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The Organisation and Structure of Central Banks

Dissertation

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List of Abbreviations

AR   Annual Report

AREAER   Annual Report on Exchange Arrangements and Exchange Restrictions

ASE   Athens Stock Exchange

ATM   Automated Teller Machine

AUD   Australian dollar

BaFin   Bundesanstalt für Finanzdienstleistungsaufsicht (Federal Financial
                Supervisory Authority)

BAKred   Bundesaufsichtsamt für das Kreditwesen

BAV   Bundesaufsichtsamt für das Versicherungswesen (Federal Insurance
                Supervisory Office)

BaWe   Bundesaufsichtsamt für den Wertpapierhandel (Federal Supervisory
                Office for the Securities Trading)

BCEAO   Banque Centrale des Etats de l'Afrique de l'Ouest

BCP   Basel Core Principles

BIS   Bank for International Settlements

bn	billions
BoJ	Bank of Japan
BuBa	Deutsche Bundesbank
CAD	Canadian dollar
CEMAC	Communauté Economique et Monétaire de l'Afrique Centrale
CEO	Chief Executive Officer
CEPS	Center for European Policy Studies
CHF	Swiss franc
COFER	Currency Composition of Official Foreign Exchange Reserves
DEM	Deutsche mark
DID	Difference-in-Differences
EAC	East African Community
EBA	European Banking Authority
ECB	European Central Bank
ECCB	Eastern Carribean Central Bank
ECCU	Eastern Carribean Currency Union
EIOPA	European Insurance and Occupational Pensions Authority
EMU	European Monetary Union
EUR	euro

FDIC	Federal Deposit Insurance Corporation
Fed	Federal Reserve System
FIO	Federal Insurance Office
FSA	Financial Service Authority
GBP	British pound
GCC	Gulf Corporation Council
GDP	Gross Domestic Product
GFC	Global Financial Crisis
i.e.	id est
IAEP	Institutions and Elections Project
IAIS	International Association of Insurance Supervisors
ICP	Insurance Core Principles
IDS	International Debt Statistics
IFS	International Financial Statistics
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
JETRO	Japan External Trade Organization
JPY	Japanese yen
LBS	Locational Banking Statistics

MAS	Monetary Authority of Singapore
MoF	Ministry of Finance
n/a	not available
OCA	Optimum Currency Area
OCC	Office of the Comptroller of the Currency
OLS	Ordinary Least Squares
OTC	Over-the-counter
OTCSTF	Over-the-counter Share Transfer Facility
pp	percentage point
PRA	Prudential Regulatory Authority
PRIO	Peace Research Institute Oslo
RBA	Reserve Bank of Australia
RMB	Chinese renminbi
SEC	Securities and Exchange Commission
SGD	Singapore dollar
SIX	Swiss Exchange
SSM	Single Supervisory Mechanism
SUR	Semmingly Unrelated Regression
tn	trillions

TSE	Tokyo Stock Exchange
UEMOA	Union Economique et Monétaire Ouest-Africaine
UK	United Kingdom
USA	United States of America
USD	US dollar
WVS	World Values Survey
WVSA	World Values Survey Association

1 Introduction

Central banks are important public institutions. Since the start of the Global Financial Crisis, they have again been subject to close scrutiny. This is in large parts due to the fact that some of the most influential central banks have become strongly involved in the public sector's efforts to mitigate the effects of the financial crisis. For instance, the Federal Reserve System (Fed), the Bank of Japan (BoJ), and the European Central Bank (ECB), among others, have pursued policies of highly increased levels of market liquidity and low interest rates in order to stimulate economic growth. Meanwhile, important changes have also occurred in numerous other aspects of central banking.

This dissertation sheds light on selected issues and tendencies in central banking that receive less attention due to the often ubiquitous focus on monetary policy issues in scholarly articles and the media. The underlying idea for this work was that a lot of data on different central bank issues is available but either not in the right format or not extensively used. Capturing this information in a coherent manner would, therefore, help to assess some issues of interest empirically, thereby yielding new insights. This dissertation seeks to close gaps in the current literature by creating a new central bank database. To this end, four chapters discuss issues in the organisation of central banks. The structure of this work is as follows.

Chapter 2 gives an overview of different areas in the organisation of central banks where changes have occurred in recent years. It points out that central banks are, contrary to their reputation, actually flexible institutions that adapt their structures and objectives when necessary. Introducing a new dataset, I show that important changes have taken place in the last two and a half decades. Concerning central bank structures, staff levels as well as regional and foreign branch networks have been reduced, while central banks apparently have become slightly less centralised despite a larger number of organisational elements. Concerning central bank objectives and their pursuit, important changes in the involvement of financial supervision, the increased use of explicit inflation targets, and a more active and expansive management of international reserves are to be mentioned amongst others.

Chapter 3 explores how hierarchies and relations within central banks have evolved over time and seeks to identify possible drivers of change. As data availability is a hurdle in the field of organisational empirics, especially when it comes to public institutions, this chapter shows a way of generating additional data by the use of organisational charts. Analysing more than 1,200 historical organisational charts, the oldest going back to the 19th century, I retrace organisational structures across time and across countries. For a balanced sample for the period 2004-2015, I find that central banks around the world have actively modified organisational structures. On average, they have increased the number of organisational elements, have become slightly less centralised, and employ fewer people. I show this by constructing different measures of organisational structures. Relating these measures to selected country-specific variables cannot confirm anecdotal evidence pointing to inter alia technological progress and budgetary pressure as important drivers of change.

Chapter 4 is concerned with international reserves held by central banks. These reserves are characterised by an eightfold increase during the last two decades. In this chapter, we introduce new country-specific reserve data and examine determinants of the currency composition of international reserves. The chapter is based on panel data for the period 1996-2015 and 37 central banks. In particular, we identify currency pegs and trade patterns as primary driving forces. Further, we examine a possible break in euro-denominated asset holdings caused by the euro crisis. The euro crisis appears to have been a throwback for the euro (EUR), which temporarily seemed to challenge the US dollar (USD), but had an only partial impact on determinants of international reserve compositions. In a final exercise, we estimate currency compositions of international reserves of the three major non-disclosing countries, id est (i.e.) China, Japan, and Saudi Arabia.

In Chapter 5 there is an analysis of financial supervisory structures around the world and the role these structures assign to central banks. Historically, one response to the continuing integration of banking, securities, and insurance markets has been a higher degree of integration in financial supervision. In the early days of financial supervision, distinct supervisory authorities bearing responsibility for one sector were the norm; later on more integrated approaches emerged. In the wake of the Global Financial Crisis, which has revealed institutional flaws in supervisory systems around the world, the question of the appropriate allocation of responsibilities of prudential supervision has been subject to increased interest. This chapter does not investigate the outcome of financial supervisory structures but tries to identify country-specific factors determining these structures. Using a new dataset which

covers the changing supervisory structure of 170 countries from 1990 to 2015, I find that political factors influence the degree of supervisory consolidation and that supervisory designs are correlated with the general organisation of public activities in a country: Federalism, especially, is associated with lesser integration of supervisory responsibilities, while government effectiveness and democracy is associated with a higher degree of institutional integration.

Chapter 6 is a summary and discussion of the findings from the previous chapters. Finally, summaries of the characteristics of central banks around the world have been compiled into a handbook of central banks, which, among other things, can be found in the Appendix.

2 Organisational Aspects of Central Banks

2.1 Motivation

Organisational structures of central banks as well as their objectives depend on national needs and circumstances. For instance, a central bank belonging to a monetary union might have a different structure and different tasks than a central bank totally independent in its monetary policy. However, there are certain trends that can be observed worldwide and which are the subject of this chapter. A new dataset covering a variety of central bank characteristics helps to better understand recent changes in various dimensions and to assess these empirically, as is done in Chapters 3-5. In this chapter, I show that central banks are evolving institutions comparable to private firms in some aspects. These changes concern inter alia staffing trends, regional and foreign branch networks, hierarchies and relations within central banks, central bank responsibilities in financial supervision, or the use of inflation targets.

To give some examples, the Federal Reserve had nearly 24,000 employees in 1990. By 2015, its workforce was reduced to 18,600 people. During the same period of time, Germany's Bundesbank (BuBa) reduced its staff number from close to 18,000 to 11,000 employees, while thinning out its branch network from 210 to only 35. Apart from this, the overall number of foreign branches of central banks has not changed much, but the geographical composition has evolved. New representative offices have mainly been established in Asia, a fact which might be due to altered economic weights in the world. Other diverse examples of the changing nature of central banks can be seen in a careful organisational decentralisation or the success of the monetary union model. While in the early 1990s important currency unions felt apart (dissolution of Soviet Union, Yugoslavia, Czechoslovakia), this trend was reversed with the establishment of the euro area. In 2016, there were four monetary unions with 37 member states. This corresponds to roughly every fifth state in the world being part of a monetary union nowadays.

This chapter presents quantitative features of central banks, which can be empirically assessed. To this end, it presents selected issues from the sphere of central bank governance and sets the background for the following Chapters 3, 4 and 5, which are basically statistical analyses of the data introduced in this chapter. Sections 2.3.1 to 2.3.9 present exemplarily nine selected important areas in which changes have occurred since the 1990s.

2.2 Literature

Despite a focus on monetary policy issues, the academic literature has slowly devoted itself more to other issues in the last years. Contributions range from central bank independence over the decision-making process within central banks to questions concerning the role of central banks as supervisory authorities, but also a multitude of other issues. In the following, I present a selection of relevant studies.

The importance of central bank independence is a topic that seems not to have lost scholars' interest despite its age, as a multitude of recent publications indicate. Earlier contributions include for example Grilli et al. (1991) who establish a link between central bank independence and inflation rates. Alesina and Summers (1993) confirm this finding but cannot find a link between central bank independence and a country's economic performance. Cukierman et al. (1993) make use of new measures of central bank independence finding that independence has no growth effect in industrial countries but a positive one in less-developed countries. Eijffinger and de Haan (1996) look at the "Political Economy of Central-Bank Independence". They agree that independent central banks in general achieve lower levels of inflation but that independent central banks are not automatically associated with higher growth and employment rates. Further, as for the authors, for whom public support for monetary stability is crucial, they are sceptical whether more central bank independence would induce certain euro member states to commit themselves to more monetary stability.

The decision-making process within central banks is an example of a more recent research topic. In this field, the size and composition of decision-making committees are in the spotlight. Contributions come inter alia from Blinder, who examines questions such as why decision-making has been transferred from one single governor to monetary policy committees in many cases and how decision-making in committees works (for instance, Blinder, 2007). Morris and Lybek (2004) conduct a "Survey of Boards and Management" of central banks and Gerlach-Kristen (2006) argues that monetary policy should be conducted by a committee if the potential output is uncertain. Berger et al. (2008) analyse monetary policy committees in over 30 countries from 1960 to 2000 and find a relation between membership size and inflation with the lowest levels of inflation being achieved by committees comprising seven to ten members. Further, Badinger and Nitsch (2014) explore the importance of the nationality of ECB managers. To this end, they compile a dataset comprising the nationalities of 190 senior managers since 1999. They find that nationalities matter not only for hiring but indeed also for monetary policy decisions. This

second finding is based on the observation that a Taylor rule-type model using national representation weights is better able to explain monetary policy outcomes than a similar model using economic weights of member countries.

The role of central banks as supervisory authorities in a financial system is the subject of several contributions. It was pioneered by Schoenmaker and Goodhart (1992) who explore the impact of supervisory integration and the role for central banks. Masciandaro is the author of a multitude of important contributions such as that of the "central bank fragmentation effect" which describes a trade-off between integration of financial supervision and central bank involvement, i.e. the more important a central bank is as a supervisory authority, the less likely supervision is to be integrated (Masciandaro, 2007). Melecky and Podpiera (2013) search for drivers of supervisory integration and find the level of economic development, the size of an economy, and the experience of past financial crises to matter and confirm a negative effect of central bank independence on supervisory integration. Nitsch (2015) is concerned with interdependencies between the organisation of private and public institutions and the organisation of financial supervision within countries. Using a panel of 98 countries for the period 1999-2010, the paper finds, among other things, that central bank independence and transparency are associated with less central bank involvement in financial supervision and that measures of firm and fiscal decentralisation are associated with more integrated financial supervision in authorities other than the central bank.

The literature on other organisational aspects of central bank governance, which are addressed in this paper, is rather limited. However, there is a certain number of theoretical papers and a growing number of empirical papers on firm organisation, which are helpful when dealing with the organisation of public entities such as central banks. For instance, Rajan and Wulf (2006) analyse how corporate hierarchies have flattened. These scholars find an increase in the number of positions reporting to the Chief Executive Officer (CEO) and a decrease in the number of levels between CEO and division heads. Guadalupe and Wulf (2010), in a related paper, identify (product market) competition as a driver of flattening of hierarchies.

Unlike other papers, this chapter will not deal with one single central banking issue but aims at compactly assembling different aspects in order to present a greater picture and to illustrate trends. To this end, it relies on quantitative data from diverse sources.

2.3 Areas of Change

As indicated above, there has been a variety of changes in different aspects of central banking. The underlying data of this dissertation is compiled from different sources such as the central banks' homepages and annual reports, Bloomberg, past volumes of the annual "Central Bank Directory" and "How countries supervise their banking, insurers and securities markets" (since 2014: Directory of Financial Regulators), the International Monetary Fund's (IMF) Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) (see IMF, 2016a) and other pieces of information provided by the central banks themselves.[1] Table 2.1 provides an overview of data sources used in this dissertation and their content.

Table 2.1: Main data sources used in this dissertation

Name	Content
Central bank annual reports	Information on recent internal and external developments, staff numbers, balance sheets, international reserves, organisational structures.
Central Bank Directory	Basic information on central banks such as year of establishment, contacts, staff numbers, domestic and foreign branches.
How countries supervise their banking, insurers and securities markets / Directory of Financial Regulators	Individual supervisory structures worldwide, division of responsibilities of financial market supervision.
Bloomberg	Basic information on central banks and stock prices of publicly traded central banks.
IMF Annual Reports on Exchange Arrangements and Exchange Restrictions (AREAER)	Classifications of exchange rate arrangements and monetary policy frameworks.

As the different data sources also differ in their time and country coverage, my dataset can be best understood as being composed of several subdatasets. While in Chapter 2 and in the "Central Bank Handbook" of the Appendix data from different

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[1]The regular bibliography of this dissertation is followed by three separate sections comprising, firstly, all central bank annual reports, secondly, all volumes of the "Central Bank Directory", and, thirdly, all volumes of "How countries supervise their banking, insurers and securities markets" (since 2014 of the "Directory of Financial Regulators") which were used during the work on this dissertation. In the following chapters, distinct volumes of these three sources are only quoted when I refer to a particular figure or table originating from a particular volume of one of these sources.

sources is assembled for illustrative purposes, Chapters 3-5 are more homogeneous in this matter (see Table 2.2): Chapter 3, which is concerned with organisational structures of central banks, is based on organisational charts that are mostly extracted from central bank annual reports. Chapter 4, which analyses currency compositions of international reserves, is also based on information gathered from central bank annual reports (mostly from balance sheets). Chapter 5, which examines financial supervisory systems around the world, is based on several editions of "How countries supervise their banking, insurers and securities markets" and of the "Directory of Financial Regulators". The homepages of the respective supervisory authorities complete the data of that chapter. Table 2.2 provides information on which chapter is based on which source and suggests a certain exclusiveness in the use of the mentioned data sources.

Table 2.2: Data used in Chapters 3-5

Chapter	Exact origin of data (dependent variables)	Other studies relying on same or similar data sources for similar uses
Chapter 3: Evolving Hierarchies in Central Banks	Organisational charts of central banks, vast majority of charts taken from central bank annual reports.	No. To the best of my knowledge first making use of this data source.
Chapter 4: Currency Composition of International Reserves and the Euro Crisis	(Mostly) balance sheets from central bank annual reports.	Same data source used by Wong (2007) and Beck and Weber (2011) for different purposes.
Chapter 5: Political Determinants of the Financial Supervision Architecture	How countries supervise their banking, insurers and securities markets / Directory of Financial Regulators and homepages of supervisory authorities.	Different data source but similar data used by Melecky and Podpiera (2013) for similar purpose.

The following nine subsections present some purely descriptive findings and are based on different, mostly unbalanced, subsets of the dataset for different spans of time and for different groups of central banks.[2]

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[2]Table 6.1 in the Appendix lists all countries within the dataset. Also see Table 6.2 in the Appendix for a list of central bank establishments in chronological order since the dissolution of the former Eastern bloc. Worldwide, over 30 central banks were established or re-established between 1989 and 2015. The youngest central banks worldwide and in this sample are those of South Sudan and Timor-Leste, both established in 2011.

2.3.1 Staffing

In general, central bank staffing levels between countries are largely unequal. Some small countries' central banks might function with fewer than 100 employees. The other extreme are very large central banks. For example, the People's Bank of China has more than 128,000 employees, which makes it the largest central bank in the world in terms of staffing. In the last decades, there has been a downward trend in staffing levels for many countries, which might in part be explained by new technologies that have enabled central banks to execute their tasks with less personnel. Figure 2.1 illustrates how the average central bank staffing level in our sample has decreased over time. While the average central bank had over 4,000 employees in 1990, this number was cut to under 2,500 by 2015. Strong reductions were the case for, inter alia, the Bank of England (from 5,400 to under 4,000), the Banque de France (from 17,000 to 12,000), the Bundesbank (from 18,000 to 11,000) and - particularly drastic - the Bank of Finland (from 960 to 390 employees). Not surprisingly, the reductions were particularly pronounced in the central banks of the euro area, which have lost their main responsibility. Overall, there is a trend of staffing levels to decline, but it is not true for all central banks. Some central banks have kept the number of employees unchanged such as the Bank of Greece and Denmark's Nationalbank, and others like the central bank of Malaysia have even increased their personnel from 1990 to 2015. Nevertheless, the large central banks with massive reductions in their workforce were the driving forces behind this evolution.

The number of central bank employees per 100,000 inhabitants is a useful measure to get an idea of whether a central bank is large compared to a country's population. This number varies substantially across countries, as shown by the following example for 2015: At this point in time, four Bank of Japan employees per 100,000 inhabitants stand in contrast to 44 Bank of Russia employees per 100,000 inhabitants. By this measure, the Bank of Russia appears overstaffed, while the Bank of Japan is seemingly able to fulfil its duties with a significantly smaller staff (see Figure 2.2). The graphical illustration also reveals that this ratio is typically higher for smaller countries.[3]

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[3] Obviously, central bank size is not exclusively determined by the size of an economy. Also, central bank tasks play a role. For example, Mr. Heikenstein, former Governor of Sveriges Riksbank (2003-2005), advocated a concentration on core activities (see Heikensten, 2003). The Sveriges Riksbank indeed managed to reduce its workforce from 755 employees in 1995 to 341 in 2015 (-55%).

Figure 2.1: Central bank staff numbers 1990 to 2015
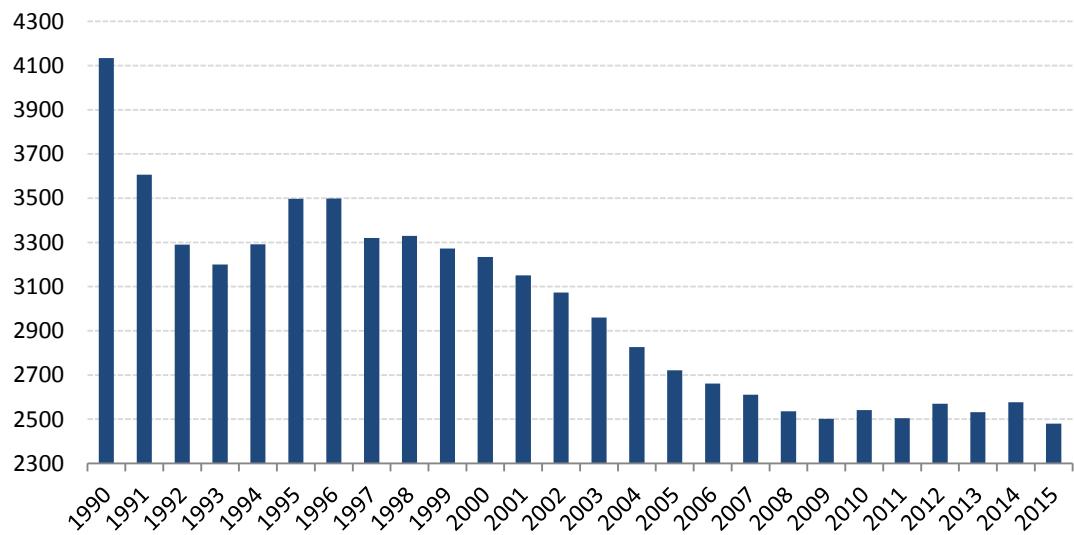
Source: Central bank annual reports.

Figure 2.2: Central bank employees per 100,000 inhabitants in 2015
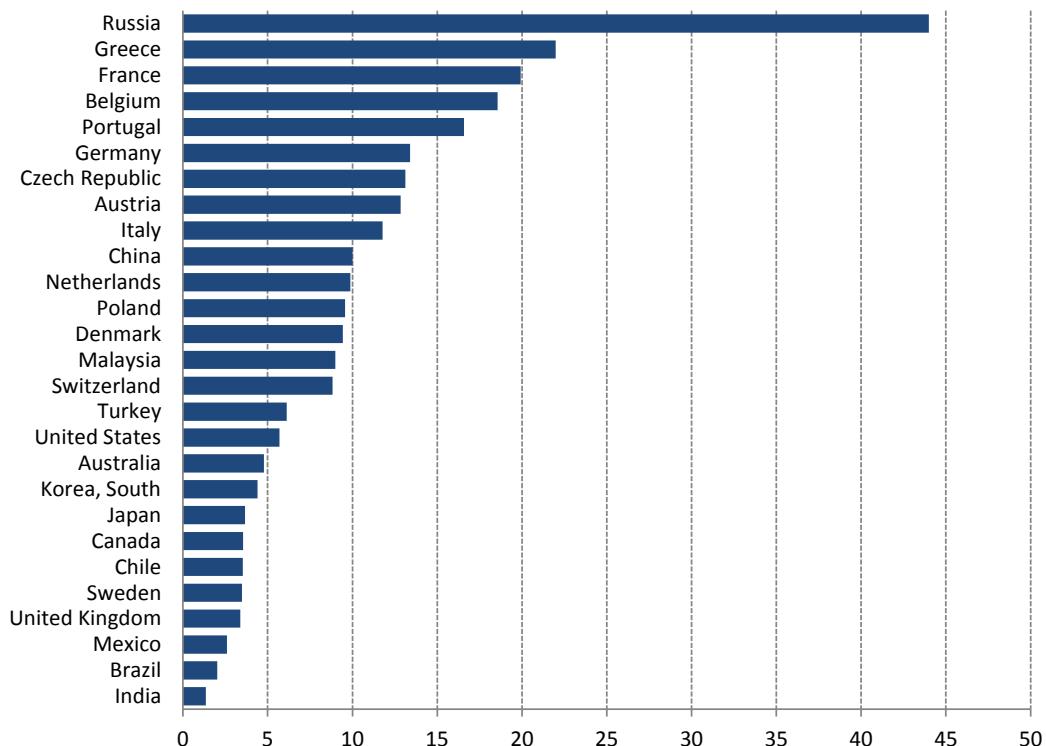
Source: Central bank annual reports.

2.3.2 Regional and Foreign Representations

Not only staff levels have been reduced, but branch networks have also been downsized over time. If the average central bank in our sample had nearly 30 regional branches in 1990, this number has been reduced by half over the last 25 years, which means an important scaling back of central banks' regional presence (see Figure 2.3).

Figure 2.3: Central bank branch networks 1990 to 2015
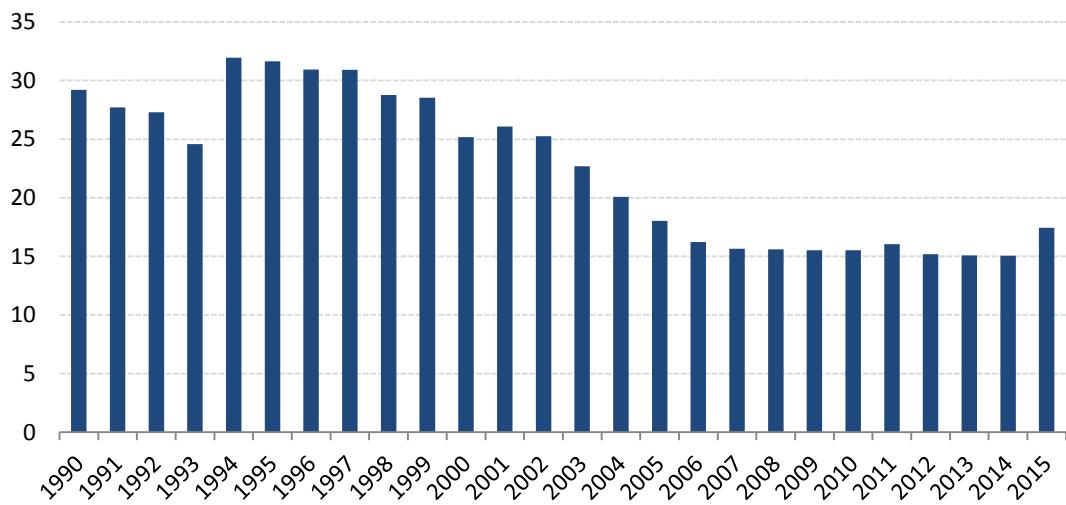
Source: Central bank annual reports.

Regional branches have historically been important for currency issuance, for other services and also for representative purposes. Several factors have plausibly contributed to the reduction in the number of branch offices, of which an important one should be technological progress,[4] similar to the case of the number of employees. Figure 2.4 shows the change in the number of branches for selected economies compared to 1995.

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[4] A paper of the Bank for International Settlements devotes a section to regional representations of central banks. It finds a downscaling of branch networks and considers, inter alia, declined communication and travel costs as well as gains in efficiency in particular in "industrial-type and administrative operations" as important factors (see Ortiz, 2009, pp. 168-171).

Figure 2.4: Number of regional branches 1995 and 2015
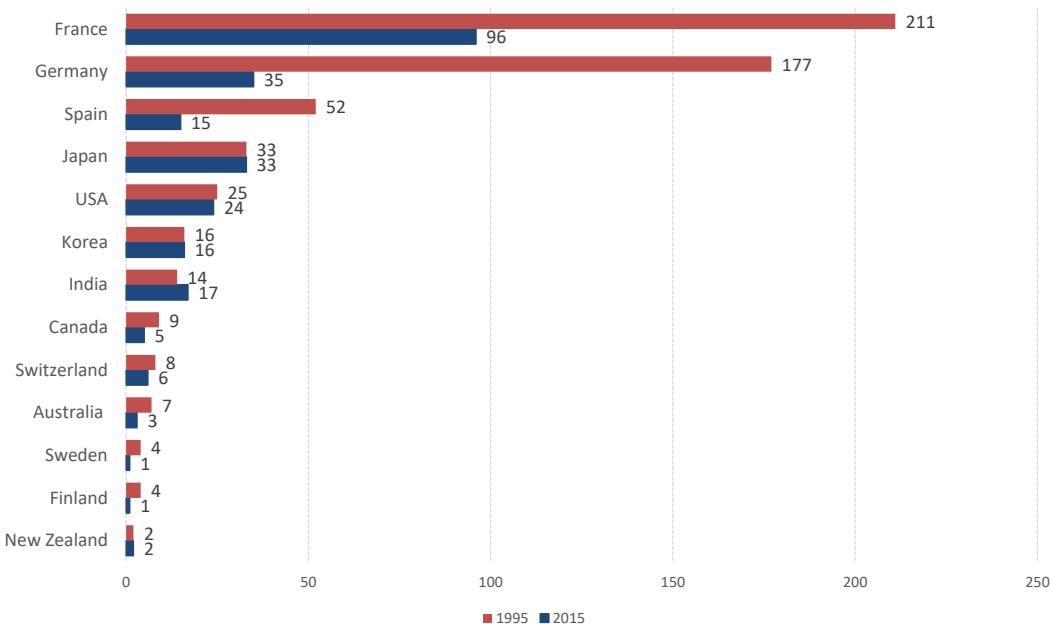
Source: Central bank annual reports.

Concerning foreign representations, there is no clear trend. While most central banks have no foreign offices in other states or in international institutions such as the IMF, the overall number of foreign branches did not change significantly. At present, there are about 30 central banks worldwide maintaining foreign branches. The latest to announce the build-up of an overseas office network has been the National Bank of Hungary, which is planning around 12 new representations (see Beacon, 2015).

Apart from the low overall number of foreign representations, an important aspect is where these branches are located. A particularly striking observation is that new foreign branches have opened their doors mainly in Asia during the last ten years. In the meantime, some offices in Europe have been shut down. This observation might stem from the growing economic weight of Asia and an increasing importance of Asian currencies in trade and in international reserves. Figure 2.5 illustrates how the geographical concentration of foreign branches is moving from west to east. While out of 54 foreign representations in 1990 only eight were located in Asia, this number has grown to 20 of a total of 71 overseas offices in 2015. Or in other words: In 1990, around 15% of all foreign representations were located in Asia. In 2015, Asia's share had nearly doubled to more than 28%. The respective

shares for Europe were 50% in 1990 and 39% in 2015 (see Figure 2.5).[5]

Figure 2.5: Foreign representations 1990 and 2015
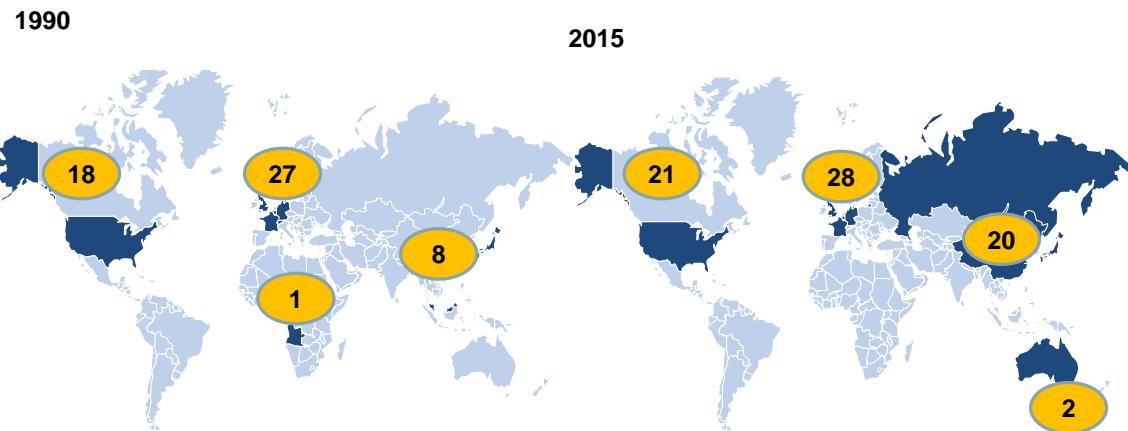
Source: Central bank annual reports.

2.3.3 Hierarchies and Organisational Relations

From research on firms, it is commonly accepted that organisational structures are related to business outcomes. For the public sector, not subject to profit maximisation, organisational structures should, despite different objectives, also play a role for central bank outcomes. Observers of private institutions argue that those are becoming less hierarchical and flatter (see for instance Wulf, 2012). Furthermore, recent anecdotal evidence suggests that structural changes have taken place in the public sector in the last years. To the best of my knowledge, no one has yet made the effort to follow these structural changes for an extended period of time for central banks. My new database enables me to do so (see chapter 3).

By quantifying organisational charts with a set of five different measures, which are in part borrowed from the related literature (see for instance Guadalupe and Wulf, 2010), I can indeed confirm important changes in the internal organisation of central banks. Especially, I find a trend towards more organisational units and less centralisation. In Chapter 3, these observations are described in detail and linked to potential explanatory factors. Figure 2.6 illustrates these developments and reveals that central banks are also more flexible in terms of management structures than their reputation would suggest.

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[5]Table 6.3 of the Appendix gives an overview of central bank foreign branches in 2015.

Figure 2.6: Organisational changes (annual averages, balanced sample)
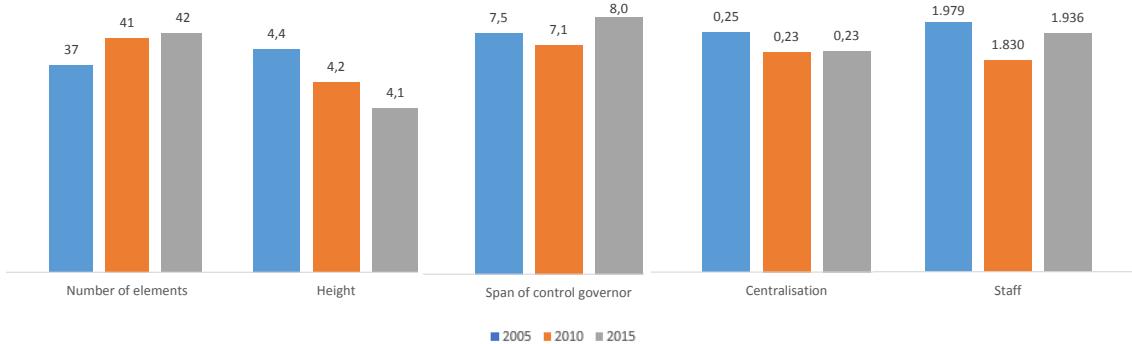
2.3.4 Involvement in Financial Supervision

An important issue in central banking is the participation in prudential financial market supervision, which consists of the three main fields of banking, securities markets, and insurance supervision. This issue is dealt with in Chapter 5. Not in all, but in most countries, central banks play a major role in the supervision of the banking sector. There are three possible degrees of integration of a country's supervisory architecture: All three market segments being supervised by distinct authorities (no integration of supervision); at least two market segments being supervised by one authority (partial integration of supervision); or all three segments being supervised by a single authority (total integration of supervision).

Historically, the classical approach to financial supervision consists of three separate authorities each of which supervises one separate financial market segment. In the course of a continuing integration of financial markets and a growing importance of Non-Bank Financial Intermediaries, the integrated approach to financial supervision progressively gained popularity ("all-finance supervision") in the 1990s (see Podpiera and Cihak, 2006, pp. 4-5), pioneers being Denmark, Norway, and Sweden. With the establishment of the British Financial Services Authority in 1997, for the first time a large economy transferred the task of supervising the entire financial system to a sole authority. This event marked the "breakthrough" of the integrated design (see Masciandaro and Quintyn, 2011a, p. 10). In the following years, the British model was adopted by, inter alia, Korea (1999), Japan and Hungary (2000), Germany and Austria (2002), Poland (2008), and Finland, and Switzerland (both 2009). Despite the fact that certain countries have again dissolved their Financial Supervisory Authorities (FSAs) in the last years (United Kingdom (UK), Hungary), the trend in the last decades has nevertheless been one of increasing integration of

supervision: While there were only three integrated supervisors in 1990, there were over 40 in 2015 and, simultaneously, the number of countries with partially integrated authorities increased, whereas the traditional model lost ground. At the same time, exclusive central bank responsibility for banking supervision has strongly decreased. Figure 2.7 illustrates the rise in the number of single consolidated supervisors over time. In Chapter 5, I link variables of political, economical, technological and financial development to supervisory structures of 170 countries.

Figure 2.7: Number of integrated supervisors 1990 to 2015
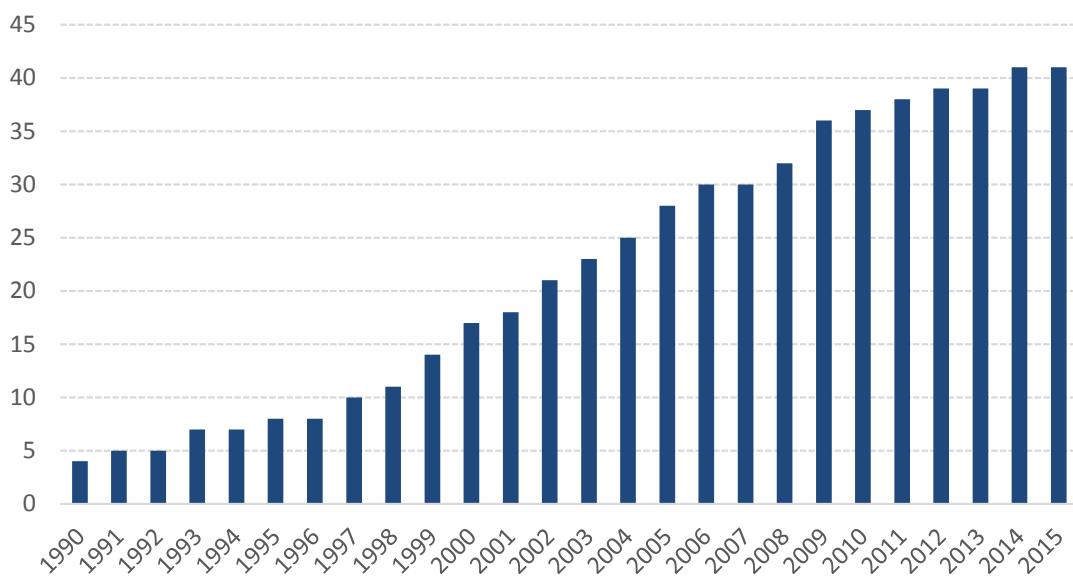
Sources: Central bank annual reports, How countries supervise their banking, insurers and securities markets, Directory of Financial Regulators.

2.3.5 Exchange Rate Regimes

The exchange rate regime choice belongs to the very important central bank characteristics due to its consequences for the economy as a whole and for the central bank itself. Theoretical debates centre around costs and benefits of monetary integration and of monetary independence. For instance, Mundell (1961) developed a fundamental theory concerning under which conditions monetary integration is beneficial ("Optimum Currency Areas" (OCA)) and Obstfeld and Taylor (1997) coined the term of the macroeconomic trilemma or the impossible trinity. Both of these terms have gained renewed popularity with the euro crisis and the difficult economic

recovery of Greece and the periphery of the euro area.[6]

De facto classifications of worldwide exchange rate regimes are provided by the IMF in their AREAER database (IMF (2016a)). This piece of information is accessible for the period 1999 to 2016 and distinguishes hard pegs, soft pegs, and floating regimes.[7] Other managed arrangements are summarised under the category "residual".

The last years were characterised by the catching up of intermediate arrangements in the "soft peg" category: In 2004 for example, the IMF staff categorised only 51 states out of a total of 187 states as de facto soft peggers. In 2016, 76 out of 192 states were categorised as de facto soft peggers. During the same period, the respective numbers for hard peggers were 48 (2004) and 25 (2016) and for floaters 88 and 71 (see Figure 2.8). Hence, there is no evidence for a vanishing of intermediate arrangements (see IMF, 2007b, p. 8).

Figure 2.8: Evolution of de facto exchange rate regimes 1999 to 2016 (%)
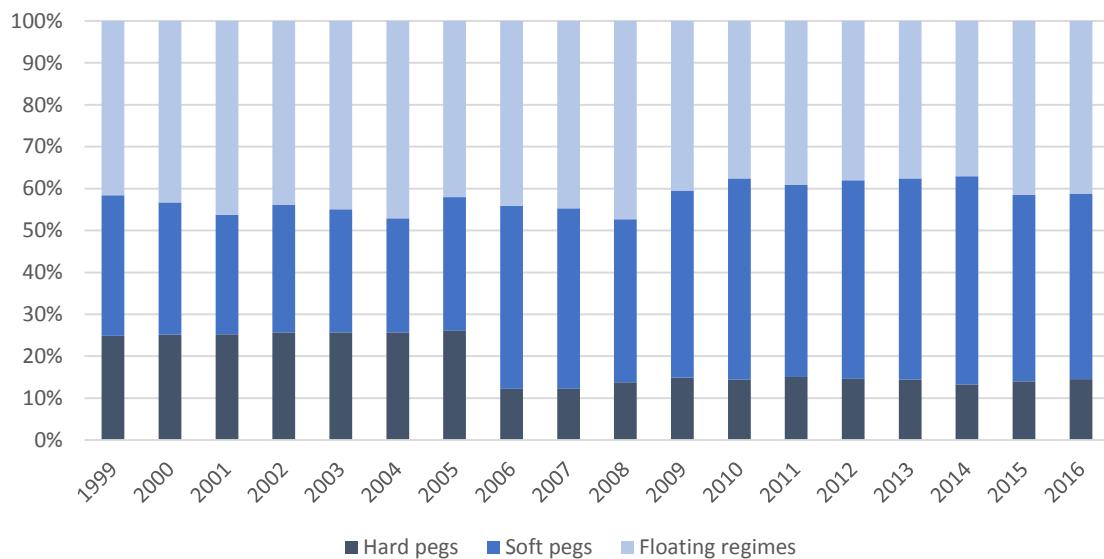
Source: IMF (2016a). Own calculations.

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[6]For a discussion of the exchange rate regime choice from a historical perspective Bordo (2003) is a recommendable starting point.

[7]Hard pegs are exchange rate arrangements with no separate legal tender and currency board arrangements. Soft pegs are conventional pegged arrangements, pegged exchange rates with horizontal bands, stabilised arrangements, crawling pegs, and crawl-like arrangements. Floating regimes (market-determined rates) are floating and free-floating arrangements.

2.3.6 Monetary Unions

Historically, there have been numerous monetary unions and "since World War II, economies have exited currency unions at an average rate of one per year" (see Rose, 2008, p. 1). Nevertheless, during the last years membership size has been growing at a positive rate and plans for new unions have regularly been announced. This issue is important because it has several direct implications for member states' central banks. Most prominently, membership in a monetary union takes away a central bank's exclusive responsibly for monetary policy. From a central bank's point of view, this could impact the entire organisation (e.g. staffing needs, internal structures and relations, the country's exchange rate regime, the involvement in financial supervision, and the holding of international reserves, to mention only a few).

The end of the Soviet Union, Yugoslavia, and Czechoslovakia caused break-ups of important currency unions. Since then, the trend has been reversed and several countries have joined monetary unions. In 2016, there were four central banks conducting monetary policy for a union of several countries each: The ECB for the European Monetary Union (EMU), the Central Bank of West African States (BCEAO: Banque Centrale des Etats de l'Afrique de l'Ouest) for the West African Economic and Monetary Union (UEMOA: Union Economique et Monétaire Ouest-Africaine), the Bank of Central African States for the Economic and Monetary Community of Central Africa (CEMAC: Communauté Économique et Monétaire de l'Afrique Centrale) and the Eastern Caribbean Central Bank (ECCB) for the Eastern Caribbean Currency Union (ECCU). Together these four monetary unions include 41 states, or roughly every fifth state in the world. Figure 2.9 shows the return of the currency union model. The euro area is primarily responsible for this strong growth, as it has grown from 12 member states since its establishment in 1999 to 19 member states in 2016.[8]

The UEMOA reached its current membership size of eight countries with the

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[8]The first countries to physically use the EUR were Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain (2002). Slovenia (2007), Cyprus and Malta (2008), Slovakia (2009), Estonia (2011), Latvia (2014) and Lithuania (2015) introduced the EUR subsequently.

accession of Guinea-Bissau in 1997.[9] Both the CEMAC[10] and the ECCU[11] have not seen any enlargement since the 1980s and comprise six and eight member states respectively. Plans for the establishment of future common currency unions exist at different stages for instance for the Gulf Cooperation Council (GCC)[12] and the East African Community (EAC)[13].

Figure 2.9: States in monetary unions 1990 to 2016
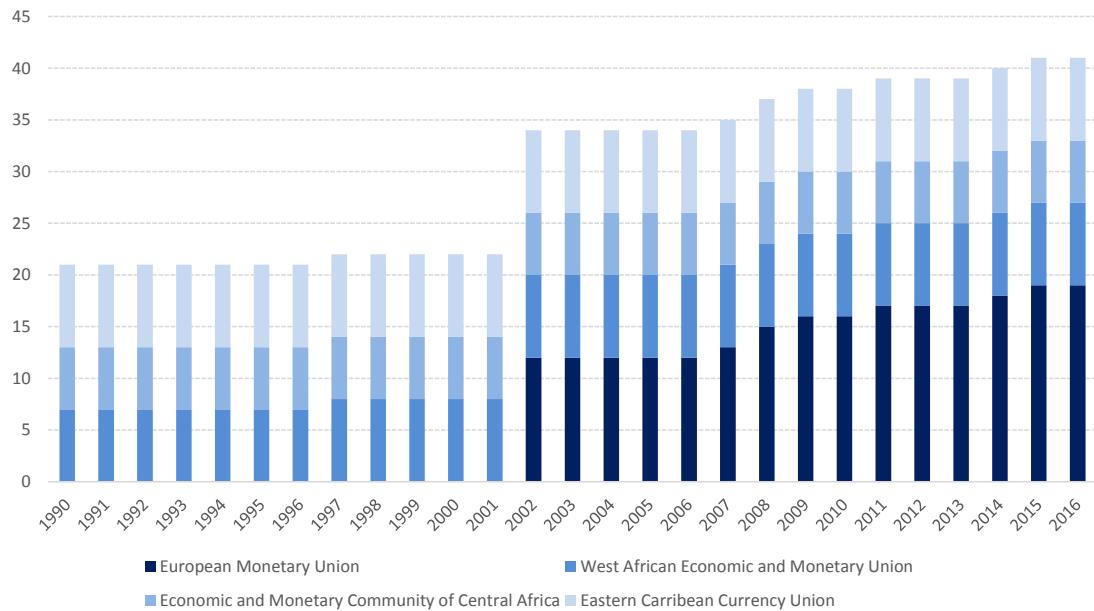
Sources: Central bank annual reports, Central Bank Directory. Own calculations.

