uses the inflation rate as its essential target variable, with interest rates the main tool, macro-prudential instruments must target multiple sources of risk simultaneously, be they from asset price bubbles or the risky behavior of a SIFI. Systemic risk is about *tail events*, that is large infrequent adverse outcomes. By definition this happens quite infrequently, making it difficult model and guard against such outcomes.

Instruments overlap

Overall, there is an important overlap between the micro-prudential and the macro-prudential toolkits and it can be hard to determine whether one instrument belongs to the micro-prudential or the macro-prudential category. Indeed, most tools used either by macro-prudential or micro-prudential authorities can be used for both macro-prudential and micro-prudential objectives. For instance, the LTV can be used to reduce each institution’s leverage and to enhance its resilience to financial shocks (micro-prudential perspective); but by reducing leverage, the LTV ratio also reduces the risk of real estate bubbles (macro-prudential perspective). The classification of each policy tool is a subjective process and depends on regulators’ point of view. Subjectivity raises the issue about the control of each policy tool and

23.5. MACRO-PRUDENTIAL POLICIES

its allocation to either macro-prudential and/or micro-prudential prudential regulators.

Evidence

The macro-prudential area is rather new, therefore there is still insufficient proof about the real effectiveness of instruments implemented. Claessens et al. (2014) find that instruments aimed at borrowers such as debt-to-income (DTI) or LTV ratios as well as ceilings on foreign currency borrowing are quite efficient in reducing vulnerabilities in the banking system. However, countercyclical buffers and dynamic provisioning, while relatively efficient in reducing bank leverage and asset growth in boom times, are less successful in limiting deleveraging and fire sale externalities in adverse times.

Case 23.2 (Coordination) *If a country A increases capital requirements as a response to a significant credit growth, country B may benefit from such measure as well; if markets are integrated, banks in A will decrease their lending to country B, therefore leading to an overall reduction in leverage and in potential bubbles. However if markets are segmented, and if credit provision is weak in country B, then the latter will be even more negatively affected by the reduction in credit access in A. Such spillovers and potential propagation channels are of course very difficult for policymakers to anticipate, and in practice they may well be unwilling to subordinate national responsibilities to global ones.*

23.5.4 The macro—micro conflict

Conflicts may arise as both micro-prudential and macro-prudential regulators share the majority of the instruments available for their policy implementation. After all, macro-prudential tools are, at the end of the day, all implemented at the micro-prudential level. Such conflicts may also arise because of the differences in risk perceptions between micro-prudential and macro-prudential regulators. Micro-prudential regulators tend to consider that if each individual institution is safe, then at the aggregate level the entire financial system is safe. On the other hand, macro-prudential regulators tend to criticize this fallacy of composition, and rather see systemic risk as the result of potential externalities arising from the interconnectedness of

Chapter 23. Current Regulatory Developments

financial institutions.

Conflict over time

The conflict between macro-prudential and micro-prudential regulators may vary along the financial cycle. In good times, both regulators actually share the common objective of reducing the risk in the financial system, particularly by raising capital and liquidity buffers. In such a context, while micro-prudential authorities will focus on capital and liquidity requirements, macro-prudential authorities will focus on macroeconomic factors, such as aggregate credit indicators for instance. What's more, in upturns, both macro-prudential and micro-prudential regulators tend to benefit from a good political support in favor of raising the protection of financial institutions and, further, of the financial system.

However, such conjuncture of good political support, and sound financial and economic context, does not live indefinitely. In the bad phases of the financial cycles, conflict may rise over the use of certain tools between micro-prudential and macro-prudential authorities. Consider capital. In downturns, when banks face runs, severe decreases in asset prices and firesales, micro-prudential authorities will want to save financial institutions and ensure that the latter have enough capital. In this perspective, they will want to raise capital buffers, and practice forbearance. On the other hand, macro-prudential authorities will focus on guaranteeing that such a financial downturn does not impact the real economy, especially through credit provision. Therefore, macro-prudential regulators may want to release capital buffers in such a period (and therefore, in a sense, encourage risk-taking even in this post-crisis context). The example is also valid when using real estate indicators such as LTV ratios. In upturns, while macro-prudential regulators may be worried about the potential build-up of a real estate bubble, considering the rise of LTV ratios, micro-prudential regulators may reversely want to maintain high LTV ratios to keep on providing loans.

Pro-cyclical elements of the financial system tend to aggravate the conflicts between micro-prudential and macro-prudential regulators. For instance, while collateral is useful at a micro-prudential level to mitigate risk, it also increases the risk of firesale in episodes of downturns and therefore can accentuate the need for intervention from a macro-prudential perspective. Similarly, while micro-prudential regulators may want higher liquidity requirements in stress episodes, macro-prudential regulators may be worried of such requirements triggering firesales in illiquid markets in period of downturns.

23.6 The future of regulation

The main view taken by politicians and the general public after the crisis that started in 2007 was that deregulation before 2007 at least partially caused the recent financial crisis and that more stringent and detailed regulations would fix the problems.

Following this, the authorities implemented a variety of measures since the end of the crisis, including increased supervision and monitoring of banks, higher capital requirements and the separation of risky trading activities from core banking tasks, culminating in the Basel III recommendations which are supposed to be implemented by 2019 by all member states.

However, with the Basel III regulations still in the process of being implemented, new issues and criticism already arose concerning the new set of rules.

Issues with Basel III

Firstly, several discussions tackle the problem of how much capital banks should hold to balance the protection that it affords in case of failure and the adverse economic impact if the capital requirements are further increased. Additionally, the way to calculate capital is under discussion. Given the case of DB (see Case 23.1), it seems evident that the risk-sensitive measures can be manipulated.

Banks and most other financial institutions have heavily criticized the ever-increasing regulatory environments. They argue that since the crisis, EU banks have raised their equity by more than €400 billion, US banks improved their capital ratios by more than half and that both reduced trading activities in favor of less capital intensive and more consumer-oriented banking activities. Based on this, the banks call for a regulatory backlash or at least a period of regulatory stability to allocate their resources elsewhere and improve their general efficiency before a new set of rules, like Basel IV, would be discussed.

Too big to jail

Recently, the case of HSBC marked a new problem that regulating authorities have to tackle in the near future. Until 2010, HSBC failed to monitor several transactions of US dollar purchases with drug trafficking proceeds in Mexico, important since all USD clearing is via New York. US officials refused to

Chapter 23. Current Regulatory Developments

prosecute the British bank for money laundering in 2012. Instead of facing criminal charges, meaning in the worst case to lose its banking charter in the US, the bank only had to pay a settlement of \$1.92 billion.

“I am concerned that the size of some of these [financial] institutions becomes so large that it does become difficult for us to prosecute them”

— Eric Holder, Attorney General of the US

The charge was dropped after the UK authorities sent letters and emails to the US officials, which were published in July 2016, raising concerns over a major market turmoil and global financial distress if HSBC is being convicted. Ultimately, the US authorities did not pursue criminal action against the bank.

23.7 Summary

The Chapter explored ongoing developments in financial regulation in the EU and the US. It looked at some of the new regulations being implemented, such as CRD IV in the EU and the Dodd-Frank Act in the US, as well as the new regulatory structures being put in place. The Chapter went on to explore some of the most notable areas where financial regulation is currently evolving. This includes the implementation of Basel III capital regulations, resolution, stress testing and bank employee compensation.

CHAPTER 24

LIQUIDITY AND DEBT

All the major economic areas massively expanded liquidity in the 2007/8 crisis and the European crisis (in the following referred to as the Crisis), and most continue doing so, albeit at different scales. Europe, China and Japan are all ramping up liquidity creation, which mainly takes two forms: very low, or even negative, short-term interest rates and various quantitative easing (QE) schemes. The European Central Bank (ECB), for example, announced in 2014 that it would inject €1 trillion into the euro zone economy. Following the announcement, the euro fell 0.6% while the stock markets rose. Furthermore, the ECB launched a large asset purchase program in January 2015 (read QE program) of €60bn per month.

For a long time before, liquidity was mostly ignored and central banks, the focus was on monetary policy, liquidity creation was only on a very small scale compared to today's policies. Previous massive liquidity injections were much shorter in term and more targeted. While the creation of liquidity has short-term economic benefits, questions remain about the long-term consequences.

Links to other chapters

This chapter brings together many of the concepts discussed in earlier chapters such as Chapter 2 (the Great Depression), Chapter 4 (liquidity), Chapter 20 (the central bank), Chapter 14 (bailouts).

Key concepts

Chapter 24. Liquidity and Debt

- Liquidity
- Inequality
- More or less global debt
- Central banks
- Bailouts

Readings for this chapter

In-depth publications and studies can be found on the websites of national institutions (UK: Bank of England, US: US Federal Reserve System (Fed) or Congressional Research Service, European Union (EU): ECB or European Commission (EC)), international standard-setting bodies (Financial Stability Board (FSB), Bank for International Settlements (BIS), IOSCO) and international financial institutions (International Monetary Fund (IMF) and the World Bank).

24.1 2000 — 2007: Global flows

Liquidity is at the heart of almost every financial crisis. When things are good, a virtuous cycle between money flows, investments and profits leads to ever-increasing rates of leverage and mismatches. Then, when someone points out that the emperor has no clothes, everything reverses even more rapidly, and the bubble bursts. When applied to recent history, these chains of events are sometimes described as the three phases of *global liquidity*, a classification proposed by Hyun Song Shin at the BIS. The next pages follow his analysis as written by him and co-authors in a series of papers, especially Shin (2012) and Azis and Shin (2015).

The first phase of global liquidity spans the period from the turn of the century to the end of 2008, and is based on banks facilitating a rapid growth in liquidity flows between countries. The main protagonists are European banks who raised funds in the US shadow banking sector, like money market funds (MMFs), and then reinvested in US mortgage securities, of the type discussed in Chapter 15 (dangerous financial instruments).

What is notable about this is that if one looks at net cross-border flows, the resulting vulnerabilities are not visible, because if a European bank borrows 1\$ in the US and lends it out in the same country, the transaction would not be captured by net exposure. Therefore, one has to consider round-trip gross exposure to get the whole picture.

By 2007, European banks had borrowed around half of the assets of US MMFs, or \$755 billion. This leaves the question of why European banks expanded so rapidly into intermediating between US savers and borrowers.

There are two main reasons. First, the emergence of the euro, enabling banks to rapidly expand, and second, European banks were subject to the Basel II regulations much earlier than American banks. That meant that, while US banks were restricted by the leverage ratio (Section 18.2.2), the European banks were subject to the risk weighted assets (RWA) (Section 13.3.5), which is more amenable in highly-leveraged, low-margin transactions in securities of high nominal quality.

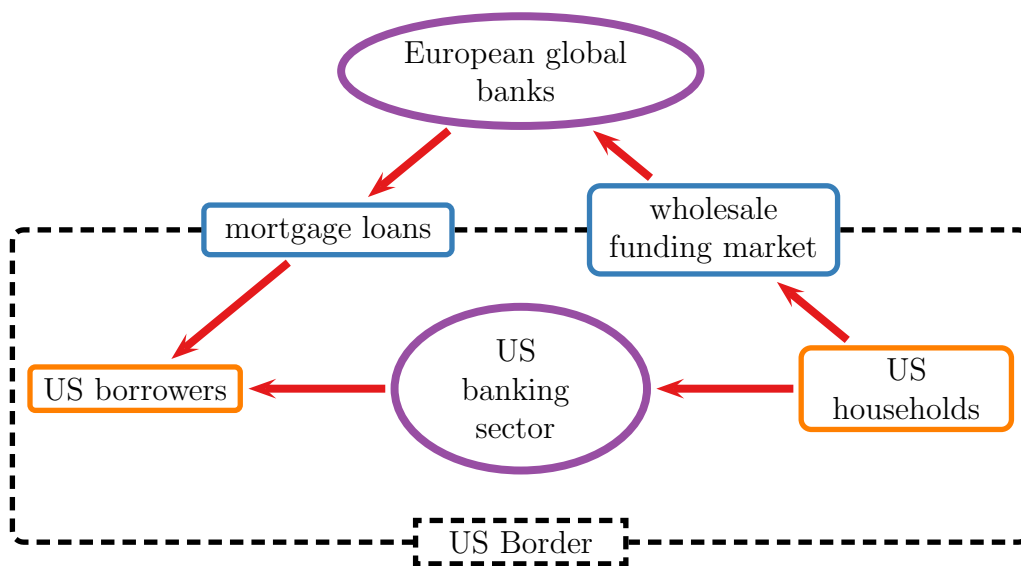


Figure 24.1: European banks in the US shadow banking system (source Shin, 2012)

Furthermore, the widespread availability of liquidity facilitated the rapid increase of the banking sector inflows to a number of countries, for example the European crisis countries Spain and Ireland, as well as Korea and Turkey.

Particularly interesting is the example of Spain. In 1998, right before it joined the Euro, total bank credit in Spain was €414 billion, entirely financed from Spanish deposits. By 2008, it had reached €2 trillion, with only half financed domestically.

Impact on the exchange rate

Bruno and Shin (2014) propose a model for the interaction between capital flows and the exchange rate, via balance sheet relationships. They point out

Chapter 24. Liquidity and Debt

a key impact of capital inflows. In a traditional framework, when money flows in, the currency appreciates, reducing the demand for foreign currency. In the presence of bank capital flows that is no longer the case.

When banks facilitate the inflow of money, the domestic currency appreciates while currency mismatches for local borrowers increase. These borrowers feel wealthier because of the appreciation, and the banks' balance sheets become stronger, reducing perceived credit risk (see Section 3.5) and hence increasing lending facility. In turn, this further increases the demand for risk and foreign liquidity.

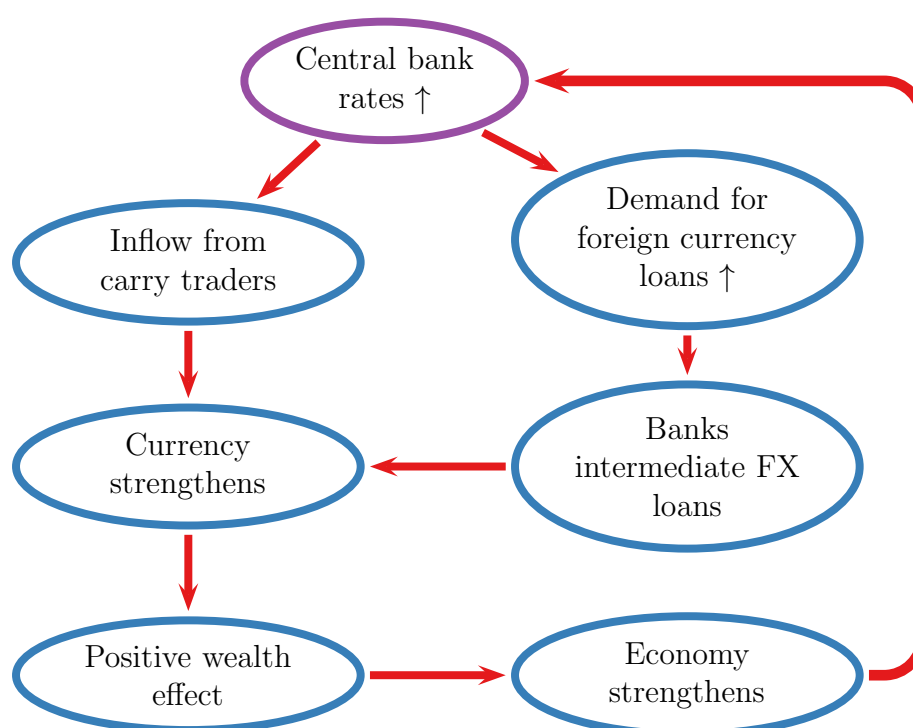


Figure 24.2: The risk-taking channel of the currency appreciation

This risk-taking channel of the currency appreciation provides a direct link between the exchange rate and financial stability in a self-reinforcing mechanism. This means that the traditional view of exchange-rate appreciation driven by capital inflows as self-correcting covers only one aspect of the situation and cannot be assumed to be the dominant effect. When the cycle eventually turns, the opposite effect can happen quite rapidly.