2.3.7 Inflation Targeting

Inflation targeting is another trend in central banking and is considered a possible remedy to persistently high inflation rates by the central banks of some countries suffering from this problem.

The Reserve Bank of New Zealand was the first central bank worldwide to an-

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[9]The current members are Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo.

[10]The Economic and Monetary Community of Central Africa is constituted by Cameroon, the Central African Republic, Chad, Equatorial Guinea, Gabon, and the Republic of the Congo.

[11]The Eastern Caribbean Currency Union consists of Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines.

[12]The GCC comprises Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

[13]The East African Community is formed of Burundi, Kenya, Rwanda, South Sudan, Tanzania, and Uganda.

nounce an explicit price inflation target in 1989. In the next years, Canada (1991), the UK (1992), and Australia (1993) soon also adopted inflation targeting frameworks. At present, the IMF names 38 countries as inflation targeters in their de facto classification of exchange rate arrangements and monetary policy frameworks (see IMF, 2016a). Figure 2.10 illustrates the growing number of central banks around the world which have committed themselves to targets in price level increases.[14] The Fed and the ECB do not consider themselves inflation targeters but are sometimes referred to as implicit inflation targeters due to their more or less openly expressed inflation objectives (see former Fed Governor Meyer, 2001).[15] Overall, the trend towards inflation targeting appears to be an important and far-reaching development in central banking. Table 2.3 provides additional information on current inflation targeting central banks (i.e. dates when IT was introduced and recent targets).

Figure 2.10: Central banks with inflation targeting frameworks 1990 to 2016
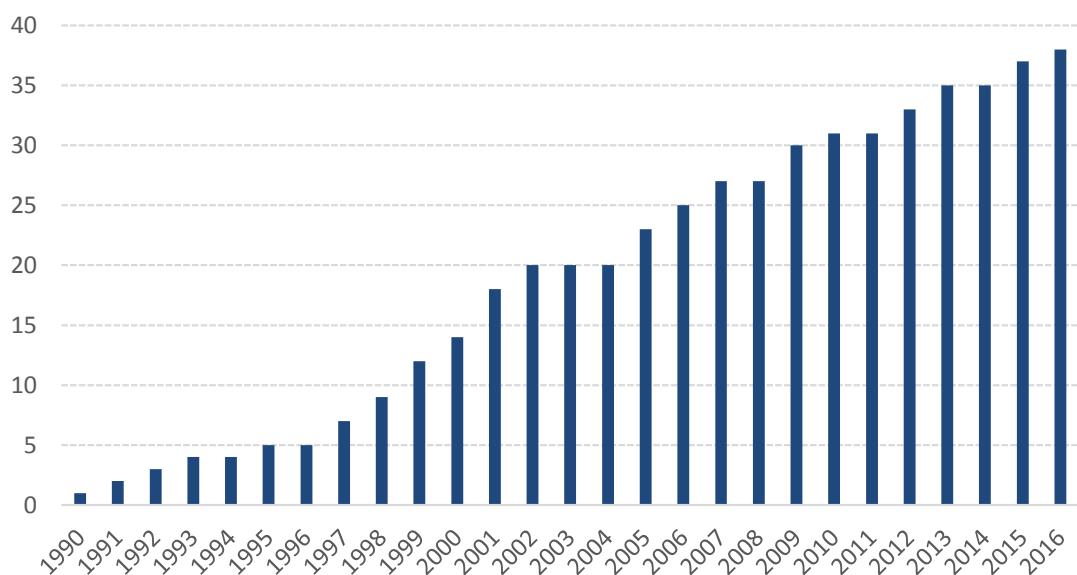
Sources: Central bank annual reports, Hammond (2012), IMF (2016a).

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[14]Spain, Finland, and Slovakia abandoned inflation targeting after their EMU accession.

[15]In particular, the Fed has an employment target apart from its inflation target (dual mandate).

Table 2.3: Countries with inflation targeting framework

Country	Year of adoption	Inflation target for 2016
New Zealand	1989	2.0% +/-1.0 percentage point
Canada	1991	2.0% +/-1.0 percentage point
United Kingdom	1992	2.0%
Australia	1993	2.0% - 3.0%
Sweden	1995	2.0%
Czech Republic	1997	2.0% +/-1.0 percentage point
Israel	1997	1.0% - 3.00%
Korea, South	1998	2.5%-3.5%
Poland	1998	2.5% +/-1.0 percentage point
Brazil	1999	4.5% +/-2.0 percentage points
Chile	1999	3.0% +/-1.0 percentage point
Colombia	1999	3.0% +/-1.0 percentage point
South Africa	2000	3.0% - 6.0%
Thailand	2000	2.5% +/-1.5 percentage points
Hungary	2001	3.0% +/-1.0 percentage point
Iceland	2001	2.5%
Mexico	2001	3.0% +/-1.0 percentage point
Norway	2001	2.5%
Peru	2002	2.0% +/-1.0 percentage point
Philippines	2002	3.0% +/-1.0 percentage point
Guatemala	2005	4.0% +/-1.0 percentage point
Indonesia	2005	4.0% +/-1.0 percentage point
Romania	2005	2.5% +/-1.0 percentage point
Armenia	2006	4.0% +/-1.5 percentage points
Turkey	2006	5.0% +/-2.0 percentage points
Ghana	2007	8.0% +/-2.0 percentage points
Uruguay	2007	3.0% - 7.0%
Serbia	2009	4.0% +/-1.5 percentage points
Georgia	2009	5%
Albania	2009	3.0% +/-1.0 percentage point
Moldova	2010	5.0% +/-1.5 percentage points
Dominican Republic	2012	4.0% +/-1.0 percentage point
Uganda	2012	5.0% +/-2.0 percentage points
Japan	2013	2.0%
Paraguay	2013	4.5% +/-2.0 percentage points
Kazakhstan	2015	6.0%-8.0%
Russia	2015	4.0%
India	2016	8.0%

Sources: Hammond (2012), central bank annual reports, central bank homepages.

2.3.8 International Reserves

International reserves under central bank management are another field in which important changes have occurred. The IMF defines these reserves as "those external assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, for intervention in exchange markets to affect the currency exchange rate, and for other related purposes (such as maintaining confidence in the currency and the economy, and serving as a basis for foreign borrowing)" (see IMF, 2007a, paragraph 6.64). As most central banks are very discrete in the management of their foreign reserve assets, little is known about recent trends in this issue. The IMF publishes aggregated reserve holdings broken down by the most important international currencies (Currency Composition of Official Foreign Exchange Reserves (COFER) database (IMF, 2017)) but it does not report country-specific reserves. Only 37 states disclose the height and composition of their international reserves. This piece of information is part of our dataset and is used in Chapter 5.

Our data as well as IMF data reveal strong increases in the size of international reserves, particularly between 1996 and 2015. For instance, the broader IMF COFER data shows a mere 1.6tn USD of Foreign Exchange Reserves for the year 1996, but over 11tn USD for the year-end 2016. Concerning the composition, the USD has, during this period, slightly increased its share among the allocated reserves (from 62% to 63%) and the EUR has, over the years, been able to establish itself as the world's second international currency with a share of over 20% in 2016. Simultaneously, the Japanese yen (JPY) and the British pound (GBP) took turns as the number three reserve currency. Figure 2.11 portrays the respective currency shares in the international reserves over time. In chapter 5, we ask for determinants of the composition of international reserves using individual country data. Three developments are particularly remarkable: First, the sheer increase in reserve volumes; second, the enduring dominance of the USD; third, an increased diversification of reserves, which manifests itself in the rise of reserve holdings denominated in currencies such as the Chinese renmimbi (RMB), the Australian dollar (AUD), the Canadian dollar (CAD), the Singapore dollar (SGD), or the Swiss franc (CHF).

Figure 2.11: Holdings in major reserve currencies (trillion USD)
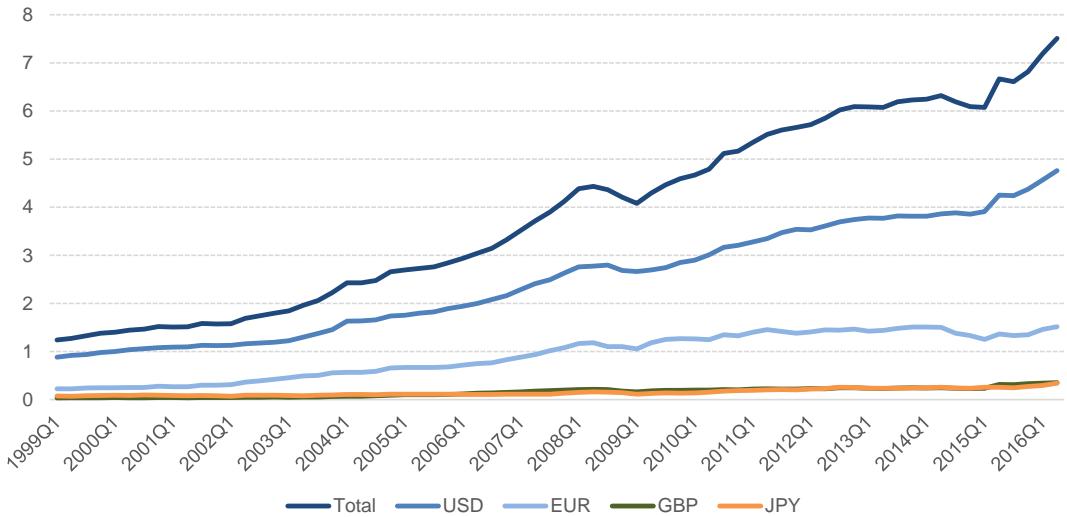
Source: IMF (2017).

2.3.9 Ownership

Compared to other trends in central banking the question of central bank owner-ship is a rather unambiguous issue as it has changed only little over the last dec-ades. While, historically, private ownership of central banks had been considered the norm, since the end of World War II, central banks have been increasingly na-tionalised and the model of state ownership has by far become dominant. Following the nationalisation of the central bank of Austria in 2010, there remain only nine central banks allowing for private shareholders (see Figure 2.12). For instance, Bar-tels et al. (2016) discuss the issue of private central bank ownership in the context of a possibly different financial behaviour of private central banks, which they deny.

Figure 2.12: Central bank ownership 2015

Percentage of private ownership

	≤50%	More than 50%	100%
Allocated	Central Bank of Turkey	Bank of Italy Central Bank of the Republic of San Marino	Federal Reserve
OTC			South African Reserve Bank
Stock exchange	National Bank of Belgium Bank of Japan Swiss National Bank	Bank of Greece	

Liquidity of shares

Source: Central bank homepages. Own taxonomy.

The central banks allowing for private ownership are located in Belgium, Greece, Italy, Japan, San Marino, South Africa, Switzerland, Turkey, and the United States. Of this dwindling number of non 100% publicly-owned central banks the stocks of five are traded on stock exchanges or over-the-counter (OTC) and reliably pay dividends: The National Bank of Belgium, the Bank of Greece, the Bank of Japan, the South African Reserve Bank, and the Swiss National Bank. The National Bank of Belgium has 50% of its shares traded on Euronext Brussels and the other 50% held by the Belgian state. The Bank of Greece limits state ownership to 35%, its share being listed at the Athens Stock Exchange (ASE) (see Bank of Greece, 2016). The Bank of Japan is characterised by a ratio of 55% public to 45% private ownership (see Bank of Japan, 2016), with its shares being traded on the Tokyo Stock Exchange (TSE). The Reserve Bank of South Africa is completely in private hands and its stock has been listed on an Over-the-counter Share Transfer Facility (OTCSTF) market since 2005 (until 2002: JSE Securities Exchange) (see South African Reserve Bank, 2016). Finally, the stock of the Swiss National Bank is listed on the Swiss Exchange (SIX), of which around 60% are owned by public entities and 40% are owned by private shareholders (see Swiss National Bank, 2016b).

Unlike these five central banks, the national banks of Italy, the US, and Turkey do not trade on the stock market, but also have private shareholders. The central bank of the US, consisting of twelve regional branches, is completely owned by private banks, while the Bank of Italy allows for banks, insurance and reinsurance

companies as shareholders, in addition to some public entities (see Federal Reserve System (2017), Bank of Italy (2017a)). 55% of the Central Bank of Turkey are under public (treasury) and 45% under private ownership (mainly banks) (see Central Bank of the Republic of Turkey, 2017). According to the taxonomy of Figure 2.12, the stock of the Bank of Greece is most comparable to the stock of a private company in terms of its primarily private ownership and liquidity.[16]

For the central banks traded on the stock market, private investors can acquire stocks and realise profits and losses from dividend payments and stock price fluctuations. Figure 2.13 exemplarily shows the stock market performance of the National Bank of Belgium, the Swiss National Bank, and the Bank of Japan. In addition, Figure 2.14 shows the stock performance of the Bank of Greece. The Bank of Greece has experienced a tremendous loss in its market value since 2008. Whereas the price for one share in the Bank of Greece fluctuated between 70 and 80 EUR in 2007, a stock price of close to 10 EUR at the end of 2016 implies a significantly lower market capitalisation of the Greek central bank than before the financial crisis.

Figure 2.13: Stock prices of selected publicly traded central banks (local currency)
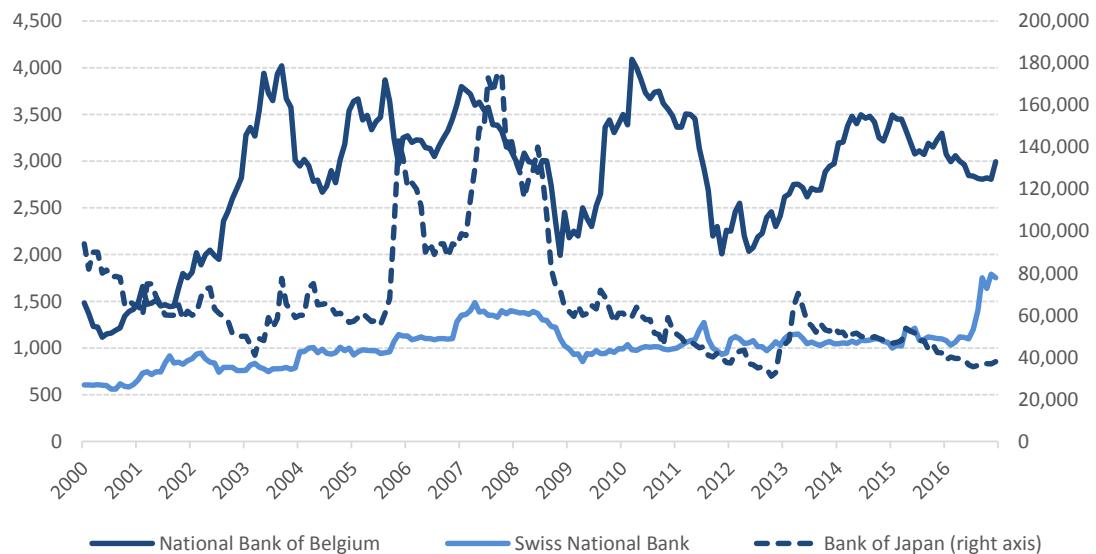
Source: Bloomberg.

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[16]Table 6.4 in the Appendix presents selected characteristics of the respective ownership models of all nine central banks providing for private shareholders.

Figure 2.14: Stock price Bank of Greece (EUR)

Source: Bloomberg.

2.4 Conclusions

This chapter shows the flexibility of central banks along several dimensions. Central banks have not only turned out to be flexible and creative in the conduct of monetary policies vis-à-vis a financially and economically troubled environment. In contrast, one can say that they actively adapt their structures and objectives when needed. Using new central bank data from different sources, I show that since the 1990s changes have appeared in areas as different as human resources, organisational structures, the involvement in financial supervision, or the management of international reserves, to name only a few. Apart from this, the motivation of this chapter is to give an insight into the dataset and to place the econometric analyses of the following chapters into the wider context of this dissertation.

3 Evolving Hierarchies in Central Banks

3.1 Motivation

Most business leaders would agree that the success of a firm does not only depend on competent managers and employees but also on their interconnection with one another. The relation between a firm's internal organisation and its outcome is supported by a battery of empirical studies. For instance, the size of a company in terms of employees as well as factors such as horizontal and vertical relations within the company are regularly considered determinants of the firm's innovative capability or its efficiency. Not surprisingly, organisational structures of firms constantly undergo important changes. One recent and often cited example of a major organisational change in the private sector consists of the claimed flattening of hierarchies.

For public institutions[1], the importance of organisational structures appears less clear. Firstly, because organisational structures of public institutions have not been subjected to the same interest by scholars and therefore have scarcely been examined systematically. Secondly, because the output of public institutions is more difficult to quantify. Whereas firm success can be measured in terms of profits or cost-income ratios, functions and objectives of public institutions are different by nature.[2] Nevertheless, the presumption that in the public sector internal structures are also related to outcomes appears conclusive.

Given the limited empirical research on the internal organisations of public institutions compared to that on private institutions, this chapter helps narrow this gap. In particular, I examine administrative structures of central banks as prominent public institutions - usually considered conservative and stable - both across time and countries. The contribution of this chapter shall be twofold: Firstly, making use of historical organisational charts, I compile a new dataset which retraces internal changes for central banks over an extended period of time. This approach is, to the best of my knowledge, unique and is used for the first time in an academic contribution. Secondly, I confront my findings with evidence for the private sector. I conclude that organisational structures in central banks have changed in several

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[1]The concept of institutions has no sole definition but is very different according to the respective scientific discipline. A possible general and very broad definition in the field of organisational economics could explain institutions as groups of individuals working together for a common purpose. Two prominent forms of the latter are public institutions and private firms. The best-known difference between those two is whether the realisation of profits is a primary aim. Closely connected to this question is the nature of the goods public institutions and private enterprises provide.

[2]Hasan and Mester (2008, p. 10) put this in a nutshell when writing that "the multiplicity of objectives makes central banks complicated institutions. Although central banks and governments care about seigniorage income and operating within their budgets, as public institutions, central banks are much less driven by the profit motive than are private corporations."

dimensions but that a comparison to the private sector remains difficult.

The remainder of this chapter is structured as follows: Section 2 presents the background of this chapter and some related literature, Section 3 introduces the data, which is then analysed in Section 4. Section 5 discusses the findings.

3.2 Some Background on Organisational Economics

The organisation of firms and to a lesser degree that of public entities have been popular research topics since the end of the 19th century, with the main part of this research clearly focusing on firms and stemming from scholars from the broad field of business administration.[3] Several papers identify competition accompanied by new concepts of management as the main driving force for firms to modify internal structures (see for instance Bloom et al., 2012, p. 4). While public institutions normally have not been exposed to this same type of pressure due to their different nature and objectives, this might have partially changed in the last years. Anecdotal evidence suggests that increased demands for cost effectiveness and more customer orientation might have induced important changes for the public sector and might have brought it closer to the private sector.

In the following, I outline both the "classic" theoretical background and the still limited but growing literature on empirics of organisational economics. I only very briefly touch on the arguments of flat and tall hierarchies from the (applied) perspective of a public institution.[4]

3.2.1 Theories on Organisational Structures and Change

The list of literature adding to our understanding of the structures of organisations and their evolution is impressive: Management theories, explanations based on personal observations, and, of course, coherent theories, which mostly have not yet

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[3]When reviewing the literature, economists seem to have understood the importance of organisation only much later. Marshall (1920) and Schumpeter (1942) are among those who recognized the importance of organisation early on and can be considered notable early exceptions. Coase (1937), for instance, must not be forgotten when discussing the existence of firms. His "Nature of the Firm" explains why firms are established at all instead of simply entering contracts in the marketplace, but his work is above all connected to transaction costs and not the organisational structure of the firm itself. Empirical analyses of organisational structures can be found hesitantly from the late 1990s on.

[4]A good and compact overview of prominent organisation theories can, for instance, be found in "Writers on Organizations" by Pugh and Hickson (2007).

been empirically tested.[5] In the following section, I limit myself to summarising a selection of influential contributions directly related to this chapter.

To the group of management theories belong the works of Fayol (1916) and Taylor (1947), who are credited with having written the first general theory of organisations and the first theory of scientific management respectively. Terms coined by Fayol such as the "unity of command" and the "scalar chain" are still in use 100 years later, while Taylor already promoted an integral management approach where workers and managers share a common goal 70 years ago.[6]

Worthy (1950) delivers an example of an explanation based on personal observations. Having worked for Sears, Roebuck & Co for many years, Worthy recognised some important advantages of "broad" or "flat" hierarchies over "vertical" or "tall" hierarchies and argued against too much specialisation for the sake of employee satisfaction and higher efficiency - an idea promoted by many start-ups and modern tech companies.

The question of why organisational structures change over time is addressed among others by Chandler (1973) who states that the structure of an organisation follows the organisation's strategy. According to this author, organisational changes and in particular the advent of the managerial hierarchy and modern enterprise can be understood as a response to market and technological pressures. DiMaggio and Powell (1983) observe an increasing convergence in the structures of organisations from the same field and refer to this phenomenon as "institutional isomorphism". Their theory ascribes this development to external pressure, the imitation of an alleged role model, and the professionalisation of managers with similar educational backgrounds.

A further theoretical contribution of direct importance when analysing organisational structures comes from Aghion and Tirole (1997), who emphasise the difference between formal authority and real authority. While the first consists of

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[5]Moreover, the business press, in parts, reveals important paradigm shifts but is not considered in this place.

[6]Contemporaneously with Taylor, Weber (1947) in his theory of authority structures distinguishes organisations according to the source of their legitimation (charismatic, traditional, legal) and considers only legal authority rational and bureaucracy as the purest and most efficient form hereof, while also being the prevalent method of organisation in modern societies.

the "right to decide", the second refers to the "effective control over decisions".[7] This difference becomes important in Section 3, where organisational structures are quantified.

3.2.2 Empirics on Organisational Economics: What Has Been Done so Far?

Empirically testing the predictions of the theories of organisational economics is a field only partially cultivated and therefore leaving ample space for future research projects. With rapidly increasing and better data availability, I expect to see a surge in the number of contributions in this research area. Several important contributions already exist.

The papers most related to and most influential for this chapter are those empirically assessing organisational structures of firms on the basis of new panel data sets. To this category belong, in particular, the joint works of Colombo and Delmastro (1999) and of Rajan and Wulf (2006). The former analyse hierarchies based on a large panel data set (438 Italian metalworking plants) and quantify structures in terms of span of control and the allocation of decision-making powers. The source of their data are questionnaires answered by plant managers. They find that the choice of an organisational configuration can be well explained by the "loss of control phenomenon", that organisations change only little and slowly and that firm size plays a crucial role for organisational change (see Colombo and Delmastro, 1999, p. 272). Rajan and Wulf (2006) also examine hierarchies and analyse more than 300 US firms during the period 1987-1998. They find an increased span of control of CEOs (breadth) and a reduced number of positions between CEOs and division heads (height) and as an overall result a flattening of organisational hierarchies within firms. Their paper relies on data from "a confidential compensation survey" comprising job descriptions and reporting levels and relationships of management positions (see Rajan and Wulf, 2006, p. 761). In this chapter, I apply some measures similar to those of these two papers but rely on a very different data source.

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[7]The important theoretical contribution of Williamson (1975) will be mentioned at this place, although more distant. Williamson illustrates why not all transactions are conducted through markets but also within organisations such as firms. Decisive is the relative size of the information cost of the respective transactions. When regarding markets and hierarchies as alternatives and a market transaction is subject to higher information costs, the hierarchical solution becomes more attractive. Finally, there seems to be a limit to growth in hierarchies explained by changes in internal structures within growing organisations that then result in increased costs of the hierarchical transaction.

Other studies are less concerned with hierarchies but rather focus on centralisation within firms. For instance, Bloom et al. (2012) measure the degree of decentralisation within firms by surveying plant managers. By taking z-scores of the answers and aggregating these, they obtain country-specific indices of decentralisation. They find rule of law, trust, non-hierarchical religions, and product market competition to be associated with more decentralisation. Acemoglu et al. (2007) measure decentralisation according to whether a firm's units are organised as profit or cost or production centres, where the existence of profit centres corresponds to more decentralisation. Their analysis of French and British firm panel data shows that "firms closer to the technological frontier, firms in more heterogeneous environments and younger firms are more likely to choose decentralization" (see their abstract). Also, Marin and Verdier (2008) use survey data from 660 Austrian and German firms where the level of decentralisation is ranked from 1 to 5. They find that Germany as the larger country has larger companies which are less centralised than Austrian firms and link their observations to the trade environment, i.e. international competitions inducing firms to flatten and decentralise their organisational structures.

An important characteristic common to all of these largely descriptive papers is that they are all based on survey data.

3.2.3 Flat or Tall Hierarchies: An Applied Perspective

The concept of flat structures is regularly contrasted with the concept of hierarchical structures, for example in the business press. While the former refers to an organisation with few or no layers between management and staff, the second concept is characterised by subordination among several levels and is often illustrated by the image of a pyramid (see for instance BBC, 2016). Many business consultants, such as those from the Boston Consulting Group (2006), openly advocate flatter structures for companies on a local as well as on a global scale, with the prospective of cost savings, faster decision-making, and increased morale and accountability, and more efficiency in general.[8] For the employees, an advantage is seen in what is called "empowerment".

In the case of the public sector, which in general is considered highly hierarchical, the question of flat or tall hierarchies has not been raised to the same extent as

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[8]Wulf (2012, p. 2) emphasises this point and adds that the Boston Consulting Group even "applied for a trademark in 2005 for the term delayering to designate its distinctive approach to flattening the corporate pyramid".

in the firm case. Nevertheless, in the last years there have been indications of the public sector's growing awareness that a changing environment might necessitate incisive organisational changes. For instance, a handbook published by the German Federal Ministry of the Interior (2016), which is "from and for practitioners" in public administrations can in some parts be interpreted in this sense. Designed for the review of organisational issues and the assessment of staffing needs[9], it reveals many important insights into the German administration, which might be more universal than country-specific. One is that advantages of flat and tall hierarchies are discussed openly also in the public sector. Table 3.1 is based on the Ministry's handbook and summarises the arguments for both types or organisational configurations.

Table 3.1: Advantages and disadvantages of flat and tall hierarchies

	Advantages	**Disadvantages**
Flat	Lower personnel costs due to fewer management positions. Enhanced communication. Increased autonomy, creativity, and responsibility of employees. Better decision-making.	Danger of overstrain of managers affecting quality, efficiency, and employee satisfaction. Stunted development of human resources due to a lack of prospects of promotion. Development of informal hierarchies.
Tall	Better exertion of influence by management. More time for executive duties. Easier coordination and control.	Slower flow of information and communication. Missing flexibility. Tendency towards dependent employees. Higher personnel costs due to more management positions.

Source: German Federal Ministry of the Interior (2016).

Another important insight from the handbook is that the public sector acknowledges the changing environment it has to face. Concretely, the handbook identifies a necessary budget consolidation and a need for more customer orientation as driving forces that require adaption of the public sector.[10]

In my opinion, it makes sense to assume a similar consciousness of public au-

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[9] "Handbuch für Organisationsuntersuchungen und Personalbedarfsermittlung".

[10] Exact wording in German: "Die öffentliche Verwaltung sieht sich seit einigen Jahren einem starken Druck zu Veränderungen ausgesetzt. Dieser wurde einerseits durch die notwendige Haushaltskonsolidierung ausgelöst, die zu mehr Wirtschaftlichkeit und Sparsamkeit zwingt. Andererseits verstehen die Empfänger der Leistungen des Verwaltungshandelns sich inzwischen nicht mehr als Antrags- oder Bittsteller, sondern als Kunden. Die Verwaltung wird somit zum Dienstleister, von dem die Erstellung eines qualitativ hochwertigen Produktes oder einer Dienstleistung in angemessener Zeit zu angemessenen Kosten erwartet wird." (see German Federal Ministry of the Interior, 2016, p. 13).

thorities in general and of central banks of what is expected of them. To give a supportive example, a survey among 40 central banks conducted by the Bank for International Settlements identifies a reduction in hierarchies as well as in the number of divisions and departments as the main areas of major organisational change in central banks – apart from changes in communication and human resource management (see Ortiz, 2009, p. 165 or Figure 6.1 in the Appendix).

3.3 Central Bank Structures over Time: Data and Measurement

The organisational structure of an organisation is the totality of its rules of distribution of authority, tasks, control, and coordination (see Robbins and Coulter, 2014, p. 24). While, to the best of my knowledge, most empirical examinations of organisational structures are based on survey data, I choose a very different approach and make use of organisational charts.[11] This type of graphical representation of formal structures is documented as being in use in the United States of America (USA) from the 1850s onwards and is very common today.[12] As far as I know, this study is the first academic contribution to make use of central bank organisational charts for the sake of generating additional data that can be analysed quantitatively. The good availability of central bank organisational charts allowed me to compile a new data set capturing the formal organisational structures of central banks over time. In some ambiguous cases, verbal descriptions were useful to complete the picture. A first step was the collection of historical organisational charts (see Section 3.3.1), a second and more demanding step then consisted of quantifying these charts (see Section 3.3.2 and 3.3.3).

3.3.1 Data

To analyse formal organisational structures, I restricted myself almost exclusively to the structures depicted by organisational charts. These charts can often - but not always - be found in historical central bank annual reports. As most central banks

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[11]Organisational charts are also referred to as organisation charts, organigrams, or organograms.

[12]Chandler (1973, pp. 21-22), among others, credits Daniel McCallum, then the general manager of the New York and Erie Railroad Company, as the first, at least in the US, to make use of an organisational chart. It was lost and found again in 2005. The impressive illustration can be found in the Appendix (Figure 6.2). Organisational charts became more prominent in the 20th century. Some central banks have been publishing them since as far back as the 1920s, most only much later.

usually only make available online a small number of annual reports, the library of the Deutsche Bundesbank in Frankfurt, Germany, turned out to be a very rich source of information in this context. In addition, some central banks answered to my inquiries and agreed to send historical organisational charts. Some anthologies of central banks also contained historical organisational charts. Furthermore, a visit to the archive of the Bundesbank yielded organisational charts for Germany dating back to 1960 and a contact to the Bank of the Republic (Colombia) even back to 1927. In total, I capture the information of nearly 1,200 organisational charts of 98 central banks worldwide, the oldest from the late 19th/early 20th century, and by far most of them dating from the last two and a half decades. The following two graphs provide an example of organisational charts of the Bank of Italy (see Figure 3.1) and the Central Bank of Russia (see Figure 3.2) and give an idea of what the original information underlying my dataset typically looks like, i.e. the raw data. A selection of other interesting central bank organisational charts can be found in the Appendix (i.e. Italy 1894 (see Figure 6.3), Canada 1936 (see Figure 6.4), Austria 1946 (see Figure 6.5), Norway 1985 (see Figure 6.6), UK 2000 (see Figure 6.7), and France 2015 (see Figure 6.8)).

Figure 3.1: Organisational chart Bank of Italy 2015

Source: Bank of Italy (2015).

Figure 3.2: Organisational chart Central Bank of Russia 2015

Bank of Russia Governor
Elvira Nabiullina

State Secretary – Deputy Governor of the Bank of Russia
Alexander Torshin

Bank of Russia Press Service
(Marina Ryklina)

Secretariat of Bank of Russia Governor
(Azer Talybov)

Bank of Russia Executive Office
(Vladimir Zhuchkov)

First Deputy Governor
Georgy Luntovskiy

First Deputy Governor
Alexey Simanovskiy

First Deputy Governor
Dmitry Tulin

First Deputy Governor
Sergey Shvetsov

First Deputy Governor
Ksenia Yudaeva

Deputy Governor
Olga Skorobogatova

Deputy Governor
Mikhail Sukhov

Deputy Governor – Head of the Bank of Russia Chief Inspection
Vladimir Safronov

Deputy Governor
Vasily Pozdyshev

Deputy Governor – Director of General Economic Department
Nadezhda Ivanova

Deputy Governor
Vladimir Chistyukhin

Deputy Governor
Viktor Berestovoy

Deputy Governor
Dmitry Skobelkin

Bank of Russia Chief Auditor
Valery Goreglyad

Information Technology Department
(Maksim Tishchenko)

National Payment System Department
(Alla Bakina)

Bank of Russia First Operations Department
(OPERU-1)
(Vladimir Karmashov)

Bank of Russia Nudol Technological Centre
(Anatoly Shiryaev)

Bank of Russia Interregional Data Processing Centre
(Mikhail Shashlov)

Cash Circulation Department
(Alexander Yurov)

Field Institutions Department
(Evgeny Badaev)

Human Resources and Personnel Management Department

Main Office of Security and Information Protection
It is subordinate to Bank of Russia Governor on individual issues

Central Depository
(Nikolay Ivanov)

Russian Union of Cash Collection Divisions
(Oleg Krylov)

Bank of Russia Interregional Security Centre
(Yury Bocharov)

Money & Credit Editorial Office
(Vladimir Palevitch)

Bank of Russia Chief Inspection

Systemically Important Banks Supervision Department
(Mikhail Kovrigin)

Credit Institutions Licensing and Financial Rehabilitation Department
(Lyudmila Tyazhelnikova)

International Cooperation and Public Communications Department
(Dmitry Lyakishev)

Banking Supervision Department
(Ruben Amiryants)

Banking Regulation Department

Market Services Department

Monetary Policy Department
(Igor Dmitriev)

Market Operations Department
(Alexander Kashturov)

General Economic Department

Financial Market Development Department
(Elena Chaikovskaya)

Financial Market Access Department
(Elena Kuritsyna)

Main Office for Countering Malpractice in the Open Market
(Valery Lyakh)

Non-bank Financial Institutions Statements Collection and Processing Department
(Olga Goncharova)

Service for Protection of Financial Services Consumers and Minority Shareholders
(Ilya Kochetkov)

Administrative Department
(Pyotr Balakin)

Financial Department
(Olga Solodukhina)

Main Office of Bank of Russia Real Estate
(Vladimir Nemenyonok)

Securities Market and Commodity Market Department
(Larisa Selyutina)

Collective Investment and Trust Management Department
(Philipp Gabunia)

Insurance Market Department
(Igor Zhuk)

Main Office of Microfinance Market and Financial Inclusion Methodology
(Mikhail Mamuta)

Financial Monitoring and Foreign Exchange Control Department
(Yury Polupanov)

Financial Stability Department
(Sergey Moiseev)

Statistics Department
(Ekaterina Prokunina)

Research and Forecasting Department

Legal Department
(Alexey Guznov)

Internal Auditing Department
(Nikolay Surikov)

Procurement Examination, Methodology and Control Department of the Bank of Russia
(Vladimir Galanyuk)

Chief Accountant – Director of Accounting and Reporting Department
Andrey Kruzhalov

Accounting and Reporting Department

Source: Central Bank of Russia (2015)

3.3.2 Features and Limitations of Organisational Charts

I am well aware that the organisational chart cannot fully describe the organisational structure regardless of the nature of the organisation of interest (neither for a firm nor a public institution nor a central bank, in particular) and that the organigram only is a partial picture of what is happening inside an organisation. This is obvious, as many relationships are informal and not represented in these charts. Nevertheless, I am convinced - even more after my analyses - that these charts carry a lot of information and that they are in fact strongly correlated with real organisational developments.[13] Reflecting upon the features and limitations of these charts reveals what they show and what they do not show.

The main feature in support of the use of organisational charts is that they precisely capture formal structures. Firstly, they show which positions exist within an organisation, thus disclosing the range of activities of the organisation. Secondly,

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[13]The point that the organisational chart is indeed relevant finds expression in the reference to the organisational chart as an organisation's "skeletal configuration" (see for instance Van de Ven, 1976, p. 70).

they show how these positions are grouped. Thirdly, they contain the information on how labour is formally divided. Fourthly, they tell us how authority, communication, and responsibility flow between elements of the organisational charts. Fifthly, they show vertical and horizontal relationships, thereby revealing the breadth and the height of an organisation (i.e. the number of management levels) (see Mintzberg 1979, pp. 36-27 and Business Dictionary, 2017).[14]

The feature of precisely describing formal structures is at the same time the main limitation of my approach. An organisational chart always remains a reduced depiction of the complete and real organisational structure. This means that it has nothing to say about the informal structure and thus neither says how labour is actually divided nor how real authority, real communication, and real responsibility flow (see Mintzberg, 1979, pp. 36-37). The level and position of an element in the organisation chart does not have to correspond to its real rank and importance within the firm or public institution (see Aghion and Tirole, 1997). There might even be important elements which are not shown in the organisational chart. Even more difficult to discern than real vertical relationships are often real horizontal relationships as these are usually not marked by lines. Finally, an organisational chart does not say anything about the managerial style. For example, despite a flat structure an organisation could be managed in an authoritarian manner (see for instance Mazal, 2014).

In total, having the limitations of such a simplified graphical representation of an institutional structure in mind, the analysis of accurate formal structures appears absolutely suitable for the purpose of quantifying organisational structures of central banks. Mintzberg (1979, p. 37) fittingly sums up features and limitations, when writing that "the organigram should [...] be [...] placed in context" as "it tells us some useful things, even though it hides others". Finally, while formal structures can be quantified and thus operationalised, this is not be possible for informal structures, thereby speaking for an analysis of formal structures.

3.3.3 Measures of Hierarchies and Relations

In order to quantify and operationalise organisational structures of central banks, I experimented with several measures of hierarchies and relations, some of which I

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[14]Furthermore, organisational charts can mirror past developments as well as plans for the future (see for instance Alexander Hamilton Institute, 1923, p. 7).

dismissed as inappropriate for this project.[15] As a result, I retained five measures which coherently and quantitatively describe major differences between organisational charts and structures over countries and time. These measures are partially correlated, but altogether they allow for an extensive coverage of central bank structures.[16] In the following, these five measure are described.

Number of elements: The first measure is a straightforward count of all elements shown in the (core) organisational chart. It serves to capture the size and complexity of a central bank. Beyond that, it is an indication of the range of activities in which a central bank is involved. From the private sector it is widely accepted that larger enterprises are usually more complex, mostly having more organisational units on a greater number of management levels than start-ups or small firms (as for instance family businesses).

Height: The second measure is the height of an organisation. It corresponds to the number of management levels. In terms of its construction and interpretation, it captures the vertical dimension of an organisation. The elimination of a layer in the organisation thus manifests itself in a lower number. Generally speaking, a high number of management levels corresponds to more hierarchical structures.

Span of control governor: The span of control reflects the breadth of an organisation, i.e. the horizontal dimension. It corresponds to the number of elements reporting to the superordinate hierarchy element and is defined for each element of the organisation. Both measures, i.e. height and span of control, are used for instance by Colombo and Delmastro (1999) or Rajan and Wulf (2006), who find that in the case of firms the number of management levels has decreased, whereas spans of control at the highest management level have increased over time. I am particularly interested in the span of control of the central bank governor as the usually most important position in a central bank.

Centralisation: The fourth measure contains the (formal) degree of centralisation within a central bank. Understanding centralisation as a high concentration

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[15]A characteristic with which I experimented but which I finally dismissed was inter alia the distinction between functional, divisional, and process-oriented structures. This measure requires an individual assessment of each organisational chart. A functional structure is characterised by positions executing related tasks being grouped together; a divisional structure is designated by its grouping of positions associated by a common responsibility for a specific service or product; a process-oriented structure is characterised by its attention to processes rather than to rigid structures. This measure appeared to yield only little additional insight. Another measure which I dismissed was, for instance, the horizontal differentiation of an organisation measured by the number of elements on each management level.

[16]Certain software applications for the creation of organisational charts were used for some back-testing of my set of measures, i.e. I could rebuild organisational charts true to the original for a specific central bank and year on the basis of these five measures only.

of power, this concept can be applied to spans of control.[17] I therefore construct a normalised Herfindahl index H* describing the distribution of the span of control according to each organisational chart. A value of 0 would represent a structure in which the span of control is evenly distributed and a value of 1 would correspond to a structure where all elements would have to report to one sole position in the organisational chart.[18]

Staff: Finally, the fifth measure captures the size of each central bank in a year in terms of the number of its employees. That it is named last is based on the fact that this piece of information is not directly part of the organisational chart. The number of employees usually can be found in central bank annual reports or is taken from past editions of the Central Bank Directory. The staff size is of major importance as it has strong implications for other organisational aspects and is directly related - to different degrees - to the four other measures of hierarchies and relations. Staff size is usually indispensable when trying to discuss the organisation of any firm from the private economy.

Together, these measures provide a detailed picture of the formal organisational structure of central banks. The following example shall illustrate how the information contained in the organisational chart is quantified for our purposes: While the first graph contains a total of 16 elements, which are distributed along four management levels (see Figure 3.3), the second organisational chart contains a total of 10 elements distributed along three management levels (see Figure 3.4). The span of control of the governor (as an example) doubles in this example from 4 to 8, whereas the level where most elements of the organisational chart are situated remains the lowest level in the hierarchy, i.e. level 4 and level 3 respectively. Finally, a normalised Herfindahl index of 0.14 and 0.78 indicates a more evenly distributed span of control in the first organisational chart and thus a lower concentration of power. In this logic, I quantify the information content of all organisations charts available.

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[17]If decentralisation is considered the opposite of centralisation, a possible definition might explain decentralisation as "the process of distributing power away from the centre of an organisation" (see The Economist, 2009).

[18]The Herfindahl index is calculated as

$$H = \sum_{i=1}^{N} a_i^2 \ with \ a_i = \frac{x_i}{\sum_{j=1}^{N} x_j}$$

and x_i denoting the span of control of element i. Normalising the index to $H^* = \frac{H - 1/N}{1 - 1/N}$ then results in values ranging from 0 to 1, with higher values indicating a higher degree of centralisation of the span of control within a central bank.

Figure 3.3: Fictional organisational chart for 1990
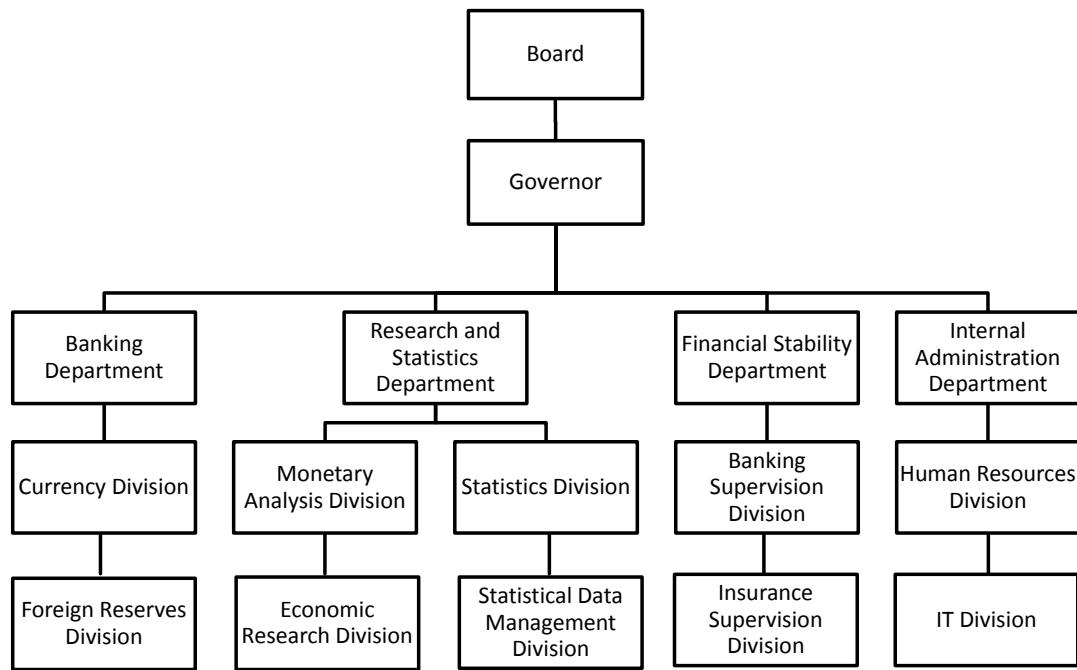
Figure 3.4: Fictional organisational chart for 2015
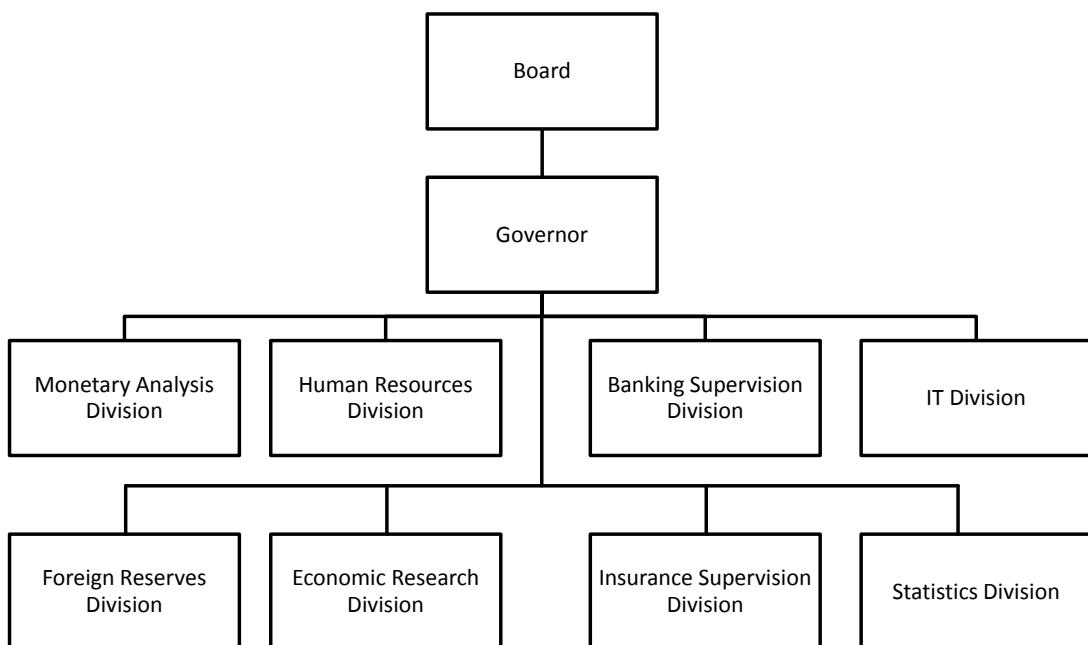
3.4 Descriptive Analysis

In the following subsections, I begin with some general remarks on the entire sample (Section 3.4.1). As the main part of this section, I then present descriptive findings for a balanced sample for the period 2004-2015 and 50 central banks (Section 3.4.2). Looking for possible driving forces of organisational change, I finally regress a selection of country-specific factors on the observations for the five measures of hierarchies and relations (Section 3.4.3). The short last section, in particular, is motivated by anecdotal evidence suggesting IT progress and budgetary pressure among others as possible drivers of organisational change in the private sector.