24.2 2007 – 2009: Financial crisis and policy response

The second phase of global liquidity commences in 2008 with the onset of the Crisis . To understand the ongoing developments, this chapter reviews insights from the Great Depression which were used to form the 2008 crisis response and describes which role asset managers played during and after the Crisis .

24.2.1 Lessons learned from the Great Depression

Policymakers used lessons from the Great Depression to shape their response to the Crisis , not the least sharp contraction in money supply seen as a key cause of the Great Depression. By preventing an excessive contraction in M2/M3, the central banks exercised their essential function of conducting a counter-cyclical monetary policy to ensure the liquidity of the system and prevent the credit contraction as observed in the 1930s.

The Great Depression and the Crisis were both preceded by a phase of euphoria and economic boom. The market participants lived beyond their means on credit because of excessive growth expectations and thereby fueled price bubbles. Eventually, the Great Depression and the the Crisis happened.

However, the crisis response differed significantly between the two crises. The authorities made major mistakes in the response to the Great Depression, summarized in the Friedman–Schwartz–critique. The Fed let money supply contract at the onset of the Great Depression and increased interest rates rather than expanded supply and decreased interest rates. This deprived the economy of much needed liquidity and aggravated the recession, letting it spiral out of control to become the Great Depression. In the aftermath of the the Crisis , the Fed dropped interest rates and used QE.

Differences

Although the Great Depression gave politicians valuable insights into monetary policy crisis responses, the measures could not be employed one to one. First, the global interconnectedness and speed of information exchange during the Great Depression was not as extensive as today, due to a lack of technological advances. Second, the authorities are not constrained by the gold standard with regards to the monetary policy. Third, the authorities

Chapter 24. Liquidity and Debt

during the Great Depression did not have to deal with the synthetic, highly risky financial instruments that aggravated the Crisis .

Despite the passing of almost a decade, it remains to be seen how the crisis response this time works out. Most economists agree that the recent crisis would have been much worse without the expansionary monetary policy employed, but at the same time are concerned with the long term effects of the policies, which will be discussed below (Section 24.3).

24.2.2 Money intermediation by asset managers

The second phase of global liquidity, as classified by the BIS, consists of three major players: banks retrenching from global markets, borrowers in emerging market economies (EMEs) with ready access to international capital markets and local savers who decided that it might be safer to keep money at home rather than investing it in US assets. Consequently, EME bond issues increased rapidly with the impact seen in Figure 24.3.

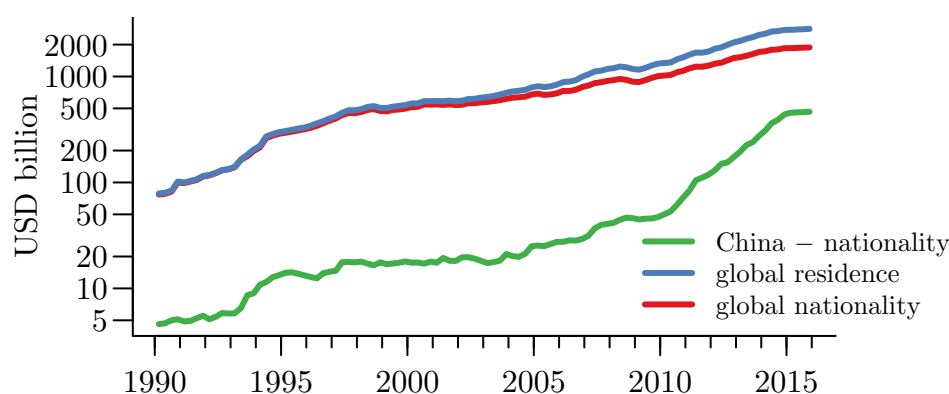


Figure 24.3: Outstanding international securities – developing economies, all borrowers

Datasource: BIS

Of particular concern was the rapid increase in developing countries corporate international securities issuance (see Figure 24.4). Most of this debt is in USD, Euros or Yen.

Several motivations explain why this rise in offshore debt issuance has occurred. First, as many institutional investors in advanced economies prefer to avoid exposure to EME currencies and EME legal systems, EME borrowers can reach those investors by issuing international debt securities in developed

24.3. CONSEQUENCES FOR THE WORLD ECONOMY

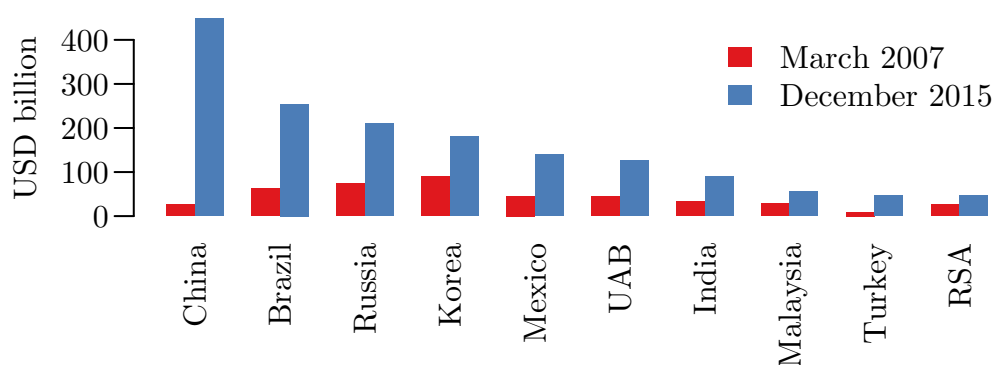


Figure 24.4: Largest non-government issuance of international securities

Datasource: BIS

country currencies and under the law of developed countries. Furthermore, most financial centers have a preferential tax system for investors from foreign jurisdictions, further attracting foreign investors. Finally, while many EME borrowers have low ratings, EMEs have relatively underdeveloped markets for sub-investment grade bonds, while offshore markets are more complete.

24.3 Consequences for the world economy

While the rapid expansion of liquidity and the consequent debt increase have been seen by many commentators as essential in preventing the global economy slipping into a depression, it does carry with it significant risk for financial stability.

If debt before 2007 was unsustainably high in a much more positive growth environment, how can even higher debt levels in the current environment be sustainable? It can only be because of lower rates. This creation of liquidity affects both funding and market liquidity and has created the appearance of infinite liquidity, whereby the authorities are seen as always ready to provide liquidity when needed. More recently, the BIS has warned about the emergence of a third distinct global liquidity phase. The reliance on liquidity as the main crisis prevention and economic stimulation tool carries with it certain challenges as summarized in Figure 24.5.

Chapter 24. Liquidity and Debt

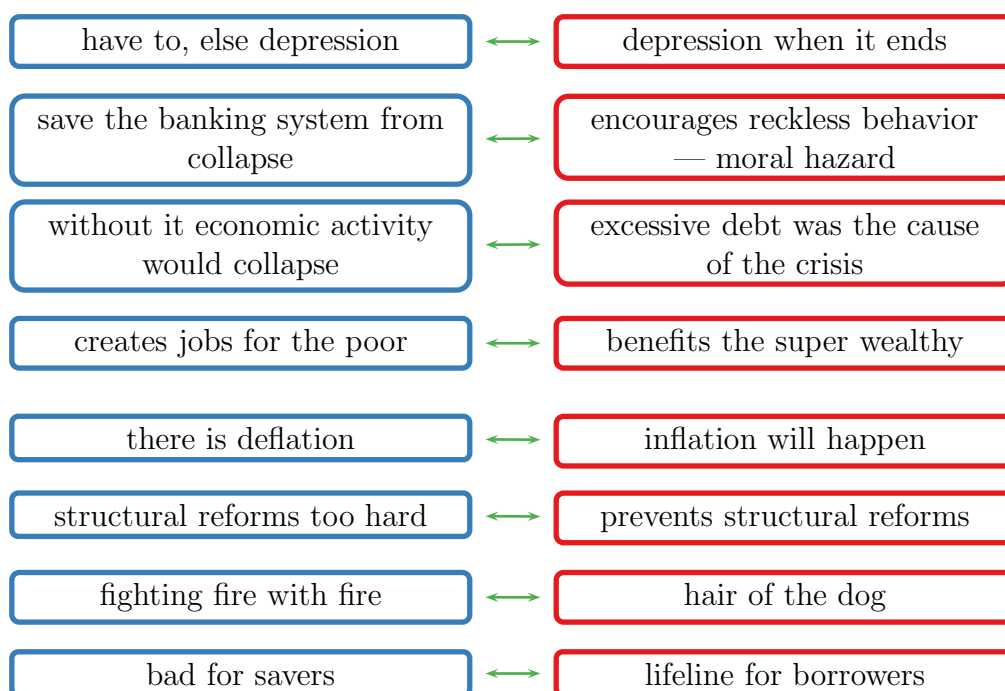


Figure 24.5: The liquidity and debt debate

In the current environment, the proponents focus on the short-term benefits of the economic stimulus arising from liquidity creation, discounting the potential adverse consequences (see below and Section 20.4.3). The world's central banks have signaled — via various forward guidance type mechanisms — that they agree with that view, and are expected to gradually increase rates in the near future.

24.3.1 Impact on economic activity

Of major concern to policymakers are small and medium-sized enterprises (SMEs), which constitute a significant creator of economic activity and jobs as well as a strong political force. While SMEs of 500 employees or less accounted for 57% of total employment in the US in 2010, they represented 89%, 85% and 78% of total employment respectively in South East Asia, Africa and Latin America. SMEs in Europe, defined as having less than 250 employees with a turnover of less than €50 million, are an important component of the economy, accounting for 58% of gross value added and two thirds of jobs.

24.3. CONSEQUENCES FOR THE WORLD ECONOMY

The main argument in favor of liquidity creation in the early stages of the Crisis was that it was necessary because otherwise the real economy would have been starved of credit at the worst time. It was therefore necessary to increase liquidity with the view that the private financial sector would intermediate the newly created liquidity to important economic sectors, such as SMEs. Such arguments draw directly on the Great Depression experience, as discussed in Section 24.2.1.

24.3.2 Impact on financial markets

A second argument in favor of the massive liquidity expansion also relates to experiences from the Great Depression, in particular the very high bank failure rate in the US (discussed in Chapter 8.1.1) and the failure to halt it by providing liquidity. Whatever misgivings one might have about moral hazard, the cost of cascading bank failures is high, and therefore it is seen as necessary to do what it takes to prevent bank failures. While the various bailout schemes (see Section 14.5) were probably more important for saving the banks, there is often a fine distinction between liquidity programs and bailouts.

Supporters of this view maintain that the liquidity prevention was necessary for the prevention of massive failures in the financial sector. The need is however controversial, with some opponents unconvinced as to the value of saving the financial sector and some as to whether the undesirable side-effects may outweigh the benefits. Certainly, one reason why the crisis started was because of the perception that the authorities were always ready with a helping hand if banks got into trouble — echoes of the Greenspan put. That means that banks operate under the assumption that they will be bailed out, and where their funding costs reflect the probability of bailout.

One place where this has been recently expressed is a Barclays Bank (2014) report that says that banks believes that points of no viability (official intervention and bailouts) will be reached before capital ratios trigger convertible capital instruments (CoCos). This carries with it a significant moral hazard risk, because then, from a market perspective, CoCos carry no risk in practice.

However, the use of bailout programs depends on political support, and even though the authorities and the banks operate now under the assumption that liquidity will be provided in a future crisis, it is not entirely clear that the political support will be in place. After all, the various bailout programs have been strongly opposed by voters, and future politicians will react to the

Chapter 24. Liquidity and Debt

popular opposition to bailouts. That said, as discussed earlier in the book, for example in the case of Argentina (see Chapter 6 (the Asian crisis)) and Chapter 14 (bailouts) on bailouts and also as illustrated by current events in Italy, it is extremely difficult for the authorities to credibly commit to not bailing out.

24.3.3 Distributional effects

Any policy initiative creates winners and losers. The low inflation, high interest rate environment of the quarter-century before the crisis benefitted savers and lenders, who tend to be relatively wealthy. The liquidity policies post-crisis have changed the composition of winners and losers. The biggest identifiable losers are poorer savers, retirees, and pension funds more generally. Those seeking stable long-term moderately yielding savings have little option in the current environment.

Theoretically, liquidity creation is supposed to affect income distribution inequality through three main channels:

First, the *income composition channel*: households receive income from their work as well as from business and financial incomes (when owning a company or having shares in a company). But while accommodative monetary policy helps companies' profits (as borrowing and debt repayment are cheaper and economic activity higher), this has only an indirect effect on wages through the increase in the ability of companies to pay. Because workers have not been in a good negotiating position they have typically been unable to translate this into higher wages. Therefore, as people owning shares in companies are also usually wealthier, accommodative monetary policy should ultimately make income distribution even more unequal.

Second, the *financial segmentation channel*: the financial sector is an enormous part of financial activity in most developed markets and this sector is the direct beneficiary of the support for financial markets. As those employed in it, and invest in it, already have high incomes and wealth, the rise in money supply resulting from accommodative monetary policy widens the income distribution gap.

Finally, the *portfolio channel*: Wealthier households by definition are those that own assets while poorer households own fewer or are net debtors. Any policy explicitly designed to support asset prices will increase the wealth gap between rich and poor by increasing the wealth of the wealthy. Within the UK this tension most often enters the political arena in the form of hand-wringing over the plight of first time house buyers.

24.3. CONSEQUENCES FOR THE WORLD ECONOMY

The central bank can create money by increasing the reserve accounts of banks, which then lend the money out. The money comes back into the banks and is lent out again, money multiplies, and because of inflation, money loses value at each step. Therefore, those at the end of the queue see the real value of their monetary assets fall, while those at the front of the queue benefit. The wealthier parts of society are more likely to be closer to the front of the queue, and therefore this may increase inequality.

Initially, even though controlling inequalities is not a mere mandate of central banks, the Fed and the UK justified their QE program by trickle down arguments, whereby everybody eventually benefits. However, given that the link between interest rates and employment-generating investment appears to be quite weak at the moment, the trickle-down argument does not seem to be very strong.

Empirically, it remains to be seen whether the recently observed rise in income inequality is due to accommodative policies or more generally to a broad deterioration of economic fundamentals in concerned countries. The Bank of England (2012) found that in the UK, the benefits of QE were heavily skewed toward the top 5% of households, who own 40% of assets. Similarly, the study by Saikia and Frost (2014) shows that even though proactive loose monetary policy in Japan had positive aggregate effects on the real economy, it also led to an increase in inequalities. Finally, Bullard (2014) argues that, even if the Fed's policy tended to depress real yields, overall the QE policies have not worsened nor improved overall income distribution in the US. Again, the Friedman's helicopter strategy could have been fairer because it would have distributed the newly created money uniformly across the population, reducing income and wealth inequality instead of increasing it.