3.4.1 Remarks on the Entire Sample

Disposing of the quantified information of over 1,200 organisational charts for differing spans of time, this subsection briefly provides a number of observations before turning to a statistically more convincing balanced sample for the period 2004-2015 in the next section.

For the very long-run, I obtained organisational charts for the central banks of Italy from 1894 on, of Colombia from 1927 on, of Canada from 1936 on, of Austria from 1946 on, and of Germany from 1960 with more or less difficulty.[19] Obtaining organisational charts for other countries for similar periods of time appeared to be very complicated. This is more likely to be a result of a lack of data availability and accessibility of most central banks rather than of them not using organisational charts. The very long-run would have been particularly interesting to answer questions such as whether extreme events (e.g. the two World Wars) caused important ruptures in formal relations and hierarchies. For the very small sample (n=5), the above introduced measures show that changes in organisational charts before the turn of the millennium are in general not particularly striking. Overall, the small number of observations for very long periods made me abandon the idea of further statistical analyses.

When conspicuous organisational changes occurred, they often were preceded by important political changes. An example is a central bank's loss of its monetary

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[19]Historical organisational charts for the Bank of Italy are from an anthology about the history of the Italian central bank (see Contessa and De Mattia, 1993). Organigrams for the Bank of the Republic (Colombia) were received in scanned form via e-mail. Organisational charts for the Canadian and German central banks were provided by courtesy of their archives. Organisational charts for the Oesterreichische Nationalbank (OeNB) also are part of an anthology, not yet entirely published (see Weber, 2017).

policy monopoly following the introduction of a common currency. It is therefore crucial to be familiar with a central bank's history and the country-specific historical context to understand causes of institutional change.[20]

There are two groups of central banks that stick out of the complete sample. There are, on the one side, central banks that have barely modified the formal internal organisation represented by their organisational charts over the years, such as the central banks of Taiwan and Japan. On the other side, there are several Scandinavian and Baltic central banks that have actively promoted organisational change, having documented and expressed this in their annual reports. An interesting case among others is the central bank of Lithuania. In its annual report for the year 2012, the Bank of Lithuania explains the replacement of its former organisational chart stating that "the new organisational structure enabled creation of a new, substantially flatter management structure based on the principle of subordination" and further elaborates that "this structure permitted to reduce the number of managing positions by 42 per cent" (see Bank of Lithuania, 2013, p. 84). The "old" and "new" structure are presented below (see Figure 3.5 and Figure 3.6).

Figure 3.5: Organisational chart Bank of Lithuania 2011
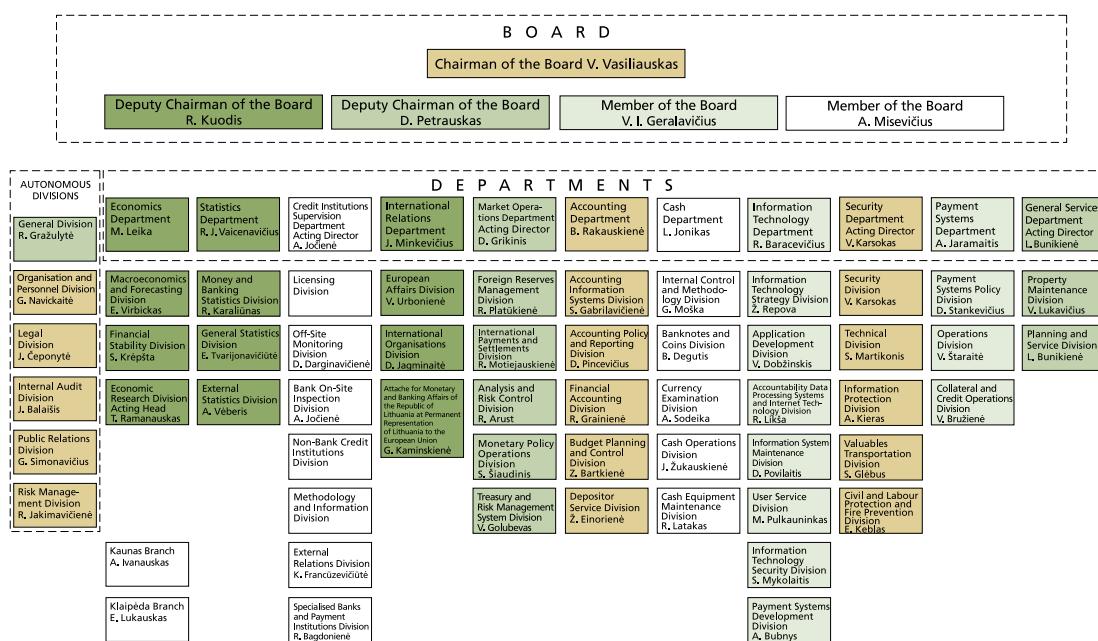
Source: Bank of Lithuania (2012, p. 73)

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[20]Taking the example of Germany for the period since the establishment of a common monetary union, the set of five measures presents a picture of a more compact Bundesbank, which might be explained by the institution's loss of its monetary policy monopoly.

Figure 3.6: Organisational chart Bank of Lithuania 2012
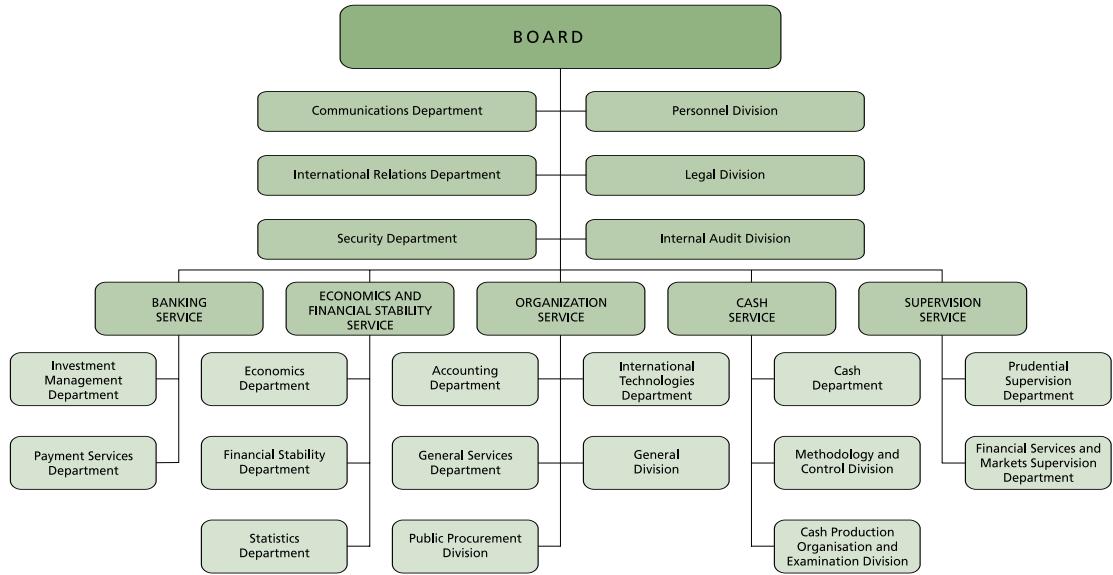
Source: (Bank of Lithuania, 2013, p. 83)

That these verbally announced changes in the organisational structure indeed correspond to changes in the organisational chart highlights the usefulness of these charts. In my system of five measures of hierarchies and relations, these changes find expression in three dimensions: In 2011, there were 66 elements in the organisational chart of the Bank of Lithuania and the normalised Herfindahl index of centralisation took a value of 0.08. In that year, the Bank of Lithuania had 728 employees. In 2012, the organisational chart of the Bank of Lithuania comprised 27 elements, while it had become more centralised with a normalised Herfindahl index of 0.22. The staff number had been reduced to 586 employees (-19.5%). This example illustrates that organisational charts and staff numbers unquestionably carry an important amount of information.

3.4.2 The Balanced Sample: Descriptive Statistics

A balanced sample 2004-2015 for 50 countries appeared preferable to a larger unbalanced sample as it allows us to comprehensively follow organisational changes over time. In sum, this results in 600 observations per measure. With a number of five measures this makes a total of 3,000 data points. Concerning the sample's representativeness, European central banks are overrepresented: 24 central banks from the sample are located in Europe, 13 in Asia, 7 in the Americas, and 3 in

Africa and Australia and Oceania each. Half of the European central banks from the sample (i.e. 12) are part of the Eurosystem.[21] At the same time, when distinguishing between central banks of advanced economies and those of emerging and developing economies,[22] the sample is divided equally, with 25 central banks from each group (see Table 3.2). The only partial representativeness is to be explained simply by the data availability. However, a high match with the unbalanced sample for the same period suggests that the overrepresentation of European central banks is unproblematic for this project.

Table 3.2: Countries in sample (industrial and emerging markets)

Industrial countries	Emerging markets and developing countries
Australia	Bhutan
Austria	Bosnia
Belgium	Bulgaria
Canada	Cayman Islands
Cayman Islands	Chile
Cyprus	Colombia
Czech Republic	Croatia
Denmark	El Salvador
Finland	Fiji
France	Ghana
Germany	Guatemala
Hong Kong	Haiti
Japan	Hungary
Korea, South	Lao PDR
Latvia	Malaysia
Lithuania	Maldives
Luxembourg	Mozambique
Macao	Poland
Singapore	Qatar
Slovak Republic	Romania
Slovenia	Serbia
Spain	Solomon Islands
Sweden	Thailand
Taiwan	Turkey
United Kingdom	Uganda

Source: IMF (2016c).

Table 3.3 shows the pairwise correlation between the five variables. Different

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[21]See Table 6.6 of the Appendix for the geographic composition of the balanced sample.

[22]The country classifications of the IMF's World Economic Outlook are applied here (see IMF, 2016c).

signs and sizes of the coefficients indicate that the five measures of interest complement each other and represent different organisational aspects. The strongest positive correlations are those between the organisation's number of elements and the organisation's height (number of management levels) (+0.56) and between the number of employees (staff) and the number of elements (+0.31). This is not surprising insofar as larger institutions in terms of more organisational units are regularly organised along more management levels, and the notion that more employees are associated with more organisational units is rather common. The strongest negative correlations, in contrast, are those between the organisation's number of elements and the organisation's degree of centralisation (normalised Herfindahl) (-0.57) and between the organisation's height and the governor's span of control (-0.50). This implies that larger central banks are rather decentralised and that within taller central banks (i.e. with more management levels) fewer elements report directly to the governor. Furthermore, more organisational units are correlated with less centralisation; so too is a larger central bank staff (-0.13).

Table 3.3: Correlation matrix organisational measures

	Number of elements	Height	Span of control governor	Central- isation	Staff
Number of elements	1.00				
Height	0.56	1.00			
Span of control governor	-0.01	-0.50	1.00		
Centralisation	-0.57	-0.49	0.26	1.00	
Staff	0.31	-0.03	0.26	-0.13	1.00

The following tables and figures describe my findings in the five categories. First of all, the total *number of elements* within the organisational charts has increased from a mean (median) of 37.96 (31.00) in 2004 to 42.17 (33.50) in 2015 (see Figure 3.7). This corresponds to an average increase of more than four additional organisational units over the 12-year period suggesting that central banks have become on average more complex. In relative terms, the number of elements increased by 11.09% between 2004 and 2015.

Figure 3.7: Number of elements

Year	Mean	Median	Standard deviation
2004	37.96	31.00	24.44
2005	36.53	26.00	23.18
2006	38.17	29.50	24.41
2007	39.87	34.00	24.60
2008	39.88	34.50	24.59
2009	41.58	34.00	26.43
2010	41.31	34.00	25.92
2011	42.50	34.50	27.64
2012	43.16	35.00	27.71
2013	44.96	37.00	30.10
2014	45.38	37.00	31.41
2015	42.17	33.50	31.47
Average	41.12	33.33	26.83
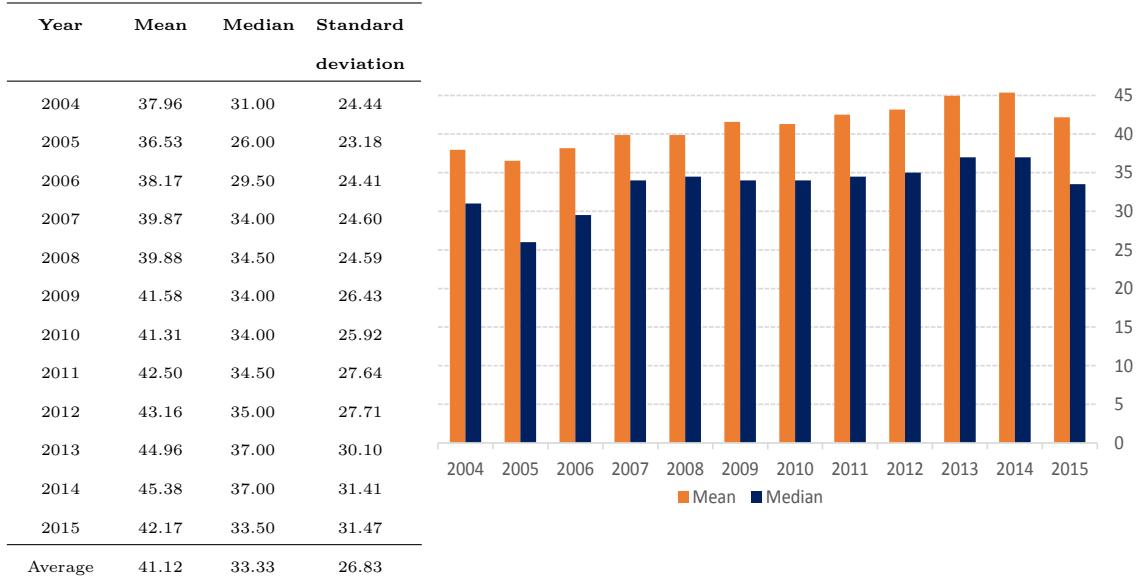
Secondly, the *height* of the central banks of the sample did not follow any clear trend. The number of management levels has not altered significantly over time. Mean and median numbers are identical for 2004 and 2015 (4.14 and 4.00 respectively) (see Figure 3.8). Changes between these years appear small and practically insignificant. Precisely, the average central bank increased the number of management levels by +0.16% only.

Figure 3.8: Height

Year	Mean	Median	Standard deviation
2004	4.14	4.00	1.07
2005	4.38	4.00	1.30
2006	4.21	4.00	0.97
2007	4.17	4.00	0.93
2008	4.23	4.00	1.13
2009	4.26	4.00	1.12
2010	4.24	4.00	1.07
2011	4.17	4.00	1.02
2012	4.27	4.00	1.06
2013	4.31	4.00	1.16
2014	4.26	4.00	1.12
2015	4.14	4.00	1.16
Average	4.23	4.00	1.09
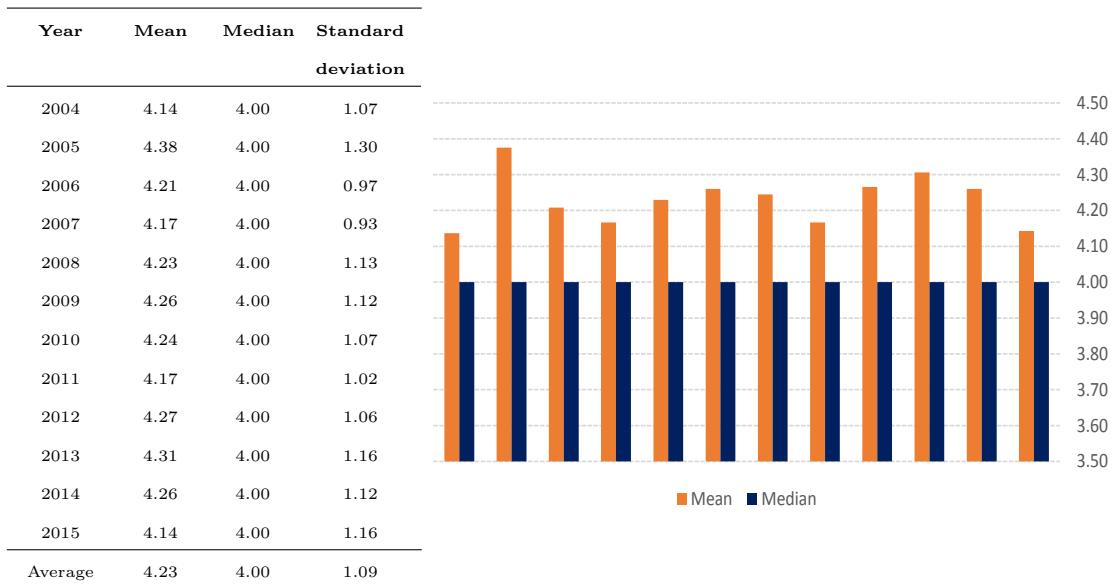
Thirdly, the s*pan of control* of the central bank governor was stable when comparing 2015 to 2004. In between, the number of elements directly reporting to the governor fluctuated. A decrease from 7.98 (6.50) in 2004 to 6.96 elements in 2008 (-12.77%) was followed by an increase to 7.98 (7.00) elements in 2015 (see Figure 3.9). The evolution of this measure thus followed a U-shape pattern.

Figure 3.9: Span of control governor

Year	Mean	Median	Standard deviation
2004	7.98	6.50	5.53
2005	7.48	6.00	5.51
2006	7.38	6.00	5.12
2007	7.48	6.50	4.98
2008	6.96	6.00	4.65
2009	7.30	6.50	4.97
2010	7.10	6.00	4.81
2011	7.46	6.50	4.75
2012	7.47	6.00	5.13
2013	7.49	6.00	5.10
2014	7.70	6.50	5.28
2015	7.98	7.00	4.91
Average	7.48	6.29	5.06
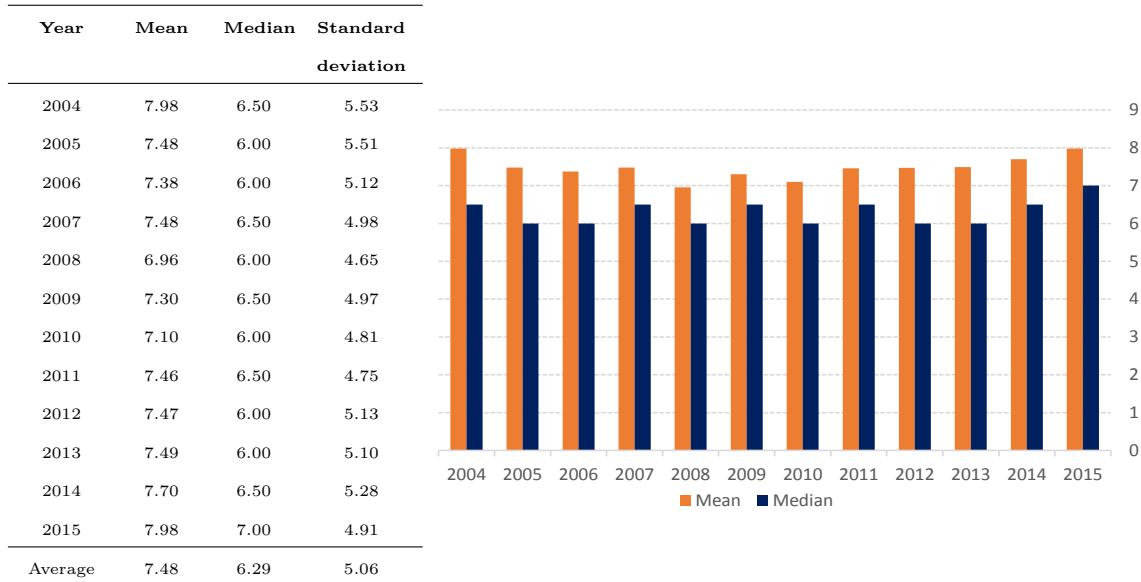
Fourthly, the degree of *centralisation* of the average central bank has decreased very slowly but sustainably for all years after 2005. Compared to 2004, central banks have on average become less centralised (see Figure 3.10). In percentage terms, the average measure of centralisation decreased by 4.16% between 2004 and 2015, between 2005 and 2015 the change is even more pronounced (-7.77%).

Figure 3.10: Centralisation

Year	Mean	Median	Standard deviation
2004	0.24	0.14	0.24
2005	0.25	0.14	0.25
2006	0.24	0.13	0.25
2007	0.23	0.13	0.24
2008	0.22	0.12	0.24
2009	0.23	0.12	0.25
2010	0.23	0.14	0.25
2011	0.23	0.13	0.25
2012	0.23	0.12	0.25
2013	0.23	0.13	0.25
2014	0.24	0.15	0.25
2015	0.23	0.16	0.22
Average	0.24	0.13	0.25
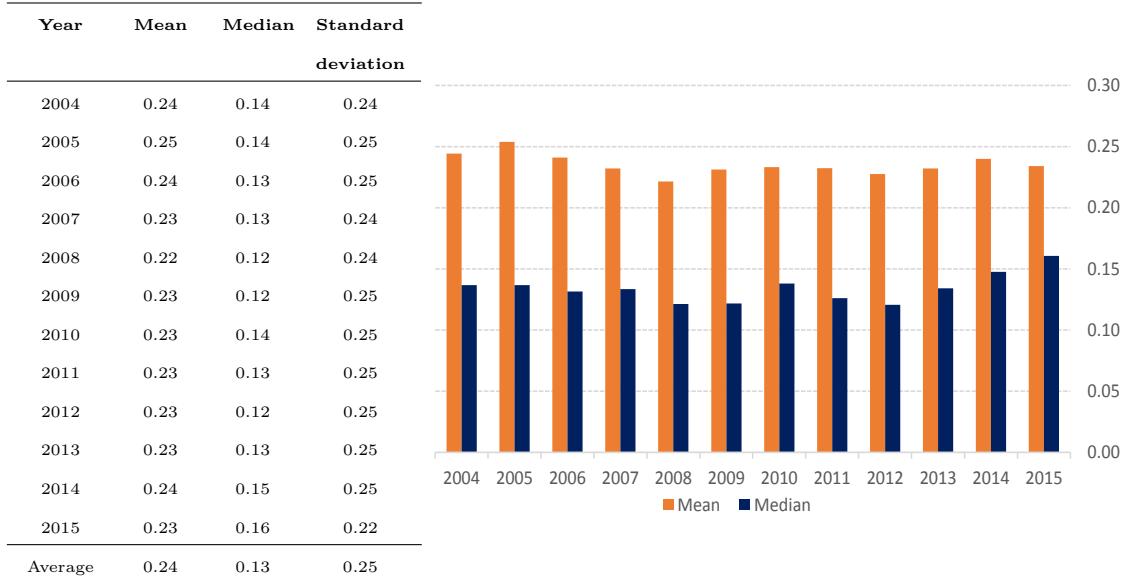
Fifthly, central bank *staff* has on average been visibly reduced, from a total of 2,064 employees in 2004 to 1,936 employees in 2015 (-6.23%) (see Figure 3.11). A minimum of on average 1,830 employees was reached in 2010 and corresponds to a decrease by -11.33% to 2004. For the average staff number the U-shape pattern is striking. It signals that, after years of staff reductions, the trend has been reversed during the last years. Median values present a similar picture as arithmetic averages but the numerically large difference between both measures points to the fact that average staff numbers are particularly driven by large central banks.

Figure 3.11: Staff

Year	Mean	Median	Standard deviation
2004	2064.10	886.00	3210.46
2005	1978.75	851.00	3063.46
2006	1886.54	818.50	2895.81
2007	1886.45	842.00	2856.55
2008	1871.94	846.00	2812.32
2009	1866.47	805.00	2793.65
2010	1830.24	795.00	2691.14
2011	1858.02	874.50	2695.32
2012	1896.83	949.00	2724.55
2013	1919.89	1012.00	2701.33
2014	1919.13	1014.00	2661.49
2015	1935.55	1037.00	2600.13
Average	1909.49	894.17	2808.85

Taking these observations together illustrates that organisational change captured by the five measures is diverse. As shown by the graphs above, each year is characterised by organisational change but in different dimensions and magnitude. In 2015, the average central bank is constituted of more organisational units, while it employs fewer people and is less centralised. The measure of the average governor's span of control is unchanged from 2004 but is - as the average number of employees - marked by a turning point in 2011. Graphically, the evolution is represented by a typical U-shape pattern. In contrast, the development in the number of management levels does not show any clear trend.[23]

Overall, the data suggests that central banks actively and constantly modify their internal structures, but that they have remained hierarchical institutions. Especially if compared to findings for the private sector, these observed changes might appear less drastic. This would speak for the reputation of central banks as overall stable institutions, not prone to too much experimentation, when it comes to hierarchies and relations. For instance, Rajan and Wulf (2006), who apply the measures "span of control" and "depth" (corresponding to *height* in this chapter) to US firms, find for the 13-year period from 1986 to 1998 an increase in the average number of positions reporting to the CEO from 4.46 to 6.79 (+56.28%) and a decrease in

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[23]The analysis of an unbalanced sample for a longer period delivers a different picture. From 1990 to present, organisational change is more pronounced. Compared to 1990, organisational structures of central banks have on average become distinctly more compact and dense in terms of a higher degree of centralisation and a reduction of staff levels.

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the average number of elements between CEO and division manager from 1.58 to 1.18 (-25.32%). Both measures of interest, even though the second is conceptually slightly different, have changed much more in terms of the percentage in the firm sample for a nearly equivalent duration of time. Similarly, in the paper by Colombo and Delmastro (1999), the average number of subordinated employees under one manager (in an Italian metalworking plant) has decreased from 10.23 in 1989 to 8.72 in 1997 (-14.76%), which is the opposite direction documented by Rajan and Wulf (2006). While the studies aim at different objects of investigation at different points of time, large two-digit percentage changes in the empirical literature on firm hierarchies seem to lie well above my findings.

However, the picture changes significantly when a distinction is made between small and large central banks. Dividing the sample into two groups, one composed of small central banks with up to 1,000 employees (20 central banks), and one composed of central banks with more than 1,000 employees (30 central banks) furthermore discloses the importance of staff size for organisational structures.[24] T-statistics confirm significant differences between the two groups especially for the measures *number of elements*, *span of control governor*, and *centralisation* as is shown by Figure 3.12. In these categories, the two groups have followed opposite trends during the period 2004-2015. The number of elements has decreased for small central banks (-19.87%) and has increased for large central banks (+22.13%). During the same time, the span of control has increased within small central banks (+11.27) and has decreased within large central banks (-9.93%). Similarly, small central banks have become more centralised (+12.27%) and large central banks a little bit less centralised (-1.97). Table 6.7 to Table 6.11 in the Appendix show the relevant descriptive statistics for the two groups. These results are, in terms of their magnitude, much closer to the above-mentioned findings.

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[24]The European Commission defines medium enterprises inter alia as firms with up to 249 employees. The more generous definition of a central bank, with up to 1.000 employees, thus corresponds to over four times the Commission's definition for medium enterprises. The EU definition is available online (see European Commission, 2017).

Figure 3.12: Measures of hierarchies and relations, small and large central banks
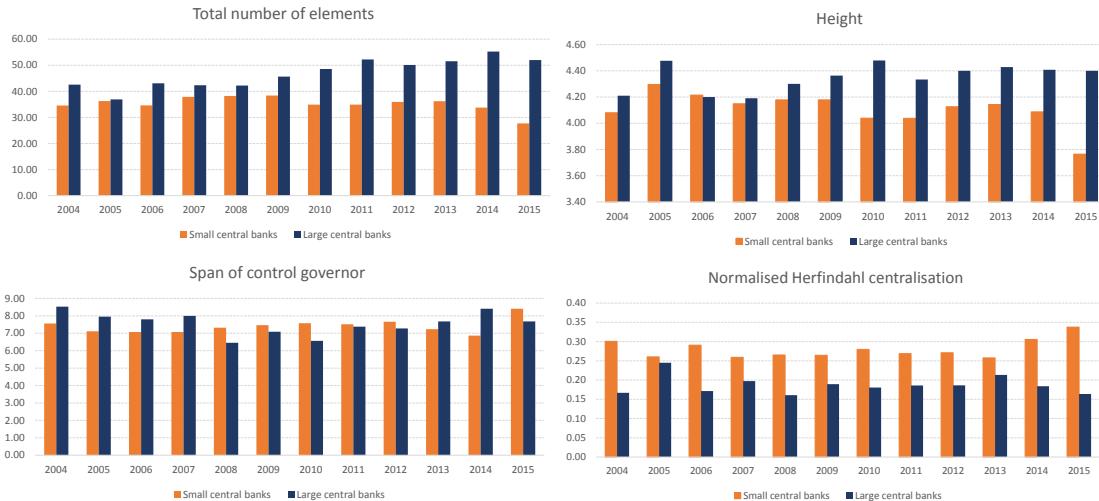
3.4.3 Regression Results

In a next step, I link the set of five measures to different country-specific factors in order to further examine possible drivers of organisational change. In a first exercise, I examine in how far a country's attitude towards centralisation (in other institutional and organisational affairs) is related to the organisation of its central bank. As these explanatory variables are mainly cross-sectional data, I confine my analysis to the latest observations of my measures as dependent variables (i.e. the year 2015). In a second exercise, I link my measures of hierarchies and relations in central banks for the years 2004 to 2015 to a more extensive selection of political, technological, financial, and economic factors and make use of the panel structure of my data.

In the first exercise, I experiment with Bloom et al. (2012)'s index of firm decentralisation, with Hofstede et al. (2010)'s power distance ranking, and with Arzaghi and Henderson (2005)'s measure of fiscal centralisation. First, the index of firm decentralisation is based on plant managers' answers to a set of four questions concerning their autonomy and the degree of centralisation in their company and covers 12 countries, of which five are part of this dataset. High average z-scores for a country correspond to a high degree of firm decentralisation. Second, the power distance index shall capture the degree to which an unequal distribution of power within a society is accepted. In this sample, figures are available for 40 countries. High index values correspond to a high power distance. Third, a measure of fiscal decentralisation is borrowed from the literature and is updated for a total

of 34 countries. In particular, I use the share of the central government in general government tax revenues, where a high share signals a high degree of centralisation in fiscal affairs.[25] Especially, I am interested in the relation to my measure of central bank decentralisation, which is shown by the following scatter plots (see Figure 3.13). The third illustration in the box appears to be the only one providing at least weak evidence of a possible (inverse) relationship between fiscal centralisation in a country and the degree of organisational centralisation in a central bank (concentration of data points in the south-east corner of the plot). This could be a hint that more fiscal centralisation - in terms of tax revenues - is somehow associated with less centralisation in the organisational structure of a central bank, which may not be an intuitive idea.

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[25] Arzaghi and Henderson (2005) propose three distinct measures of fiscal centralisation which are based on IMF data from the Government Finance Statistics (GFS). In different (bookkeeping) compositions, they set the share of central government expenditures in relation to total government expenditures, including national, state, and local government expenditures. They mainly rely on their second measure, which is calculated as $me_2 = \frac{C_2}{G_2}$ with

C_2=Central Government Consolidated Expenditures and G_2= Central Government Consolidated Expenditures + State Government Consolidated Expenditures + Local Government Consolidated Expenditures (see Arzaghi and Henderson, 2005, pp. 1186-1187). I update this measure and transfer it to tax revenues, allowing for cross-checks with the OECD fiscal decentralisation database (see OECD, 2017).

Figure 3.13: Country-specific centralisation and central bank centralisation

Power distance and central bank centralisation

Firm decentralisation and central bank centralisation

Fiscal centralisation and central bank centralisation
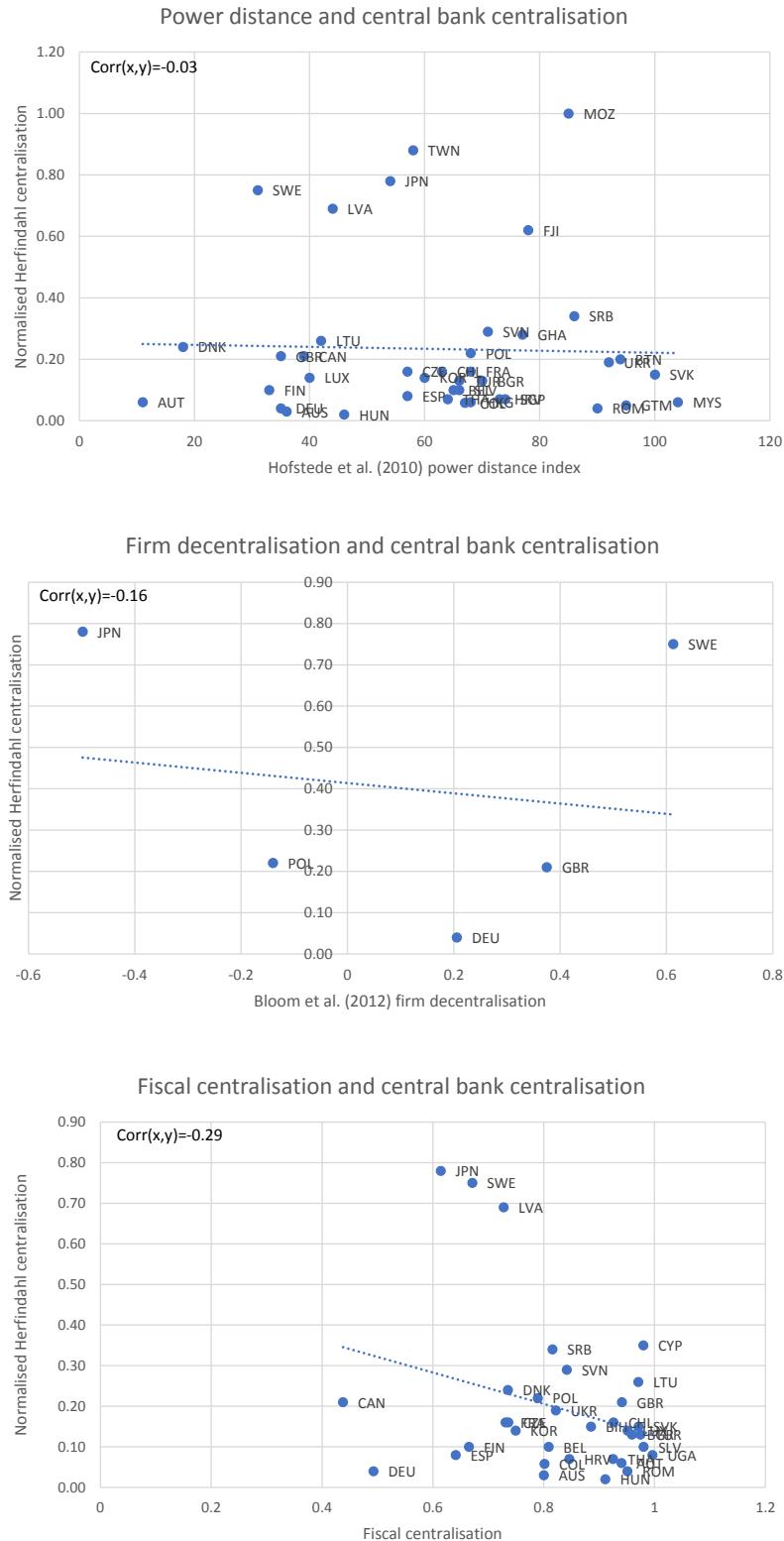
Sources: Hofstede et al. (2010), Bloom et al. (2012), Arzaghi and Henderson (2005), own calculations. Notes: The power distance index values are for 2010, the firm decentralisation measure is for 2006, and the fiscal centralisation measure is for 2015 (all on x-axis), the y-axis values for central bank centralisation are for 2015.

However, when running very basic cross-sectional regressions, neither Hofstede's power distance ranking nor measures of fiscal centralisation can well explain organisational features as signalled by the five measures of hierarchies and relations (see Table 3.4 and Table 3.5). At best, more fiscal centralisation might be associated with a higher span of control by the central bank governor. This is suggested by significant coefficients in Table 3.5 after having included additional controls. Nevertheless, results are to be interpreted with caution due to the obviously questionable sample size.

Table 3.4: Regression power distance on central bank hierarchies

Independent variables	Number of elements	Height	Span of control governor	Centrali- sation	Staff
	Dependent variables				
without additional controls (n=40)					
power distance index	0.08	0.01	0.05	-0.00	0.448
	(0.24)	(0.01)	(0.03)	(0.00)	(16.62)
with macroeconomic controls (n=40)					
power distance index	0.24	0.01	0.01	-0.09	19.69
	(0.30)	(0.01)	(0.04)	(0.06)	(17.74)
with institutional controls (n=24)					
power distance index	0.17	-0.00	0.00	-0.09	0.99
	(0.60)	(0.02)	(0.04)	(0.12)	(17.64)
with macroeconomic and institutional controls (n=24)					
power distance index	0.58	0.01	-0.06	-0.25	13.84
	(0.53)	(0.02)	(0.07)	(0.18)	(8.82)
R^2	0.20	0.11	0.42	0.22	0.72
Prob>F	0.34	0.36	0.01	0.17	0.00

Notes: Ordinary Least Squares (OLS) estimation. Macroeconomic controls comprise the logs of Gross Domestic Product (GDP) per capita and of population. Institutional controls are government effectiveness and central bank independence. More details on the macroeconomic and institutional controls used are given in the next paragraph and in Table 3.6. Robust standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

Table 3.5: Regression fiscal centralisation on central bank hierarchies

Independent variables	Dependent variables				
	Number of elements	Height	Span of control governor	Centralisation	Staff
without additional controls (n=34)					
fiscal centralisation	10.79	0.39	7.85	-0.39	-6944.24
	(42.00)	(1.57)	(4.80)	(0.28)	(4287.46)
with macroeconomic controls (n=34)					
fiscal centralisation	36.80	0.12	3.42	-0.53	-1654.95
	(51.66)	(1.97)	(6.16)	(54.30)	(3582.64)
with institutional controls (n=21)					
fiscal centralisation	48.89	-1.89	14.75**	-0.60	1421.46
	(53.20)	(2.45)	(4.29)	(24.44)	(1880.33)
with macroeconomic and institutional controls (n=21)					
fiscal centralisation	72.28	-1.50	14.38**	-0.678	1905.57
	(64.34)	(2.95)	(4.848)	(19.53)	(1566.58)
R^2	0.20	0.22	0.33	0.46	0.74
Prob>F	0.35	0.02	0.02	0.10	0.00

Notes: OLS estimation. Macroeconomic controls comprise the logs of GDP per capita and of population. Institutional controls are government effectiveness and central bank independence. More details on the macroeconomic and institutional controls used are given in the next paragraph and in Table 3.6. Robust standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

In the second exercise, I aim to shed light on anecdotal evidence suggesting mainly technological progress and budgetary pressure, but also financial development, and government effectiveness as possible driving forces of organisational change. In addition, I include central bank independence in my analysis as a crucial characteristic of central banks. Data for the independent variables is taken from a variety of publicly accessible sources. Macroeconomic control variables are GDP per capita and population size, both available in the World Bank's online database. The spread of the internet has the same origin. Country-specific public debt data is taken from the IMF's World Economic Outlook database (see IMF, 2016c). As an index of government effectiveness, I use an index of the same name built by the World Bank (see World Bank, 2016b). The World Bank's Global Financial Development database contributes a measure of financial development, i.e. stock market capitalisation as a percentage of GDP (see World Bank, 2016a). Finally, a measure of central bank independence from Dincer and Eichengreen (2014) completes the set of independent variables (see Table 3.6).

Table 3.6: Explanatory variables

Variable	Description	Scale	Source
GDP/capita	Gross domestic product per capita.	Current USD.	World Bank
Population	Total population.	In million.	World Bank
Internet use	Internet users (per 100 people).	Per 100 people.	World Bank
Government deficit	General government primary net lending/borrowing to GDP.	Percentage of GDP.	IMF
Government debt	General government debt to GDP (in %).	Percentage of GDP.	IMF
Government Effectiveness	Perceived quality of the government, the public sector and services and its independence from political pressure.	-2.5 to 2.5, where higher values correspond to better governance.	Database of political institutions
Stock market capitalisation	Value of all listed shares in a stock market to GDP.	Percentage of GDP.	World Bank Global Financial Development Database
Central bank independence	Independence index.	Ranges from 0 (least independent) to 1 (most independent).	Dincer and Eichengreen (2014)

In the baseline approach, I estimate linear regressions of the following form:

$$Hierarchies_{it} = \alpha + \beta Development_{it} + \gamma Z_{it} + \epsilon_{it}$$

where $Hierarchies_{it}$ corresponds to the five measures of hierarchies and relations, $Development_{it}$ denotes selected variables of budgetary, technological, and financial development, while Z_{it} is a vector a additional control variables such as GDP and population size and ϵ_{it} is the error term.[26] I am particularly interested in the coefficient β which provides information on the relationship between the variables $Hierarchies_{it}$ and $Development_{it}$. To this end, I run separate regressions for each of the five categories. Table 3.7 provides indications for possible relations between

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[26]Frequency distributions of dependent and independent variables are shown in Figure 6.9 and Figure 6.10 of the Appendix.

a set of explanatory variables and the five measures of hierarchies and relations.[27]

Table 3.7: Regression results: Hierarchies and relations

Independent variables	Number of elements	Height	Span of control governor	Central-isation	Staff
			Dependent variables		
ln Population	6.40	1.15	6.86	0.25	1672.09**
	(24.06)	(0.85)	(5.68)	(0.30)	(512.58)
ln GDP/capita	8.15	0.02	-0.43	-0.07	-17.73
	(6.59)	(0.30)	(0.79)	(0.05)	(95.82)
Internet users (per 100 people)	0.09	0.00	0.00	0.00	-3.91
	(0.16)	(0.01)	(0.03)	(0.00)	(2.69)
General government debt to GDP	0.08	0.00	0.04	0.00	1.64
	(0.10)	(0.00)	(0.02)	(0.00)	(2.56)
General government primary net lending/borrowing to GDP	0.18	0.02	-0.02	0.00	7.82
	(0.34)	(0.02)	(0.16)	(0.00)	(5.67)
Government effectiveness	-13.33	0.05	-2.08	0.01	-232.49
	(6.76)	(0.10)	(1.20)	(0.03)	(167.80)
Stock market capitalisation to GDP	0.01	-0.01	0.01	0.00	-0.60
	(0.05)	(0.00)	(0.01)	(0.00)	(0.76)
Central Bank independence	1.01	-0.13	-5.35	0.10	-2285.92
	(23.97)	(0.90)	(5.07)	(0.17)	(1503.10)
Constant	-49.04	1.48	-6.80	0.15	-1226.85
	(59.72)	(3.91)	(17.47)	(0.54)	(1815.46)
Observations	224	224	224	224	224
Adj. R^2	0.10	0.00	0.05	0.04	0.23
Prob>F	0.01	0.02	0.34	0.15	0.01

Notes: OLS estimation with fixed effects. Robust standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

Column 1 shows a positive coefficient between population size, GDP and the total number of elements and a negative coefficient between government effectiveness and the total number of elements. Column 2 shows a positive association between population size and the number of management levels. Column 3 reveals a positive sign of the estimated coefficient between population size and the number of elements subordinate to the central bank governor, while government effectiveness and central

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[27] A Durbin-Wu-Hausman test indicates that the random effects model's assumption of unobserved individual heterogeneity being independent of other explanatory variables is not the best choice for my data. The baseline model therefore consists in OLS estimations with (country-) fixed effects.

bank independence are negatively related to the governor's span of control. The measure of centralisation in column 4 does not appear to be meaningful, whereas the fifth measure, which is the central bank staff, in column 5 is most straightforward in terms of the estimated coefficients' size, their signs, and their interpretation. In particular, a country's population not surprisingly shows significance at a 5% level here and is the only robust and significant finding in the baseline model. However, different regression configurations do not reveal any significant relations between the majority of explanatory variables and at least four out of my five measures of hierarchies and relations.[28] To be more concrete, it appears that neither internet usage, nor public debt levels or deficits, nor the state of financial development are able to explain the number of organisational units, the number of management levels, the span of control of the governor, or the degree of centralisation as indicated by a complete absence of significant coefficients at commonly used levels. When adding further variables, several coefficients turn insignificant.

A modified model also suggests that for the number of central bank employees internet use, government effectiveness, and central bank independence could play a role. Yet, this statement again is based on the coefficients' signs and not on statistical significance. It indeed appears plausible that especially the factors population, information technology use, and government effectiveness determine the number of employees and can importantly reduce staff requirements. In all regressions, variables of financial development seemingly are of secondary or no importance for central bank structures.[29]

Summing these findings up, it appears that staff size is of the five measures the one most closely related to the country-specific factors under consideration. In turn, for the other four measures, the empirical analysis conducted cannot confirm anecdotal explanations for organisational change in the case of central banks. Together with the findings from the first exercise (i.e. the examination of a possible link between measures of firm, fiscal, and social centralisation, and central bank hierarchies and relations) it appears that organisational structures of central banks

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[28]In particular, both OLS estimations with fixed as well as with random effects do not yield significantly different coefficients. For the category *centralisation*, where the dependent variable is limited to the interval [0, 1], deviating from OLS, given the different categorical structure findings with a Tobit model were not significantly different. Furthermore, the use of lagged values (by one period) for the independent variables for reasons of endogeneity and of logs for the dependent variables did not affect regression results. Table 6.12 of the Appendix presents estimation results for a random effects model.

[29]Here, I also experimented with the number of listed companies (per 100,000 adults), the ratio of financial system deposits to GDP, the number of bank branches and Automated Teller Machines (ATMs) (both per 100,000 adults) from the World Bank's Global Financial Development Database.

as presented by organisational charts cannot be explained satisfactorily neither by "soft" factors such as a country's general manner of organising relations nor by "hard" factors such as, for instance, budgetary pressure. However, more and different data - especially on public sector management - might help solve this puzzle and explain differences between national banks as a result of country-specific factors.

3.5 Discussion and Policy Conclusions

The most important conclusion of this chapter is that, in the last 12 years, central banks have in fact modified their internal structures. This finding comes from analysing a unique data set. Most evidently, central banks have on average increased the number of organisational elements, have become slightly less centralised and employ fewer people. If a distinction is made between small and large central banks in terms of staff numbers, changes are even more pronounced and point to opposite directions for the three main areas of change. Then, on average, the number of organisational units has decreased (increased) for small (large) central banks; the span of control of the governor has increased (decreased) for small (large) central banks; and the degree of centralisation has increased (decreased) for small (large) central banks for the period 2004-2015.

However, why these changes have occurred remains a puzzle. Several possible explanations were tested but no clear-cut results were found. The second conclusion is that organisation structures of central banks seem to depend only to a minor degree on the general management of relations and the prevailing attitude towards those in a country. This is examined with the help of a set of indicators, namely by Bloom et al. (2012)'s index of decentralisation, Hofstede et al. (2010)'s Power Distance Ranking and Arzaghi and Henderson (2005)'s measure of fiscal decentralisation. Data availability imposes an important restriction on this finding that cannot be denied. Furthermore, an econometric analysis aimed at finding links between "hard" country-specific factors such as budgetary pressure or internet use reveals very few significant results, apart from the not surprising finding that having a larger population significantly increases the staff size, other things held constant.

For future research, it is important to address this puzzle of driving forces behind these changes. Not only because central banks remain public institutions of primary importance but also because of a lack of robust results in the field of (public) organisational empirics. One contribution of this chapter shall be to present a possible way to obtain and quantify additional data which is based on an analysis

of organisational charts.

As to the policy conclusions, it is well-known that the effect of hierarchies and relations within central banks can only partially be related to outcomes. While there is some consensus for private companies that certain organisational structures can have direct effects on revenues, costs, and profits, the case of central banks is different due to very different objectives. For instance, for a desired outcome, such as monetary stability, central bank independence appears to play a greater role than characteristics such as staff size or the position of the governor. However, a possible policy implication would be to absolutely consider the importance of the proper design when establishing a public institution such as a central bank. Despite the evolving nature even of central banks, my analysis has in parts revealed very long-lasting path dependencies, which could have both positive and negative consequences. Therefore, from the perspective of a government, paying attention to organisational issues can pay off for many years and decades. Simultaneously, the possibility of modifying structures does exist and organisational structures and relations are not invariable, even for central banks often considered as guarantors of stability in different contexts. However, once set up, changes to the organisational structure are undoubtedly more difficult to impose.

4 Currency Compositions of International Reserves and the Euro Crisis*

4.1 Motivation

During the last years, absolute holdings of international reserves have grown at an extremely fast pace, as shown by Figure 4.1. According to the IMF International Financial Statistics (IFS) international reserves have seen a more than eightfold increase over the last decade: They have grown from a sheer 1.3tn USD in 2005 to 10.7tn USD in 2015. Only in the last two years, the size of international reserves has slightly shrunk.[1]

Figure 4.1: Volume of international reserves 1996 to 2015 (trillion USD)
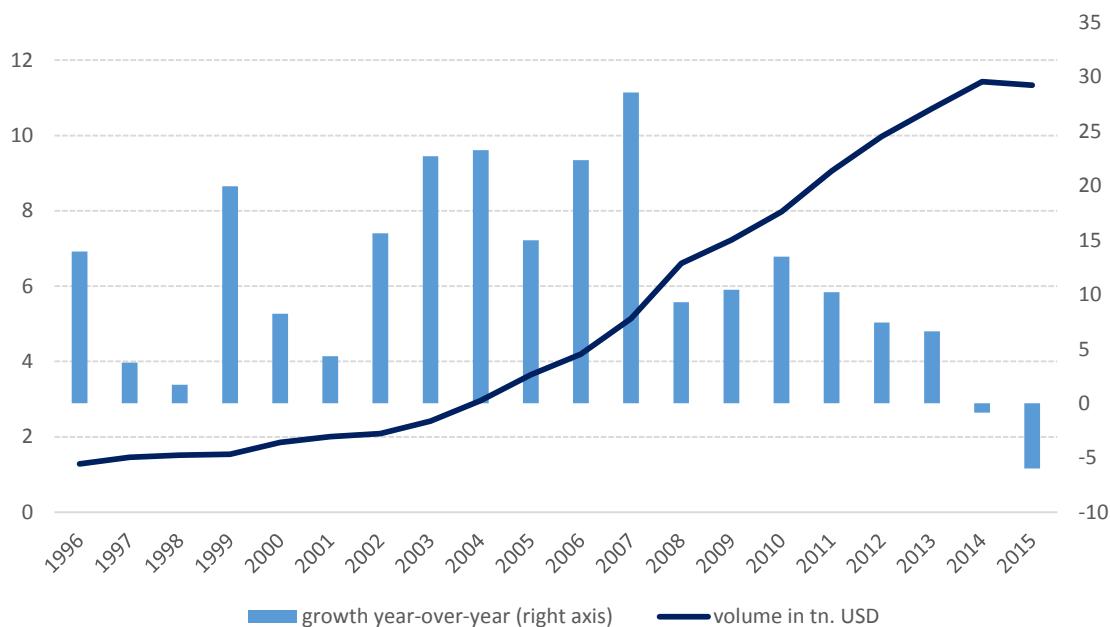
Source: IMF (2016b).

This development has largely been driven by a small group of countries, as the ten biggest holders of reserves account for 72% of worldwide international reserves (see Table 4.1). China and Japan alone manage around 42% of worldwide international reserves, while China's international reserves surpass the cumulated reserves

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[1]In its Balance of Payments Manuel, the IMF defines international reserves as "those external assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, for intervention in exchange markets to affect the currency exchange rate, and for other related purposes (such as maintaining confidence in the currency and the economy, and serving as a basis for foreign borrowing)" (see IMF, 2007a, paragraph 6.64).

of the six following countries in the list.[2]

Table 4.1: Ten biggest holders of international reserves

Rank	Country	International reserves (in bn USD, 2015)	Cumulated percentage of worldwide total	Percent increase 2010-2015	Percent increase 2005-2015
1	China	3,330.4	31.3%	17.0%	306.7%
2	Japan	1,179.5	42.3%	13.8%	42.3%
3	Saudi Arabia	604.0	48.0%	39.8%	295.9%
4	Switzerland	560.6	53.3%	157.9%	1,428.8%
5	Hong Kong	358.7	56.6%	33.5%	188.7%
6	Korea	358.5	60.0%	24.9%	70.7%
7	Brazil	348.9	63.3%	24.3%	555.6%
8	India	327.8	66.3%	22.4%	150.2%
9	Russia	309.4	69.2%	-28.5%	76.1%
10	Singapore	245.7	71.5%	9.9%	112.7%

Source: IMF (2016b).

There are two main research questions when analysing international reserves. The first deals with the appropriate size of these reserves, the second concerns their appropriate composition. In this chapter, we focus on the second issue. However, empirical examinations of currency compositions are hampered by a lack of data as access to comprehensive datasets on this issue is highly restricted for reasons of confidentialiality. While only very few academics were granted access to relevant IMF data, we compile a new dataset based on those central banks that publicly disclose their data. Making use of individual country data, we want to identify factors explaining currency compositions of international reserves. Unlike other papers, we put more weight on the specific role of the EUR, which since its introduction has been considered a serious competitor to the USD (see Bergsten, 1997 and Chinn and Frankel, 2008).[3] In particular, we want to disentangle the impact of the euro crisis on the euro's role as an international currency. In a final exercise, we use our estimates to derive predictions of currency compositions of the three most important

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[2]Note that of the ten biggest holders of international reserves seven are located in Asia. Saudi Arabia and Russia belong to the group of oil exporters, whereas Brazil is the only Latin American country among the ten biggest reserve holders. The strongest increase in the period 2005-2015 records Switzerland as the only European industrial country of the list (+1,429%). In 2015, international reserves of the UK were worth 101.6bn USD. Reserves of the USA amounted to 39.2bn USD, of France and Germany to 36.4bn USD each.

[3]Bergsten (1997) sees the EUR as the new rival to the USD and expects the establishment of a "bipolar currency regime". Chinn and Frankel (2008) consider the EUR a serious rival but also describe scenarios, in which the USD remains the prevailing international currency.

non-disclosing holders of international reserves, which are China, Japan, and Saudi Arabia.

Our main findings suggest that currency compositions of international reserves under central bank management are to a major part determined by currency pegs and trade patterns. Thus, the findings of this chapter are in line with some prominent academic contributions. Furthermore, we identify an actual and negative impact of the euro crisis on EUR holdings, as the crisis has apparently been a throwback for the EUR as an international currency. However, the crisis, at best, had an only partial effect on the determinants of currency compositions.

The structure of this chapter is as follows. In Section 2, we address the related literature and distinguish between contributions explaining levels of international reserves and contributions explaining compositions. In Section 3, we present our data and descriptive findings. Sections 4 and 5 are dedicated to determinants of country-specific reserve compositions and the role of the euro crisis. In Section 6, we summarise and discuss our findings.

4.2 Literature

The literature dealing with international reserves can basically be split up into two parts according to the question of interest. The first question is why countries accumulate increased levels of foreign reserves. The second question is how they determine the currency composition of these reserves.

4.2.1 Motives for International Reserve Holdings

The literature addressing the question of why countries hold increased levels of international reserves identifies three main motives: A precautionary motive, a mercantilist motive, and an investment motive. As the relevance of these motives is subject to a rather broad body of literature, we limit ourselves in the following to the most closely related contributions from this field.

Probably the most prominent paper when discussing international reserves is Heller (1966). In this seminal piece of work, Heller distinguishes between a precautionary, a speculative, and an investment motive for holding international reserves and regards the first as the most relevant. For him, the main rationale for holding reserves is to finance imbalances in a country's international accounts. Heller computes optimal reserve levels for 60 countries by minimising the costs of adjustment

to an external imbalance and the costs of holding international reserves, while considering the probability of having to adjust. Another paper with a precautionary motive stance comes from Calvo et al. (2012) and addresses the question of the optimal reserve level in the face of a sudden stop. Their statistical model assumes that central bankers choose the desired reserve level by weighting the expected costs of a sudden stop against the opportunity costs of holding international reserves. They find that de-facto reserve levels were close to optimal on the eve of the Global Financial Crisis and do not find evidence for the mercantilist motive.

Dooley et al. (2003) belong to the proponents of a mercantilist motive view and explain the accumulation of international reserves in Asia with export-led growth strategies. To them, the motive for holding international reserves is to influence the exchange rate to foster competitiveness (through undervaluation). Aizenman and Lee (2008) assess the importance of the mercantilist motive empirically and focus on developing countries from 1980 to 2000. They find that the precautionary motive better explains the accumulation of international reserves. Theoretically, they point out to the high potential costs caused by a sudden stop.

Rodrik (2006), among others, views the high and increasing levels of international reserves as a protection against financial crises but raises the questions of the related costs of these holdings, which puts his paper close to the investment motive category. Due to the low level of interest earned on international reserves and the cost of foreign borrowing, Rodrik estimates a concrete income loss of close to 1 percentage point of GDP for developing countries.

Goldberg et al. (2013) offer a helpful overview of and introduction to the international reserve subject, focusing on industrialized countries from a central bank perspective. In their descriptive and anecdotal paper, they inter alia touch the questions of why industrialized countries hold high levels of international reserves and what is an adequate level of reserves.

4.2.2 Determinants of Currency Compositions

The previously discussed issue of why countries amass foreign exchange reserves is linked to the question of how central banks choose the currency composition of their foreign exchange reserves. On this subject, the literature mainly distinguishes between transaction and classical portfolio investment considerations. Transaction motives with respect to the currency composition of the foreign exchange reserve portfolio arise from the central bank's potential need to conduct foreign exchange

interventions, current account interventions, or temporary import financing. The portfolio investment motive is characterised by a yield/risk trade-off. However, it is generally agreed upon that central banks exhibit a lower risk tolerance than private investors.

Empirical attempts in this field, however, are often hampered by poor data availability. One important source is the IMF's COFER database (see IMF, 2017, a). On very rare occasions, the IMF grants access to its confidential country-specific data. Three important contributions based on these data are closely related to our chapter. Heller and Knight (1978) stress the importance of transaction motives. Using a panel of 76 countries for the period 1970-76, they find a relation between trade patterns and the exchange rate regime of a country with the currency composition of its foreign exchange reserves. Analysing an updated version of the dataset, Dooley et al. (1989) confirm this finding for the years 1976-86. Additionally, they find that the denomination of a country's debt is related to the currency composition of this country's international reserves. Eichengreen and Mathieson (2000), assessing a panel of 84 countries over the period 1979-96, find further evidence that trade flows, financial flows, and currency pegs are the principal determinants of a country's currency composition. Other contributions are based on publicly accessible data. For instance, Wong (2007) extracts information from central bank annual reports on international reserves of 23 countries to analyse diversification. For the years 2000-2005, she finds evidence for net stabilizing interventions. This implies that central banks increase their foreign currency shares as a response to devaluation and vice versa. In another study, Chinn and Frankel (2008) rely on aggregated COFER data for the years 1973-2007 and estimate a model using characteristics of the currency issuing country to explain shares of major currencies. They identify the relative size of the home country, a proxy for the relative size of the domestic trading place, and the exchange rate volatility of the respective currency as significant determinants. In two out of several possible scenarios the EUR is expected to surpass the USD (by 2015 and by 2022 respectively). Eichengreen et al. (2014) use data on aggregated currency compositions from 1947 to 2013 to investigate whether the break down of the Bretton Woods system had an impact on the above mentioned determinants. Including a measure of persistence, they find support for strong inertia in currency compositions and their determinants. Additionally, they suggest a smaller effect of the relative size of the home country's economy post-Bretton Woods and weaker network effects.

On the theoretical side, one strand of the literature is concerned with modelling optimal currency composition according to a Markowitz-type portfolio problem, i.e.

trading off expected return versus risk. In this sense, Ben-Bassat (1980) formulates the problem as minimizing the variance at a given return for a basket of import currencies. Using data from 1976 to 1980 and comparing optimal and de facto currency compositions, he finds evidence for different roles of portfolio objectives across groups of countries. These are more relevant for developing countries and semi–industrial countries than for industrial countries. Papaioannou et al. (2006) develop a mean-variance optimization framework including portfolio rebalancing costs and constraints mirroring a central bank's desire to hold some amount of currency reserves in the currency of its peg, of its main trading partners, and of its outstanding debt. They find that, once the dollar is assigned the status of the reference (risk-free) currency, de facto and optimal share as suggested by the model match well. Observed EUR shares on the other hand exceed optimal shares. The authors explain this finding with the euro's partial use as an international reserve currency. Beck and Rahbari (2011) build a model which embeds transaction motives to mitigate the effect of sudden stops into the minimum variance framework. They identify two separate rationales for currency compositions: Classical portfolio objectives and hedging demands to counter effects of sudden stops. They argue that the importance of hedging demands decreases with declining debt to reserve ratios. Furthermore, they suggest that the USD is relatively more in demand than the EUR as a hedge against sudden stops in Latin America and Asia. Contrarily, in Emerging Europe the EUR appears to be the more relevant hedge currency. Beck and Weber (2011) do not consider the questions of the optimal international reserve level and composition independent from each other and combine them in one model. Their paper contradicts the common belief that higher levels of international reserves necessarily come along with more diversification. For them, a positive correlation between the level of reserves and reserve diversification exist more in the case where precautionary motives do not play a role.

4.3 Data and Descriptive Statistics

4.3.1 Data

Empirical work on the composition of international reserves has remained somewhat limited because of the discretion authorities in charge of reserve management exercise on this subject. There are three main sources which provide insight into the composition of international reserves. The most general source consists of the above-mentioned IMF's IFS, comprising the overall reserve holdings of most coun-

tries around the world (see IMF, 2016b). The IMF's COFER database as another potential data source contains aggregated reserve holdings broken down by major international currencies (see IMF, 2017). It does not show individual reserve holdings and reporting is on a voluntary basis. Furthermore, of 146 reporting countries only 97 are listed by name on the IMF webpage (see Table 6.13 in the Appendix (IMF, 2017)). A third source consists of national data and is the foundation of this chapter. A total of 37 countries individually disclose the currency composition of their international reserves in diverse publication formats (mostly central bank annual reports). The advantage of this source is that it allows conclusions to be drawn both about the currency composition of worldwide total international reserves as well as about country-specific foreign reserve compositions. The total international reserves volume of our dataset accounts for one fifth of the total COFER reserves (20.2%) and for more than one fourth of the allocated COFER reserves (29.3%). Table 4.2 compares the three data sources.[4]

Table 4.2: Data sources on the composition of international reserves

	IMF International Financial Statistics (IFS)	IMF Currency Composition of Foreign Exchange Reserves (COFER)	Individual country data (Laser/Weidner)
Countries, of which:	179	145 (97 names disclosed)	37
Industrial countries	40	39	22
Developing countries	139	58	15
Total international reserves (2015)	10.6tn USD	10.9tn USD	2.2tn USD
Percentage of international reserves as of the COFER total (2015)	97.2%	100%	20.2%
Breakdown of total by currency	✗	✓	✓
Breakdown of currencies by country	✗	✗	✓
Frequency of data	monthly/quarterly	quarterly	annual

Sources: IMF (2016b), IMF (2017), Wooldridge (2006, p. 26).

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[4] Furthermore, in 2015, the IMF conducted an ad-hoc survey on its member states' foreign currencies holdings for 2013 and 2014 and published (aggregated) summary results. For a total of 130 responding monetary authorities it reveals, among other things, which foreign currency assets were held by how many countries and at which size. For details, please refer to Table 6.14 and Table 6.15 in the Appendix.

Table 4.3 provides the exact coverage of our data and respective sources. By far most data originates from central bank annual reports (usually from balance sheets).

Table 4.3: Data coverage and sources

Country	Years	Source
Australia	1997-2015	Annual Report
Bosnia	2001-2015	Annual Report
Bulgaria	2000-2015	Annual Report
Canada	2001-2015	Report on the Management of Canada's Official International Reserves
Chile	2005-2015	Annual Report
Colombia*	2009-2015	Foreign Reserves Management Report
Croatia	2001-2014	Annual Report
Czech Rep.	1999-2015	Annual Report
Denmark	2006-2015	Annual Report
Euro Area	2006-2015	Annual Report
Finland	2001-2015	Annual Report
Georgia	1998-2015	Annual Report
Germany	2000-2015	Annual Report
Hong Kong	2000-2015	Annual Report
Iceland	2007-2015	Annual Report
Israel	2011-2015	Foreign Exchange Reserves Annual Report
Italy	2005-2015	Annual Report
Latvia	2005-2015	Annual Report
Lithuania	1993-2010	Annual Report
Macedonia	2010-2015	Annual Report
Moldova	2011-2015	Annual Report
Mozambique	2007-2015	Annual Report
Netherlands	2002-2015	Annual Report
New Zealand	2011-2015	Annual Report
Norway	1998-2015	Annual Report
Peru	2000-2015	Annual Report
Philippines	2011-2013	Annual Report
Poland	2004-2015	Annual Report
Romania	2005-2015	Annual Report
Russia	2007-2015	Annual Report
Slovak Rep.	1999-2008	Balance of Payments Statistics
Slovenia**	1995-2015	Annual Report
Sweden	1999-2015	Annual Report
Switzerland	1996-2015	Annual Report
UK	1997-2015	UK International Reserves and Foreign Currency Liquidity Template
USA	1999-2015	U.S. International Reserve Position (Treasury)
Uruguay	2004-2015	IMF SDSS Reserve Template

Notes: *Gap in 2010, 2012, 2014. **Gap in 2007.

4.3.2 Descriptives

Figure 4.2 illustrates the strong and parallel increase in international reserves over the last decade according to different sources, while Figure 4.3. is based on our data and shows that the USD was able to successfully defend its positions as the world's main international currency.[5] An above-average share of the EUR as well as the below-average share of the USD in our dataset can be explained by an overrepresentation of European states having closer ties to the euro area.

Figure 4.2: Volumes of international reserves according to different sources (trillion USD)
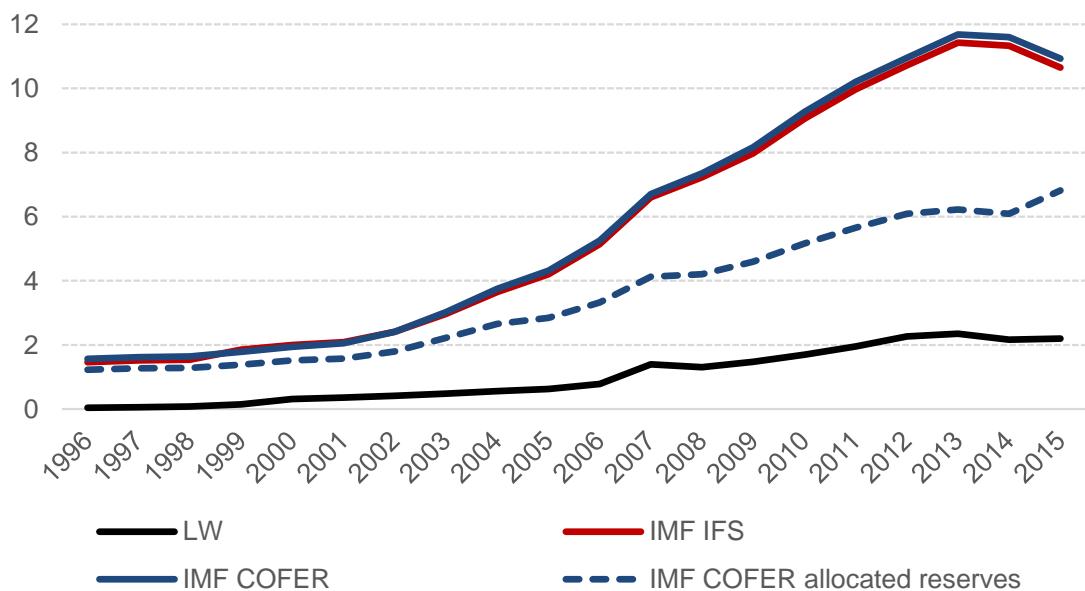
Sources: IMF IFS, IMF COFER, Laser/Weidner.

In total, our panel dataset contains the individual international reserve compositions of 36 disclosing countries (plus the euro area) and includes the eight major reserve currencies for different spans of time between 1996 and 2015.[6] These currencies are the USD, the EUR, the JPY, the CAD, the RMB, the GBP, the Deutsche mark (DEM), the CHF, and the AUD. The entire (unbalanced) panel contains roughly 4,300 observations. To illustrate the data structure, Figure 4.3 shows

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[5]This USD domination is apparent both in the COFER data as in our own data.

[6]In the EA, not only the national central banks manage foreign reserves, but also the ECB. In 2015, the ECB's international reserves were composed of around 84% USD-denominated and 16% JPY-denominated assets (the ECB reports net foreign currency holdings in its annual reports).

country-specific reserve compositions for - to our knowledge - all disclosing states. In our statistical analyses, we are particularly interested in the four most important international reserve currencies, which are the USD, the EUR, the JPY, and the GBP.

Figure 4.3: Holdings in major reserve currencies (trillion USD, Laser/Weidner)
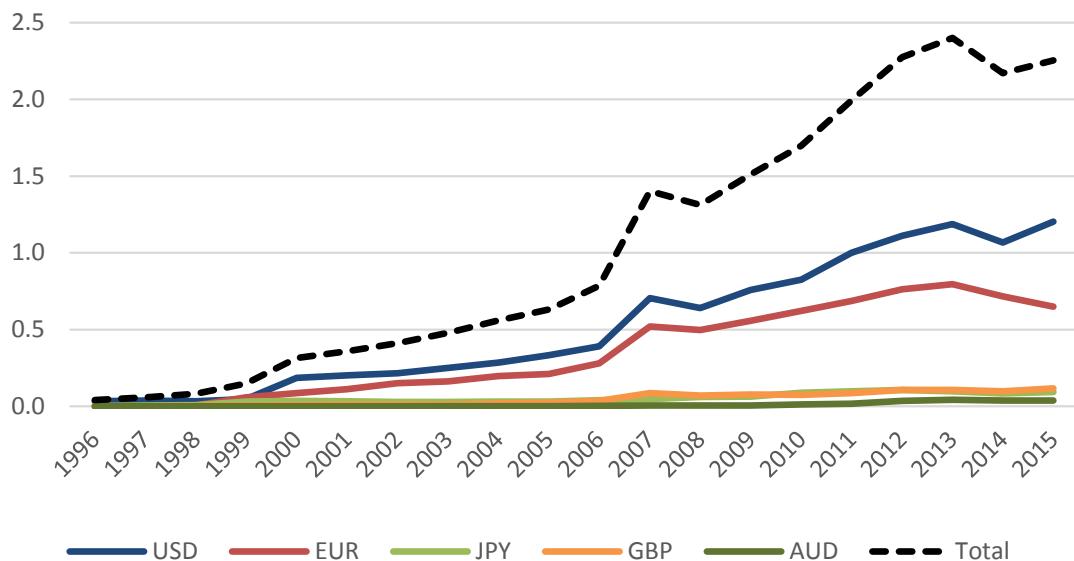
For the period 2005-2015, our data shows unambiguously for a total of 30 central banks in which direction the percentage shares of the eight major reserve currencies have evolved.[7] For instance, 16 central banks increased the proportion of USD in their international assets, while 12 central banks reduced their USD exposure. Only seven countries increased their EUR share and a total of 17 countries decreased their EUR share. Here it should be mentioned that this is partly due to the EUR accession, making the EUR the new domestic currency. As a consequence, EUR-denominated assets are no longer considered part of the international reserves for these countries. For the period under review, the biggest gains were made by the AUD and the CAD, where hardly any country reduced its reserve assets (0 and 2 respectively) but many countries increased their reserve share (11 and 8 respectively).[8]

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[7]Data gaps prevent doing so for the other central banks of the sample.

[8]Table 4.4 provides percentage shares for the four major reserve currencies only. AUD, CAD, and RMB shares are listed together with other smaller international currencies under the category "others".

Table 4.4: Individual international reserve composition (%)

Country	USD 2005	USD 2015	EUR 2005	EUR 2015	JPY 2005	JPY 2015	GBP 2005	GBP 2015	others 2005	others 2015
Australia	45.0	55.0	45.0	25.0	10.0	5.0	0.0	5.0	0.0	10
Bosnia	0.0	0.0	99.9	100.0	0.0	0.0	0.0	0.0	0.1	0
Bulgaria	3.8	0.8	95.2	99.2	0.0	0.0	0.0	0.0	1.0	0
Canada	60.5	67.6	38.0	23.0	1.5	1.0	0.0	8.5	0.0	0
Chile	67.8	66.1	27.5	15.0	0.0	0.0	0.0	0.0	4.7	18.9
Colombia*	85.0	90.3	12.0	0.0	3.0	0.0	0.0	1.0	0.0	8.7
Croatia	14.9	17.3	85.1	79.8	0.0	0.0	0.0	0.0	0.0	2.9
Czech Rep.	47.9	14.8	52.1	57.1	0.0	3.8	0.0	1.4	0.0	22.8
Denmark*	15.2	35.0	71.8	60.2	0.0	0.0	7.1	4.1	6.0	0.7
Euro Area*	83.0	83.7	0.0	0.0	17	16.3	0.0	0.0	0.0	0.0
Finland	30.0	77.2	0.0	0.0	5.0	7.7	25.0	15.1	40.0	0.0
Georgia	67.3	81.7	32.3	6.0	0.0	0.0	0.0	0.0	0.4	12.3
Germany	98.3	92.2	0.0	0.0	1.7	4.6	0.0	0.0	0.0	3.2
Hong Kong	86.8	86.5	0.0	0.0	0.0	0.0	0.0	0.0	13.2	13.5
Iceland*	20.9	48.1	67.5	40.7	1.3	1.6	7.0	8.8	3.3	0.8
Israel	/	67.6	/	29.4	/	0.0	/	3.0	/	0.0
Italy	63.5	67.5	0.0	0.0	9.6	13.7	24.9	10.9	2.3	8.0
Latvia	40.0	45.0	50.0	25.0	10.0	10.0	0.0	10.0	0.0	10.0
Lithuania	0.0	/	100.0	/	0.0	/	0.0	/	0.0	/
Macedonia	/	32.3	/	57.9	/	0.0	/	0.0	/	9.8
Moldova	/	62.0	/	20.6	/	0.0	/	16.5	/	1.0
Mozambique	65.8	55.3	15.1	1.8	0.0	0.0	7.0	2.2	12.1	40.7
Netherlands	100.0	87.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.2
New Zealand	/	24.3	/	24.9	/	5.4	/	14.7	/	30.6
Norway	36.6	51.8	39.8	28.3	6.6	8.6	9.7	7.4	7.3	3.8
Peru	81.3	91.0	0.0	0.0	0.0	1.1	0.0	3.8	18.7	4.1
Philippines	/	78.8	/	5.0	/	10.0	/	0.0	/	6.2
Poland	50.0	39.0	50.0	29.0	0.0	0.0	10.0	12.0	0.0	20.0
Romania	28.5	16.6	66.6	79.1	0.0	0.0	0.0	0.0	5.0	4.3
Russia	47.0	43.1	42.4	40.1	0.8	1.0	9.8	10.7	0.0	5.1
Slovak Rep.	22.2	/	77.8	/	0.0	/	0.0	/	0.0	/
Slovenia	14.3	99.2	74.9	0.0	0.0	0.0	0.0	0.0	10.8	0.8
Sweden	37.0	53.6	37.0	34.1	8.0	0.0	11.0	4.5	7.0	7.8
Switzerland	35.0	32.6	46.3	42.9	1.9	7.8	10.3	7.3	6.5	9.5
UK	19.4	9.2	72.3	83.0	4.4	4.7	0.0	0.0	3.9	3.2
USA	0.0	0.0	57.6	60.4	42.4	39.6	0.0	0.0	0.0	0.0
Uruguay	80.7	97.6	14.5	0.8	2.5	0.0	2.3	0.0	0.0	1.6

Notes: *If currency shares are unavailable for a specific year, nearest data available is reported (max. ±2 years).

In terms of the percentage of the aggregated reserves of our sample, the USD share

very slightly decreased from 52.8% to 52.7%, whereas the EUR share decreased from 33% to 29.3%. The AUD share rose from 0.1% to 1.6% and the CAD share from 0.4% to 2.1%. The RMB, often regarded as the rising international currency, was certainly no international reserve currency by 2005, by 2015 it had become part of the official international reserves of Australia, Italy, and New Zealand even though its share of the total international reserves has so far remained negligible (0.1%). The JPY and the GBP have remained rivals for the position of the world's third international reserve currency with shares fluctuating between 4% and 5%. Furthermore, it seems that countries increasingly turn towards more diversification of their foreign reserve assets. Indications hereof are a higher number of reserve currencies over time in our panel and also in the IMF COFER database, where in the last years the AUD, the CAD (both 2013), and the RMB were included (2016). Table 4.5 presents currency shares for industrial and emerging economies and shows that the EUR and the GBP have gained shares, especially in emerging economies.[9]

Table 4.5: Share of currencies in total reserve holdings (%)

Currency	1996	2000	2005	2010	2015
All economies					
US dollar	80.5	58.5	52.8	48.6	52.7
Euro	0.0	27.2	33.0	36.4	29.3
Japanese yen	3.5	11.0	5.0	5.3	4.2
British pound	0.1	2.1	3.8	4.5	5.3
others	15.9	1.1	5.4	5.2	8.5
Industrial economies					
US dollar	80.5	58.0	54.0	51.2	54.5
Euro	0.0	27.3	30.4	32.0	27.0
Japanese yen	3.5	11.3	6.0	8.0	5.4
British pound	0.1	2.2	3.9	2.3	4.3
others	15.9	1.2	5.7	6.5	8.8
Developing economies					
US dollar	n/a	72.6	47.5	44.8	47.5
Euro	n/a	24.8	44.7	43.1	35.6
Japanese yen	n/a	1.2	0.1	1.1	0.7
British pound	n/a	0.7	3.7	7.7	8.1
others	n/a	0.7	4.0	3.3	8.1

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[9]Table 6.16 and Table 6.17 in the Appendix show the country composition of the sample.

4.4 Empirical Analysis

4.4.1 Determinants of the International Reserve Composition

In this section, we wish to update the two in our eyes most relevant empirical contributions dealing with the the composition of international reserves and making use of individual country data: Dooley et al. (1989) and Eichengreen and Mathieson (2000). To this end, we estimate the following panel model in different configurations:

$$\frac{A_{i,k,t}}{\bar{A}_{i,t}} = \beta_0 + \sum_{s=1}^{2} \beta_{1,s} E_{i,s,t} + \sum_{k=1,k\neq i}^{4} \beta_{2,k} \left(\frac{IM_{i,k,t}}{\overline{IM}_{i,t}} \right) + \sum_{k=1,k\neq i}^{4} \beta_{3,k} \left(\frac{D_{i,k,t}}{\bar{D}_{i,t}} \right) + \sum_{k=1,k\neq i}^{4} \beta_{4,k} \left(\frac{BC_{i,k,t}}{\overline{BC}_{i,t}} \right) + \mu_{i,t}$$

where $t=1,...,T$ is the number of periods, $i=1,...,$ n denotes the countries for which we observe currency holdings, $k=1,...,4$ is the number of reserve-currency countries (USA, EA, Japan, and UK) and $s=1, 2$ denotes the considered exchange rate arrangements (pegs to the USD or the EUR respectively). $A_{i,k,t}$ denotes the end-of-period reserves of country i in the reserve currency of country k at time t, $\bar{A}_{i,t}$ is the total end-of-period amount of foreign exchange reserves for country i at time t. $E_{i,s,t}$ represents a dummy variable which is equal to one if country i follows a peg to the USD or the EUR (for s=1 or s=2 respectively) in period t and which is zero otherwise. $IM_{i,k,t}$ denotes the imports to country i from reserve currency country k at time t and $\overline{IM}_{i,t}$ is the sum of all imports to country i. $D_{i,k,t}$ stands for the amount of external debt of country i in period t in the currency of reserve currency country k and $\bar{D}_{i,t}$ is for the total amount of external debt of country i in period t. $BC_{i,k,t}$ denotes foreign currency claims of banks from country i in the currency of country k in period t and $\overline{BC}_{i,t}$ are total bank foreign currency claims of banks from country i in period t. Finally $\mu_{i,t}$ denotes a country- and time-specific error term. Table 4.6 reports the sources for our set of explanatory variables.

Table 4.6: Explanatory variables

Variable	Description	Scale	Source
Peg	Hard or soft peg to reserve currency according to IMF classification of exchange rate regimes.	Dummy variable. 1 if peg.	IMF (2016a) Annual Report on Exchange Rate Arrangements and Exchange Rate Restrictions.
Imports	Ratio of imports from currency issuing country to total imports.	% value	United Nations (2017) Comtrade Database.
Foreign currency debt	Ratio of external long-term public and publicly guaranteed debt in specific currency to total external long-term public and publicly guaranteed debt.	% value	World Bank (2017a) International Debt Statistics (IDS).
Foreign bank claims	Ratio of foreign currency bank claims denominated in particular currency to total foreign currency bank claims.	% value	Bank for International Settlements (2017) locational banking statistics (LBS) .

In Table 4.7, we provide an overview of our three models used, which are estimated separately for four reserve currencies as dependent variables. As some covariates are not available for the entire set of countries in our sample, the number of observations strongly depends on the model which is chosen.

Table 4.7: Models estimated

Model	Explanatory variables	Countries included	Obser- vations
A	pegUSD, pegEur, importsfromUSA, importsfromEA, importsfromJapan, importsfromUK	Australia, Bosnia, Bulgaria, Canada, Chile, Colombia, Croatia, Czech Republic, Denmark, Finland, Georgia, Germany, Hong Kong, Iceland, Israel, Italy, Latvia, Lithuania, Macedonia, Moldova, Mozambique, Netherlands, New Zealand, Norway, Peru, Philippines, Poland, Romania, Russia, Slovakia, Slovenia, Sweden, Switzerland, United Kingdom, Uruguay	358 - 425
B	pegUSD, pegEur, importsfromUSA, importsfromEA, importsfromJapan, importsfromUK, debt_USD, debt_EUR, debt_JPY	Bosnia, Bulgaria, Colombia, Georgia, Macedonia, Moldova, Mozambique, Peru, Philippines, Romania, Russia	105
C	pegUSD, pegEur, importsfromUSA, importsfromEA, importsfromJapan, importsfromUK, USDclaims, EURclaims, JPYclaims, GBPclaims	Australia, Canada, Chile, Denmark, Hong Kong, Norway, Russia, Sweden, Switzerland	93

As altering the model also alters the composition of the countries in the sample, models cannot be directly compared with each other. Instead, results have to be interpreted within the given models. In the following sections, we start with some preliminary results obtained from pooled regressions, thus ignoring the panel structure of our data, and then gradually modify our estimation strategy.

In this sense, Table 4.8 presents the results from pooled OLS estimations. The coefficients of the pegs for the USD and for the EUR are both large and highly significant, expressing the importance of both currencies. In particular, the pegs are positively associated with the holdings of the respective currency and negatively associated for the alternative, which suggests that the choice basically is one between USD and EUR holdings. We also obtain some significantly negative coefficients for both the USD and the EUR peg on the relative holdings of JPY and GBP. In addition, the pooled OLS regressions yield significantly positive coefficient estimates for imports from the respective emitting countries on the relative holdings of the EUR, the JPY, and the GBP.

Table 4.8: Pooled regression results: Model A, OLS

	Dependent variables			
Independent variables	**USD**	**EUR**	**JPY**	**GBP**
pegUSD	0.301***	-0.238***	-0.065***	-0.041*
	(0.06)	(0.05)	(0.01)	(0.02)
pegEur	-0.396***	0.383***	-0.004	-0.056***
	(0.03)	(0.02)	(0.01)	(0.01)
importsfromUSA	0.135	0.090	-0.045	-0.153***
	(0.12)	(0.10)	(0.02)	(0.03)
importsfromEA	-0.490***	0.727***	0.012	-0.021
	(0.08)	(0.07)	(0.02)	(0.02)
importsfromJapan	-1.461**	0.122	0.821***	-0.214
	(0.53)	(0.43)	(0.11)	(0.15)
importsfromUK	1.032*	-1.407***	0.283**	0.617***
	(0.45)	(0.38)	(0.09)	(0.13)
_cons	0.674***	0.232***	0.003	0.058***
	(0.04)	(0.03)	(0.01)	(0.01)
Observations	425	358	424	407
adj. R^2	0.422	0.629	0.165	0.189

Notes: OLS estimation. Standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

Table 4.9 provides the results from pooled Tobit regressions. The censored nature of the data (values for the dependent variable lie within the range of 0 and 1) makes the use of a Tobit estimation technique preferable (see Beck and Weber, 2011). For non-linear models the interpretation of the coefficients is somewhat less intuitive than for linear models. The coefficients describe the predicted effects on a latent variable y*, which only partly coincides with actual dependent variable. Nevertheless, significance and signs of the obtained estimates can be interpreted. Results are quite similar to those discussed for the pooled OLS regressions above. Again, we find that pegs to the USD and to the EUR are associated with an increase in the relative holdings of the USD and the EUR, but with a decrease of the respective other currency. In the pooled Tobit regression model these effects are even stronger. Similar results as before are obtained with regards to imports. On the one hand, except for imports from the USA, imports from the currency emitting countries are positively associated with the relative holdings of the respective currency. On the other hand, imports from a country other than the emitting country or the euro area are sometimes negatively associated with the relative holdings of a currency. For instance, higher imports from the USA are associated with lower relative holdings of GBP and higher imports from the euro area are associated with lower

relative USD holdings. Although the structure of our data obviously demands panel regressions, these pooled regressions confirm some initial expectations and alleviate concerns about our rather small number of observations.

Table 4.9: Pooled regression results: Model A, Tobit

	Dependent variables			
Independent variables	USD	EUR	JPY	GBP
pegUSD	0.303***	-0.349***	-0.102***	-0.115**
	(0.06)	(0.06)	(0.02)	(0.04)
pegEur	-0.419***	0.388***	-0.030*	-0.147***
	(0.03)	(0.03)	(0.01)	(0.02)
importsfromUSA	0.153	0.089	0.018	-0.329***
	(0.13)	(0.10)	(0.04)	(0.08)
importsfromEA	-0.467***	0.732***	0.034	-0.033
	(0.09)	(0.07)	(0.03)	(0.05)
importsfromJapan	-1.404*	-0.051	1.176***	-0.853*
	(0.55)	(0.46)	(0.19)	(0.33)
importsfromUK	1.212**	-1.370***	0.515**	1.329***
	(0.47)	(0.39)	(0.17)	(0.25)
_cons	0.660***	0.233***	-0.054***	0.030
	(0.04)	(0.03)	(0.02)	(0.02)
Observations	425	358	424	407
LRχ^2	233.97	365.16	80.03	122.24
Prob > LRχ^2	0.00	0.00	0.00	0.00

Notes: Tobit estimation. Standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

In a next step, we want to exploit the panel structure of the data. We retain a Tobit approach but make use of panel regressions without fixed effects as suggested by the Durbin-Wu-Hausman test. Table 4.10, Table 4.11, and Table 4.12 present the results of our three models altering the set of explanatory variables.

Model A (Table 4.10), which includes pegs and import variables as dependent variables, reveals some intuitive patterns. The coefficient of the USD peg is significantly positive in the regression for the USD and negatively significant in the regression for the EUR. Contrariwise, the coefficient for the EUR peg is significantly negative in the USD regression and significantly positive in the EUR regressions. Note that in the EUR regression the effect of the EUR peg is economically much smaller if compared to the effect of the USD peg on USD holdings. Countries that peg to a given currency might want to hold larger relative amounts of that currency in order to back the stipulated exchange rate. At the same time, relative holdings of the other main currencies are reduced. Concerning trade, we find significantly

negative coefficients for imports from the euro area and from the USA in the USD and EUR regressions. Central banks might be to some degree obliged to finance foreign trade with accumulated reserves (see Soesmanto et al., 2015). With this logic, increased imports from the USA should reduce a central bank's propensity to hold EUR relative to other currencies. In sum, much speaks for the transaction motive.

Table 4.10: Panel regression results: Model A, Tobit

	Dependent variables			
Independent variables	**USD**	**EUR**	**JPY**	**GBP**
pegUSD	0.489***	-0.599***	0.017	0.001
	(0.07)	(0.06)	(0.03)	(0.04)
pegEur	-0.244***	0.074*	-0.007	-0.057***
	(0.03)	(0.03)	(0.02)	(0.02)
importsfromUSA	0.218	-0.592*	0.341**	-0.163
	(0.28)	(0.27)	(0.13)	(0.14)
importsfromEA	-0.283**	-0.037	-0.006	-0.024
	(0.09)	(0.09)	(0.04)	(0.04)
importsfromJapan	-0.665	-0.155	0.969***	0.519
	(0.61)	(0.56)	(0.27)	(0.34)
importsfromUK	-0.385	0.089	0.472**	0.487**
	(0.44)	(0.37)	(0.18)	(0.18)
_cons	0.594***	0.526***	-0.095***	-0.009
	(0.05)	(0.05)	(0.02)	(0.03)
Observations	425	358	424	407
Wald χ^2	156.87	166.65	50.65	19.91
Prob > Wald χ^2	0.00	0.00	0.00	0.00

Notes: Tobit estimation with random effects. Standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

Our second model (Model B, Table 4.11) also incorporates variables for public foreign currency debt in the four main currencies. Here, it is noteworthy that including foreign currency debt substantially reduces the sample size as most countries in our sample are not indebted in foreign currencies or do not report so. From a theoretical perspective, large foreign debt in a certain currency should increase a country's relative holdings of that currency and reduce the relative holdings of alternative currencies. One reason is that central banks should have some responsibility for the processing of foreign currency debt repayments. Our regression results are not very indicative. For USD holdings, we obtain significantly negative coefficients for EUR- and JPY-denominated debt but also for USD-denominated debt, which would contradict theoretical considerations. Most of the other estimates are not

significant. Including foreign currency debt measures leaves some central findings mostly unaffected. For instance, the coefficient of the EUR peg remains significantly negative for USD holdings and significantly positive for EUR holdings and some of the quantitative findings for imports are maintained.