24.3.4 Structural reforms

Another counterargument against liquidity creation maintains that it undermines the support for necessary structural reforms. Instead of undertaking painful measures that might underpin stability and competitiveness, we have come to rely on liquidity as the only tool, where the short-term benefits prevent long-term support for reforms. All that liquidity programs then accomplish is kicking the can down the road, where over time the economy weakens and the structural problems become bigger. While larger and stronger economies may be able to delay adjustment, more fragile states such as EMEs may have a harder time reacting to a potential liquidity shock on international financial markets. It also requires a high degree of faith in

Chapter 24. Liquidity and Debt

economic theory to advocate policies that are painful and destructive in the short-term based on nothing more than a belief that things should eventually get better.

24.3.5 Reaction of savers

The post-crisis experience has showed a counterintuitive investors' behavior which contradict the theory behind liquidity creation. Theoretically, low interest rates should increase the borrowing level in an economy and, by providing cheap money, increase overall investment of households and firms. In practice, however, the main effects triggered by a low interest environment might not be as desirable:

Firstly, the lower the interest rates, the lower the interest on retirement reserves. This causes people to hoard more money to get the desired income during their pension.

Secondly, people only spend money if they are confident about future prospects. With the central banks announcing negative rates, fear and the inability to deal with the situation without drastic measures are communicated, undermining this confidence. As a consequence, people save more instead of investing it.

Thirdly, low interest rates cause low yields on what are considered save investments (e.g. government bonds). Instead of investing in start-ups and SMEs for higher yields, one of the outcomes policymakers were hoping for, investors have tended to invest in assets that would provide collateral for further cheap loans, primarily real estate and to some extent the least volatile equities.

24.4 Ongoing developments & challenges

24.4.1 Normalization of interest rates

The country that has been leading the expansion of liquidity was the US. After ten years of constant or decreasing interest rates set by the Fed, it increased the rate by 0.25% in December 2015 and started a normalization process.

One reason for the American leadership is the reserve status of its currency but also because it was hit especially hard by the Great Depression which in turn has shaped economic thinking and crisis response to the Crisis. This

24.4. ONGOING DEVELOPMENTS & CHALLENGES

accommodative monetary policy had to come to an end at some point, and the normalization of interest rates had been in discussion for some time. However, the first time this eventuality was floated, it caused some problems.

Case 24.1 (Taper tantrum) *Bernanke announced in May 2013 that the Fed would start tapering its QE program and potentially raise interest rates. This immediately triggered rapid withdrawals from EME bond markets, increasing bond yield spreads in EMEs.*

The taper tantrum drove home the point that the consequences of the US normalizing could be quite severe, especially for EME. Ideally, it would find a way to smoothly transit to the new (old) regime, but it is important to recognize that by law US only considers the impact on the US, not other countries, so the EME impact would also need to affect the US.

Any change in US monetary policy will immediately affect exchange rates, and therefore other central banks may have to react quickly. For example, the Bank of Canada, given the importance of trade with the US, is likely to almost immediately match the US rates to prevent FX changes. Similarly, other central banks, such as the Bank of England (BoE), Bank of Japan (BoJ), and most importantly the ECB will have to consider seriously to what extent they follow the Fed. It seems clear that the exit from zero interest rates will be slow and difficult, as strongly indicated by the pause taken by the Fed after it raised rates by 0.25%.

24.4.2 Challenges for emerging market economies

Three main concerns.

First, increased reliance on offshore and foreign currency-denominated debt securities increases currency risks. Furthermore, asset managers have acquired the major part of debt securities issued by EMEs, encouraged by improving economic fundamentals. However, since mid-2013, the economic slowdown in major EMEs, especially China and Brazil, has revealed economic weaknesses in those countries. If persisting, such an economic slowdown could ultimately deter asset managers from investing in EMEs as well as cause severe capital reversals.

Second, the impact of a meaningful US interest rate hike could be especially damaging for EMEs. Investors may again run on US dollar assets, (recall the

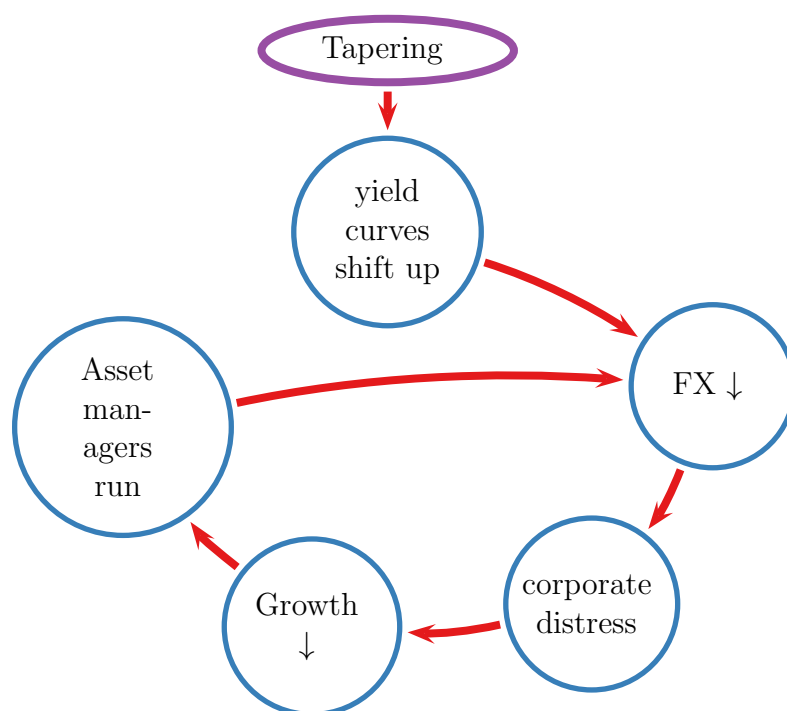


Figure 24.6: Third phase feedback loop (source Azis and Shin, 2015)

Asian crisis discussed in Chapter 6) which will repatriate EMEs' currency downwards. As the latter have issued massive amounts of debt securities in dollars (see Figure 24.4), and as domestic rates will have to increase in response to the Fed's rate rise, their debt burden in local currency will increase significantly.

One needs to be careful not to overstate the risk though. The rise in Fed rates will be slow and numerous announcements have let markets to anticipate such an event. This view is backed up by the developments following the Fed rate increase in December 2015. The hike was already priced in by the market participants resulting in a slow market reaction to the announcement.

Additionally, EMEs debt levels, even if rapidly rising, remain far lower than for most developed economies, where these countries also have sustainable foreign exchange policies. One might be encouraged by EME markets becoming more liquid and more capitalized than they used to, making them resistant to the normalization of US monetary policy. However, the argument is circular; the liquidity is the result of asset managers holding the liquidity and better capitalized just means debt has gone up. Neither is at all reassuring because both will reverse if there is an outflow.

Finally, the maturity of EME overseas debt has been increasing. This reduces

24.4. ONGOING DEVELOPMENTS & CHALLENGES

rollover risk but also increases opportunity costs and risks for lenders and investors. They are less able to repatriate their funds as easily and as quickly as with short-term maturity debt. This healthy development illustrates the improved negotiating position of EME borrowers.

It may deter investors from investing as intensively in EMEs, naturally reducing the scale of the problem, and should also ameliorate the problems in case of a fall in liquidity. As rates rise it will be harder for banks to extend and pretend, putting pressure on capital values. International disruptions, such as tapering, led to the steepening of domestic yield curves, causing the currency to depreciate and indebted corporates to get into difficulty, thereby withdrawing money from domestic banks. In turn, this leads to reduced investments and a decrease in economic growth. Asset managers may therefore reduce their emerging markets corporate bond exposures, continuing the feedback loop.

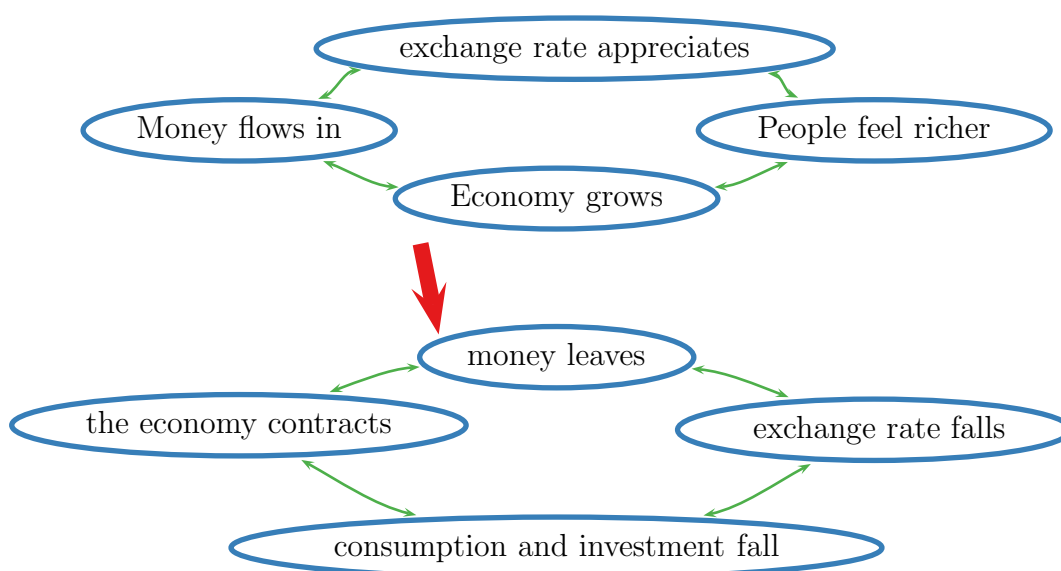


Figure 24.7: Third phase state transition

Deflation

Theoretically, accommodative monetary policies, by increasing the money supply in the economy, are supposed to create inflationary pressures. Nevertheless, since the financial crisis, the primary motivation for liquidity provision has actually shifted to the prevention of deflation, or at least lowflation, as well as the bailout of sovereign actors and overall economic stimulus.

Chapter 24. Liquidity and Debt

The problem of inflation is well understood as a result of the experience of the 1970s and 80s. We know that in a simple systems with a few assets, increasing the money supply increases the equilibrium price of those assets and for sensible assumptions about participant preferences it increases them all by similar amounts. This is inflation.

In the real world we have a much more complex situation, in which there are many heterogenous participants and a vast range of good and services, many of which are not interchangeable or traded, and may not be very price elastic. While it must remain true that in aggregate an increase in money supply increases prices it can do so in very uneven ways.

It seems clear that QE has supported the prices of liquid financial assets, particularly real estate, at prices far above those that would have ruled if the banking system had collapsed. To date this seems to have had little impact on the nonfinancial assets such as manufactured goods that are traditionally used as measures of inflation. However, as timescale increase it is usual for price elasticities to rise – for example because while house owners are reluctant to move and will not do so purely in response to a move in price, they are occasionally forced to move and their decision on where to move will then be influenced by price. This suggests that we should at some stage expect to see nonfinancial assets start to move in the same direction as have financial.

The target rate for inflation in the US, UK and the euro zone is 2%, and at the time of writing inflation is below the level in each of these countries. Within the euro zone, the distribution of inflation is uneven, with some members, such as Greece, Italy, and Spain suffering from deflation. As Figure 2.3, a deflationary spiral can hurt the economy.

However, convincing counterarguments have been made, for example by Atkeson and Kehoe (2004) who find that empirically there is no link between deflation and economic growth, outside of the Great Depression. Bordo and Filardo (2005) further observe that we have seen several periods of “good deflation”, such as in the late 19th century in the US when output rose by 2%–3% a year in times of deflation.

The 2014 annual report of the BIS reaches similar conclusions, noting that both Sweden and Switzerland have recently experienced deflation yet were also among the fastest growing economies in Europe. Furthermore, the BIS notes that long-term European inflation expectations in financial markets point towards the rate remaining positive in the long-term. One explanation is that deflation due to strong currency is tolerable provided it can coexist with a good level of corporate profitability and employment.

24.4. ONGOING DEVELOPMENTS & CHALLENGES

We also need to be careful about how deflation arrives. If price levels fall overall because of a big drop in prices of important imported commodities, such as oil, as has been happening recently, it has positive economic consequences, even if it leads to short-term deflation. The negative consequences are felt by commodity producers.

Long-term inflation

The post crisis liquidity creation programs would have been highly inflationary if implemented before 2007, and the low inflation generally observed since the crisis suggests that there are strong deflationary forces pushing in the other direction. Clearly if two large forces are so precariously balanced there must be the possibility of a sudden acceleration in one direction or the other. As we have seen repeatedly in this book, it often takes very little to significantly shift in expectations of economic agents.

Empirical research on interest rates suggests that they are mean reverting, extreme deviations from the mean, such as hyperinflations, notwithstanding. Considering the long history of interest rates in the developed world, such as the BoE rates in Figure 24.8, the average is 5.25%, and both in the three century context and more recent history, the current near zero is quite anomalous. Of course, it is hard to imagine rates being set close to zero without the existence of a central bank operating for non-commercial objectives, and these are relatively recent innovations.

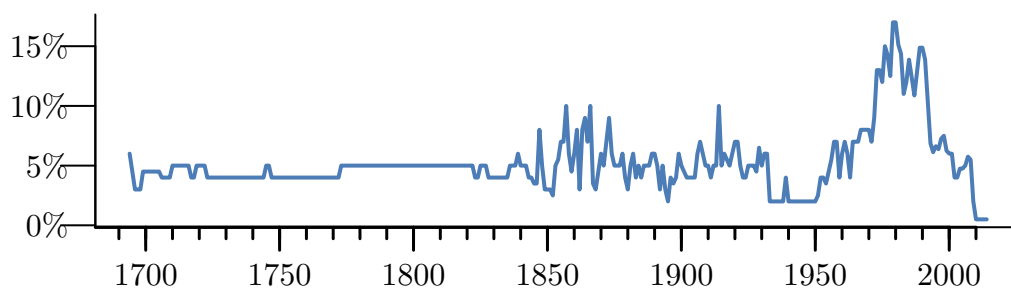


Figure 24.8: Annual maximum Bank of England rates. 2015 is to November

Datasource: global financial data

The long-term inflationary consequences of the extensive liquidity programs are unknown. Some commentators have expressed concerns that the liquidity programs may lead to higher levels of inflation, an argument dismissed by others based on the experience of Japan, which implemented QE for several

Chapter 24. Liquidity and Debt

years without much effect on inflation. However, the Japanese QE was always moderate, too small to have potential impacts. Quantitative and qualitative easing (QQE) has only just been tried, and contrary to widespread market expectation, has achieved some inflation.

A key channel for the current equilibrium's fragility is that recent monetary policies have made the private and public sectors dependent on low interest rates, making it difficult to increase them if and when inflation increases.

If the European economies start picking up growth, inflation is sure to follow. In that case, it seems unlikely that interest rates will stay at the level shown in Figure 24.8 forever. Unprofitable borrowers that are currently able to make interest payments because interest rates are so low may get into serious difficulty. This seems to have the potential to re-ignite many after-effects of the crisis that are currently being ignored, such as the vast amount of poorly collateralised real estate lending on which banks are currently able to “extend and pretend”. Because any rapid recognition of these problems might in turn reignite concerns over sovereigns such as Spain, Italy and China it seems likely that the path of interest rate normalization will be gradual.