Table 4.11: Panel regression results: Model B, Tobit

	Dependent variables		
Independent variables	USD	EUR	JPY
pegUSD	-0.043	0.014	0.082
	(0.08)	(0.08)	(19.68)
pegEur	-0.405***	0.467***	-0.091
	(0.10)	(0.10)	(28.98)
importsfromUSA	1.696***	-0.877	0.247
	(0.44)	(0.47)	(0.22)
importsfromEA	0.086	0.110	0.167
	(0.18)	(0.19)	(0.23)
importsfromJapan	2.970**	-3.439***	1.020
	(1.00)	(1.01)	(0.66)
importsfromUK	-0.569	0.571	-0.581
	(0.55)	(0.58)	(1.19)
debt_USD	-0.772**	0.118	1.327*
	(0.24)	(0.23)	(0.58)
debt_EUR	-0.640**	0.146	0.990
	(0.23)	(0.22)	(0.78)
debt_JPY	-0.785*	0.619	1.649*
	(0.38)	(0.39)	(0.69)
_cons	1.029***	0.295	-1.396*
	(0.23)	(0.21)	(0.64)
Observations	106	105	105
Wald χ^2	86.50	86.99	76.13
Prob > Wald χ^2	0.00	0.00	0.00

Notes: Tobit estimation with random effects. Standard errors are in parentheses. *** denotes significance at 1%, ** significance at 5% and * significance at 10%. Regression estimates for GBP are excluded from this table due to non-convergence of the estimation routine.

The third model (Model C, Table 4.12) expands our baseline regression model by foreign currency claims on domestic banks. We would expect a positive effect of claims in a certain currency on the relative holdings of that currency and a negative effect on other currencies. Again, the intuition supports a transaction motive as central banks are strongly involved in international payments and financial transactions. And again, our sample is substantially reduced compared to Model A. The obtained results are mixed. We do not find indicative results for an effect of USD

claims on USD holdings. Claims in EUR have a significantly negative coefficient for USD and JPY holdings and a significantly positive coefficient for EUR holdings. Overall, including variables on bank claims yields similar quantitative results for pegs and imports, although the sample is markedly smaller.

Table 4.12: Panel regression results: Model C, Tobit

	Dependent variables			
Independent variables	USD	EUR	JPY	GBP
pegUSD	0.175*	-0.685	-0.286	-0.149
	(0.07)	(18.82)	(15.50)	(7.09)
pegEur	-0.171***	0.252***	-0.041	-0.057***
	(0.03)	(0.03)	(0.02)	(0.01)
importsfromUSA	-0.041	0.376***	0.063	-0.065
	(0.07)	(0.08)	(0.05)	(0.05)
importsfromEA	-0.368***	0.115	0.200***	0.137**
	(0.08)	(0.10)	(0.06)	(0.05)
importsfromJapan	-1.951***	1.591*	0.977*	-0.879*
	(0.57)	(0.67)	(0.39)	(0.41)
importsfromUK	-0.066	-1.113**	1.156***	0.545**
	(0.32)	(0.37)	(0.22)	(0.17)
USDclaims	-0.196	0.200	-0.265*	-0.041
	(0.14)	(0.17)	(0.11)	(0.09)
EURclaims	-0.590*	0.907***	-0.536**	-0.033
	(0.23)	(0.27)	(0.17)	(0.14)
JPYclaims	0.700	0.893	-0.432	-0.215
	(0.41)	(0.48)	(0.28)	(0.26)
GBPclaims	-0.587*	0.412	-0.089	-0.140
	(0.26)	(0.31)	(0.18)	(0.17)
_cons	0.898***	-0.068	0.157	0.051
	(0.16)	(0.19)	(0.11)	(0.09)
Observations	93	93	93	93
Wald χ^2	326.40	180.01	149.69	113.40
Prob > Wald χ^2	0.00	0.00	0.00	0.00

Notes: Tobit estimation with random effects. Standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

4.4.2 Robustness Checks

Having analysed a set of regression specifications, we alter estimation methodologies for additional sensitivity analyses in this section. Results of the Tobit approach are confronted with results of OLS regressions with random effects and Seemingly Unrelated Regressions (SUR). SUR appear to be a plausible choice as there is likely

some dependence between the respective currency shares. To be more concrete, SUR allows the estimation of a system of equations where error terms are correlated. Taking into account such a correlation can increase efficiency compared to the estimation of separate equations using OLS.[10] For instance, Soesmanto et al. (2015) advocate the use of the SUR technique for a closely related examination.[11] For our three models, we estimate the shares of USD, EUR, JPY, and GBP as a system of equations. Table 4.13, Table 4.14 and Table 4.15 exemplarily confront the findings for USD shares from three different estimation methodologies, which are Tobit, OLS, and SUR. As the tables largely speak for themselves, results shall be discussed briefly.

For USD shares in Model A (Table 4.13), OLS and SUR estimates mostly confirm our findings from Tobit estimations. In all three methodologies, coefficients are economically relevant and highly significant for three explanatory variables. Intuitively, USD pegs are associated with higher USD shares, EUR pegs and imports from the euro area are associated with reduced USD shares. The SUR model further suggests a significantly negative effect of UK imports on USD holdings.

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[10]The use of SUR was promoted by Arnold Zellner(see Zellner, 1962). It refers to a system of linear equations, where the use of correlated error terms across equations can increase efficiency, while OLS regressions would only yield consistent estimators. SUR is conducted using feasible generalized least squares (FGLS) and is based on two steps: First, residuals from OLS regression are used to estimate the matrix variance-covariance matrix of the residuals Σ. Second, generalised least squares are estimated to obtain the unbiased and more efficient GLS estimator. The GLS estimator is given by $\hat{\beta}_{GLS} = \{X'(\Sigma^{-1}\bigotimes I_N)X\}^{-1}\{X'(\Sigma^{-1}\bigotimes I_N)y\}$ with $Var(\hat{\beta}) = \{X'(\Sigma^{-1}\bigotimes I_N)X\}^{-1}$. The two steps are formally described as follows: 1. Estimate Σ using $\hat{u}_j = y_i - X_i\hat{\beta}_j$ and $\hat{\sigma}_{ij} = \frac{\hat{u}_i'\hat{u}_j}{N}$. 2. Substitute Σ in GLS estimator: $\hat{\beta}_{GLS} = \{X'(\hat{\Sigma}^{-1}\bigotimes I_N)X\}^{-1}\{X'(\hat{\Sigma}^{-1}\bigotimes I_N)y\}$.

[11]Soesmanto et al. (2015) examine determinants of international reserve holdings of the Reserve Bank of Australia (RBA). Asking for a possible shift away from USD-denominated assets, the authors tend to expect an enduring dominance of this currency for Australian foreign reserve management.

Table 4.13: Comparison of regression results: Model A (USD)

	Dependent variables = USD shares		
Independent variables	**Tobit**	**OLS**	**SUR**
pegUSD	0.489***	0.450***	0.456***
	(0.07)	(6.92)	(14.61)
pegEur	-0.244***	-0.239***	-0.123***
	(0.03)	(-7.75)	(-9.32)
importsfromUSA	0.218	0.161	0.118
	(0.28)	(0.60)	(1.03)
importsfromEA	-0.283**	-0.298***	-0.482***
	(0.09)	(-3.47)	(-10.87)
importsfromJapan	-0.665	-0.693	0.084
	(0.61)	(-1.18)	(0.25)
importsfromUK	-0.385	-0.405	-1.035***
	(0.44)	(-0.96)	(-3.64)
_cons	0.594***	0.606***	
	(0.05)	(12.40)	
Observations	425	425	341
R^2(overall)		0.3653	
Wald χ^2	156.87		
Prob > Wald χ^2	0.00		

Notes: Standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

Model B (Table 4.14), which contains foreign debt variables and which is based on a smaller number of observations, confirms a negative effect of being pegged to the EUR and suggests a positive relation between imports from the US and USD holdings. Surprisingly, coefficients of the foreign debt variables now appear more significant but indecisively point in opposite directions and thus do not yield additional insights.

Table 4.14: Comparison of regression results: Model B (USD)

	Dependent variables = USD shares		
Independent variables	**Tobit**	**OLS**	**SUR**
pegUSD	-0.043	0.143	0.049
	(0.08)	(1.31)	(1.07)
pegEur	-0.405***	-0.342***	-0.384***
	(0.10)	(-11.31)	(-9.05)
importsfromUSA	1.696***	1.320***	0.475***
	(0.44)	(5.67)	(3.73)
importsfromEA	0.086	-0.628***	0.002
	(0.18)	(-3.63)	(0.01)
importsfromJapan	2.970**	0.305	0.422
	(1.00)	(0.35)	(0.51)
importsfromUK	-0.569	1.027*	-0.520
	(0.55)	(1.99)	(-1.86)
debt_USD	-0.772**	0.0943	0.433***
	(0.24)	(0.57)	(6.35)
debt_EUR	-0.640**	-0.0325	0.285***
	(0.23)	(-0.18)	(3.78)
debt_JPY	-0.785*	0.457	-0.116
	(0.38)	(1.73)	(-0.40)
_cons	1.029***	0.483***	
	(0.23)	(3.89)	
Observations	106	106	105
R^2(overall)		0.8998	
Wald χ^2	86.50		
Prob > Wald χ^2	0.00		

Notes: Standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

Model C (Table 4.15), which comprises foreign currency denominated bank claims, further confirms the importance of pegs and trade as determinants of the composition of international reserves. Especially, being pegged to the USD is associated with higher USD shares, whereas being pegged to the EUR and importing from the euro area is associated with lower USD shares. Imports from the UK are seemingly related to lower USD holdings, but the coefficient is only significant in the SUR configuration.

Table 4.15: Comparison of regression results: Model C (USD)

	Dependent variables = USD shares		
Independent variables	**Tobit**	**OLS**	**SUR**
pegUSD	0.175*	0.175*	0.303***
	(0.07)	(0.07)	(6.91)
pegEur	-0.171***	-0.171***	-0.227***
	(0.03)	(0.03)	(-4.58)
importsfromUSA	-0.041	-0.041	0.131**
	(0.07)	(0.08)	(3.04)
importsfromEA	-0.368***	-0.368***	-0.034
	(0.08)	(0.09)	(-0.40)
importsfromJapan	-1.951***	-1.951**	1.076*
	(0.57)	(0.61)	(2.39)
importsfromUK	-0.066	-0.066	-1.844***
	(0.32)	(0.34)	(-3.88)
USDclaims	-0.196	-0.196	0.418***
	(0.14)	(0.15)	(4.28)
EURclaims	-0.590*	-0.590*	0.555***
	(0.23)	(0.25)	(3.53)
JPYclaims	0.700	0.700	0.521
	(0.41)	(0.43)	(1.67)
GBPclaims	-0.587*	-0.587*	0.659*
	(0.26)	(0.28)	(2.17)
_cons	0.898***	0.898***	
	(0.16)	(0.17)	
Observations	93	93	93
R^2 (overall)		0.7783	
Wald χ^2	326.40		
Prob > Wald χ^2	0.00		

Notes: Standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

In sum, results are most robust for peg and trade variables and can explain international reserve compositions reasonably well. Models B and C acknowledge the importance of international debt and international bank claims but present mixed results. In the following sections, we therefore rely on our baseline Model A as a workhorse model.

4.4.3 Effect of the Euro Crisis on Euro Holdings

In the first decade after the introduction of the common European currency, the EUR share experienced a steady increase in international reserve holdings. The

outbreak of the euro crisis in 2010 marked a turning point, as since then the EUR share has constantly lost ground. IMF COFER data document a peak in 2009 with a share of 28% of total allocated foreign reserves. Our more eurocentric data suggest the year 2008 as a break date already and, for that year, documents a EUR share in total foreign reserves of nearly 38%. In both data sets, the EUR shares have decreased by 9 and 8 percentage points (pp), respectively, since their peak years. Not surprisingly, scenarios of the EUR surpassing the USD as the worldwide most important reserve currency usually date from the years prior to the euro crisis (see Chinn and Frankel, 2008, for instance). Figure 4.4 illustrates the increasing and then decreasing importance of the EUR as an international reserve currency with 2007 as a base year (2007=100). In terms of the euro's share in international reserves, 2015 was the currency's temporary nadir.

Figure 4.4: EUR share in total reserves (2007=100)
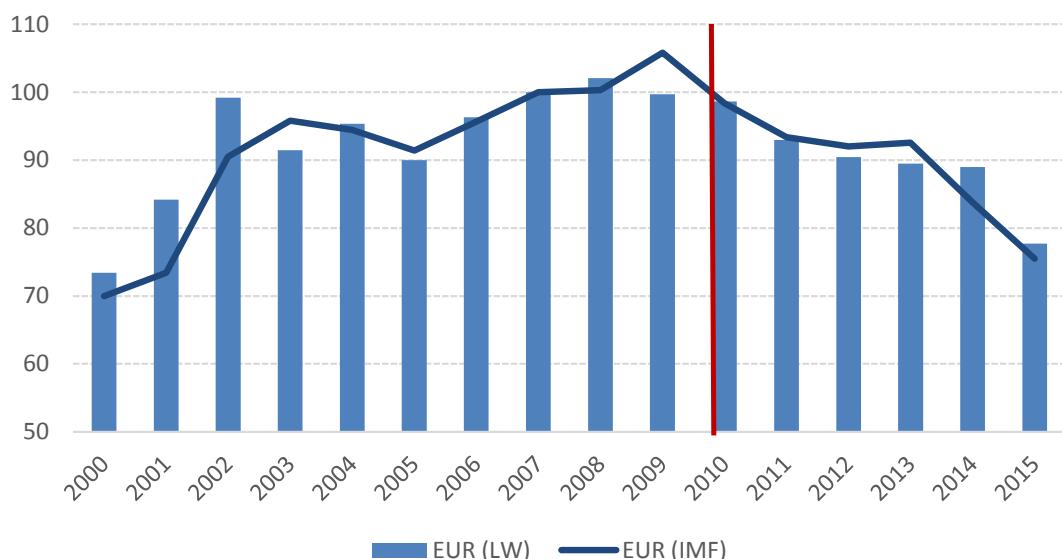
Source: IMF (2017).

We use Chow tests to verify a structural break for EUR shares triggered by the euro crisis.[12] To do so, we create a non-crisis and a crisis subsample, where we consider all years prior to 2010 as pre-crisis years. For our country-specific data, the hypothesis of estimated coefficients being equal between non-crisis and crisis years

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[12]The Chow test is given by $\frac{(RSS_C - (RSS_1 + RSS_2))/k}{(RSS_1 + RSS_2)/(N_1 + N_2 - 2k)}$, where RSS_C is the residual sum of squares of the combined regression, RSS_1 is the residual sum of squares of the regression for group 1, and RSS_1 is the residual sum of squares of the regression for group 2. k corresponds to the total number of estimated parameters and N_1 and N_2 are the numbers of observations of both groups. The test statistic then is given by $F(k, N_1 + N_2 - 2k)$. Also see Chow (1960).

can be comfortably rejected for most variables. In our baseline model (Model A), this is particularly true for USD pegs, imports from the euro area, and imports from Japan as explanatory variables. The euro crisis alters the impact of these regressors distinctly as shown by Table 4.16. In particular, signs and significance of these coefficients are different between both groups. Being pegged to the USD no more has a significantly negative effect since the spread of the euro crisis, whereas the effects of imports from the euro area on EUR holdings has turned significant and negative after 2010. The coefficient for imports from Japan, on the other hand, has been significantly negative before the crisis and has turned insignificant since 2010.

Table 4.16: Crisis impact on EUR shares

	Dependent variables = EUR shares		
Independent variables	**EUR total**	**EUR pre-crisis**	**EUR post-crisis**
pegUSD	-0.599***	-0.817***	0.013
	(0.06)	(0.06)	(0.07)
pegEur	0.074*	0.053	0.018
	(0.03)	(0.03)	(0.04)
importsfromUSA	-0.592*	-0.402	-1.715***
	(0.27)	(0.29)	(0.44)
importsfromEA	-0.037	-0.065	-0.368*
	(0.09)	(0.09)	(0.18)
importsfromJapan	-0.155	-2.226**	-0.052
	(0.56)	(0.76)	(1.01)
importsfromUK	0.089	0.789	-0.574
	(0.37)	(0.58)	(0.36)
_cons	0.526***	0.632***	0.662***
	(0.05)	(0.06)	(0.10)
Observations	358	201	157

Notes: Tobit estimation. Standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

To further examine effects of the euro crisis, we add a crisis dummy to capture a direct effect and interaction terms to capture an indirect effect to the baseline regression, as we suspect some interdependence between the crisis dummy variable and the other covariates (see Table 4.17). Crisis years are marked by a dummy variable (1 if crisis, 0 otherwise) according to the system described above. Interaction terms are constructed as products of the dummy variable and the six independent variables of the baseline regression. On the one hand, a significant and negative crisis dummy in columns 2 and 3 supports a reduction in EUR holdings post-2010, as ex-

pected. The coefficient confirms that, in comparison to the pre-crisis period, central banks have reduced their EUR shares by more than 6 percentage points (column 2). On the other hand, coefficients of the interaction terms in column 3 and 4 are mostly not significant at commonly used levels. In column 4, the interaction terms Crisis*importsfromEA and Crisis*importsfromUK provide two exceptions. However, pegs in particular did not have an additional and more pronounced impact during crisis years.

Table 4.17: Regression results with interaction terms

Independent variables	Dependent variables = EUR shares			
	(1)	(2)	(3)	(4)
pegUSD	-0.599***	-0.558***	-0.599***	-0.613***
	(0.06)	(0.06)	(0.06)	(0.06)
pegEur	0.074*	0.093**	0.075*	0.070*
	(0.03)	(0.03)	(0.03)	(0.03)
importsfromUSA	-0.592*	-0.635*	-0.670**	-0.818***
	(0.27)	(0.25)	(0.25)	(0.25)
importsfromEA	-0.037	-0.073	-0.088	-0.224**
	(0.09)	(0.09)	(0.09)	(0.08)
importsfromJapan	-0.155	-1.258*	-1.104	-1.140*
	(0.56)	(0.57)	(0.58)	(0.55)
importsfromUK	0.089	-0.039	-0.053	1.647***
	(0.37)	(0.35)	(0.36)	(0.46)
EURcrisis		-0.063***	-0.073***	-0.053
		(0.01)	(0.01)	(0.04)
Crisis*pegUSD			0.099	0.112
			(0.05)	(0.06)
Crisis*pegEuro			0.031	-0.013
			(0.03)	(0.03)
Crisis*importsfromUSA				-0.141
				(0.11)
Crisis*importsfromEA				0.260**
				(0.10)
Crisis*importsfromJapan				-0.026
				(0.63)
Crisis*importsfromUK				-2.299***
				(0.45)
_cons	0.526***	0.600***	0.609***	0.618***
	(0.05)	(0.05)	(0.05)	(0.05)
Observations	358	358	358	358

Notes: Tobit estimation. Standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

We also aim to glance at a possibly different behaviour in the reserve management of non-euro currency holdings between crisis and non-crisis countries as a response to the outbreak of the euro crisis. We do not differentiate as to the severity of the crisis but regard all countries of the euro area as crisis countries and all other countries as non-crisis countries. Focusing on USD and JPY holdings, our hypothesis is that euro area central banks adapted their investment strategies as a response to the crisis differently than other central banks. The treatment group consists of all countries that were exposed to the euro crisis in the second period. The control group is composed of all countries not exposed to the euro crisis neither in the first nor in the second period. Table 4.18 presents the results of a Difference-in-Differences (DID) analysis for USD holdings. Whereas the p-value for the treatment effect in the USD shows no significance, the treatment effect is significant at a 10% level for JPY holdings and at a 1% level for GBP holdings (see Table 4.19 and Table 4.20). These findings reflect a parallel increase in USD holdings of both groups but contrary actions in the management of JPY and GBP reserves. While euro area central banks have increased the volume of their JPY holdings and have decreased the volume of their GBP holdings after 2010, the opposite applies to JPY and GBP holdings of non-euro area central banks. It is therefore right that changes in JPY and GBP holdings are systematically different between the control and the treatment group. The interpretation of the results is, as in many DID applications, disputable. Systematic differences might well be due to other factors and euro area central banks in general face a fundamentally different investment decision in comparison to non-euro area central banks. In particular, the euro crisis does not require from them some type of portfolio rebalancing away from EUR holdings and possible currency reserve compositions are automatically more limited. Nevertheless, systematic differences between both groups can be confirmed.

Table 4.18: Difference-in-Differences estimation results: USD share

Outcome variable	USD	S. Err.	|t|	P> |t|
Control				
Before	0.379			
After	0.42			
Diff (A-B)	0.041	0.027	1.52	0.129
Treated				
Before	0.764			
After	0.82			
Diff (A-B)	0.055	0.06	0.91	0.362
Diff-in-Diff	0.014	0.066	0.21	0.831
R^2	0.24			

Notes: Means and standard errors are estimated by linear regression. Inference: *** p<0.01; ** p<0.05; * p<0.1.

Table 4.19: Difference-in-Differences estimation results: JPY share

Outcome variable	JPY	S. Err.	|t|	P> |t|
Control				
Before	0.051			
After	0.036			
Diff (A-B)	-0.014	0.01	-1.49	0.137
Treated				
Before	0.061			
After	0.09			
Diff (A-B)	0.029	0.021	1.34	0.182
Diff-in-Diff	0.043	0.023	1.83	0.068*
R^2	0.02			

Notes: Means and standard errors are estimated by linear regression. Inference: *** p<0.01; ** p<0.05; * p<0.1.

Table 4.20: Difference-in-Differences estimation results: GBP share

Outcome variable	GBP	S. Err.	t	P> |t|
Control				
Before	0.025			
After	0.033			
Diff (A-B)	0.008	0.006	1.23	0.218
Treated				
Before	0.103			
After	0.052			
Diff (A-B)	-0.051	0.014	3.69	0.000***
Diff-in-Diff	-0.059	0.015	3.87	0.000***
R^2	0.11			

Notes: Means and standard errors are estimated by linear regression. Inference: *** p<0.01; ** p<0.05; * p<0.1.

4.4.4 Actual and Model Predicted Currency Compositions

In another exercise, we confront model predicted and actual currency shares. We restrict ourselves to the three main international currencies (i.e. USD, EUR, JPY) and make use of our parsimonious but sound baseline model, i.e. Tobit-type panel regressions with currency pegs and import shares. Benchmarking actual against predicted currency shares reveals in how far a country's reserve composition follows common patterns or is different from that of its peers. For all three currencies, the actual shares exceed the predicted shares of a relevant number of countries. In particular, for most countries the model predicts a USD share in the range between 40-60% of total international reserves, whereas an important number of Latin American and industrial European countries seemingly have a strong preference for holding USD-denominated assets. EUR shares are regularly larger than predicted in neighbouring states of the euro area but also in the US. In contrast, a large number of central banks in our sample does not hold JPY denominated assets despite important trade links. This is partially offset by JPY holdings of the Bank of Italy, the ECB, and the Fed markedly larger than predicted. This indicates that additional factors might play a role for the composition of international reserves. However, Figure 4.5 indicates that a model with few explanatory variables can reasonably well explain an important share of the variation between countries and that outliers are often an

expression of only partial reserve diversification.[13]

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[13]The UK insofar is a special case as it disposes of foreign reserves managed by the Bank of England as well as of foreign reserves managed by the British Treasury. In our analysis, we limit ourselves to central bank foreign reserves. For the UK, this results in too large (actual) EUR and too small (actual) USD shares in our data.

Figure 4.5: Actual and model predicted shares of USD, EUR, and JPY

Actual and predicted USD shares

Actual and predicted EUR shares

Actual and predicted JPY shares
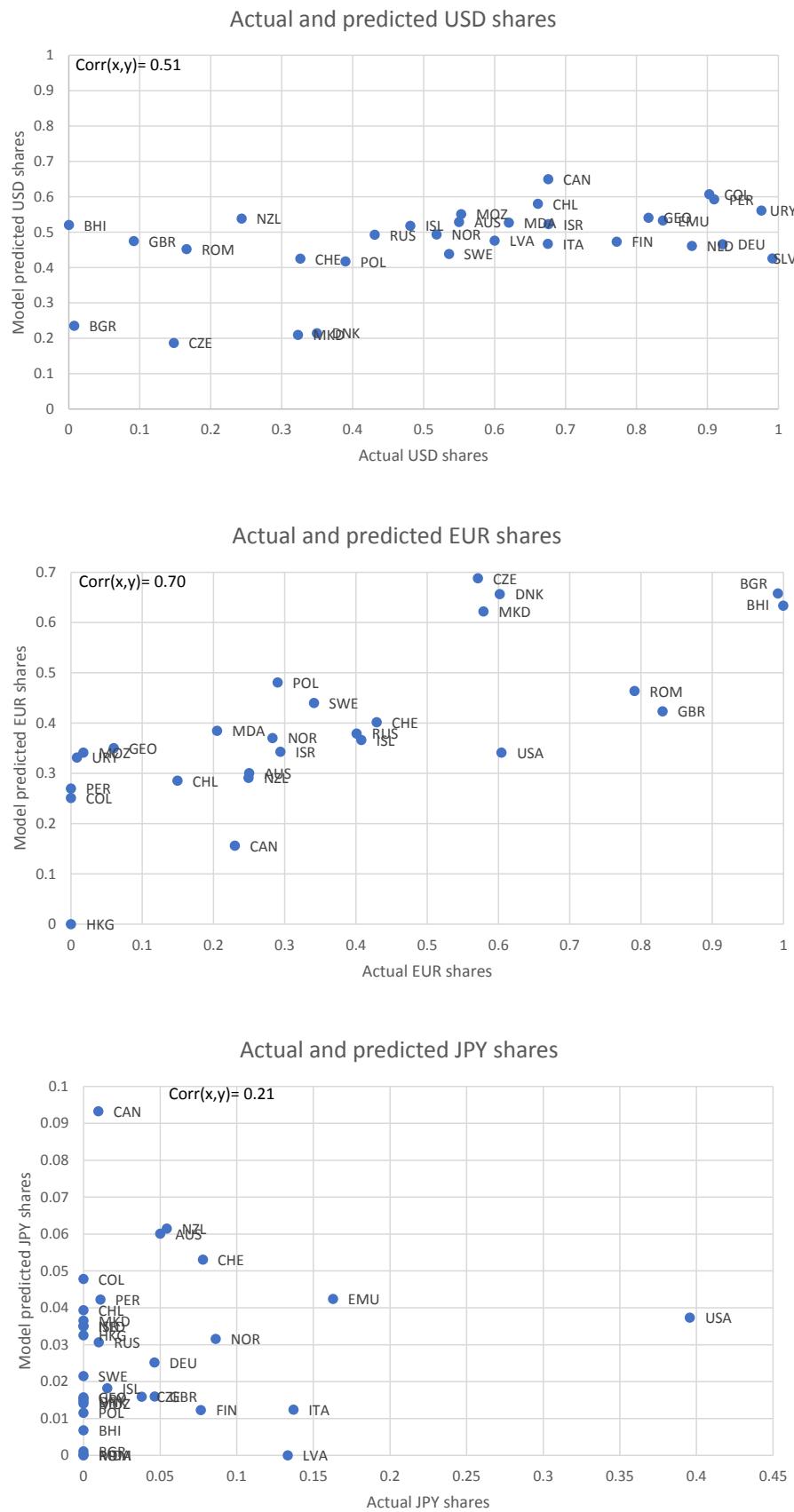
In a final exercise, we aim to make some predictions about the currency compositions of the three largest - non-disclosing - reserve holders. These are China, Japan, and Saudi Arabia, which together dispose of nearly 50% of worldwide international reserves. Substituting respective import shares and pegs into our baseline estimation equation (Model A) for USD, EUR, and JPY shares can reveal something about these countries' reserve composition.[14]

For China, our model predicts a composition of its international reserves of 52% USD, 45% EUR, and 2% JPY assets. The model further suggests that Japanese international reserves are invested to 59% in USD and to 31% in EUR. For Saudi Arabia, the US peg translates itself via an economically significant coefficient into a highly USD dominated predicted reserve composition, despite vivid trade with the EA. The predicted foreign reserves portfolio consists of 92% USD and 3% JPY denominated assets.[15]

For the three countries of interest, these estimation results are difficult to compare to actual compositions as too little is known about these. Nevertheless, possible bands within which currency shares may fluctuate might be derived from statements from economists and analysts. For China, older estimates assume a USD share between 60% and 70% of its international reserves, a EUR share between 20% and 30%, and JYP and GBP shares together between 5% and 10% (see Hu 2010, pp. 8-9, Morrison and Labonte, 2013, p. 5, Wildau, 2014, Neely, 2016, p. 1, and Neely, 2017, p. 1).[16] For Japan, a high USD share in the country's international reserves

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[14]In this section as well as in the initial estimates of Section 4, we also experimented with the locations of central bank foreign representatives, but results were only partially useful. While most central banks which maintain foreign branches indeed hold reserves in the currency of the guest country, the overlap of countries that in some form disclose international reserves and countries that maintain foreign branches was negligible. In 2015, a total of 27 central banks worldwide had foreign offices to our knowledge, but only five of them also reported the currency composition of their international reserves. Those are the central banks of Australia, Canada, Hong Kong, Norway, and Switzerland. For instance, Switzerland runs a branch in Singapore to avowedly better manage its reserves denominated in the currencies of the region (see Swiss National Bank, 2012). Among other Asian currencies, the Swiss National Bank holds assets denominated in SGD. To estimate currency compositions of international reserves, we restricted ourselves to our baseline model due to its favourable properties and the stable results it yields in our previous sections.

[15]In 2015, the composition of Chinese imports was as follows: USA: 9%, EA: 10%, Japan: 9%, UK: 1%. For the same year, the composition of Japanese imports was the following: USA: 10%, EA: 9%, UK: 1%. For Saudi Arabia respective shares were: USA: 13%, EA: 20%, Japan: 6%, and UK: 3% (own calculations). Data is from the China Statistical Yearbook, the Japan External Trade Organization (JETRO), and the Saudi Arabian General Authority for Statistics. Peg data is from the IMF's AREAER database and only the Saudi riyal is characterised by a currency peg (i.e. to the USD).

[16]Concerning the impact of the euro crisis on Chinese EUR holdings, Wang and Freeman (2013, p. 7) write that "the European sovereign debt crisis has not produced a significant reduction in the share of China's holding of euro assets, but it may have discouraged any increase".

appears realistic. For instance, Wong (2007) is among the few committing herself to an, in our opinion, plausible USD share between 83% and 89%. For Saudi Arabia, which is regularly among the largest holders of foreign reserves, some market watchers assume central bank foreign reserves to be denominated nearly exclusively in USD (see Reuters, 2015, for instance).

4.5 Conclusions

In this chapter, we examine determinants of the composition of international reserves and aim to disentangle the impact of the euro crisis. As comprehensive datasets on the composition of international reserves are highly confidential, we compile a new dataset based on those central banks which make their data publicly available. To a large extent these pieces of information can be found in central bank annual reports. Relating these data to a selection of country-specific factors reveals that trade patterns and currency pegs are primary determinants of foreign currency holdings. Thus, we can confirm findings from papers based on access to confidential IMF data (i.e. Heller and Knight, 1978, Dooley et al., 1989, and Eichengreen and Mathieson, 2000). Other possible determinants are examined. Foreign debt and international bank claims appear to play a role in the composition of foreign currency holdings, but results are mixed.

We further show that the spread of the euro crisis caused a break in the development of EUR holdings. In pre-crisis years and since the EUR introduction in 1999, the EUR could sustainably improve its position as the world's second currency after the USD. Since 2010, EUR shares have been declining by trend. However, the euro crisis only partially affected determinants of the composition of international reserves. A DID analysis furthermore reveals systematic variation in the evolution of JPY and GBP reserve shares between euro area and non-euro area countries.

Additionally, the chapter argues that a simple model can explain currency compositions reasonably well but in some cases important deviations from predicted shares suggest that additional factors might play a role. However, the stability of findings from Heller and Knight (1978), Dooley et al. (1989), and Eichengreen and Mathieson (2000) is impressive and indicates strong inertia in international reserve compositions. Political considerations should be worth further attention in future work. Returning to the initially mentioned motives for foreign currency holdings, our present point of view is that transaction and mercantilist motives are still highly relevant. In our approach we have not investigated whether investment motives can

explain the composition of currency reserves. We, however, expect that those are a driving force for wealthy states with large excess reserves that actively search for investment opportunities.[17] In a final exercise, we showed exemplarily for China, Japan, and Saudi Arabia that reserve compositions of non-disclosing countries can be estimated approximately. More transparency on the part of these countries nonetheless remains desirable in our eyes as these three states own nearly 50% of worldwide international reserves. Economic analyses in this field hence should put more weight on the important players as those can heavily impact currency markets, exchange rates and entire economies.

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[17]Nugee (2000, p. 66) suggests that the size of a central bank's reserves has an impact on the central bank's reserve management style. Higher reserves by trend require less attention for liquidity issues, whereas for instance wealth management and strategic asset allocation considerations become more relevant. Such considerations bring central banks closer to wealthy private investors, who face yield/risk trade-offs. A prominent example is Norway, where Norges Bank Investment Management is a separate part of the central bank, managing the Government Pension Fund Global.

5 Political Determinants of the Financial Supervision Architecture

5.1 Motivation

In general, structures of financial supervision are very heterogeneous[1]; from time to time they undergo important changes and often they are very complex (e.g. in the USA or in Europe). Historically, supervision of banks has mostly been a task assigned to central banks, whereas other specialised institutions were in charge of supervising securities markets and insurance actors. With a closer integration of financial markets, decreasing boundaries between bank business, securities markets, and insurance business, and an overall growing importance of Non-Bank Financial Intermediaries, the model of an integrated supervisor emerged in the 1980s. The financial crisis has also called into question this design and some countries such as the United Kingdom and Hungary have since then dissolved their FSAs and have redistributed responsibilities again. Due to the multitude of different supervisory designs, quantifying these structures is a demanding project.

In this chapter, I distinguish three types of supervisory systems ("no integration", "partial integration" and "total integration") and examine empirically factors determining a country's supervisory structure. To this end, I use a new dataset which covers the changing supervisory structure of 170 countries from 1990 to 2015. Unlike other studies, I focus on political factors as determinants of national arrangements. These factors include, for instance, a country's political system as well as its regime type. One important finding is that federalism seemingly plays an important role for the way financial supervision is organised.

The remainder of this chapter is structured as follows. Section 2 outlines the relevant literature in the field of financial supervision. Section 3 portrays how financial supervision structures developed historically. Section 4 assesses empirically political determinants of supervisory designs. Section 5 draws this chapter's conclusions and makes some final remarks.

5.2 Literature

In the scientific debate on the issue of financial financial supervision, three approaches are usually distinguished according to the degree of integration: Total in-

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[1]A country's financial supervision architecture is usually composed of micro-prudential financial supervision, macro-prudential financial supervision and consumer financial protection. Together they aim at ensuring the stability and the well-functioning of financial markets. Each of these three pillars being an important issue by itself, this chapter is limited to micro-prudential financial supervision. For the sake of simplicity, I refer to it as financial supervision in the following.

tegration, where one distinct authority supervises at least banks, securities markets, and insurers; partial integration, where one authority supervises two of the three above-mentioned sectors; and no integration at all, where one authority supervises one single sector each (see Arnone and Gambini, 2006; Masciandaro, 2007; Melecky and Podpiera, 2013, for instance). Two frequently asked questions are whether financial supervision should be integrated or decentralised and whether and how the central bank should be involved in supervision (see Podpiera and Čihák, 2007, p. 313). While, in theory, there are numerous arguments for and against consolidation of supervision, a tendency towards more integration of financial supervision can be observed.

The related literature on the topic of financial supervision consists of exclusively descriptive contributions[2] as well as of empirical assessments that aim either at exploring the outcome of financial supervision or at exploring the determinants of a country's supervisory architecture. This chapter follows the latter path, i.e. it looks at financial supervision as the dependent variable. Given the breadth of the subject, I only briefly reproduce the main points of relevant and related studies in chronological order in the following.

Schoenmaker and Goodhart (1992) were among the first to explore the impact of supervisory integration and the role for central banks. They do not find clear evidence for an advantage of separating supervision and monetary policy.

Lannoo (2003) focuses on supervision in Europe and categorises financial supervision by assigning letters according to the involvement of different authorities. I borrow from this author and make use of a similar classification in my dataset.

Martinez and Rose (2003) canvass 15 countries that have integrated supervision in their about reasons for and experiences with integrated supervision. Effective supervision and economies of scale are commonly named as rationales for consolidation.

Shen (2006) tries to spot which states integrate their supervision and finds a "reverse central bank effect" and good governance being associated with more integration.

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[2]For example, the Group of Thirty (2008) reviews 17 national supervisory systems and distinguishes four approaches to financial supervision (institutional, functional, integrated, and twin peaks approach). The Group of Thirty is a Washington D.C.-based private, non profit organisation which, according to its homepage, "aims to deepen understanding of international economic and financial issues, and to explore the international repercussions of decisions taken in the public and private sectors." (www.group30.org/about). Members are mainly policymakers such as active or former central bank governors as well as academics.

Arnone and Gambini (2006) find a statistically significant advantage of integrated supervision outside the central bank over a decentralised system, where the central bank plays a pivotal role. They measure quality of financial supervision in terms of compliance with the Basel Core Principles (BCP) for effective banking supervision.

Podpiera and Čihák (2007) go a step further by additionally regarding the quality of securities markets and insurance supervision. To do so, they expand the BCP for effective banking supervision by the Objectives and Principles of Securities Regulation of the International Organization of Securities Commissions (IOSCO) and the Insurance Core Principles (ICP) of the International Association of Insurance Supervisors (IAIS). They find that integration is accompanied by a higher quality of supervision in terms of compliance with these principles and explain this result with a generally higher level of development of the countries that dispose of an integrated supervisory authority. They do not find a significant relation between the quality of supervision and whether supervision is located inside or outside the central bank.

Masciandaro (2007) coins the term "central bank fragmentation effect", which describes a trade-off between integration and central bank involvement, i.e. the more important a central bank is as a supervisory authority, the less likely supervision is to be integrated. In other papers, he introduces new indices to measure the degree of financial supervision integration mainly by examining how many authorities are involved in monitoring each financial segment (see Quintyn et al., 2011). Another finding is that smaller economies tend to integrate their authorities. Masciandaro and Quintyn (2011b) recognise that the decision for a specific supervisory structure is based less on economic than on political premises. As the public sector obviously is influenced by political tendencies, this chapter seizes on this idea and focuses on political factors as determinants of supervisory structures.

Dincer and Eichengreen (2014) observe that financial markets are more conservatively regulated in states where the central bank or another independent agency is in charge of supervision. They see a trade-off between financial stability and a generous provision of capital to the economy.

The paper closest to my analysis is that of Melecky and Podpiera (2013). The authors additionally include consumer financial supervision and exploit a dataset of 98 countries from 1999 to 2010. Following similar approaches, certain findings of their paper are in line with those of this chapter. While they identify the level of economic development, the size of an economy and the experience of past financial crises as drivers of supervisory integration, I use a larger database and focus more on

political determinants such as a country's federal character, as I suspect the political system and the general way in which public affairs are handled to be decisive. While I confirm the majority of their findings, I cannot confirm their result of a negative effect of central bank independence on integration.

5.3 Data and Descriptive Analysis

5.3.1 Data

Sources for data on supervisory structures between 1990 and 2015 are the national supervisory authorities' homepages, the central banks' annual reports, to a large extent volumes of "How countries supervise their banking, insurers and securities markets", which was relabelled in 2014 as the "Directory of Financial Regulators", and volumes of the annual "Central Bank Directory". Especially for information not available online, the library of the German Bundesbank turned out to be a rich treasury of data.

The briefly above-mentioned notion of Lannoo (2003) suggests itself as a practical way to capture worldwide financial supervision architectures for the endeavour of this chapter. Basically, Lannoo's notion records all supervisors in charge of banks, securities markets, and insurances and further categorises them along two lines, these being the type of the respective authority and the concentration of supervision. His paper therefore distinguishes between central banks, specialised supervisors, integrated financial supervisory authorities, and government departments, for instance within Ministries of Finance (MoF). In order to quantify supervisory designs around the world, this chapter follows Lannoo's categorisation which reads as follows (see Table 5.1).

Table 5.1: Classification of supervisors of banks, securities, and insurance markets

CB	central bank
B	specialised banking supervisory authority
S	specialised securities markets supervisory authority
I	specialised insurance supervisory authority
BS	specialised banking and securities markets supervisory authority
BI	specialised banking and insurance supervisory authority
SI	specialised securities markets and insurance supervisory authority
G	government department (for instance within Ministry of Finance)
FSA	integrated Financial Services Authority

Source: Lannoo (2003).

To illustrate how this notion is employed in this chapter, Table 5.2 shows exemplarily the development in the German case from 1990 to 2015 and thus the structure of my data.

In Germany, the Bundesbank shared the responsibility for banking supervision with the Federal Banking Supervisory Office (Bundesaufsichtsamt für das Kreditwesen, BAKred) until 2001 and then with the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin). A federal authority for the supervision of securities markets only existed from 1994 onwards with the establishment of the Federal Supervisory Office for the Securities Trading (Bundesaufsichtsamt für den Wertpapierhandel, BAWe). This authority was merged in 2002 into the then newly established integrated financial services authority BaFin. Similarly, the Federal Insurance Supervisory Office (Bundesaufsichtsamt für das Versicherungswesen (BAV) was in charge of insurance supervision until 2001 and then was also merged into the newly established BaFin – which has been the German integrated supervisor for all three financial market segments, whilst sharing responsibility in the banking sector. As supervisory responsibility remains shared, I consider the German structure in the year 2015 an example of partial integration despite the FSA's involvement in the supervision of all three segments of the financial market .

The last column in Table 5.2 then summarises the overall supervisory structure according to the degree of supervisory integration. In my dataset, for each country and each year a distinct supervisory design is assigned verbally and quantitatively, where the numbers 1 to 3 are to be read as follows:

1. no integration (sectoral supervision, traditional model)
2. partial integration (hybrid model)

3. total integration (within FSA or central bank, integrated model)

Table 5.2: Changes in financial supervision: Germany 1990 to 2015

Year	Bank supervisor	Securities market supervisor	Insurance market supervisor	Name bank supervisor	Name securities market supervisor	Name insurance market supervisor	Structure
1990	CB/B	/	I	BuBa, BAKred	State level	BAV	No integration (1)
1991	CB/B	/	I	BuBa, BAKred	State level	BAV	No integration (1)
1992	CB/B	/	I	BuBa, BAKred	State level	BAV	No integration (1)
1993	CB/B	/	I	BuBa, BAKred	State level	BAV	No integration (1)
1994	CB/B	S	I	BuBa, BAKred	BAWe	BAV	No integration (1)
1995	CB/B	S	I	BuBa, BAKred	BAWe	BAV	No integration (1)
1996	CB/B	S	I	BuBa, BAKred	BAWe	BAV	No integration (1)
1997	CB/B	S	I	BuBa, BAKred	BAWe	BAV	No integration (1)
1998	CB/B	S	I	BuBa, BAKred	BAWe	BAV	No integration (1)
1999	CB/B	S	I	BuBa, BAKred	BAWe	BAV	No integration (1)
2000	CB/B	S	I	BuBa, BAKred	BAWe	BAV	No integration (1)
2001	CB/B	S	I	BuBa, BAKred	BAWe	BAV	No integration (1)
2002	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)
2003	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)
2004	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)
2005	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)
2006	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)
2007	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)
2008	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)
2009	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)
2010	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)
2011	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)
2012	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)
2013	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)
2014	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)
2015	CB/FSA	FSA	FSA	BuBa, BaFin	BaFin	BaFin	Partial integration (2)

Attributing these numbers (i.e. 1 to 3) to supervisory designs yields ordinal variables, where a higher value corresponds to a higher degree of supervisory integration. Following this approach, I classify the annual financial supervisory archi-

tecture for 170 countries from 1990 to 2015 as completely as possible.[3] I use the obtained ordinal variables as regressands of ordered logit regressions in Section 5.4.

5.3.2 Historical Development and Descriptive Analysis

To better understand the current financial supervision architecture, it is worth taking a look at the historical development of financial supervision. In short, the creation of supervisory authorities and their later evolution have largely been driven by financial market turbulences and the USA has in many aspects been a forerunner.

Evidence for the latter is the worldwide establishment of agencies entrusted with the task of supervising financial market players shortly after the disastrous stock market crash of 1929 spreading from the US.[4] Historically, responsibility for banking supervision was assumed by central banks, while other institutions have been in charge of the securities and insurance sectors – given those sectors existed. This model corresponds to the classical tripartition, where one specialised authority supervises a sole financial segment, i.e. one authority supervises banks only, a second securities business, and a third insurers. This traditional model is sometimes also referred to as the silo model (see Podpiera and Čihák, 2007).

Subsequently, in the course of a continuing integration of financial markets and a growing importance of Non-Bank Financial Intermediaries, the integrated approach of financial supervision progressively gained popularity ("all-finance supervision") from the 1980s on (Podpiera and Cihak, 2006, pp. 4-5). In particular, the Monetary Authority of Singapore (MAS) has been in charge of the banking, securities, and insurance industries since 1984, while the Kredittilsynet of Norway, established two years later, identifies itself as "the first integrated supervisory authority for the

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[3] The state at the end of each year is decisive for the respective annual classifications. Data gaps exist, for instance, for the former Soviet Union and former Yugoslavia for obvious reasons. Table 6.19 in the Appendix provides a list of all countries of the sample.