24.4.3 Where has inflation gone?

Ever since the authorities embarked on their QE and low interest rate program in 2008, the various pundits have been predicting that this would lead to very high inflation, even hyperinflation. This has not happened. While the reason is not clearly understood, important factors are that banks have not been lending out the freshly created money, instead keeping it in their central bank reserve accounts, meanwhile poor labor market conditions have prevented salary growth.

The absence of inflation has then led to the widespread belief that somehow things were different, one can keep rates very low indefinitely, with no inflation emerging

This view is wrong because inflation is only low because economic activity slowed down and economic agents believe inflation would stay low.

However, we do know that expectations can shift quite rapidly, and if the economic agents come to believe that inflation is around the corner, that will immediately affect funding costs, investment, with prices and wages soon to follow. We therefore shift from a self reinforcing low interest rate environment to another self reinforcing high inflation environment.

This is depicted in Figure 24.9.

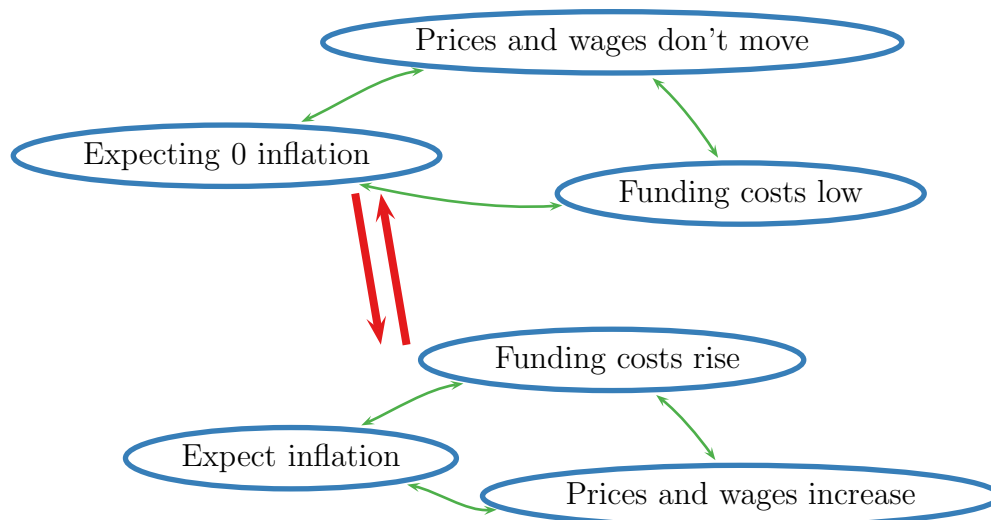


Figure 24.9: Inflation expectation jumps

Market distortions and bubbles

Liquidity creation has the explicit intention of distorting the market — encouraging risk-taking that private entities do not wish to take, and of altering the payoffs that risk takers receive. Given its long duration, global scope and vast scale it seems inevitable that the distortions will be profound and long-lasting, though their nature is hard to predict.

Ideally, one would want asset prices to reflect underlying fundamental values derived from future earnings potential, appropriately discounted. If, however, liquidity creation creates a bubble, it drives prices away from their fundamental value, a concern expressed in the 2014 annual report of the BIS observing euphoric markets falling under the spell of the central bankers. One implication is that asset prices get into a bubble while the real economy suffers. This is reminiscence of challenges facing the US authorities in the 1920s as discussed in Chapter 2 and the need for different monetary policy for Wall Street and Main Street.

Over time, the divergence between Wall Street and Main Street became bigger and bigger, with increasingly contractionary monetary policy needed for Wall Street, that could not be implemented because of concerns about Main Street. Similar concerns have been expressed in the current climate, in countries such as China, the US and the euro zone, with many real estate markets appearing to be at levels that look rather high compared to their ability to

Chapter 24. Liquidity and Debt

support economic activity. This is a natural and direct consequence of low interest rates.

In addition, the financial markets have become less likely to appropriately react to good or bad economic news effecting the fundamental value of an asset, as one would expect for rational agents who have become accustomed to risks being shouldered by other agents. For example, negative macro-economic news in Europe in 2014 led to a market rally rather than drop, as deteriorating economic conditions increased the likelihood of the ECB adopting QE.

24.5 Global savings glut

Global savings glut is a term introduced by Ben Bernanke in 2005 which describes the phenomenon of global savings outstripping global investment, with the US being the biggest net consumer, i.e. the biggest net borrower on international capital markets.

The US currently deals with substantial trade imbalances: Its imports offset its exports by \$124 billion in the first quarter of 2016. This means that more payments go from US citizens to people abroad than the other way round. Because the US is an open market economy just like all major industrialized nations, new capital investments and imports do not need to match domestic savings. Rather than that, the net differences can be borrowed on international capital markets.

Why did the industrialized nations, foremost the US, become the major absorbers of global savings excesses, having led to a persistent current account deficit for the past decade?

With the beginning of the century, new technologies kept rapidly evolving, increasing the productivity of the industrialized economies, especially the US. In conjunction with low political risk, its economic standing as well as a good legal and regulatory environment this made it very attractive to foreign investors, causing capital inflows and currency appreciations. The higher stock market wealth and the strong dollar, making imports artificially cheap, increased the willingness of US consumers and the government to spend rather than save their money, which increased the current account deficit.

The developing world changed from being a net borrower to being a net lender on international capital markets after several financial crises hit the region in the years before the turn of the century. During the mid-1990s, emerging

24.5. GLOBAL SAVINGS GLUT

markets net borrowed money from international capital markets but used the money inefficiently. In connection with overvalued fixed exchange rates and short-term, foreign currency denominated debt, lenders lost confidence and a series of financial crises hit especially the Asian region. The affected countries experienced rapid capital outflows, currency depreciation, recessions and a general decline in asset prices. Especially the Asian countries reacted to those developments by building large foreign currency reserves, which increased gross capital flows and in turn their current account surpluses.

Current developments show that the situation has worsened due to the euro zone having developed a large savings surplus, too. It has risen by more than \$300 billion since 2006 and rooted in the internal devaluations implemented by Germany in the mid 2000s. Recently, the periphery countries like Greece, Italy, Spain and Portugal also shifted from current account deficits to surpluses due to a reduction in domestic investment opportunities triggered by the deep recessions of the Euro crisis (see Chapter 21 (European crisis)). Potential internal devaluations from other euro zone members like France to keep competitiveness inside the currency union would make the problem worse, increasing the euro zone's savings surplus with the world.

Consequences

There are two main consequences of the global savings glut:

First, due to the desired global saving outstripping the desired investment, real interest rates should fall. This falls in line with the interest developments of the past years and partially explains the current low interest environment in conjunction with the implemented liquidity policies discussed above.

Furthermore, inflation and employee wages should remain on a very low level for the foreseeable future via mechanisms of internal devaluations and downward pressure on real interest rates.

Third, commodities and oil prices should remain low, adding to the excess capacity flooding the market during the next 5 years.

Most likely, the US will keep on taking over the role as global consumer of last resort to balance the global savings excess, leading to a continuation of the current account deficit for the next years. The only other alternative would be that Germany takes over that role. However, this scenario is very unlikely because it would mean the reversal of the 2000s internal devaluations and a loss of competitiveness in the euro zone, which would be strongly opposed by the export lobby.

However, if the European periphery picks up growth again and the Asian

Chapter 24. Liquidity and Debt

countries decrease their foreign reserves and become less dependent on exports, causing their surplus to decline, global imbalances will moderate again and there should be a tendency for interest rates to rise again.

Criticism

Two circumstances are supposed to be explained by the global savings glut theory: The financing of consumption in advanced economies by EMEs, which encouraged risk-taking, resulting in credit booms, and the significant downward pressure on interest rates.

Borio and Disyatat (2011) object both implications:

First, global imbalances only capture net resource flows, not gross flows. They reason that net changes only have limited significance in explaining a country's role in international borrowing, lending and intermediation. They further argue that during the commencement and cause of the the Crisis , an increase in global gross capital flows happened due to flows between advanced economies rather than flows from EMEs. The largest contribution of capital inflows to the US came from the EU, especially the UK, which runs a current account deficit, contradicting the theory that the global savings glut in Asia partially caused the the Crisis .

They further contend that savings should not be classed with investments. Current account surplus countries do not necessarily finance current account deficit countries — instead, financing and saving can be both domestically and externally.

Second, they argue that the global savings glut theory does not predict the market interest rate. Instead, it is focused on the long-term natural equilibrium rate. The latter is determined by the global supply of savings and the demand for investment, while the former is determined by factors like the central bank policy rates, market expectations and investors' preferences. When talking about the downward pressure on interest rates, the global savings glut theory is referring to the current low interest environment, while it describes the trend of the natural interest rate.

They come to the conclusion that global imbalances were neither at the core of the the Crisis , nor will they have major implications in the near future. Therefore, they argue that they should not be a priority consideration in current policy-making.

24.6 Summary

The greatest challenge for the authorities is how to leave the zero interest rate environment that has become entrenched. While this policy had clear benefits as a response to crisis, economic policies are rarely without undesirable side effects and typically these grow as the policy is sustained.

Many financial assets appear to be priced on the assumption that either interest rates stay low for a very lengthy period, or that economic activity grows much faster than has been our recent experience, giving rise to new challenges that the authorities need to face in the near future.

It is entirely possible that the many side effects of liquidity creation may now outweigh its benefits but it is still unclear, nine years into the program, what its successor may be or what will bring it into being.

Bibliography

- Atkeson, A. and Kehoe, P. J. (2004). Deflation and depression: Is there an empirical link? *Federal Reserve Bank of Minneapolis*.
- Azis, I. J. and Shin, H. S. (2015). The three phases of global liquidity. In *Managing Elevated Risk: Global liquidity, capital flows and macroprudential policy – an Asian perspective*. Springer.
- Bank of England (2012). The distributional effects of asset purchases.
- Barclays Bank (2014). European credit alpha.
- BCBS (2014). The G-SIB assessment methodology – score calculation. Technical report, Basel Committee on Banking Supervision.
- BIS (2014). Annual report.
- Bordo, M. and Filardo, A. (2005). Deflation in a historical perspective.
- Borio, C. (2003). Towards a macro-prudential framework for financial supervision and regulation? *CESifo Economics Studies*, 49(2):181–216.
- Borio, C. and Disyatat, P. (2011). Did global imbalances cause the financial crisis? *VoXEU*.
- Boston Fed (2015). Lessons from the US Experience with Quantitative Easing. Technical report, Federal Reserve Bank of Boston.
- Bruno, V. and Shin, H. S. (2014). Capital flows and the risk-taking channel of monetary policy. *Journal of Monetary Economics*, forthcoming.
- Bullard, J. (2014). Income inequality and monetary policy: A framework with answers to three questions. Technical report, Council on Foreign Relations.
- Buti, M. and Carnot, N. (2013). The debate on fiscal policy in Europe: beyond the austerity myth. *ECFIN Economic Brief*.
- Cagan, P. (1956). The monetary dynamics of hyperinflation. In Friedman, M., editor, *Studies in the Quantity Theory of Money*. Chicago: University of Chicago Press.
- Calance, M. (2012). The Resurgence of Nationalism in the European Union. *CES Working Paper*, 1:24 – 34.

BIBLIOGRAPHY

- Centre for Economic Performance (2016). BREXIT 2016 Policy analysis from the Centre for Economic Performance. Technical report, Centre for Economic Performance.
- Claessens, S. (2014). An overview of macroprudential policy tools. Technical report, IMF.
- Claessens, S. and Ghosh, S. R. (2012). Macro-prudential policies: Lessons for and from emerging markets.
- Claessens, S., Ghosh, S. R., and Mihet, R. (2014). Macro-prudential policies to mitigate financial system vulnerabilities. Technical report, IMF.
- Corsetti, G. (2012). *Austerity: Too Much of a Good Thing?* A voxeu.org ecollection, CEPR edition.
- Cottarelli, C. (2013). The austerity debate. In Paganetto, L., editor, *Public Debt, Global Governance and Economic Dynamism*, pages 301–308. Springer Milan.
- ECB (2014). Guide to Banking Supervision. Technical report, European Central Bank.
- ECB (2015). Asset purchase programmes and financial markets: lessons from the euro area. Technical report, European Central Bank.
- Financial Stability Board (2016). Technical report, Financial Stability Board.
- Friedman, M. (1969). The optimum quantity of money. In Friedman, M., editor, *The Optimum Quantity of Money and Other Essays*, chapter 1, pages 1–50. Adline Publishing Company.
- FSB (2015). 2015 update of list of global systemically important banks (g-sibs). Technical report, Financial Stability Board.
- Global Counsel (2015). Brexit: Process, options & consequences. Technical report, Global Counsel.
- Goodhart, C. (2002). The organizational structure of banking supervision. *Economic Notes*, 31:1–32(32).
- Goodhart, C. and Schoenmaker, D. (1995). Basel iii agreement gives green light to global reform. *Oxford Economic Papers*, 47:539–560.

Chapter 24. Liquidity and Debt

- Goodhart, C. and Schoenmaker, D. (2009). Fiscal burden sharing in cross-border banking crises. *International Journal of Central Banking*, 5(1):141–165.
- Grauwe, P. D. and Ji, Y. (2013). Panic-driven austerity in the eurozone and its implications. *VoxEU.org*.
- Hall, P. A. (2012). The economics and politics of the euro crisis. *German Politics*, 21(4):355–371.
- Hanke, S. H. and Kwok, A. K. F. (2009). On the measurement of Zimbabwe’s hyperinflation. *Cato Journal*, 29(2).
- IMF (2009). What is monetary policy? Technical report, International Monetary Fund.
- IMF (2013a). France 2013 article IV consultation. IMF Country Report no. 13/251, International Monetary Fund.
- IMF (2013b). Greece ex post evaluation of exceptional access under the 2010 stand-by arrangement. IMF Country Report no. 13/156, International Monetary Fund.
- Keynes, J. M. (1936). *The General Theory of Interest, Employment and Money*. London: Macmillan.
- Krugman, P. (2010). Self-defeating austerity. *New York Times*, 7 June.
- Lane, P. R. (2012). The European sovereign debt crisis. *The Journal of Economic Perspectives*, 26(3):49–67.
- Reflection Group on the Future of the EU 2030 (2010). Project Europe 2030 - Challenges and Opportunities. Technical report, Reflection Group on the Future of the EU 2030.
- Saikia, A. and Frost, J. (2014). How does unconventional monetary policy affect inequality? Evidence from Japan. Technical report, DNB.
- Sargent, T. (2011). Princeton news conference with Nobel Prize in economics winners.
- Schularick, M. and Taylor, A. M. (2009). Credit booms gone bust: Monetary policy, leverage cycles and financial crises, 1870–2008. *NBER Working Paper*.

BIBLIOGRAPHY

- Shambaugh, J. C. (2012). The euro's three crises. *Brookings Papers on Economic Activity*, pages 157–231.
- Shin, H. S. (2012). Global banking glut and loan risk premium. *IMF Economic Review*, 60:155–192.
- Taylor, J. B. (1993). Discretion versus policy rules in practice. In *Carnegie–Rochester Conference Series on Public Policy*, volume 39, pages 195–214.