[4] The institutionalisation of financial supervision began in the USA, where the Great Depression originated in 1929 and then spread over the world (see for instance Bundesanstalt fuer Finanzdienstleistungsaufsicht, 2014). The American design of financial supervision was and is characterised by a high degree of fragmentation and decentralisation, which can be explained by the country's federal traditions and its system of checks and balances. To date, there exist several authorities in all financial market segments. For instance, powers in the field of banking supervision are divided among the Office of the Comptroller of the Currency (OCC), the Fed, the Federal Deposit Insurance Corporation (FDIC), and authorities from the states. The Securities and Exchange Commission (SEC, established in 1934) is the leading actor in stock exchange supervision. In insurance supervision, this principal role is exercised by the Federal Insurance Office (FIO), with numerous further authorities being involved (see Horakova and Glass, 2016).

financial market in the western world".[5] The Danish Finanstilsynet (established 1988) and the Swedish Finansinspektionen (established 1991) were soon to follow the model of Norway.[6] With the establishment of the British Financial Services Authority in 1997, for the first time a large economy transferred the task of supervising the entire financial system to a sole authority. This event might therefore be interpreted as the breakthrough of the integrated design (see Masciandaro and Quintyn, 2011a, p. 10). Among others, Korea (1999), Japan and Hungary (2000), Germany and Austria (2002), Poland (2008), and Finland and Switzerland (2009) were to follow the British model in the next years, to name but a few.[7]

In 2013, the UK and Hungary again dissolved their FSAs and transferred responsibilities to their central banks. In Hungary, the national bank is now the single supervisory authority; in the UK the Prudential Regulatory Authority (PRA) is part of the Bank of England.[8][9] While there were only four integrated supervisors worldwide in 1990, there were 41 in 2015. At the same time, the number of countries with partially integrated authorities has increased, whereas the traditional model has lost ground. Simultaneously, exclusive central bank responsibility for banking supervision has strongly decreased. Figure 5.1 illustrates the rise in the number of single consolidated supervisors over time.

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[5] See homepage of authority under heading About Finanstilsynet / History. The supervisor renamed itself in 2009 to Finanstilsynet.

[6] In all cases described (Singapore, Norway, Denmark, Sweden), the establishment of integrated authorities was the result of mergers of existing supervisory authorities.

[7] As already indicated in the example of Germany, several other supervisory authorities regularly remained involved in financial supervision despite the establishment of an integrated supervisor. Hence, the existence of an integrated supervisor does not automatically imply being classified as "totally integrated" in my categorisation.

[8] The case of the European Union presents itself as a special case. Despite a common monetary policy within the euro area, the EU is far from having a coherent supranational supervisory structure. Integrated supervisory authorities regularly exist ithin the member states of the currency union. At a supranational European level exists a three-membered system composed of the European Banking Authority (EBA) in London, the European Securities and Markets Authority (ESMA) in Paris, and the European Insurance and Occupational Pensions Authority (EIOPA) in Frankfurt, which are mainly entrusted with the elaboration of common standards. Coordination between these three agencies takes places within the Joint Committee of the European Supervisory Authorities. With the establishment of the Single Supervisory Mechanism (SSM) in autumn 2014, which is to supervise the most important banks of the euro zone, there is, for the first time, a real European supervisory authority (see European Parliament, 2016). Compared to other currency unions (particularly the West African Economic and Monetary Union and the Economic and Monetary Community of Central Africa) that have already had a common banking supervision for many years this is a late occurence. This fact is all the more interesting as the idea of a common banking supervision situated within the ECB was already discussed at the planning stage for the new central bank in the 1980s (see Ignazio Angeloni, 2017).

[9] The discrediting of the British FSA for its role in the financial crisis is particularly well documented. See for instance The Telegraph (2010).

Figure 5.1: Number of integrated supervisors 1990 to 2015
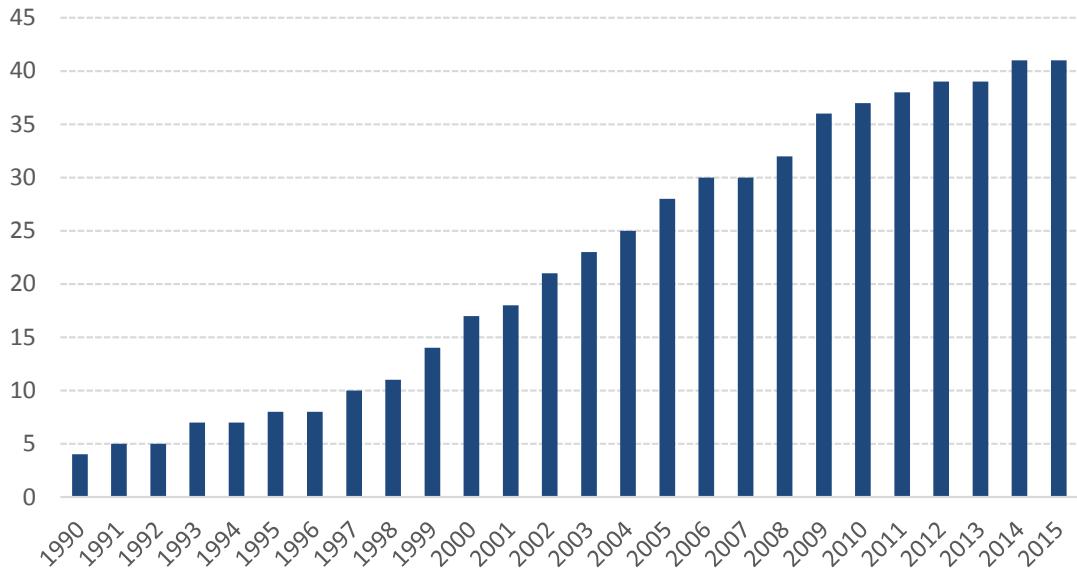
Sources: Central bank annual reports, How countries supervise their banking, insurers and securities markets, Directory of Financial Regulators.

Figure 5.2 depicts the development of the respective shares of the three models of financial supervision from 1990 to 2015, a phase characterised by important changes. In 1990, the traditional fragmented model was the most common design, followed by partial integration and quasi non-existent total integration. Since then, supervision has powerfully become more and more integrated and the model of total integration has caught up but still remains behind the two other designs. In 2015, partial integration was the most common design, followed very closely by absence of integration.

Figure 5.2: Shares of supervisory designs 1990 to 2015 (%)
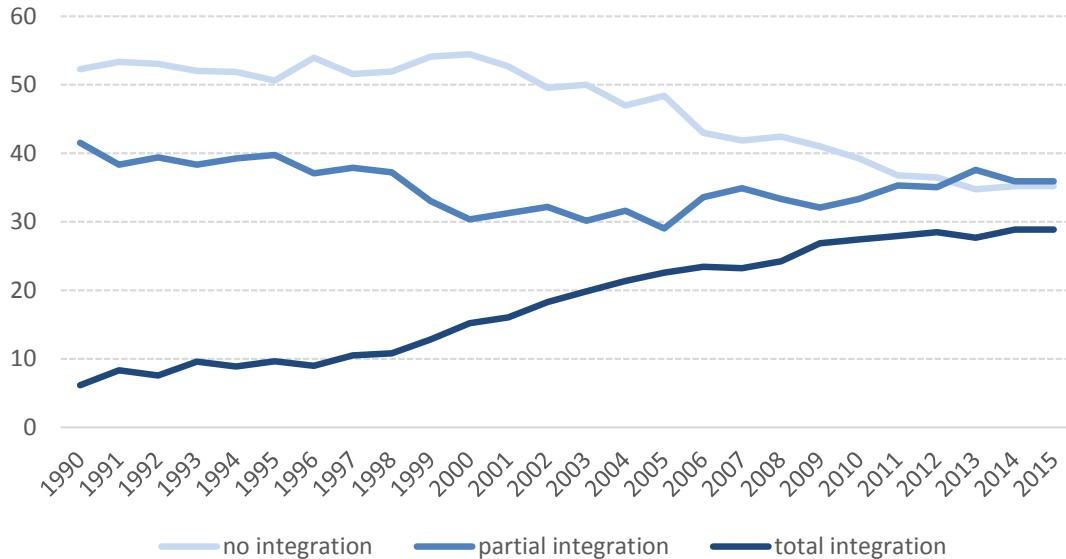
Sources: Central bank annual reports, How countries supervise their banking, insurers and securities markets, Directory of Financial Regulators.

On the one hand, the rationale for a more integrated supervisory architecture is that it should better match the financial market structure which is increasingly characterised by a high degree of integration. On the other hand, separated supervisors could theoretically be more specialised and therefore achieve more stability in financial markets. However, the question of which supervisory design better attains financial stability is not part of this paper. In Table 5.3, I only briefly present main arguments, which are obviously very country-specific and subjective.

Table 5.3: Rationales for integrated and non-integrated supervision

Integrated	Non-integrated
Cross-border supervision ensures that every market player is supervised.	Distinct and specialised supervisor for each type of business.
Higher degree of accountability.	Clear objectives for supervisors.
Economies of scale.	Better to have multiple but smaller institutions than one large institution (less bureaucratic, more flexible). Economies of scales as well.
Neutrality between different financial institutions.	Moral hazard problems.
Attracting highly professional staff and sharing of knowledge.	Establishment of FSA complicated process by itself.

Sources: Abrams and Taylor (2000), Podpiera and Čihák (2007).

Last, the issue of central bank involvement in supervision is currently an important topic especially in Europe, where national banks are looking for new tasks after the loss of their monetary capacities to the ECB. The data shows that three out of four central banks worldwide are involved in financial supervision (mostly in banking supervision, followed by banking and insurance supervision and integrated supervision). The latest central bank in the European Union (EU) to have received new supervisory responsibilities is that of Lithuania, having assumed the tasks of the former Insurance Supervisory Commission and the Securities Commission in 2012. The Bank of Lithuania is thus now - according to this chapter's logic - Lithuania's single integrated supervisor (see How Countries Supervise their Banks, Insurers and Securities Markets 2012). In Europe, but outside the EU, Russia transferred the task of financial supervision entirely to its central bank in 2013. Other central banks in Europe might also reach for new supervisory responsibilities in the following years. This fits in with the observation that the evolution of central bank involvement in financial supervision follows a U-shape pattern (see Nitsch, 2015, p. 55). Table 5.4 describes central bank involvement in banking supervision in 2015.

Table 5.4: Central bank involvement in supervision

	Number	Percentage
Banking	84	63%
Banking and insurance	23	17%
Banking and securities	4	3%
Integrated	23	17%
Total	134	100%

Source: Horakova and Glass (2016).

This far the framework has been depicted, the following sections will deal empirically with the causes of these organisational changes, focusing on political drivers.

5.4 Empirical Analysis

The underlying assumption of this chapter and this section is that political factors might be more suitable to explain the design of public institutions than other country-specific factors such as size or wealth, for which I nevertheless control. Such a relation is only partially established (see for instance Masciandaro and Quintyn (2011b) or Nitsch (2015)). This section aims to take a closer look at several political

factors and in how far they could shape a country's supervisory structure. I suggest that political decisions play a role for the decision to integrate financial supervision.

When taking a first look at potential political indicators, the sheer multitude of existing political variables is impressive and in parts seems a little neglected by economists, who normally have a big interest in extensive panel data. In a first step, I want to gain an overview of possibly exploitable data and to identify potential drivers. In a second step, I run ordered logit-type (maximum likelihood) regressions using promising explanatory variables. Table 5.5 below shows an excerpt of governance and political indicators for extended periods of time and a coverage greater than 100 countries. For a wider range of related panel data, please see the appendix (see Table 6.20, Table 6.21, and Table 6.22).

Table 5.5: Selected political and governance variables: Panel data

Name	Provider	Content	Country coverage	Time coverage
Database of political institutions	Cruz, Keefer, Scartascini	Large set of institutional and electoral results.	180	1975–2015
Index of democracy	Vanhanen and International Peace Research Institute, Oslo (PRIO)	Index of democratization and data on political competition and political participation.	187	1946-2010
Institutions and Elections Project (IAEP)	Hegre, Wig, Regan	Institutional provisions, electoral procedures and electoral events (de jure).	170	1960-2012
Institutional Quality Dataset	Kunčič	Institutional environment of states (legal, political and economic) and ranking.	197	1990-2012
Political Constraint Index Dataset	Hemisz	Feasibility of policy change.	226	1800-2011
Political terror scale	Amnesty International	Political violence measured on 5-level terror scale.	180	1976-2015
Polity IV Country Reports	Georg Mason University	Political regime characteristics and transitions.	167	1800-2015
Unified Democracy Scores	Melton, Meserve, Pemstein	Composite scale of democracy.	204	1946-2012
World Value Survey	WVS Association (WVSA)	Results of worldwide common questionnaire, also containing attitudes towards government, political system and political parties.	~100	1981-2014
Worldwide Governance Indicators	World Bank	Six dimensions of governance resulting from survey.	215	1996-2015

From these potential data sources shown in Table 5.5, I make a selection of explanatory variables based on plausibility and data availability. In order to explore the determinants of supervisory structures, I regress the degrees of supervisory integration on a set of nine explanatory variables. As the ordinal dependent variable is the supervisory structure - ordered by the degree of integration (1: no integration,

2: partial integration, 3: total integration) - an ordered logit estimator[10] is applied. I concretely estimate equations of the following form in different configurations:

$$FinancialSupervisionIntegration_{it} = \beta_0 + \beta_1 GDPcapita_{it}$$

$$+\beta_2 Population_{it} + \beta_3 GovernmentEffectiveness_{it} + \beta_4 Democracy_{it}$$

$$+\beta_5 PoliticalSystem_{it} + \beta_6 GovernmentMajority_{it} + \beta_7 Federalism_i$$

$$+\beta_8 CentralBankIndependence_{it} + \beta_9 StockMarketCapitalisation_{it} + \epsilon_{it}$$

where $FinancialSupervisionIntegration_{it}$ as dependent variable denotes the supervisory structure of country i at time t. t concretely refers to the years 1990, 1995, 2000, 2005, 2010, and 2015 as five-year intervals were chosen due to the only little variation of the dependent variables between two consecutive years. The variables $GDPcapita_{it}$ (IMF, 2016c) and $Population_{it}$ (World Bank, 2017b) capture the macroeconomic environment. Most other variables describe major political characteristics. The variable
$GovernmentEffectiveness_{it}$ from the World Bank (2016b) captures the perceived quality of the public sector.[11] The variable $Democracy_{it}$ consists of the combined Polity score and ranges from -10 for strongly autocratic countries to +10 for strongly democratic countries (see Center for Systemic Peace, 2015). $PoliticalSystem_{it}$ then describes whether a country is presidential (0), governed by a strong president elected by a parliament (1), or parliamentary (2), where a higher value hence corresponds to more parliamentary political systems. $GovernmentMajority_{it}$ refers to a government's margin of majority in the parliament, i.e. the fraction of seats held by the government (see Cruz et al., 2015). $Federalism_i$ takes the value of 1 if a country belongs to the group of countries widely classified as federal (as for instance Germany, Switzerland, or the USA) and is constant. $CentralBankIndependence_{it}$ describes the autonomy of a national central bank and is based on Dincer and Eichengreen (2014). The variable
$StockMarketCapitalisation_{it}$ covers the level of financial development and the position of the central bank respectively (see World Bank, 2016a). Finally, ϵ_{it} denotes

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[10]Ordered logit and ordered probit usually lead to similar results. The difference lies in the question of the more appropriate distribution for ε_i (ordered logit: standard logistic distribution, ordered probit: standard normal distribution). In this case, I tried both variants without significant deviations. Therefore, only the results of the ordered logit-type regressions are presented in the following.

[11]The World Bank Government Effectiveness indicator is a composite indicator in units of a standard normal distribution (mean=0, standard deviation=1) which runs approximately from -2.5 to +2.5.

the country- and time-specific error term. Table 5.6 further describes the set of explanatory variables.

Table 5.6: Explanatory variables

Variable	Description	Scale	Source
GDP per capita	Gross Domestic Product.	International USD.	IMF World Economic Outlook
Population	Total population.	Number of inhabitants.	World Bank
Government effectiveness	Perceived quality of the government, the public sector and services and its independence from political pressure.	-2.5 to 2.5, where higher values correspond to better governance.	World Bank
Democracy	Combined Polity score.	Ranges from -10 (strongly autocratic) to +10 (strongly democratic).	Center for Systemic Peace Polity IV project
Political system	Government system.	0: Presidential. 1: Strong president elected by assembly. 2: Parliamentary.	Database of political institutions
Government majority	Majority of government in parliament.	Fraction of seats of government in parliament. Maximum is 1.	Database of political institutions
Federalism	Federalist tradition of country. 24 states: Argentina, Australia, Austria, Belgium, Bosnia-Herzegovina, Brazil, Canada, Ethiopia, Germany, India, Iraq, Malaysia, Mexico, Nigeria, Pakistan, Russia, South Africa, South Sudan, Spain, Sudan, Switzerland, United Arab Emirates, United States of America, Venezuela.	Dummy variable. 1 if country is federal.	Own data
Central bank independence	Independence index.	Ranges from 0 (least independent) to 1 (most independent).	Dincer and Eichengreen (2014)
Stock market capitalisation	Value of all listed shares in a stock market to GDP.	Percentage.	World Bank Global Financial Development Database

The choice of these regressors is motivated by theoretical considerations about possible effects on the regressand. In particular, I expect a positive sign of the coefficient of *GDP per capita* and a negative sign of the coefficient of *Population.* The idea is that richer and smaller countries might have a preference for supposedly more efficient forms of supervisory structures. Also, one could expect that more *Government effectiveness*, as a proxy of more modern practices in public sector management, is associated with more integration. Concerning the coefficient of the *Political system* variable, a presidential system might have a preference for integrating supervision. Similarly for the variable *Government majority*, high shares of parliamentary seats held by government parties might be conducive to integration by empowering a government to initiate major institutional changes. *Federalism* is expectedly associated with lower levels of integration. In addition, I expect more *Central bank independence* to be associated with less integration, as central banks might want to defend responsibilities. This is suggested by Masciandaro (2007) and Melecky and Podpiera (2013). Finally, I use *Stock market capitalisation* as a measure of financial development and expect ratios of listed shares in a stock market to GDP to be positively correlated with degrees of integration.

Table 5.7 presents regression results for five possible combinations of my set of explanatory variables. Model 1 (column 1) comprises logs of GDP per capita and population only. Model 2 comprises the five political covariates. Model 3 contains the macroeconomic covariates plus the political covariates. While Model 4 consists of the political plus the financial development variables, Model 5 represents the fullest estimation specification. Confronting regression results of the different models, I can find some evidence for my initial suspicion that political factors play a role for the way financial supervision is organised. Note that of all models the Models 2 and 3 are most comparable in particular in terms of a similar number of observations.

Although the ordered logit approach has some conceptual particularities, coefficients can be interpreted meaningfully. In my models, the coefficients refer to a higher logarithmised probability for integration. For instance, in Model 2 the logarithmised probability of integration decreases by 3.14 if the dummy variable for federalism increases from 0 to 1. Or in other words: Federal countries have an expected logarithmised probability for integration which is 3.14 below that of non-federal states in this model. Furthermore, Model 2 suggests that *Government effectiveness* and *Democracy* are significant determinants of a country's supervisory structure. The signs of the coefficients remain unchanged in Model 3, but only the coefficient of the *Democracy* variable remains significant at the 10% level, when controlling for population size and wealth. In Model 4, the coefficient of *Democracy* again is

significant and positive. When adding macroeconomic controls to the estimation equation, this coefficient turns insignificant at commonly used levels but remains positive. Remarkably, the level of economic development measured in terms of per capita GDP appears to be strongly linked to the degree of integration. A high per capita GDP is associated with a high degree of integration. At the same time, the negative but mostly not significant coefficient of the population size might suggest that smaller countries are more prone to integrate supervision above-average and should be best and carefully interpreted as simple correlation. *Central bank independence*, *Stock market capitalisation* and the degree of integration seem correlated, but again the respective coefficients are not significant at commonly used levels in none of the models. Finally, the coefficients of the variables *Political system* and *Government majority* also do not show clear patterns. In order not to ignore symptoms of endogeneity, lagged values of the explanatory variables are also used, but estimation results remain stable.

The findings can be summarised and interpreted as follows: Firstly, countries with more positively perceived governance tend to integrate their supervisory structures. Assuming that the perceived quality of governance represents the de facto quality of governance, the interpretation is then that good governance should be conducive to supervisory integration. Secondly, other results suggest that being classified as more democratic corresponds to a higher degree of integration, although this effect is not clear for all estimation configurations. This is insofar plausible as more democratic countries could be more prone to institutional change and efficiency gains. Thirdly, negative coefficients of the variable for *Federalism* suggest a negative association with the degree of supervision. Imaginably, federal states have a preference for a generally greater separation of powers. Finally, a positive relation between wealth and integration might be founded on initial costs associated with the establishment of a new institution, while the observation that smaller countries might rather integrate supervision could be based on important economies of scale.[12] A little surprisingly, the *Political system* (presidential, strong president elected by assembly, parliamentary) shows no clear effect, opposed to my expectation that presidential systems could have a preference for an integration of supervisory powers.

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[12]The example of central banks shows that public institutions in small countries are often over-staffed, when relating the staff numbers to the overall population.

Table 5.7: Regression results 1: Coefficients and standard errors

	Ordinal dependent variable = Degree of integration				
Independent variables	(1)	(2)	(3)	(4)	(5)
ln Population	-0.783*		-0.894		-1.166
	(0.31)		(0.47)		(0.69)
ln GDP/capita	2.346***		2.930***		5.377**
	(0.44)		(0.78)		(1.94)
Gov. effectiveness		2.038***	0.518	2.375*	0.161
		(0.50)	(0.69)	(0.99)	(1.37)
Democracy		0.159*	0.225*	0.102	-0.121
		(0.07)	(0.09)	(0.21)	(0.30)
System		-0.546	-0.789	0.105	-0.682
		(0.44)	(0.59)	(0.67)	(0.82)
Gov. majority		-0.095	-0.298	5.421	5.733
		(1.23)	(1.44)	(3.25)	(3.89)
Federalism		-3.144**	-3.605	-2.918	-1.131
		(1.15)	(1.85)	(2.00)	(2.61)
CB independence				4.041	1.614
				(3.04)	(3.91)
Stock Market Cap to GDP				0.016	0.006
				(0.01)	(0.02)
Observations	573	440	435	110	110
Wald χ^2	31.24	26.86	22.95	12.90	12.74
Prob> Wald χ^2	0.000	0.000	0.002	0.075	0.175
Pseudo R^2	0.116	0.269	0.318	0.812	0.830

Notes: Ordered logit estimation with random effects. Standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

In comparison to logarithmised probabilities, which are difficult to interpret and which do not allow us to make statements about the exact size of changes in probabilities, odd ratios constitute a more practical measure. Odd ratios show lengthening or shortening odds for a higher degree of integration.[13] For instance, in Model 2 a one unit increase in *Government Effectiveness* leads to a 7.68-fold increase in the odds of (more) supervisory integration. The odd ratios for *Federalism*, mostly close to 0, indicate lower odds for integration, i.e. states with a federal constitution are significantly less likely to have a fully integrated supervisory system (see Table 5.8).

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[13]Odd ratios smaller than 1 signal lower odds of outcome, odd ratios larger than 1 signal higher odds of outcome, and odd ratios equal to 1 signal no effect.

Table 5.8: Regression results 2: Odd ratios

Independent variables	Ordinal dependent variable = Degree of integration				
	(1)	(2)	(3)	(4)	(5)
ln Population	0.457		0.409		0.312
ln GDP/capita	10.442		18.736		216.377
Gov. effectiveness		7.677	1.678	10.748	1.175
Democracy		1.173	1.253	1.107	0.886
System		0.579	0.454	1.111	0.506
Gov. majority		0.910	0.742	226.014	308.776
Federalism		0.043	0.027	0.054	0.323
CB independence				56.885	5.022
Stock Market Cap (to GDP)				1.016	1.006
Observations	573	440	435	110	110

Lastly, average predictive margins are perhaps the most useful way to see the role of the categorical independent variables more clearly in set ups like the one described. In my different regression configurations, this particularly concerns the two significant explanatory variables *Government Effectiveness* and *Democracy*. In these cases, plotting predictive margins illustrates how probable a certain degree of integration is, given possible values of *Government Effectiveness* and *Democracy* respectively. Based on Model 3, I exemplarily compute and plot predictive margins, while distinguishing between federal and non-federal countries (see Figure 5.3) and according to the political system (see Figure 5.4).

Figure 5.3 shows how the probabilities of a country's supervisory system being classified as not integrated (1), partially integrated (2), and totally integrated (3) change with *Government Effectiveness* scores. According to the upper left plot of Figure 5.3, a non-federal country with a low score in this category is most likely to be classified as not integrated. The likelihood of being classified as not integrated, then decreases with increasing scores. A country with a high score is most likely to be classified as totally integrated and least likely to be classified as not integrated. According to the upper right plot of Figure 5.3, a federal country with a low *Government Effectiveness* score has a pronouncedly high likelihood of being classified as not integrated and this likelihood decreases more slowly than in the upper left plot. Especially, the slope of the green line is smaller, suggesting for federal states a smaller impact of increases in government effectiveness on the probability of being classified as totally integrated. The two lower plots of Figure 5.3 illustrate the evolution of the probabilities of the three possible supervisory systems as functions of

Democracy scores. Both plots suggest that the likelihoods of partial (red line) and total integration (green line) increase as *Democracy* scores increase. At the same time, the probability of being classified as not integrated constantly decreases with increasing *Democracy* scores.

Figure 5.3: Predictive margins with 95% confidence intervalls: Federalism
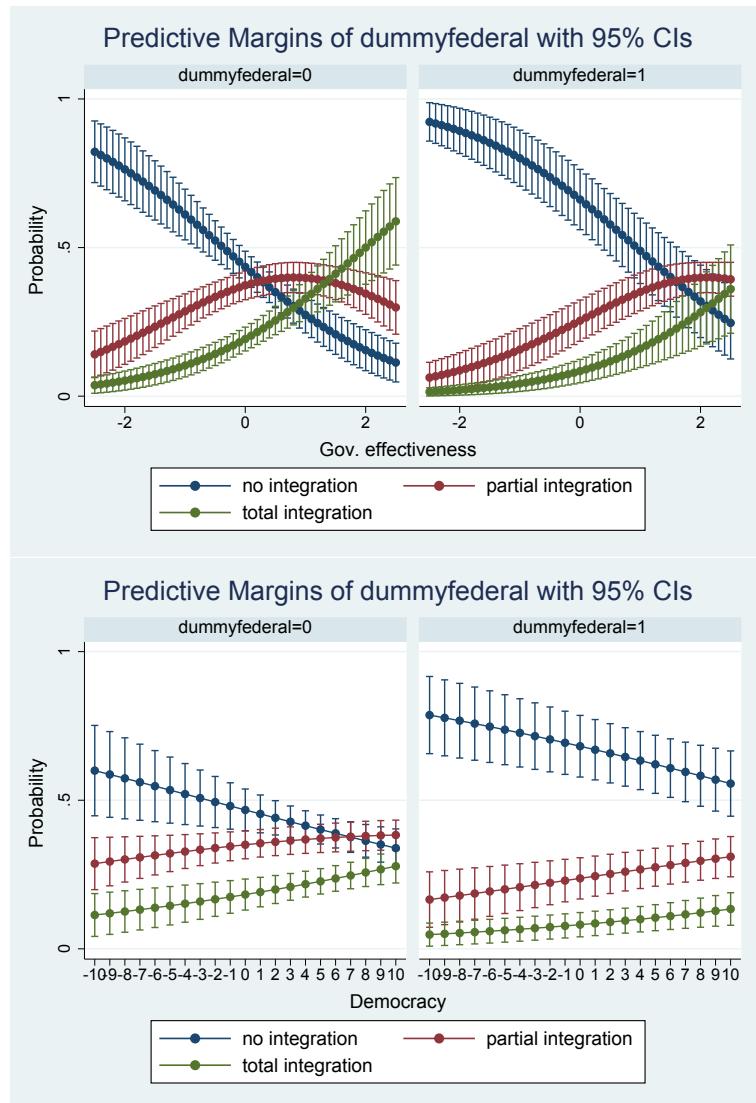
Figure 5.4 again shows predictive margins by *Government Effectiveness* and by *Democracy* scores, but this time not for federal and not federal countries but for presidential systems (0), systems characterised by a strong assembly-elected president (1), and parliamentary systems (2). All six plots reveal similar patterns and largely confirm observations made for Figure 5.3. Again, countries with low levels of *Government Effectiveness* and *Democracy* are most likely to be classified as not

integrated. As the values of these two measures increase, the likelihood of being classified as not integrated decreases and the likelihood of being classified as partially or totally integrated increases. Yet, the only minor differences between the three political systems speak for the secondary importance of the political system choice. For the highest possible *Democracy* score (i.e. 10 points), the probabilities for the three types of supervisory regimes either overlap or are very close to each other for the three political systems. Note the very high probabilities of being classified as not integrated in all plots for very low levels of government effectiveness.

Figure 5.4: Predictive margins with 95% confidence intervals: Political system
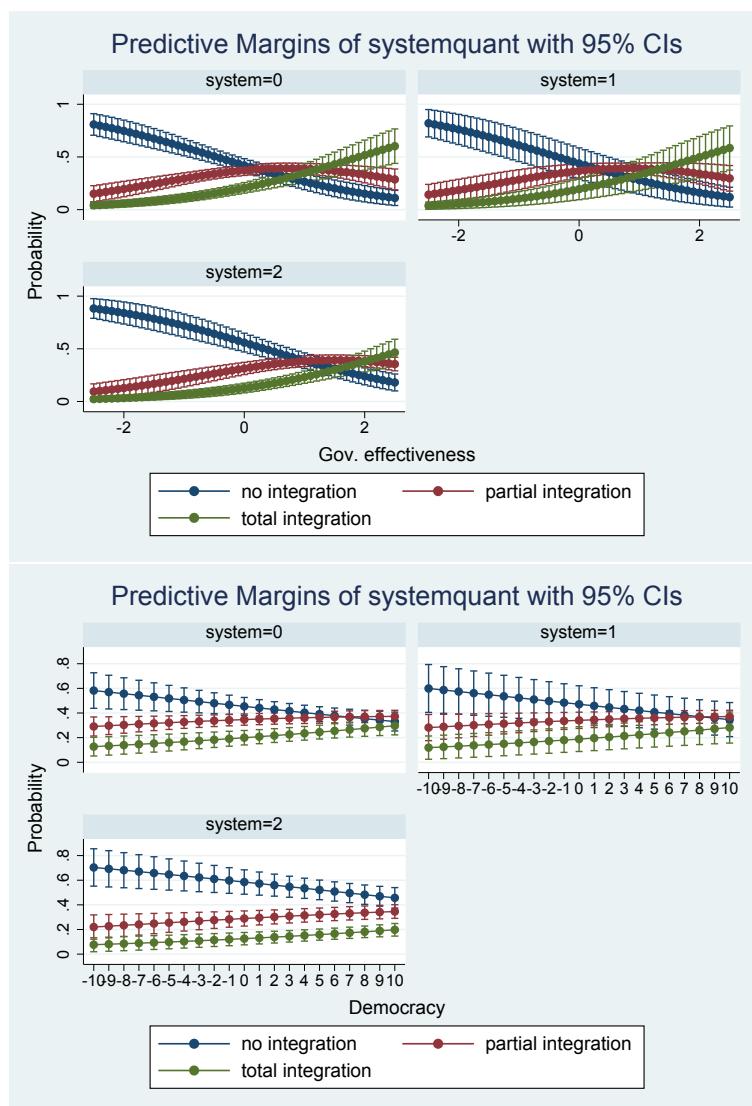
To conclude, certain political factors appear to matter for the question of whether a state integrates financial supervision or not. Especially, more govern-

ment effectiveness should foster integration. Contrarily, federalism seems to hinder integration and to be of primary importance, as out of 24 federal states only two had a totally integrated supervisory architecture in 2015.[14] A reason for this underrepresentation is likely to lie in a preference of federal states for a stronger limitation of powers and systems of checks and balances. Further, more independent central banks, higher per capita GDPs, and smaller populations could be conducive to a higher degree of integration. Especially, this finding of central bank independence might surprise at first sight, but is relativised by the fact that it is the central banks which very often exercise the role as integrated supervisor. This finding stands in contrast to Melecky and Podpiera (2013, p. 12)'s conclusion on this subject when claiming that "integration of prudential supervision is a less preferred outcome from the point of view of an independent central bank". Furthermore, the adverse effect of population size on the probability that a state integrates supervision might be best explained by economies of scale, whereas GDP per capita seems to have a strong and positive effect on integration and in general is able to explain supervisory integration reasonably well. Imaginable are two underlying causes: Firstly, initial costs of adopting a new supervisory architecture might make the creation of an integrated supervisor less attractive for poorer countries and, secondly, poorer countries are more often - and unfortunately – associated with institutional flaws and less modern forms of public management, despite their even higher need of "good governance". Plotting predictive margins can help to better understand relations in set ups such as the (ordered) logit-type one of this chapter.

5.5 Conclusions

This chapter studies the distribution of supervisory responsibilities around the world and tries to find factors explaining different structures. The analysis is based on an unbalanced sample of 170 countries for 26 years at maximum (1990-2015). It allows us to track the spread of more integrated approaches of financial supervision during the last two decades. Unlike other papers that identify the size of an economy (usually negatively correlated), the experience of past crises (usually positively correlated), and the economic development (usually positively correlated) as major factors determining the degree of supervisory integration, I further show that the choice of a specific supervisory design is also a political issue. Results indicate inter alia that countries with better governance, more democracy, more wealth, and smaller populations are more prone to integrate supervision, whereas federalism seems

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[14]This corresponds to a current share of only 8% compared to nearly 30% for the full sample.

to render countries less susceptible to integration. What remains to be answered in a future effort is whether the main goal of financial supervision, i.e. to guarantee more financial stability, is indeed achieved. Current research has not yet found a clear answer. Which kind of supervisory system copes best with financial crises? Does the occurrence of a financial crisis lead to more integration? Do states exhibit a better performance after more integration has been imposed? These questions are all the more important as more integration of supervision is usually justified by more stability and the changing structure of financial markets, but the theoretical and empirical foundation until present remains rather unsatisfactory.

6 Conclusions

This dissertation deals with selected aspects of central banking and is based on a new dataset, which was compiled from a variety of sources. The main sources of information are central bank annual reports, which are available either online or in the library of the Bundesbank. Other main sources are the homepages of central banks, issues of the "Central Bank Directory" and issues of "How countries supervise their banking, insurers and securities markets" and the "Directory of Financial Regulators". Additional related central banking data, which is provided by international institutions such as the IMF and the BIS, is used throughout this dissertation. This work is divided into four main chapters. The first presents a rather general introduction to the data, while the following chapters each analyse a different aspect of it.

Chapter 2 introduces the dataset and presents the research areas it covers. This purely descriptive chapter contains inter alia explanations and illustrations concerning the distribution of exchange rate regimes, inflation targeting, and forms of central bank ownership and anticipates some of the findings of the following chapters. It shows that central banks are indeed subject to constant change in many fields. While the scientific central banking literature seems to be very much focused on the monetary policy topic, even more so in the wake of the Global Financial Crisis, the chapter shall point to some other areas which require further research and which also offer a variety of possibilities for such.

Chapter 3 explores the evolution of organisational structures within central banks. It is based on an analysis of close to 1,200 organisational charts. A result central to my examination of a balanced panel for 50 countries during the period 2004-2015 is that central banks worldwide have adapted their organisational structures. On average, they employ fewer people, they are composed of more organisational units, and they have become slightly less centralised. Unlike my statistical-descriptive findings, results of regression analyses are less clear cut. In particular, I cannot confirm a stable relation between the development of these organisational structures and country-specific factors such as budgetary pressure. This result insofar appears unproblematic to me as there are, on the one hand, generally known

differences between the private and the public sector and as, on the other hand, the main contribution of this chapter shall lie elsewhere. Firstly, where, in the case of private firms, output can be observed more easily, it is also easier to identify relations between institutional characteristics and output. For central banks, analyses are per se different due to the very special nature of central banks. For instance, the above-cited budgetary pressure might possibly not concern central banks at all. Secondly, the main contribution of this chapter is rather that it generates new data and shows a way of doing so by using organisational charts. For the near future, I expect to see, with better data availability, an increasing number of papers from the field of organisational empirics which focus on the public sector. For instance, it appears conceivable that future analyses combining new data and methods from the public choice field could contribute to a fundamentally better understanding of public bureaucracies.

Chapter 4 analyses determinants of the currency composition of international reserves under central bank management. It is based on panel data covering the years 1996-2015 for 38 central banks. The chapter shows that first and foremost currency pegs and trade can explain currency compositions. It further examines a possible break in the holding of EUR-denominated reserve assets as a consequence of the euro crisis. It is shown that the spread of the euro crisis has been a throwback for the EUR as an international currency, but also that it only had a partial impact on determinants of the currency composition of international reserves. The findings of this chapter on determinants are mostly in line with those of related influential papers such as Heller and Knight (1978), Dooley et al. (1989), and Eichengreen and Mathieson (2000). A time span of between 17 to nearly 40 years between these papers and my chapter suggests great stability of these determinants of currency compositions. Yet, more recent papers, which predicted an end of the USD domination as the world's number one currency, were in parts overtaken by actual events, especially by the euro crisis.

Chapter 5 discusses how financial market supervision is organised around the world. It examines over time how supervisory responsibilities for the three main financial protagonists, banks, securities markets, and insurance companies, are distributed. Analysing supervisory structures of 170 states for the period 1999-2015, I show a trend towards more integrated approaches of supervision. Formal statistical analyses further suggest a relation between country-specific political factors and the degree of supervisory integration, e.g. federal systems and more government effectiveness are associated with a higher degree of integration. Results of this part of the dissertation are largely intuitive. During the work on this chapter, the motion

in this subject has regularly shown up. Particularly noteworthy in the coming years should be for instance the approach of the EU towards this matter. One question concerns inter alia the role of the EBA being located in London after an exit of the UK from the EU. Another question is concerned with the future importance of national supervisors since the ECB has been able to strengthen its profile as banking supervisor for the euro area constantly since the outbreak of the crisis.

Contrary to common perception, central banks have undergone important evolutions and have been able to adapt quickly if needed. The chapters of this dissertation illustrate both how diverse these areas of change are and how diverse the central banking subject itself is. Some main findings and concluding remarks of the three essays are: Firstly, organisational structures are constantly evolving. However, the reasons behind these changes merit further investigation. Secondly, international reserves are still marked by a strong dominance of the USD, despite different predictions. Here, I expect to see a continuation of this USD dominance as an international currency for many years to come. Thirdly, financial supervision might become even more integrated in the next years. The question of which supervisory architecture performs best in terms of achieving more financial stability remains a highly important topic that also needs further investigation.

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Volumes of Central Bank Annual Reports

The following tables are part of the bibliography and provide an overview of all central bank annual reports that are available online or in the Bundesbank library and that were collected and analysed over the course of writing this dissertation.

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes-bank library
Afghanistan	Bank of Afghanistan	http://dab.gov.af/en/page/media/publications/dab-annual-report	2013-2015	/
Albania	Bank of Albania	https://www.bankofalbania.org/?crd=0,22,0,0,0&ln=Lng2	1999-2015	1998-2015
Algeria	Bank of Algeria	http://www.bank-of-algeria.dz/html/rapport.htm	2002-2014	/
Angola	National Bank of Angola	http://www.bna.ao/Conteudos/All/lista.aspx?idc=145&idsc=330&idl=1	2001-2014	/
Argentina	Central Bank of Argentina	http://www.bcra.gob.ar/PublicacionesEstadisticas/Informe_anual_al_congreso.asp	1993-2015	1998-2003
Armenia	Central Bank of Armenia	https://www.cba.am/en/SitePages/pperiodicals.aspx?Category=Annual%20report&pDate=0	2005-2015	1994-2012
Aruba	Central Bank of Aruba	http://www.cbaruba.org/cba/getDocumentList.do?firstItem=1	1998-2015	/
Australia	Reserve Bank of Australia	http://www.rba.gov.au/publications/annual-reports/rba/2016/	1997-2016	2000-2015
Austria	Austrian National Bank	https://www.oenb.at/Publikationen/Oesterreichische-Nationalbank/Geschaeftsbericht.html	1997-2015	1956-2015
Azerbaijan	The Central Bank of the Republic of Azerbaijan	https://en.cbar.az/pages/publications-researches/annual-reports/	2000-2015	2001-2010

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes-bank library
Bahamas	Central Bank of The Bahamas	http://www.centralbankbahamas.com/publications.php?cat=113&stub=main	2000-2015	2001-2010
Bahrain	Central Bank of Bahrain	http://www.cbb.gov.bh/page-p-reports_and_papers.htm	1999-2015	2001-2004
Bangladesh	Bangladesh Bank	https://www.bb.org.bd/pub/publictn.php	2001-2016	1973-2000
Barbados	Central Bank of Barbados	http://www.centralbank.org.bb/media/publications/annual-reports	1999-2015	1973-2009
Belarus	National Bank of the Republic of Belarus	http://www.nbrb.by/engl/publications/report/	1999-2015	1997-2009
Belgium	National Bank of Belgium	https://www.nbb.be/en/publications-and-research/annual-reports	1851-2016	1967-2015
Belize	Central Bank of Belize	https://www.centralbank.org.bz/publications-research/economic-publications/annual-reports	1998 - 2015	1982-1998
Bermuda	Bermuda Monetary Authority	http://www.bma.bm/publications/SitePages/Annual%20Reports.aspx	2000-2015	1978-2009
Bhutan	Royal Monetary Authority of Bhutan	https://www.rma.org.bt/annualreporttp.jsp	2000-2015	1985-2013
Bolivia	Central Bank of Bolivia	https://www.bcb.gob.bo/?q=pub_memorias-institucionales	1980-2015	1988-2004

Country	Name of central bank	Links to annual reports (AR)4	AR available on homepage/ downloaded	AR available in Bundes- bank library
Bosnia and Herzegovina	Central Bank of Bosnia and Herzegovina	http://www.cbbh.ba/Content/Archive/36?lang=en	1999-2015	1998-2015
Botswana	Bank of Botswana	http://www.bankofbotswana.bw/content/2009110614010-annual-report	2000-2015	1976-2015
Brazil	Central Bank of Brazil	http://www.bcb.gov.br/?ANNUALREPORT	1997-2011	1975-1985, 1997-2010
Brunei	Brunei Currency and Monetary Board	http://www.ambd.gov.bn/Lists/Publications#InplviewHash93cc1b2a-ad54-4bb3-9e5c-47ce1b8f8a5a=	2011-2015	/
Bulgaria	Bulgarian National Bank	http://www.bnb.bg/ResearchAndPublications/PubPeriodical/PubPAnnualReport/index.htm	1980 - 2015	1990-2015
Burundi	Bank of the Republic of Burundi	http://www.brb.bi/fr/content/rapport-annuel	2010-2015	1967-2004
Cambodia	National Bank of Cambodia	https://www.nbc.org.kh/english/publications/annual_reports.php	2002-2015	1957-1967
Canada	Bank of Canada	http://www.bankofcanada.ca/publications/annual-reports-quarterly-financial-reports/	1996-2015	1946-2010
Cape Verde	Bank of Cape Verde	www.bcv.cv/vEN/publicationsandspeeches/Relatorios/Relatorio Anual	1998-2012	1998-2011
Cayman Islands	Cayman Islands Monetary Authority	http://www.cimoney.com.ky/about_cima/about_feedra.aspx?id=458	1997-2014	/

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes- bank library
Chile	Central Bank of Chile	http://www.bcentral.cl/en/faces/bcentral/publicaciones	1998-2015	1984-2015
China	People's Bank of China	http://www.pbc.gov.cn/english/130739/index.html	2007-2014	1999-2015
Comoros	Central Bank of Comoros	http://www.banque-comores.km/index.php?page=le-rapport-annuel	2005-2015	2001-2013
Congo, Democratic Republic	Central Bank of Congo	http://www.bcc.cd/index.php?option=com_content&view=article&id=159&Itemid=87	2006-2014	1967-2009
Costa Rica	Central Bank of Costa Rica	http://www.bccr.fi.cr/bccr_home_page/publications/annual_report/	1995-2015	1955-2002
Croatia	Croatian National Bank	http://www.hnb.hr/en/analyses-and-publications/regular-publications/annual-report	1998-2015	1995-2013
Cuba	Central Bank of Cuba		/	1950-1960
Curaçao	Central Bank of Curaçao and Sint Maarten	http://www.centralbank.cw/index.php?eid=351	1997-2015	1977-2015
Cyprus	Central Bank of Cyprus	http://www.centralbank.gov.cy/nqcontent.cfm?a_id=9840	2001-2015	1995-2010

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes-bank library
Czech Republic	Czech National Bank	http://www.cnb.cz/en/about_cnb/performance/annual_reports/index.html	1997-2015	1993-2008
Denmark	National Bank of Denmark (Danmarks Nationalbank)	http://www.nationalbanken.dk/en/about_danmarks_nationalbank/accounts/Pages/default.aspx	1990-2015	1945-2012
Djibouti	Central Bank of Djibouti	http://www.banque-centrale.dj/rubriques/27	2009-2015	/
Dominican Republic	Central Bank of the Dominican Republic	http://www.bancentral.gov.do/bc/memorias/	2004-2014	1948-2012
Egypt	Central Bank of Egypt	http://www.cbe.org.eg/en/EconomicResearch/Publications/Pages/AnnualReport.aspx	2002-2014	1975-2011
El Salvador	Central Reserve Bank of El Salvador	http://www.bcr.gob.sv/esp/index.php?option=com_wrapper&view=wrapper&Itemid=330	2005-2015	1951-2015
Estonia	Bank of Estonia	http://www.eestipank.ee/en/publications/series/annual-report	1995-2015	1993-2011
Ethiopia	National Bank of Ethiopia	http://www.nbe.gov.et/publications/annualreport.html	2008-2015	occasional copies

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundesbank library
Fiji	Reserve Bank of Fiji	http://www.rbf.gov.fj/Publications-(1)/Reserve-Bank-Annual-Reports	2003-2015	1984-2015
Finland	Bank of Finland	https://www.suomenpankki.fi/en/media-and-publications/publications/annual-report/	1999-2015	1996-2013
France	Bank of France	https://publications.banque-france.fr/en/liste-chronologique/banque-de-france-annual-report-0	2006-2016	1991-2015
Gambia, The	Central Bank of The Gambia	http://www.cbg.gm/publications/annual_reports.html	2003-2015	1971-2002
Georgia	National Bank of Georgia	https://www.nbg.gov.ge/index.php?m=348	1998-2015	1999-2015
Germany	Deutsche Bundesbank	https://www.bundesbank.de/Navigation/DE/Publikationen/Berichte/ Geschaeftsberichte/geschaeftsberichte.html	1996-2014	1957-2015
Ghana	Bank of Ghana	https://www.bog.gov.gh/statistics/publication/annual-report	2004-2015	1984-2015
Greece	Bank of Greece	http://www.bankofgreece.gr/Pages/en/Publications/GovReport.aspx?Filter_By=8	1998-2015	1997-2013
Guatemala	Bank of Guatemala	http://www.banguat.gob.gt/inc/main.asp?id=14756&aud=1&lang=1	2003-2015	1961-2014
Guinea	Central Bank of the Republic of Guinea	http://www.bcrg-guinee.org/publications/publication-annuelle	2004-2010	1991-2004

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes- bank library
Guyana	Bank of Guyana	https://www.bankofguyana.org.gy/bog/economic-financial-framework/publications/annual-reports	2001-2015	1965-2015
Haiti	Bank of the Republic of Haiti		1998-2013	1979-1990
Honduras	Central Bank of Honduras	http://www.bch.hn/memoria_anual.php	1998-2015	1957-2006
Hong Kong SAR	Hong Kong Monetary Authority	http://www.hkma.gov.hk/eng/publications-and-research/annual-report/	1993-2015	1993-2015
Hungary	Magyar Nemzeti Bank (Central Bank of Hungary)	http://www.mnb.hu/en/publications/reports/annual-reports	2001-2015	1983-2007
Iceland	Central Bank of Iceland	http://www.cb.is/publications/publications/publications-all-archive/?all=1&	1997-2015	1955-2015
India	Reserve Bank of India	https://www.rbi.org.in/Scripts/AnnualReportMainDisplay.aspx	1998-2015	1990-2015
Indonesia	Bank Indonesia		2003-2012	occasional copies since 1953
Iran, Islamic Republic of	Central Bank of the Islamic Republic of Iran	http://www.cbi.ir/SimpleList/AnnualReview_en.aspx	2000-2014	1990-2013
Iraq	Central Bank of Iraq	/	/	1950-1971

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes- bank library
Ireland	Central Bank of Ireland	http://www.centralbank.ie/publications/Pages/corporate-publications.aspx	1998-2015	1951-2013
Israel	Bank of Israel	http://www.boi.org.il/en/NewsAndPublications/RegularPublications/Pages/Default.aspx	1955-2015	1955-2012
Italy	Bank of Italy	http://www.bancaditalia.it/pubblicazioni/relazione-annuale/index.html	1997-2015	1984-2015
Jamaica	Bank of Jamaica	http://www.boj.org.jm/publications/publications_show.php?publication_id=8	2003-2016	1961-2013
Japan	Bank of Japan	http://www.boj.or.jp/en/about/activities/act/index.htm/	2005-2015	1951-2014
Jordan	Central Bank of Jordan	http://www.cbj.gov.jo/pages.php?menu_id=12&local_type=0&local_id=0&local_ details=0&local_details1 =0&localsite_branchname=CBJ	2013-2015	1964-2015
Kazakhstan	National Bank of Kazakhstan	http://www.nationalbank.kz/?docid=28&switch=english	2000-2015	1996-2014
Kenya	Central Bank of Kenya	https://www.centralbank.go.ke/reports/cbk-reports-and-financial-statements/	2000-2015	1967-2009
Korea, South	Bank of Korea	http://eng.bok.or.kr/broadcast.action?menuNaviId=740	1998-2015	1958-2015
Kosovo	Central Bank of the Republic of Kosovo	http://bqk-kos.org/?id=102	2001-2015	/

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes- bank library
Kuwait	Central Bank of Kuwait	http://www.cbk.gov.kw/en/statistics-and-publication/publications/annual-reports.jsp	2000-2015	1970-2014
Kyrgyzstan	National Bank of the Kyrgyz Republic	http://www.nbkr.kg/index1.jsp?item=136&lang=ENG	2004-2015	1995-2006
Lao People's Democratic Republic	Bank of the Lao PDR	http://www.bol.gov.la/english/annualreports1.html	1993-2015	/
Latvia	Bank of Latvia	https://www.bank.lv/en/publications-r/annual-report	2000-2015	1993-2013
Lebanon	Central Bank of Lebanon		/	/
Lesotho	Central Bank of Lesotho	http://www.centralbank.org.ls/publications/default.php#Annual%20Reports	2003-2015	1981-2013
Liberia	Central Bank of Liberia	https://cbl.org.lr/2content.php?sub=155&related=29&third=155&pg= sp&pt=CBL%20Annual%20Reports	2005-2015	/
Libya	Central Bank of Libya	https://cbl.gov.ly/en/annual-reports/	/	/
Lithuania	Bank of Lithuania	http://www.lb.lt/periodicals	1994-2015	1994-2011

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes-bank library
Luxembourg	Central Bank of Luxembourg	http://www.bcl.lu/en/publications/Annual-reports/index.html	2000-2015	/
Macao SAR	Monetary Authority of Macao	http://www.amcm.gov.mo/en/research-statistics/annual-reports	2003-2015	2002-2015
Macedonia, the Former Yugoslav Republic of	National Bank of the Republic of Macedonia	http://www.nbrm.mk/?ItemID=6421C6EE3906F448B7E7A8E978BA933A	1992-2015	1992-2015
Madagascar	Central Bank of Madagascar	http://www.banque-centrale.mg/index.php?id=m6_4	1998-2015	1993-2010
Malawi	Reserve Bank of Malawi	http://www.rbm.mw/Publications/AnnualReports/	2006-2015	occasional copies 1964-2010
Malaysia	Central Bank of Malaysia	http://www.bnm.gov.my/index.php?ch=en_publication&pub=ararc	1998-2015	1963-2015
Maldives	Maldives Monetary Authority	http://www.mma.gov.mv/#/research/publication/reports/ar/Annual%20Report	1999-2015	/
Malta	Central Bank of Malta	https://www.centralbankmalta.org/annual-reports	1998-2015	1968-2015
Mauritania	Central Bank of Mauritania	http://www.bcm.mr/rapport-annuel-292	2005-2015	/
Mauritius	Bank of Mauritius	https://www.bom.mu/publications-and-statistics/publications/annual-report	1998-2015	1968-2010

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes-bank library
Mexico	Bank of Mexico	http://www.banxico.org.mx/publicaciones-y-discursos/publicaciones/informes-periodicos/anual/index-en.html	1999-2012	1944-1994
Moldova, Republic of	National Bank of Moldova	http://www.bnm.org/en/search?partitions%5B0%5D=674&post_types%5B674%5D%5B0%5D=846	1999-2015	1994-2008
Mongolia	Bank of Mongolia	https://www.mongolbank.mn/eng/aboutus.aspx	2002-2015	1993-2011
Montenegro	Central Bank of Montenegro	http://www.cb-cg.org/eng/index.php?mn1=publications&mn2=annual_reports&mn3=cbcg_annual_report	2001-2015	2003-2015
Morocco	Central Bank of Morocco	http://www.bkam.ma/Publications-statistiques-et-recherche/Publications-institutionnelles/Rapport-annuel-presente-a-sm-le-roi	2000-2015	1959-2008
Mozambique	Bank of Mozambique	http://www.bancomoc.mz/fm_pgTab1.aspx?id=106	2000-2015	/
Myanmar	Central Bank of Myanmar	http://www.cbm.gov.mm/content/annual-report	2006-2011	/
Namibia	Bank of Namibia	https://www.bon.com.na/Publications/Annual-Reports.aspx	1990-2015	1990-2015
Nepal	Central Bank of Nepal	https://nrb.org.np/red/annualrpt.php?tp=annual_reports&&vw=15	2003-2014	1966-2000
Netherlands	Netherlands Bank	http://www.dnb.nl/en/news/dnb-publications/annual-report/index.jsp	1998-2015	1981-2011

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes-bank library
New Zealand	Reserve Bank of New Zealand	http://www.rbnz.govt.nz/about-us/annual-reports	1997-2015	1954-2014
Nicaragua	Central Bank of Nicaragua	http://www.bcn.gob.ni/publicaciones/periodicidad/anual/informe_anual/index.php	1999-2015	/
Nigeria	Central Bank of Nigeria	http://www.cbn.gov.ng/Documents/cbnannualreports.asp	2002-2014	occasional copies 1959-2004
Norway	Central Bank of Norway (Norges Bank)	http://www.norges-bank.no/en/Published/Publications/Annual-Report/	1998-2016	1955-2008
Oman	Central Bank of Oman	http://www.cbo.gov.om/	2002-2015	1976-2014
Pakistan	State Bank of Pakistan	http://www.sbp.org.pk/reports/annual/index-apr.htm	2000-2015	1950-2015
Palestine	Palestine Monetary Authority	http://www.pma.ps/en-us/publications/annualreports.aspx	2002-2015	/
Papua New Guinea	Bank of Papua New Guinea	https://www.bankpng.gov.pg/about-us/annual-reports/	2001-2015	1977-2009
Paraguay	Central Bank of Paraguay	https://www.bcp.gov.py/memorias-i17	2001-2015	1954-1992

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes-bank library
Peru	Central Reserve Bank of Peru	http://www.bcrp.gob.pe/publications/annual-report.html	1998-2015	1998-2005
Philippines	Central Bank of the Philippines (Bangko Sentral ng Pilipinas)	http://www.bsp.gov.ph/publications/regular_annual.asp	1999-2015	1953-2013
Poland	National Bank of Poland	http://www.nbp.pl/homen.aspx?f=/en/publikacje/r_roczny/r_roczny.html	1997-2015	1989-2015
Portugal	Bank of Portugal	https://www.bportugal.pt/en/publications/banco-de-portugal/all/112	1996-2015	1994-2014
Romania	National Bank of Romania	http://www.bnro.ro/PublicationDocuments.aspx?icid=6874	1998-2015	1991-2015
Russian Federation	Central Bank of the Russian Federation	http://www.cbr.ru/Eng/publ/?PrtId=god	1997-2015	1992-2015
Rwanda	National Bank of Rwanda	http://www.bnr.rw/index.php?id=130	2003-2015	/
Samoa	Central Bank of Samoa	http://www.cbs.gov.ws/index.php/media/publications/annual-reports/	2002-2011	1984-2011
San Marino	Central Bank of the Republic of San Marino	http://www.bcsm.sm/site/en/home/publications-and-statistics/annual-reports.html	2005-2015	/

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes- bank library
Sao Tomé e Príncipe	Central Bank of Sao Tomé e Príncipe	http://www.bcstp.st/RelatoriosAnuais.aspx	2001-2013	/
Saudi Arabia	Saudi Arabian Monetary Agency	http://www.sama.gov.sa/en-US/EconomicReports/Pages/AnnualReport.aspx	1961-2015	/
Serbia	National Bank of Serbia	http://www.nbs.rs/internet/english/90/90_4/index.html	1999-2015	2002-2015
Seychelles	Central Bank of Seychelles	http://www.cbs.sc/Publications/annualreport.jsp	2001-2015	1984-2005
Sierra Leone	Bank of Sierra Leone	http://www.bsl.gov.sl/Publications.html	2012-2014	1965-2009
Singapore	Monetary Authority of Singapore	http://www.mas.gov.sg/about-mas/financial-statements-and-reports/annual-reports.aspx	1997-2015	1967-2010
Slovakia	National Bank of Slovakia	http://www.nbs.sk/en/publications-issued-by-the-nbs/annual-report	1993-2015	1993-2014
Slovenia	Bank of Slovenia	http://www.bsi.si/iskalniki/letna_porocila_en.asp?MapaId=711	1996-2015	1991-2015
Solomon Islands	Central Bank of Solomon Islands	http://www.cbsi.com.sb/publications/annual-report/	1999-2015	1982-1999

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes- bank library
South Africa	South African Reserve Bank	https://www.resbank.co.za/Publications/Reports/Pages/Annual-Reports.aspx	2001-2016	1991-2015
Spain	Bank of Spain	http://www.bde.es/bde/en/secciones/informes/Publicaciones_an/Informe_anual/	1998-2015	1991-2010
Sri Lanka	Central Bank of Sri Lanka	http://www.cbsl.gov.lk/htm/english/10_pub/p_1.html	2008-2015	1985-2003
Sudan	Bank of Sudan	http://www.cbos.gov.sd/en/node/906	2002-2014	1960-1989
Suriname	Central Bank of Suriname	https://www.cbvs.sr/publicaties/cbvs-rapporten/jaarrapporten	1957-2014	/
Swaziland	The Central Bank of Swaziland	http://www.centralbank.org.sz/about/annual/index.php	2008-2015	1979-2015
Sweden	Sveriges Riksbank	http://www.riksbank.se/en/Press-and-published/Published-from-the-Riksbank/Annual-Report/	1997-2015	1971-2015
Switzerland	Swiss National Bank	http://www.snb.ch/de/iabout/pub/annrep/id/pub_annrep	1996-2015	/
Taiwan	Central Bank of the Republic of China	http://www.cbc.gov.tw/lp.asp?CtNode=776&CtUnit=436&BaseDSD=7&mp=2	1999-2015	1962-2015

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes- bank library
Tajikistan	National Bank of the Republic of Tajikistan	http://nbt.tj/en/about/annual_reports.php	2005-2006	/
Tanzania, United Republic of	Bank of Tanzania	https://www.bot.go.tz/Publications/publicationsAndStatistics.asp?sec=Financial_Statements	2002-2015	/
Thailand	Bank of Thailand	https://www.bot.or.th/English/ResearchAndPublications/Report/Pages/default.aspx	1998-2015	1998-2010
Timor-Leste	Central Bank of Timor-Leste	https://www.bancocentral.tl/en/go/bctl-annual-report	2001-2015	/
Tonga	National Reserve Bank of Tonga	/	/	1993-2012
Trinidad and Tobago	Central Bank of Trinidad and Tobago	http://www.central-bank.org.tt/content/annual-publications	2000-2015	1965-2015
Tunisia	Central Bank of Tunisia	https://www.bct.gov.tn/bct/siteprod/page.jsp?id=77	1959-2015	1995-2015
Turkey	Central Bank of the Republic of Turkey	http://www.tcmb.gov.tr/wps/wcm/connect/TCMB+EN/TCMB+EN/Main+Menu /PUBLICATIONS/Reports/Annual+Reports	1996-2015	1970-2015
Turkmenistan	Central Bank of Turkmenistan	/	/	/

Country	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes-bank library
Uganda	Bank of Uganda	https://www.bou.or.ug/bou/publications_research/annual_reports.html	1997-2015	1996-2013
Ukraine	National Bank of Ukraine	https://bank.gov.ua/control/en/publish/category;jsessionid =535A11367D32C0A046B58B6DCCC50E97?cat_id=57508	2001-2015	
United Arab Emirates	Central Bank of the United Arab Emirates	http://www.centralbank.ae/en/index.php?option=com_content&view=article&id=100&Itemid=329	2001-2015	1980-2005
United Kingdom	Bank of England	http://www.bankofengland.co.uk/archive/Pages/digitalcontent/historicpubs/annualreport.aspx	1947-2015	1999-2014
United States	Federal Reserve	https://www.federalreserve.gov/publications/annual-report/default.htm	1995-2015	1935-2015
Vanuatu	Reserve Bank of Vanuatu	http://www.rbv.gov.vu/index.php?option=com_content&view=category&id=8&Itemid=4&lang=en	2000-2015	1991-2011
Vietnam	State Bank of Vietnam	http://www.sbv.gov.vn/webcenter/portal/en/home/rm/public/nreport	2005-2014	1994-2008
Yemen	Central Bank of Yemen	http://www.centralbank.gov.ye/newslettar.aspx?keyid=47&pid=46&lang=1&cattype=6	2005-2013	/
Zambia	Bank of Zambia	http://www.boz.zm/annual-reports.htm	2013-2015	2000-2013
Zimbabwe	Reserve Bank of Zimbabwe	http://www.rbz.co.zw/publications.html	2004-2015	1994-2004

Currency union	Name of central bank	Links to annual reports (AR)	AR available on homepage / downloaded	AR available in Bundes- bank library
West African Economic and Monetary Union	Central Bank of West African States (BCEAO)	http://www.bceao.int/inc_rub_regulieres-108-60-fr-asc.html?debut=10#pagination	2002 - 2015	1990-2008
Economic and Monetary Community of Central Africa	Bank of Central African States (BEAC)	/	/	2002-2007
Euro area	European Central Bank (ECB)	http://www.ecb.europa.eu/pub/annual/html/index.en.html	1991 - 2016	1995-2012
Eastern Caribbean Currency Union	Eastern Caribbean Central Bank (ECCB)	http://www.eccb-centralbank.org/Publications/index.asp	2001/2002 - 2014/2015	1984 -2006, 2008-2009

Volumes of the "Central Bank Directory"

The following table is part of the bibliography and provides an overview of all volumes of the "Central Banking Directory" that were collected and analysed over the course of writing this dissertation.

Volumes of the "Central Bank Directory"

Year	Name	Publisher	Editor
1991	The Central Banking Directory	Central Banking Publications, Morgan Stanley	Pringle, R.
1992	The Central Banking Directory	Central Banking Publications, Morgan Stanley	Pringle, R.
1993	The Central Banking Directory	Central Banking Publications, Morgan Stanley	Pringle, R.
1994	The Morgan Stanley Central Bank directory	Central Banking Publications, Morgan Stanley	Pringle, R.
1995	The Morgan Stanley Central Bank directory	Central Banking Publications, Morgan Stanley	Pringle, R.
1996	The Morgan Stanley Central Bank directory	Central Banking Publications, Morgan Stanley	Pringle, R.
1997	The Morgan Stanley Central Bank directory	Central Banking Publications, Morgan Stanley	Pringle, R.
1998	The Morgan Stanley Central Bank Directory	Central Banking Publications, Morgan Stanley	Pringle, R.
1999	The Morgan Stanley Dean Witter Central Bank Directory	Central Banking Publications, Morgan Stanley, Dean Witter	Pringle, R.
2000	The Morgan Stanley Dean Witter central bank directory	Central Banking Publications, Morgan Stanley, Dean Witter	Pringle, R.
2001	The Morgan Stanley Dean Witter Central Bank Directory	Central Banking Publications, Morgan Stanley Dean Witter	Pringle, R.
2002	The Morgan Stanley Central Bank Directory	Central Banking Publications, Morgan Stanley	Pringle, R.
2003	The Morgan Stanley Central Bank Directory	Central Banking Publications, Morgan Stanley	Pringle, R.
2004	The Morgan Stanley Central Bank Directory	Central Banking Publications, Morgan Stanley	Pringle, R.
2005	The Morgan Stanley Central Bank directory	Central Banking Publications, Morgan Stanley	Pringle, R.
2006	The Morgan Stanley central bank directory	Central Banking Publications, Morgan Stanley	Pringle, R.
2007	The Morgan Stanley Central Bank directory	Central Banking Publications, Morgan Stanley	Pringle, R.
2008	The Morgan Stanley Central Bank Directory	Central Banking Publications, Morgan Stanley	Pringle, R.
2009	The Dexia Central Bank Directory	Central Banking Publications, Dexia	Pringle, R.
2010	The Central Bank Directory	Central Banking Publications, Dexia	Pringle, R.
2011	The Central Cank Directory	Central Banking Publications, Dexia	Pringle, R.
2012	Central Bank Directory	Central Banking Publications, Franklin Templeton Investments	Horáková, M. and Jordan, A.
2013	Central Bank Directory	Central Banking Publications, Franklin Templeton Investments	Horáková, M. and Jordan, A.
2014	Central Bank Directory	Central Banking Publications, Franklin Templeton Investments	Horáková, M. and Jordan, A.
2015	Central Bank Directory	Central Banking Publications, Franklin Templeton Investments	Horáková, M. and Jordan, A.

Volumes of "How Countries Supervise their Banks, Insurers and Securities Markets"

The following table is part of the bibliography and provides an overview of all volumes of the "How countries supervise their banks, insurers and securities markets" that were collected and analysed over the course of writing this dissertation.

Volumes of "How Countries Supervise their Banks, Insurers and Securities Markets"

Year	Name	Publisher	Editor
1999	How countries supervise their banks, insurers and securities markets	Central Banking Publications, Freshfields	Courtis, N.
2000	How countries supervise their banks, insurers and securities markets	Central Banking Publications, Freshfields	Courtis, N.
2002	How countries supervise their banks, insurers and securities markets	Central Banking Publications, Freshfields, Bruckhaus, Deringer	Courtis, N.
2003	How countries supervise their banks, insurers and securities markets	Central Banking Publications, Freshfields, Bruckhaus, Deringer	Courtis, N.
2004	How countries supervise their banks, insurers and securities markets	Central Banking Publications, Freshfields, Bruckhaus, Deringer	Courtis, N.
2005	How countries supervise their banks, insurers and securities markets	Central Banking Publications, Freshfields, Bruckhaus, Deringer	Courtis, N.
2006	How countries supervise their banks, insurers and securities markets	Central Banking Publications, Freshfields, Bruckhaus, Deringer	Courtis, N.
2007	How countries supervise their banks, insurers and securities markets	Central Banking Publications, Freshfields, Bruckhaus, Deringer	Pringle, R.
2008	How countries supervise their banks, insurers and securities markets	Central Banking Publications	Pringle, R.
2009	How countries supervise their banks, insurers and securities markets	Central Banking Publications	Pringle, R.
2010	How countries supervise their banks, insurers and securities markets	Central Banking Publications	Pringle, R.
2011	How countries supervise their banks, insurers and securities markets	Central Banking Publications	Horáková, M.
2012	How countries supervise their banks, insurers and securities markets	Central Banking Publications	Horáková, M.
2013	How countries supervise their banks, insurers and securities markets	Central Banking Publications	Horáková, M. and Jordan, A.
2014	Directory of financial regulators	Central Banking Publications	Horáková, M. and Jordan, A.
2016	Directory of financial regulators	Central Banking Publications	Horáková, M. and Glass, E.

Appendix

Appendix to Chapter 2 - Organisational Aspects of Central Banks

Table 6.1: Countries in sample

Afghanistan	Croatia	Italy	Nicaragua	Syria
Albania	Cuba	Jamaica	Nigeria	Taiwan
Algeria	Curaçao and Sint	Japan	Norway	Tajikistan
Angola	Maarten	Jordan	Oman	Tanzania
Argentina	Cyprus	Kazakhstan	Pakistan	Thailand
Armenia	Czech Republic	Kenya	Palestine	Timor-Leste
Aruba	Denmark	Korea	Papua New Guinea	Tonga
Australia	Djibouti	Kuwait	Paraguay	Trinidad and
Austria	Dominican	Kyrgyz Republic	Peru	Tobago
Azerbaijan	Republic	Lao P.D.R.	Philippines	Tunisia
Bahamas	Ecuador	Latvia	Poland	Turkey
Bahrain	Egypt	Lebanon	Portugal	Turkmenistan
Bangladesh	El Salvador	Lesotho	Qatar	Uganda
Barbados	Eritrea	Liberia	Romania	Ukraine
Belarus	Estonia	Libya	Russia	United Arab
Belgium	Ethiopia	Lithuania	Rwanda	Emirates
Belize	Fiji	Luxembourg	Samoa	United Kingdom
Bermuda	Finland	Macao	Sao Tomé e	United States of
Bhutan	France	Macedonia	Príncipe	America
Bolivia	Gambia	Madagascar	San Marino	Uruguay
Bosnia and	Georgia	Malawi	Saudi Arabia	Uzbekistan
Herzegovina	Germany	Malaysia	Serbia	Vanuatu
Botswana	Ghana	Maldives	Seychelles	Venezuela
Brazil	Greece	Malta	Sierra Leone	Vietnam
Brunei Darussalam	Guatemala	Mauritania	Singapore	Yemen
Bulgaria	Guinea	Mauritius	Slovak Republic	Zambia
Burundi	Guyana	Mexico	Slovenia	Zimbabw
Cambodia	Haiti	Moldova	Solomon Islands	Community of
Canada	Honduras	Mongolia	Somalia	Central African
Cape Verde	Hong Kong	Montenegro	South Africa	States
Cayman Islands	Hungary	Morocco	South Sudan	Eastern
Chile	Iceland	Mozambique	Spain	Carribean
China	India	Myanmar	Sri Lanka	Economic
Colombia	Indonesia	Namibia	Sudan	Community of
Comoros	Iran	Nepal	Suriname	West African
Congo	Iraq	Netherlands	Swaziland	States
Costa Rica	Ireland	New Zealand	Sweden	Currency Union
	Israel		Switzerland	Euro Area

Table 6.2: Central banks established since 1989

Year of establishment	Country
1989	Bulgaria
1990	Belarus
	Kyrgyzstan
	Namibia
	Russian Federation
1991	Croatia
	Georgia
	Moldova
	Slovenia
	Tajikistan
	Ukraine
	Uzbekistan
1992	Albania
	Azerbaijan
	Macedonia
	Sao Tomé e Príncipe
	Turkmenistan
1993	Armenia
	Czech Republic
	Eritrea
	Kazakhstan
	Slovakia
1994	Palestine
	Qatar
1996	Cayman Islands
1997	Bosnia and Herzegovina
1998	Luxembourg
1999	Liberia
2008	Kosovo
2011	South Sudan
	Timor-Leste

Sources: Central bank annual reports, Central Bank Directory.

Table 6.3: Foreign representatives in 2015

	Brussels	Frankfurt	Paris	London	Moscow	New York	Washington	Beijing	Hong Kong	Shanghai	Kuala Lumpur	Singapore	Tokyo	Sydney	Total
Australia				1		1		1							3
Austria	1					1									2
Belgium	1		1												2
Canada						1									1
China		1		1		1							1	1	5
Congo	1														1
France						1									1
Germany						1							1		2
Hong Kong						1									1
Indonesia				1		1						1	1		4
Israel						1									1
Italy				1		1							1		3
Japan		1	1	1		1	1	1	1						7
Kazakhstan					1										1
Korea, South		1		1		1		1					1		5
Malaysia				1		1		1							3
Mongolia				1											1
Norway				1		1				1		1			4
Singapore				1		1		1							3
Switzerland												1			1
Taiwan				1		1									2
Tajikistan					1										1
Thailand				1		1		1							3
Turkey		1		1	1	1	1	1			1		1	1	9
BCEAO			1												1
ECB	1							1							2
BEAC			1												1
Total	4	4	4	13	3	18	3	7	1	1	1	3	7	2	71

Sources: Central bank annual reports. central bank homepages.

Table 6.4: Central banks with private ownership in 2016 (1)

Country	Name of central bank	Ownership rule	Trading of shares	Dividend payments	Biggest shareholders in 2016	Stock per-form-ance in 2016
Belgium	National Bank of Belgium	50% state, 50% others.	Yes. 50% of shares traded on Euronext Brussels.	1.5 EUR per share plus 50% of net proceeds from National Bank's statutory portfolio.	Belgian state: 50%, no information about other shareholders reported.	-9.2%
Greece	Bank of Greece	Max. 35% state.	Yes. Share traded on Athens Stock Exchange.	12% of capital plus share of net profits.	State 8.9%, Dimensional Fund Advisors 0.9%, Global X Management Company 0.3%.	+15.6%
Italy	Bank of Italy	Mixed ownership. Mainly banks, insurance and reinsurance companies.	No.	Max. 6 per cent of capital out of net profits.	Intesa Sanpaolo SpA 31.2%, Unicredit SpA 22.1%, Generali Italia SpA 6.3%.	/
Japan	Bank of Japan	55% state, 45% others.	Yes. Shares traded OTC on JASDAQ Securities Exchange.	Max. 5% on paid-up capital.	Japanese state 55%.	-10.0
San Marino	Banca Centrale della Re-pubblica di San Marino	Mixed ownership. State majority, banks, fin. companies and insurance firms of San Marino.	No.	Not reported.	State 67%, Cassa di Risparmio della Repubblica di San Marino SpA 14%, Banca di San Marino SpA 6%.	/

Sources: central bank homepages, Bloomberg, Bank of Italy (2017b), Central Bank of the Republic of Turkey (2016), Swiss National Bank (2016a), Swiss National Bank (2017), South African Reserve Bank (2017).

Table 6.5: Central banks with private ownership in 2016 (2)

Country	Name of central bank	Ownership rule	Trading of shares	Dividend payments	Biggest shareholders in 2016	Stock performance in 2016
South Africa	Reserve Bank of South Africa	100% private ownership.	Yes. Shares traded on OTC Transfer Facility market (OTCSTF market) within Reserve Bank.	10% on the paid-up share capital of the bank out of net profits.	Holding limited to max. 10.000 shares out of 2.000.000.	
Switzerland	Swiss National Bank	Mixed ownership. Participatory and property rights of shareholders constrained by law.	Yes. Shares traded on SIX Swiss Exchange.	Max. 6% of share capital.	State 52.4%, Prof. Siegert 6.5%, other private shareholders 41.1%.	+59.2%
Turkey	Central Bank of Turkey	Min. 51% state ownership.	No.	6% of the nominal value of share capital out of net profit, possibility of second dividend.	Turkish Treasury 55%, Ziraat Bankası A.Ş. 19%, Mervak İç ve Dış Ticaret A.Ş. 5%.	/
United States	Federal Reserve	Regional Federal Reserve banks owned by private banks.	No.	Annual dividend of 6%.	No breakdown available.	/

Sources: central bank homepages, Bloomberg, Bank of Italy (2017b), Central Bank of the Republic of Turkey (2016), Swiss National Bank (2016a), Swiss National Bank (2017), South African Reserve Bank (2017).

Appendix to Chapter 3 - Evolving Hierarchies in Central Banks

Figure 6.1: Areas of major organisational change in central banks (% of 40 central banks)
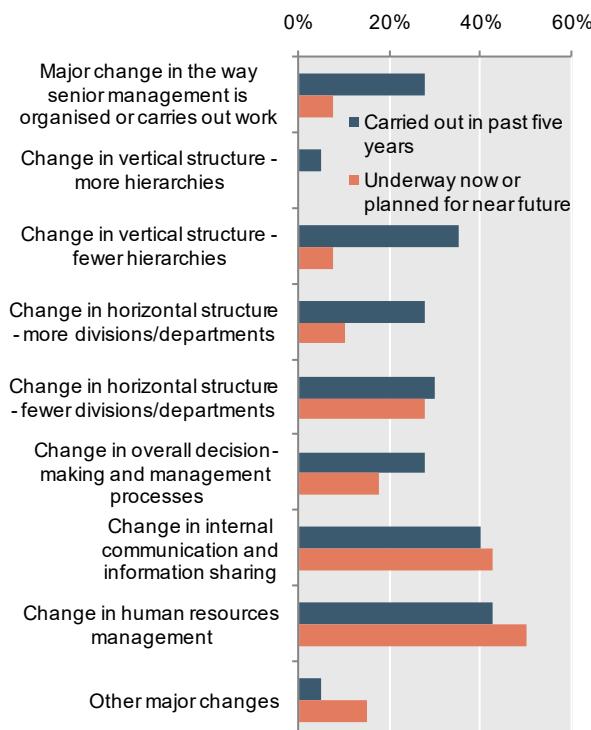
Source: Ortiz (2009, p. 165).
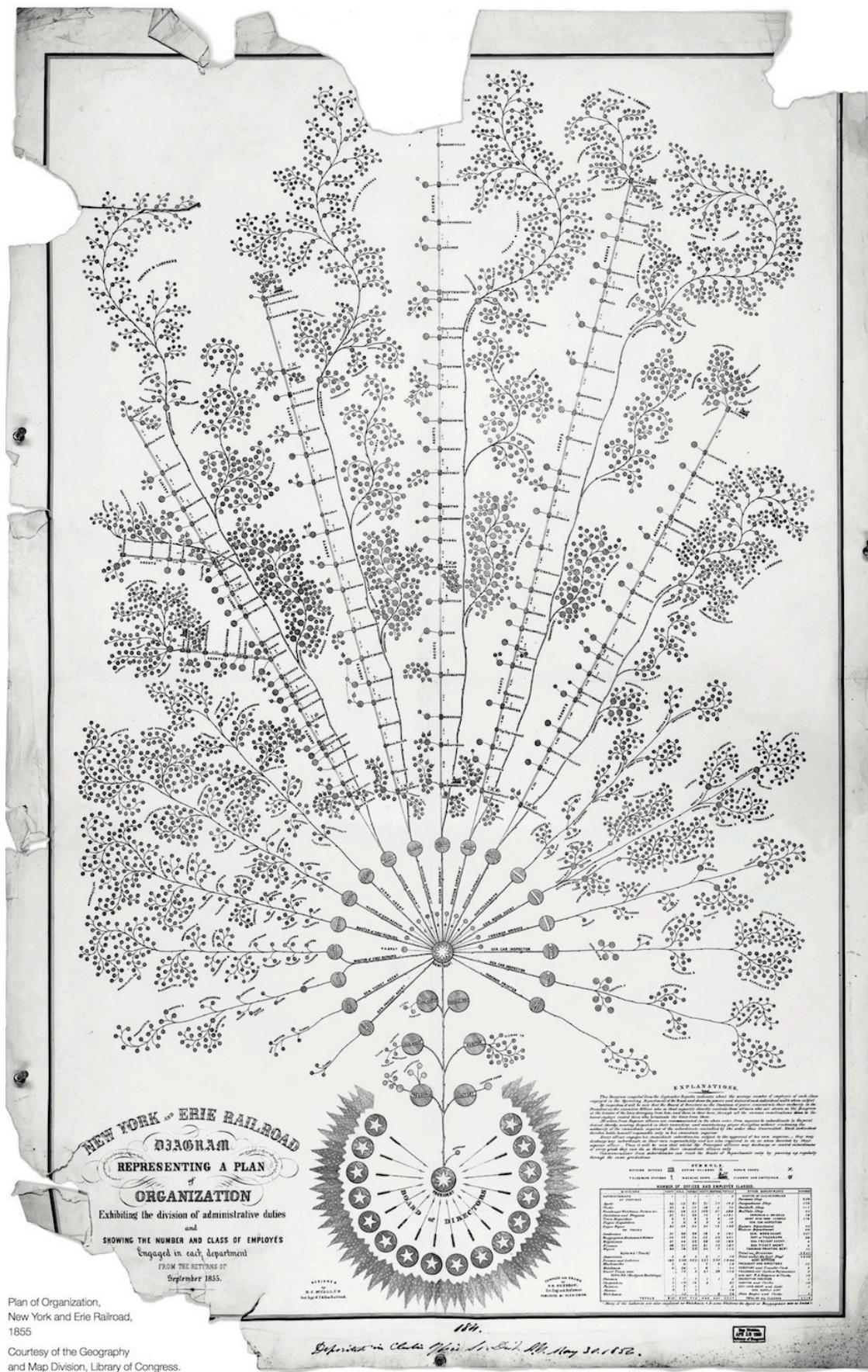
Figure 6.3: Organisational chart Bank of Italy (1894)
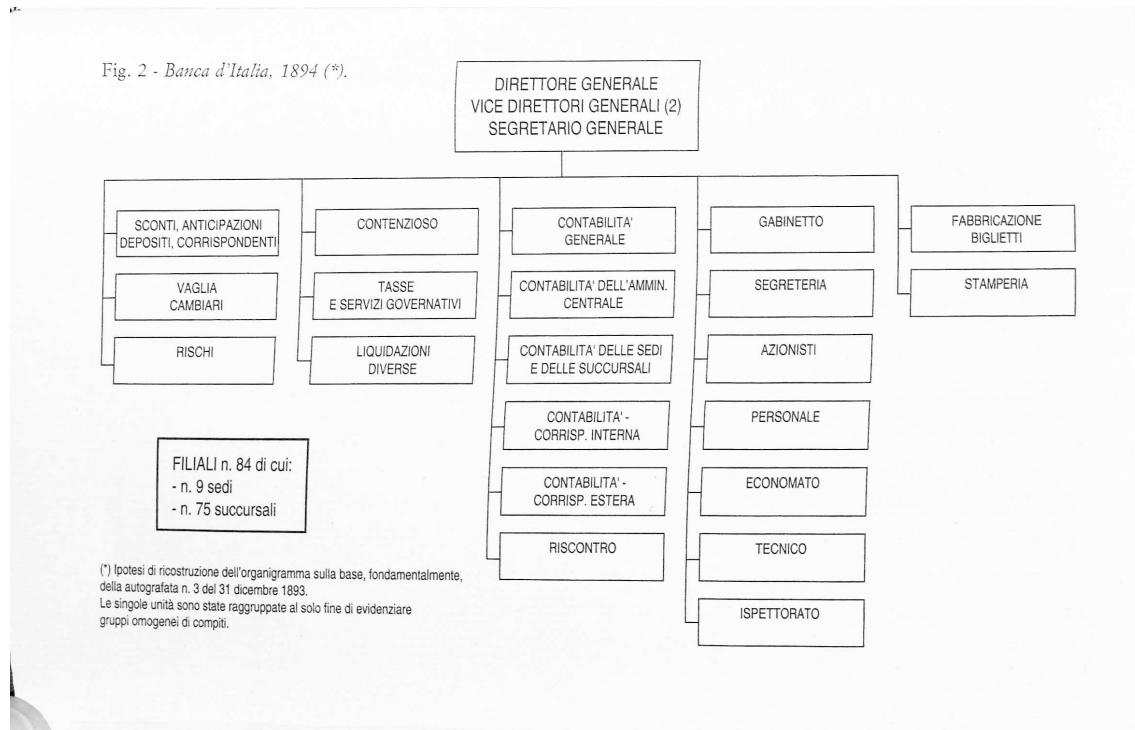
Source: Contessa and De Mattia (1993, p. 209).

Figure 6.4: Organisational chart Bank of Canada (1936)
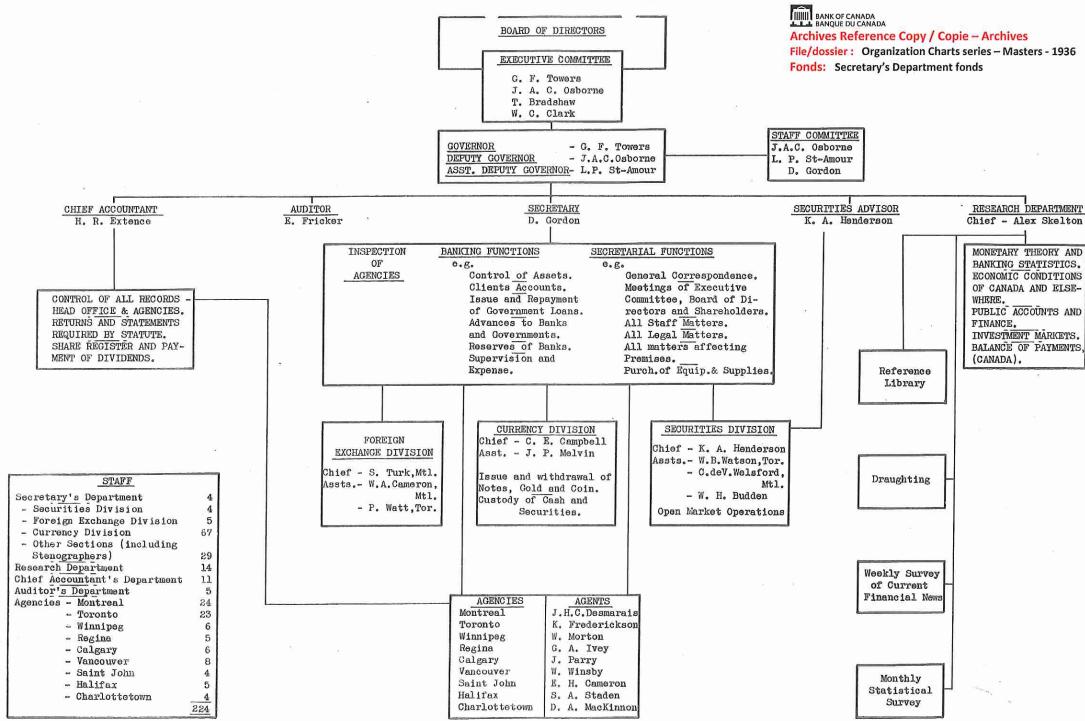
Source: Bank of Canada Archives. Secretary's Department fonds (2016)

Figure 6.5: Organisational chart Oesterreichische Nationalbank (1946)

Source: Weber (2017, p. 538).

Figure 6.6: Organisational chart Norges Bank (1985)

Source: Norges Bank (1985)

Figure 6.7: Organisational chart Bank of England (2000)

| Kevin Butler | Eddie George |
| Auditor | Governor |

Mervyn King	David Clementi	Alex Jarvis
Deputy Governor	Deputy Governor	General Manager
Monetary Stability	Financial Stability	Printing Works

Monetary Analysis and Statistics	Financial Market Operations	Europe	Financial Stability
John Vickers Executive Director	**Ian Plenderleith** Executive Director	**John Townend** Director for Europe	**Alastair Clark** Executive Director
Nigel Jenkinson Deputy Director	**Bill Allen** Deputy Director — **Merlyn Lowther** Deputy Director and Chief Cashier		**Paul Tucker** Deputy Director

Andrew Bailey
International
Economic Analysis

Ian Bond
Structural Economic
Analysis

Roger Clews
Monetary Instruments
and Markets

Spencer Dale
Monetary Assessment
and Strategy

Neal Hatch
Conjunctural
Assessment and
Projections

Agencies – see page 31

Philip Turnbull
Monetary and
Financial Statistics

Peter Sinclair
Centre for Central
Banking Studies

Peter Andrews
Gilt-Edged and
Money Markets

Clifford Smout
Foreign Exchange

David Ingram
Risk Analysis
and Monitoring

Christopher Mann
Market Services

Colin Mann
Banking Services

Geoff Sparkes
Registrar's Department

Co-ordination Unit
for Europe

Alex Bowen
Financial
Intermediaries

Peter Brierley
Domestic Finance

Andy Haldane
International Finance

Patricia Jackson
Regulatory Policy

John Trundle
Market Infrastructure

Central Services

| **Gordon Midgley** Finance Director Finance and Resources | **John Footman** Director of Personnel |

Andy Brookes
(wef 1.10.00)
Management Services

Michael Craig
Investment Unit

David Pennington
Property Services
and Security

John Matheson
Personnel

Peter Rodgers
Secretary of the Bank

**Advisers to the
Governors**

Len Berkowitz
Legal

**Professor Richard
Brealey**
Financial Stability

Sir Peter Petrie
European and
Parliamentary Affairs

Source: Bank of England (2000, p. 13)

Figure 6.8: Organisational chart Banque de France (2015)

Source: Banque de France (2016, pp. 128-129)

Table 6.6: Countries in sample (continents)

Europe	Americas	Asia	Australia and Oceania	Africa
Austria	Canada	Bhutan	Australia	Ghana
Belgium	Cayman Islands	Hong Kong	Fiji	Mozambique
Bosnia	Chile	Japan	Solomon Islands	Uganda
Bulgaria	Colombia	Korea, South		
Croatia	El Salvador	Lao PDR		
Cyprus	Guatemala	Macao		
Czech Republic	Haiti	Malaysia		
Denmark		Maldives		
Finland		Qatar		
France		Singapore		
Germany		Taiwan		
Hungary		Thailand		
Latvia		Turkey		
Lithuania				
Luxembourg				
Poland				
Romania				
Serbia				
Slovak Republic				
Slovenia				
Spain				
Sweden				
United Kingdom				
Ukraine				

Table 6.7: Total number of elements; small and large central banks

	Small central banks			Large central banks		
Year	**Mean**	**Median**	**Standard deviation**	**Mean**	**Median**	**Standard deviation**
2004	34.58	24.00	26.63	42.58	39.00	20.88
2005	36.25	26.00	26.10	36.90	33.00	19.20
2006	34.64	25.00	25.93	43.10	37.50	21.79
2007	37.88	33.50	26.35	42.33	34.00	22.64
2008	38.21	33.00	26.60	42.20	34.50	21.93
2009	38.39	33.00	26.29	45.64	34.00	26.67
2010	34.88	30.00	22.73	48.57	35.00	27.84
2011	34.93	33.00	22.23	52.24	47.00	31.25
2012	35.96	30.00	22.81	50.08	37.00	30.58
2013	36.19	27.00	24.30	51.54	41.00	32.69
2014	33.78	24.00	23.98	55.26	47.00	33.94
2015	27.71	21.00	17.13	52.00	38.00	35.31
Average	35.55	27.00	24.32	47.37	38.00	28.10

Table 6.8: Height; small and large central banks

	Small central banks			Large central banks		
Year	**Mean**	**Median**	**Standard deviation**	**Mean**	**Median**	**Standard deviation**
2004	4.08	4.00	1.22	4.21	4.00	0.85
2005	4.30	4.00	1.14	4.48	4.00	1.50
2006	4.21	4.00	1.10	4.20	4.00	0.77
2007	4.15	4.00	1.03	4.19	4.00	0.81
2008	4.18	4.00	1.33	4.30	4.00	0.80
2009	4.18	4.00	1.33	4.36	4.00	0.79
2010	4.04	4.00	1.04	4.48	4.00	1.08
2011	4.04	4.00	0.90	4.33	4.00	1.15
2012	4.13	4.00	0.99	4.40	4.00	1.12
2013	4.14	4.00	1.06	4.43	4.00	1.23
2014	4.09	4.00	1.00	4.41	4.00	1.22
2015	3.76	4.00	0.97	4.40	4.00	1.22
Average	4.12	4.00	1.09	4.36	4.00	1.07

Table 6.9: Span of control governor; small and large central banks

	Small central banks			Large central banks		
Year	**Mean**	**Median**	**Standard deviation**	**Mean**	**Median**	**Standard deviation**
2004	7.56	6.00	5.45	8.53	7.00	5.73
2005	7.11	6.00	5.12	7.95	6.00	6.07
2006	7.07	6.00	5.18	7.80	6.50	5.15
2007	7.07	6.00	5.01	8.00	7.00	5.00
2008	7.32	7.00	4.70	6.45	5.50	4.66
2009	7.46	7.00	4.86	7.09	6.00	5.21
2010	7.58	7.00	4.80	6.57	6.00	4.86
2011	7.52	7.00	4.85	7.38	6.00	4.74
2012	7.67	7.00	5.04	7.28	5.00	5.32
2013	7.24	7.00	4.47	7.68	6.00	5.60
2014	6.87	7.00	4.71	8.41	6.00	5.71
2015	8.41	8.00	4.60	7.68	6.00	5.19
Average	7.38	7.00	4.85	7.57	6.00	5.23

Table 6.10: Normalised Herfindahl centralisation; small and large central banks

	Small central banks			Large central banks		
Year	**Mean**	**Median**	**Standard deviation**	**Mean**	**Median**	**Standard deviation**
2004	0.30	0.17	0.29	0.17	0.13	0.13
2005	0.26	0.13	0.25	0.25	0.14	0.25
2006	0.29	0.15	0.28	0.17	0.13	0.17
2007	0.26	0.13	0.25	0.20	0.14	0.22
2008	0.27	0.12	0.28	0.16	0.11	0.16
2009	0.26	0.13	0.28	0.19	0.12	0.22
2010	0.28	0.14	0.28	0.18	0.12	0.21
2011	0.27	0.14	0.27	0.19	0.12	0.22
2012	0.27	0.14	0.28	0.19	0.12	0.20
2013	0.26	0.16	0.25	0.21	0.13	0.25
2014	0.31	0.18	0.27	0.18	0.13	0.22
2015	0.34	0.24	0.27	0.16	0.13	0.16
Average	0.28	0.15	0.27	0.19	0.13	0.20

Table 6.11: Staff; small and large central banks

	Small central banks			Large central banks		
Year	**Mean**	**Median**	**Standard deviation**	**Mean**	**Median**	**Standard deviation**
2004	508.46	538.50	297.35	4242.00	2412.50	4100.19
2005	504.21	530.00	288.24	4043.10	2377.00	3925.17
2006	499.87	515.00	278.37	3966.55	2459.50	3730.66
2007	504.07	507.00	279.24	3890.90	2465.00	3654.24
2008	499.46	486.50	273.94	3701.91	2353.00	3567.53
2009	504.57	481.00	272.52	3682.33	2288.00	3545.64
2010	487.22	441.00	254.03	3478.50	2136.00	3362.83
2011	503.48	485.00	271.43	3599.57	2339.00	3363.75
2012	488.04	447.00	265.80	3497.73	2183.00	3336.45
2013	441.23	404.50	237.09	3221.12	2173.00	3188.90
2014	468.00	430.00	255.95	3370.26	2204.00	3165.52
2015	430.15	370.50	234.31	3304.09	2173.00	3004.88
Average	489.23	468.00	266.01	3648.72	2280.00	3429.84

Figure 6.9: Frequency distributions dependent variables

Total number of elements

Height

Span of control governor

Normalised Herfindahl centralisation

Staff
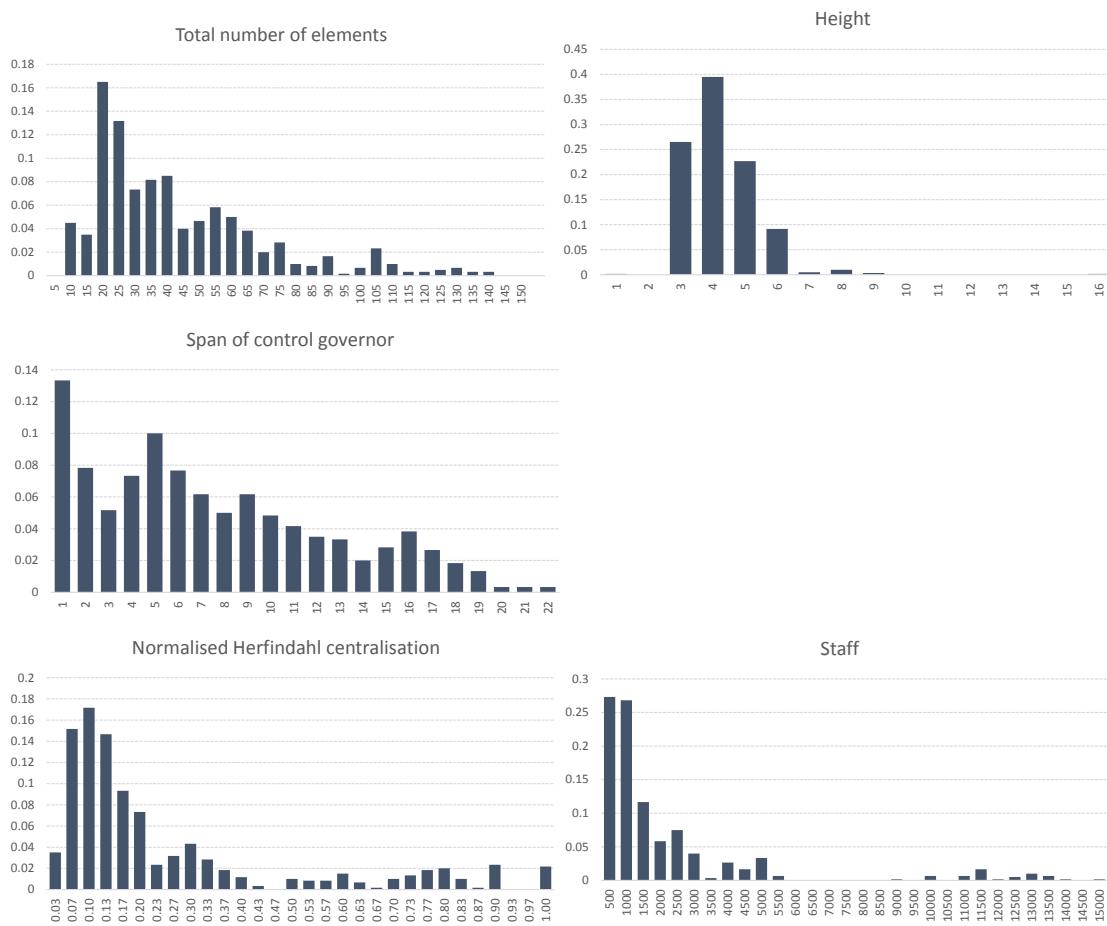
Figure 6.10: Frequency distributions independent variables

Population (in mio. inhabitants)

GDP per capita (in USD)

Internet users (per 100 inhabitants)

General government deficit (% of GDP)

General government gross debt (% of GDP)

Government effectiveness

Central bank independence
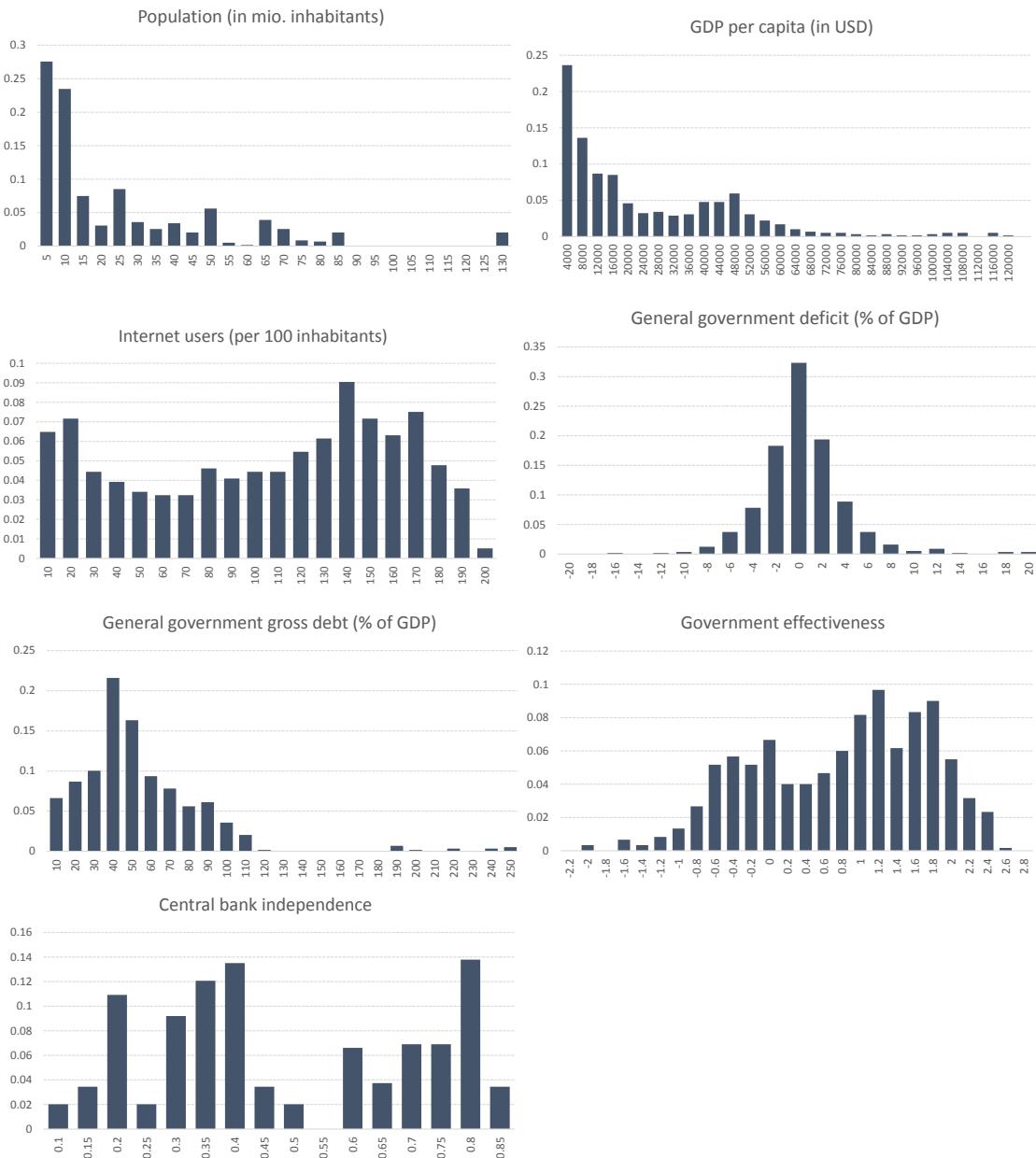
Table 6.12: Regression results central bank organisation: Coefficients and standard errors (random effects model)

Explanatory variables	Total number of elements	Height	Span of control of governor	Normalised Herfindahl	Staff
ln Population	2.94	0.18	-0.08	-0.01	937.17***
	(4.63)	(0.14)	(0.92)	(0.05)	(209.60)
ln GDP/capita	6.83	0.03	-0.34	-0.02	26.08
	(5.15)	(0.31)	(0.60)	(0.04)	(90.19)
Internet users (per 100 people)	0.13	0.00	0.01	0.00	-4.10
	(0.14)	(0.01)	(0.03)	(0.00)	(2.71)
General government debt to GDP	0.03	0.00	0.02	0.00	1.57
	(0.08)	(0.00)	(0.02)	(0.00)	(2.14)
General government primary net lending/borrowing to GDP	0.12	0.01	-0.03	0.00	6.25
	(0.34)	(0.02)	(0.16)	(0.00)	(5.47)
Government effectiveness	-13.17*	-0.05	-1.48	0.03	-243.58
	(6.22)	(0.10)	(1.18)	(0.03)	(165.08)
Stock market capitalisation (to GDP)	0.01	0.00	0.01	0.00	-0.27
	(0.05)	(0.00)	(0.01)	(0.00)	(0.89)
Constant	-29.32	4.27*	6.87	0.35	102.71
	(37.99)	(2.11)	(6.79)	(0.27)	(1578.17)
Observations	224	224	224	224	224
R2 within	0.13	0.02	0.05	0.05	0.24
R2 between	0.00	0.03	0.01	0.07	0.63
R2 overall	0.00	0.02	0.02	0.08	0.64
Wald chi2(8)	18.82	5.67	5.75	28.92	50.81
Prob > chi2	0.02	0.68	0.68	0.00	0.00

Robust standard errors in parentheses. Notes: OLS estimation with random effects. Robust standard errors are in parentheses *** denotes significance at 1%, ** significance at 5% and * significance at 10%.

Appendix to Chapter 4 – Currency Compositions of International Reserves and the Euro Crisis

Table 6.13: COFER countries having agreed to disclosure of their names

Austria	Honduras	Nigeria
Argentina	Hong Kong	Norway
Armenia	Hungary	Pakistan
Aruba	Iceland	Papua New Guinea
Australia	India	Peru
Austria	Ireland	Philippines
Bahamas	Italy	Poland
Bangladesh	Jamaica	Portugal
Belarus	Japan	Romania
Belgium	Kazakhstan	Russia
Belize	Kenya	San Marino
Bolivia	Korea	Serbia
Bosnia and	Latvia	Seychelles
Herzegovina	Lebanon	Singapore
Brazil	Liberia	Slovak Republic
Bulgaria	Lithuania	Slovenia
Cambodia	Luxembourg	South Africa
Canada	Macau SAR	Spain
Chile	Macedonia	Suriname
China	Madagascar	Swaziland
Congo, DR	Malawi	Sweden
Costa Rica	Malta	Switzerland
Croatia	Mauritania	Tanzania
Cyprus	Mexico	Trinidad and
Czech Republic	Molodova	Tobago
Denmark	Montenegro	Turkey
Estonia	Mozambique	UAE
ECB	Nepal	United Kingdom
Finland	Netherlands	United States
France	New Zealand	Uruguay
Georgia	Nicaragua	Vanuatu
Germany		Zambia
Greece		

Source: IMF (2017).

Table 6.14: Number of countries reporting assets by currency

	2013	2014
Total Currency Holdings	**130**	**130**
US dollar	127	127
Pound sterling	108	109
Euro	109	108
Japanese yen	87	88
Canadian dollar	84	85
Australian dollar	79	78
Swiss franc	73	69
Swedish krona	45	48
Norwegian krone	45	40
Chinese renminbi	27	38
New Zealand dollar	27	29
Singapore dollar	16	18
South African rand	11	12
Russian rouble	5	8
Indian rupee	4	6
Brazilian real	5	5
Other currencies	81	80

Source: IMF (2015, p. 2).

Table 6.15: Official foreign currency assets by currency (mn USD and %)

	2013		2014	
	Amount	**%**	**Amount**	**%**
Total Currency Holdings	**6,779,830.42**	**100.00**	**6,738,534.06**	**100.00**
SRD Basket Currencies	**6,276,718.91**	**92.58**	**6,214,838.24**	**92.23**
US dollar	4,158,921.34	61.34	4,290,575.54	63.67
Euro	1,603,466.98	23.65	1,417,328.09	21.03
Pound sterling	287,966.45	4.25	274,564.80	4.07
Japanese yen	226,364.14	3.34	232,369.81	3.45
Non-SRD Basket Currencies	**503,111.51**	**7.42**	**523,695.81**	**7.77**
Australian dollar	151,026.62	2.23	142,451.37	2.11
Canadian dollar	133,863.09	1.97	133,869.60	1.99
Chinese renminbi	45,358.87	0.67	74,611.87	1.11
Swiss franc	16,077.82	0.24	15,365.62	0.23
New Zealand dollar	16,805.46	0.25	15,213.97	0.23
Swedish krona	13,819.59	0.20	13,224.57	0.20
Norwegian krone	13,956.93	0.21	12,050.16	0.18
Singapore dollar	4,388.19	0.06	3,912.38	0.06
Brazilian real	3,416.08	0.05	3,335.65	0.05
South African rand	2,687.69	0.04	3,140.54	0.05
Indian rupee	459.23	0.01	1,000.11	0.01
Russian rouble	360.81	0.01	355.97	0.01
Other currencies	100,891.13	1.49	105,164.00	1.56

Source: IMF (2015, p. 3)

Table 6.16: Countries in sample (continents)

Europe	Americas	Asia	Australia and Oceania	Africa
Bosnia	Canada	Georgia	Australia	Mozambique
Bulgaria	Chile	Hong Kong	New Zealand	
Croatia	Colombia	Israel		
Czech Rep.	Peru	Philippines		
Denmark	USA			
Euro Area	Uruguay			
Finland				
Germany				
Iceland				
Italy				
Latvia				
Lithuania				
Macedonia				
Moldova				
Netherlands				
Norway				
Poland				
Romania				
Russia				
Slovak Rep.				
Slovenia				
Sweden				
Switzerland				
UK				

Table 6.17: Countries in sample (industrial/emerging markets and developing countries)

Industrial countries	Emerging markets and developing countries
Australia	Bosnia
Canada	Bulgaria
Czech Rep.	Chile
Denmark	Colombia
Euro Area	Croatia
Finland	Georgia
Germany	Macedonia
Hong Kong	Moldova
Iceland	Mozambique
Italy	Peru
Latvia	Philippines
Lithuania	Poland
Netherlands	Romania
New Zealand	Russia
Norway	Uruguay
Slovenia	
Slovak Rep.	
Sweden	
Switzerland	
UK	
USA	

Source: IMF (2016c).

Table 6.18: Different sizes of reserves relative to the central bank's own circumstances

Relative size of reserves	Implications for Reserves Management style
Inadequate	Liquidity management, rationing of access to foreign exchange (e. g. via exchange controls), prioritisation of servicing of foreign currency debt, establishment of credit lines, dialogue with official sector finance (IMF etc.).
Sufficient	Liquidity management, hedging of foreign currency debt, maintenance of creditworthiness and access to market finance.
Comfortable	Liquidity management, hedging of foreign currency debt, interest rate risk management, increased transparency to stakeholders?
Surplus	Interest rate risk management, market selection, asset allocation and diversification, much increased communication with stakeholders.
Significant Wealth	Wealth management, market selection, strategic asset allocation, role as shareholder/owner, implications for public profile of the central bank, issue of whether or not to split off assets to a SWF.

Source: Nugee (2000, p. 66).

Appendix to Chapter 5 – Political Determinants of the Financial Supervision Architecture

Table 6.19: Countries in sample

Afghanistan	Congo	Iran	Mozambique	South Sudan
Albania	Costa Rica	Iraq	Myanmar	Spain
Algeria	Croatia	Ireland	Namibia	Sri Lanka
Angola	Cuba	Israel	Nepal	Sudan
Argentina	Curaçao and Sint	Italy	Netherlands	Suriname
Armenia	Maarten	Jamaica	New Zealand	Swaziland
Aruba	Cyprus	Japan	Nicaragua	Sweden
Australia	Czech Republic	Jordan	Nigeria	Switzerland
Austria	Denmark	Kazakhstan	Norway	Syria
Azerbaijan	Djibouti	Kenya	Oman	Taiwan
Bahamas	Dominican	Korea	Pakistan	Tajikistan
Bahrain	Republic	Kuwait	Palestine	Tanzania
Bangladesh	Ecuador	Kyrgyz Republic	Papua New Guinea	Thailand
Barbados	Egypt	Lao P.D.R.	Paraguay	Timor-Leste
Belarus	El Salvador	Latvia	Peru	Tonga
Belgium	Eritrea	Lebanon	Philippines	Trinidad and
Belize	Estonia	Lesotho	Poland	Tobago
Bermuda	Ethiopia	Liberia	Portugal	Tunisia
Bhutan	Fiji	Libya	Qatar	Turkey
Bolivia	Finland	Lithuania	Romania	Turkmenistan
Bosnia and	France	Luxembourg	Russia	Uganda
Herzegovina	Gambia	Macao	Rwanda	Ukraine
Botswana	Georgia	Macedonia	Samoa	United Arab
Brazil	Germany	Madagascar	Sao Tomé e	Emirates
Brunei Darussalam	Ghana	Malawi	Príncipe	United Kingdom
Bulgaria	Greece	Malaysia	San Marino	United States of
Burundi	Guatemala	Maldives	Saudi Arabia	America
Cambodia	Guinea	Malta	Serbia	Uruguay
Canada	Guyana	Mauritania	Seychelles	Uzbekistan
Cape Verde	Haiti	Mauritius	Sierra Leone	Vanuatu
Cayman Islands	Honduras	Mexico	Singapore	Venezuela
Chile	Hong Kong	Moldova	Slovak Republic	Vietnam
China	Hungary	Mongolia	Slovenia	Yemen
Colombia	Iceland	Montenegro	Solomon Islands	Zambia
Comoros	India	Morocco	Somalia	Zimbabwe
	Indonesia		South Africa	

Table 6.20: Overview political data (1)

Name	Provider	Description	Country coverage	Time coverage	Link
Autocratic Breakdown and Regime Transitions	Geddes, Wright, Frantz	Information on transition from autocratic regimes (exit, violence, and succeeding regime).	280 autocratic regimes	1946-2010	http://sites.psu.edu/dictators/
Bertelsmann Transformation Index	Bertelsmann Foundation	Biennial assessment of state of democracy, market economy and political management in developing and transition countries.	129	2006-2016	https://www.bti-project.org/en/index/
Centripetal Democratic Governance dataset	Gerring, Strom Thacker, Moreno	Variables mainly assessing centralization of power of government institutions.	225	1960-2001	http://www.bu.edu/sthacker/research/articles-and-data/
Corruption Perception Index	Transparency International	Composite index of perception of corruption among politicians and civil servants on a scale from 0 to 100 (best).	177	1995-2015	http://www.transparency.org/research/cpi/overview
Database of political institutions	Cruz, Keefer, Scartascini	Large set of institutional and electoral results data.	180	1975–2015	http://www.iadb.org/en/research-and-data/publication-details,3169.html?pub_id=IDB-DB-121
Democratic Electoral Systems around the World	Bormann and Golder	Classification of electoral systems and detailed information on past elections and rules used. Total of 1197 legislative and 433 presidential elections.	Depending on variable, often over 100.	1946-2011	http://mattgolder.com/elections
Democracy and Dictatorship Revisited	Cheibub, Gandhi, Vreeland	Classification of political regimes, democracies, dictatorships.	202	1946-2008	https://sites.google.com/site/joseantoniocheibub/datasets/democracy-and-dictatorship-revisited

Table 6.21: Overview political data (2)

Name	Provider	Description	Country coverage	Time coverage	Link
Freedom in the World	Freedom House	Assessment of political rights and civil liberties.	195	1973-2016	https://freedomhouse.org/report/ freedom-world/freedom-world-2016
Global Competitiveness Report	World Economic Forum	Composite index of countries' international competitiveness.	140	005-2016	http://reports.weforum.org/global-competitiveness-report-2015-2016/
Index of democracy	Vanhanen and International Peace Research Institute, Oslo (PRIO)	Index of democratization, data on political competition and political participation.	187	1946-2010	https://www.prio.org/Data/ Governance/Vanhanens-index-of-democracy/
Index of Economic Freedom	Heritage Foundation	Four categories of economic freedom (rule of law, limited government, regulatory efficiency, open markets).	186	1995-2016	http://www.heritage.org/index/
Institutional Quality Dataset	Kunčič	Institutional environment of states (legal, political and economic) and ranking.	197	1990-2012	https://sites.google.com/site/ aljazkuncic/research
Institutions and Elections Project (IAEP)	Hegre, Wig, Regan	Institutional provisions, electoral procedures and electoral events (de jure).	170	1960-2012	http://havardhegre.net/iaep/
Political Constraint Index Dataset	Hemisz	Feasibility of policy change.	226	1800-2011	https://mgmt.wharton.upenn.edu/ profile/1327
Polity IV Country Reports	Georg Mason University	Political regime characteristics and transitions.	167	1800-2015	http://www.systemicpeace.org/ inscrdata.html

Table 6.22: Overview political data (3)

Name	Provider	Description	Country cover-age	Time cover-age	Link
Political Terror Scale	Amnesty International	Political violence measured on 5-level terror scale.	180	1976-2016	http://www.politicalterrorscale.org/
Press Freedom Index	Reporter without Boarders	Annual country ranking of press freedom.	180	2002-2016	https://index.rsf.org/#!/
Quality of Government	La Porta, Lopez-de-Silanes, Shleifer, Vishny	29 variables on government performance.	223	One entry/country (territ-ory), no updates.	http://faculty.tuck.dartmouth.edu/ rafael-laporta/research-publications
Quality of Government Standard Dataset	Teorell, Dahlberg, Holmberg, Rothstein, Khomenko, Svensson	Compilation of data from more than 100 sources by the Quality of Government Institut (University of Gothenburg).	Depending on variable.	Depending on variable.	http://qog.pol.gu.se/data/ datadownloads/qogstandarddata
Unified Democracy Scores	Melton, Meserve, Pernstein	Composite scale of democracy.	204	1946-2012	http://www.unified-democracy-scores.org/
World Value Survey	WVS Association (WVSA)	Results of worldwide common questionnaire, also containing attitudes towards government, political system and political parties.	~60	1981-2015	http://www.worldvaluessurvey.org/ WVSContents.jsp
Worldwide Governance Indicators	World Bank	Six dimensions of governance resulting from survey.	215	1996-2015	http://data.World Bank.org/data-catalog/worldwide-governance-indicators

Appendix Central Bank Handbook

This part of the appendix displays summary information for each central bank analysed in this dissertation. Apart from basic information such as the respective central bank's name, its year of establishment, and its legal basis, the data shown on the following pages is an extract for 2015, being the latest year to date where coherent cross-country information was available. Basic information usually comes from the respective central bank's homepage. Data on currencies and exchange rate regimes is from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER), while data on ownership in parts is from Bloomberg. Information about central bank employees, regional and foreign branches, inflation targets, and the composition of international central bank reserves is taken from central bank annual reports. Information about financial markets supervision largely relies on different issues of "How Countries Supervise their Banks, Insurers and Securities Markets" (since 2014: "Directory of Financial Regulators") and the websites of the respective supervisory authorities. Central bank laws provide the information displayed in the field "main objectives" and can usually be found on the central bank homepages. Different issues of the "Central Bank Directory" complete the information in this small central bank handbook.

Afghanistan

Name of central bank:	Bank of Afghanistan
Year of establishment:	1939
Central bank law:	Afghanistan Bank Law
Currency:	Afghan afghani (AFN)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	1,970 (2011)
Number of regional representations:	46
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Afghanistan
Securities markets:	/
Insurance companies:	Afghanistan Insurance Authority (AIA) (within MoF)
Inflation targeting:	No
International reserves:	6.11bn USD
Composition of international reserves:	n/a
Main objectives:	

"2.1 The primary objective of Da Afghanistan Bank shall be to achieve and to maintain domestic price stability. 2.2 The other objectives of Da Afghanistan Bank, which shall be subordinated to the primary objective of Da Afghanistan Bank, shall be to foster the liquidity, solvency and effective' functioning of a stable market based financial system, and to promote a safe, sound and efficient national payment system. Without prejudice to its primary objectives, Da Afghanistan Bank shall support the general economic policies of the State, and promote sustainable economic growth."

Albania

Name of central bank:	Bank of Albania
Year of establishment:	1992
Central bank law:	Law No. 8269 "On Bank of Albania"
Currency:	Albanian lek (ALL)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	502
Number of regional representations:	5
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Albania
Securities markets:	Albanian Financial Supervisory Authority (AFSA)
Insurance companies:	Albanian Financial Supervisory Authority (AFSA)
Inflation targeting:	Yes, introduction in 2009; 3%±1pp
International reserves:	2.89bn USD
Composition of international reserves:	n/a
Main objectives:	

"1. The principal objective of the Bank of Albania is to achieve and maintain price stability. 2. The Bank of Albania shall also, to the extent consistent with its principal objective and internal banking market, promote and support the development to a market-based the foreign exchange system, the internal financial market, the payment system, and foster monetary and credit conditions conducive to the orderly, balanced and sustained economic development of the country. 3. The other objectives of the Bank of Albania, which shall be subordinated to the primary objective of the Bank of Albania, shall be to foster the liquidity, solvency, and proper functioning of a stable market-based banking system."

Algeria

Name of central bank:	Bank of Algeria
Year of establishment:	1962
Central bank law:	Loi n° 62-144 du 13 décembre 1962
Currency:	Algerian dinar (DZD)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	3,150 (2007)
Number of regional representations:	3
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Algeria
Securities markets:	Commission d'Organisation et de Surveillance des Opérations de Bourse (COSOB)
Insurance companies:	Commission de supervision des assurances (within MoF)
Inflation targeting:	No
International reserves:	142.64bn USD
Composition of international reserves:	n/a

Main objectives:

" La Banque d'Algérie a pour mission de créer et de maintenir dans les domaines de la monnaie, du crédit et des changes, les conditions les plus favorables à un développement rapide de l'économie, tout en veillant à la stabilité interne et externe de la monnaie. A cet effet, elle est chargée de régler la circulation monétaire, de diriger et de contrôler, par tous les moyens appropriés, la distribution du crédit, de veiller à la bonne gestion des engagements financiers à l'égard de l'étranger et de réguler le marché des changes."

Angola

Name of central bank:	National Bank of Angola
Year of establishment:	1976
Central bank law:	Law of the National Bank of Angola
Currency:	Angolan kwanza (AOA)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	1,801
Number of regional representations:	5
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	National Bank of Angola
Securities markets:	Comissão do Mercado de Capitais (CMC)
Insurance companies:	Agência Angolana de Regulação e Supervisão de Seguros (ARSEG)
Inflation targeting:	No
International reserves:	23.47bn USD
Composition of international reserves:	n/a

Main objectives:

"As the central and issuing bank, the National Bank of Angola, ensures the preservation of the value of the national currency and participates in the definition of the monetary, financial and foreign exchange policies. 2. Notwithstanding the preceding paragraph, execution, monitoring and control of monetary, exchange and credit, the management of the payment system and management of the currency under the economic policy of the country are incumbent upon the National Bank of Angola."

Armenia

Name of central bank:	Central Bank of Armenia
Year of establishment:	1993
Central bank law:	Law on the Central Bank of the Republic of Armenia
Currency:	Armenian dram (AMD)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	779
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Armenia
Securities markets:	Central Bank of Armenia
Insurance companies:	Central Bank of Armenia
Inflation Targeting:	Yes, introduction in 2006; 4%±1.5pp
International reserves:	1.77bn USD
Composition of international reserves:	n/a
Main objectives:	

"The primary objective of the Central Bank shall be to ensure stability of prices in the Republic of Armenia. To attain its primary objective the function of the Central Bank shall be taking measures aimed at price stability ensuring. To attain its primary objective the Central Bank shall develop, approve and implement monetary policy programs."

Argentina

Name of central bank:	Central Bank of Argentina
Year of establishment:	1935
Central bank law:	Charter of the Central Bank of the Argentine Republic
Currency:	Argentine peso (ARS)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	2,530 (2009)
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Argentina
Securities markets:	Comisión Nacional de Valores de Argentina (CNV)
Insurance companies:	Superintendencia de Seguros de la Nación (SSN)
Inflation targeting:	Yes, introduction in 2017; 12%–17%
International reserves:	20.57bn USD
Composition of international reserves:	n/a
Main objectives:	

"The purpose of the Bank is to promote –within the framework of its powers and the policies set by the National Government– monetary and financial stability, employment, and economic development with social equality."

Aruba

Field	Value
Name of central bank:	Central Bank of Aruba
Year of establishment:	1986
Central bank law:	Central Bank Ordinance
Currency:	Aruban florin (AWG)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	indefinite
Employees:	88
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Aruba
Securities markets:	/
Insurance companies:	Central Bank of Aruba
Inflation targeting:	No
International reserves:	0.71bn USD
Composition of international reserves:	n/a
Main objectives:	

"1. The Bank is responsible for the stability of the value of the currency of Aruba and determines the monetary policy aimed at maintaining said stability. 2. The Bank will provide the Minister with advice on financial matters on its own initiative or at the Minister's request."

Australia

Field	Value
Name of central bank:	Reserve Bank of Australia
Year of establishment:	1960
Central bank law:	Reserve Bank Act (1959)
Currency:	Australian dollar (AUD)
Exchange rate arrangement:	Free floating
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	1,255
Number of regional representations:	1
Number of foreign representations:	3
Location of foreign representations:	Beijing, London, New York
Financial markets supervision:	
Banks:	Australian Prudential Regulation Authority (APRA)
Securities markets:	Australian Securities & Investments Commission (ASIC)
Insurance companies:	Australian Prudential Regulation Authority (APRA)
Inflation targeting:	Yes, introduction in 1993; 2%-3%
International reserves:	40.97bn USD
Composition of international reserves:	USD: 55%, EUR: 25%, JPY: 5%, others: 15%
Main objectives:	

"It is the duty of the Reserve Bank Board, within the limits of its powers, to ensure that the monetary and banking policy of the Bank is directed to the greatest advantage of the people of Australia and that the powers of the Bank ... are exercised in such a manner as, in the opinion of the Reserve Bank Board, will best contribute to: (a) the stability of the currency of Australia; (b) the maintenance of full employment in Australia; and (c) the economic prosperity and welfare of the people of Australia."

Austria

Name of central bank:	Austrian National Bank
Year of establishment:	1922
Central bank law:	Austrian Banking Act
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	Variable
Employees:	1,086
Number of regional representations:	3
Number of foreign representations:	2
Location of foreign representations:	Brussels (EU), New York
Financial markets supervision:	
Banks:	Austrian National Bank, Finanzmarktaufsicht (FMA)
Securities markets:	Finanzmarktaufsicht (FMA)
Insurance companies:	Finanzmarktaufsicht (FMA)
Inflation targeting:	No
International reserves:	9.62bn USD
Composition of international reserves:	n/a
Main objectives:	

" Im Rahmen des Unionsrechts, insbesondere des Artikels 3 des Vertrages über die Europäische Union, ABl. Nr. C 83 vom 30.03.2010 S. 13 und des Artikels 127 des AEUV, hat die Oesterreichische Nationalbank mit allen ihr zu Gebote stehenden Mitteln dahin zu wirken, das Ziel der Preisstabilität zu gewährleisten. Soweit dies ohne Beeinträchtigung des Ziels der Preisstabilität möglich ist, ist den volkswirtschaftlichen Anforderungen in Bezug auf Wirtschaftswachstum und Beschäftigungsentwicklung Rechnung zu tragen und die allgemeine Wirtschaftspolitik in der Europäischen Union zu unterstützen."

Azerbaijan

Name of central bank:	Central Bank of Azerbaijan
Year of establishment:	1992
Central bank law:	Law of the Republic of Azerbaijan on the Central Bank of the Republic of Azerbaijan
Currency:	Azerbaijani manat (AZN)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	646
Number of regional representations:	6
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Azerbaijan
Securities markets:	State Committee for Securities (within Cabinet)
Insurance companies:	State Insurance Supervision Service (under MoF)
Inflation targeting:	No
International reserves:	6.08bn USD
Composition of international reserves:	n/a
Main objectives:	

"4.1. The primary goal of the Central Bank's activity is to ensure price stability within its authorities as defined herein. 4.2. The goal of the Central Bank's activity shall also be to ensure stability and development of the banking and payment systems. 4.3. Profit making shall not be the primary goal of the Central Bank."

Bahamas

Name of central bank:	Central Bank of the Bahamas
Year of establishment:	1947
Central bank law:	Central Bank of the Bahamas Act
Currency:	Bahamian dollar (BSD)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	238
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of the Bahamas
Securities markets:	Securities Commission of the Bahamas
Insurance companies:	Insurance Commission of the Bahamas
Inflation targeting:	No
International reserves:	0.81bn USD
Composition of international reserves:	n/a
Main objectives:	

"It shall be the duty of the Bank, subject to the provisions of this Act- (a) to promote and maintain monetary stability and credit and balance of payments conditions conducive to the orderly development of the economy; (b) in collaboration with the financial institutions, to promote and maintain adequate banking services and high standards of conduct and management therein; (c) to advise the Minister on any matter of a financial or monetary nature referred to by him to the Bank for its advice."

Bahrain

Name of central bank:	Central Bank of Bahrain
Year of establishment:	1973
Central bank law:	Central Bank of Bahrain and Financial Institutions Law
Currency:	Bahraini dinar (BHD)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	352 (2011)
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Bahrain
Securities markets:	Central Bank of Bahrain
Insurance companies:	Central Bank of Bahrain
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"The Central Bank shall pursue the following objectives within the framework of the general economic policy of the Kingdom in a manner that enhances and develops the national economy: (1) set and implement the monetary, credit and other financial sector policies for the Kingdom. (2) provide effective central banking services to the Government and the financial sector of the Kingdom. (3) develop the financial sector and enhance confidence therein.. (4) protect the interests of depositors and the customers of the financial institutions, and enhance the Kingdom's credibility as an international financial centre."

Bangladesh

Name of central bank:	Bangladesh Bank
Year of establishment:	1971
Central bank law:	Bangladesh Bank Order (1972)
Currency:	Bangladeshi taka (BDT)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	6,067 (2014)
Number of regional representations:	10
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bangladesh Bank
Securities markets:	Securities and Exchange Commission (MoF)
Insurance companies:	Insurance Development & Regulatory Authority Bangladesh
Inflation targeting:	No
International reserves:	25.80bn USD
Composition of international reserves:	n/a
Main objectives:	

"BB performs all the core functions of a typical monetary and financial sector regulator, and a number of other non core functions. The major functional areas include : - Formulation and implementation of monetary and credit policies. - Regulation and supervision of banks and non-bank financial institutions, promotion and development of domestic financial markets. - Management of the country's international reserves. - Issuance of currency notes. - Regulation and supervision of the payment system. - Acting as banker to the government. (homepage) - Money Laundering Prevention. - Collection and furnishing of credit information. - Implementation of the Foreign exchange regulation Act. - Managing a Deposit Insurance Scheme."

Barbados

Name of central bank:	Central Bank of Barbados
Year of establishment:	1972
Central bank law:	Central Bank of Barbados Act
Currency:	Barbados dollar (BBD)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	268
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Barbados
Securities markets:	Financial Services Commission
Insurance companies:	Financial Services Commission
Inflation targeting:	No
International reserves:	0.47bn USD
Composition of international reserves:	n/a
Main objectives:	

"The purpose of the Bank shall be (a) to regulate the issue, supply, availability and international exchange of money; (b) to promote monetary stability; (c) to promote a sound financial structure; (d) to foster the development of money and capital markets in Barbados; and (e) to foster credit and exchange conditions conducive to the orderly and sustained economic development of Barbados."

Belarus

Name of central bank:	National Bank of the Republic of Belarus
Year of establishment:	1990
Central bank law:	Statute of the National Bank of the Republic of Belarus
Currency:	Belarusian ruble (BYR)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	2,630
Number of regional representations:	5
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	National Bank of the Republic of Belarus
Securities markets:	Securities Department (within MoF)
Insurance companies:	Insurance Supervision General Directorate (ISGD) (within MoF)
Inflation targeting:	No
International reserves:	2.23bn USD
Composition of international reserves:	n/a

Main objectives:

«The main objectives of the National Bank shall be as follows: - protecting the Belarusian ruble and ensuring its stability, including its purchasing power and the rate of exchange against foreign currencies; - ensuring stability of the banking system of the Republic of Belarus; and - ensuring efficient, reliable, and secure functioning of the payment system.»

Belgium

Name of central bank:	National Bank of Belgium
Year of establishment:	1850
Central bank law:	Statuts de la Banque nationale de Belgique
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	50% state, 50% pivate ownership
Governor's term of office:	5 years
Employees:	1,972
Number of regional representations:	4
Number of foreign representations:	2
Location of foreign representations:	Brussels (EU), Paris (OECD)
Financial markets supervision:	
Banks:	National Bank of Belgium
Securities markets:	National Bank of Belgium
Insurance companies:	National Bank of Belgium
Inflation targeting:	No
International reserves:	8.45bn USD
Composition of international reserves:	n/a

Main objectives:

"La Banque participe à la réalisation des objectifs du SEBC, qui sont : - à titre principal, de maintenir la stabilité des prix; - sans préjudice de l'objectif de stabilité des prix, de soutenir les politiques économiques générales dans la Communauté européenne en vue de contribuer à la réalisation des objectifs de la Communauté, tels que définis à l'article 2 du Traité instituant la Communauté européenne."

Belize

Name of central bank:	Central Bank of Belize
Year of establishment:	1982
Central bank law:	Central Bank of Belize Act
Currency:	Belize dollar (BZD)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	2 years
Employees:	177
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Belize
Securities markets:	International Financial Services Commission (IFSC)
Insurance companies:	Office of the Supervisor of Insurance & Private Pensions (OSIPP) (within MoF)
Inflation targeting:	No
International reserves:	0.40bn USD
Composition of international reserves:	n/a

Main objectives:

"Within the context of the economic policy of the Government, the Bank shall be guided in all of its actions by the objectives of fostering monetary stability, especially as regards stability of the exchange rate, and promoting credit and exchange conditions conducive to the growth of the economy of Belize."

Bermuda

Name of central bank:	Bermuda Monetary Authority
Year of establishment:	1969
Central bank law:	Bermuda Monetary Authority Act
Currency:	Bermudian dollar (BMD)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	168
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bermuda Monetary Authority (BMA)
Securities markets:	Bermuda Monetary Authority (BMA)
Insurance companies:	Bermuda Monetary Authority (BMA)
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a

Main objectives:

"The principal objects of the Authority shall be— to issue and redeem notes and coins; to supervise, regulate and inspect any financial institution which operates in or from within Bermuda; to promote the financial stability and soundness of financial institutions; to supervise, regulate or approve the issue of financial instruments by financial institutions or by residents; to assist with the detection and prevention of financial crime; to assist foreign regulatory authorities in the discharge of their functions; to perform the duties conferred on it by section 5 of the Proceeds of Crime (Anti-Money Laundering and Anti-Terrorist Financing Supervision and Enforcement) Act 2008 [...]"

Bolivia

Name of central bank:	Central Bank of Bolivia
Year of establishment:	1928
Central bank law:	Ley del Banco Central de Bolivia
Currency:	Boliviano (BOB)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	Variable
Employees:	607
Number of regional representations:	3
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Autoridad de Supervisión del Sistema Financiero de Bolivia
Securities markets:	Autoridad de Supervisión del Sistema Financiero de Bolivia
Insurance companies:	Autoridad de Supervisión del Sistema Financiero
Inflation targeting:	No
International reserves:	11.36bn USD
Composition of international reserves:	n/a
Main objectives:	

"El objeto del BCB es procurar la estabilidad del poder adquisitivo interno de la moneda nacional."

Bhutan

Name of central bank:	Royal Monetary Authority of Bhutan
Year of establishment:	1982
Central bank law:	Royal Monetary Authority of Bhutan Act
Currency:	Bhutanese ngultrum (BTN)
Exchange rate arrangement:	Conventional peg (to Indian rupee)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	164
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Royal Monetary Authority of Bhutan
Securities markets:	Royal Monetary Authority of Bhutan
Insurance companies:	Royal Monetary Authority of Bhutan
Inflation targeting:	No
International reserves:	1.09bn USD
Composition of international reserves:	n/a
Main objectives:	

"The purposes of the authority are: (a) to regulate the availability of money and its international exchange; (b) to promote monetary stability; (c) to supervise and regulate banks and other financial institutions subject to the Financial Institutions Act of Bhutan of 1992; and (d) to promote credit and exchange conditions and a sound financial structure conducive to the balanced growth of the economy."

Bosnia and Hezegovina

Name of central bank:	Central Bank of Bosnia and Herzegovina
Year of establishment:	1997
Central bank law:	Law on the Central Bank of Bosnia and Herzegovina
Currency:	Bosnia and Herzegovina convertible mark (BAM)
Exchange rate arrangement:	Currency board
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	354
Number of regional representations:	2
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Federal Banking Agency of the FBiH
Securities markets:	Securities Commission of the FBiH
Insurance companies:	Insurance Agency of the FBiH
Inflation targeting:	No
International reserves:	4.69bn USD
Composition of international reserves:	EUR: 100%
Main objectives:	

"The objective of the Central Bank shall be to achieve and maintain the stability of the domestic currency (Convertible Marka) by issuing it according to the rule known as a currency board."

Botswana

Name of central bank:	Bank of Botswana
Year of establishment:	1975
Central bank law:	Bank of Botswana Act (1996)
Currency:	Botswana pula (BWP)
Exchange rate arrangement:	Crawling peg
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	593
Number of regional representations:	1
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Botswana
Securities markets:	Non-Bank Financial Institutions Regulatory Authority
Insurance companies:	Non-Bank Financial Institutions Regulatory Authority
Inflation targeting:	No
International reserves:	7.39bn USD
Composition of international reserves:	n/a
Main objectives:	

"The principal objectives of the Bank shall be- (a) first and foremost to promote and maintain monetary stability, an efficient payments mechanism and the liquidity, solvency and proper functioning of a soundly based monetary, credit and financial system in Botswana; (b) secondly, in so far as it is not inconsistent with the objectives set out in paragraph (a), to foster monetary, credit and financial conditions conducive to the orderly, balanced and sustained economic development of Botswana; and (c) thirdly, to assist insofar as it is not inconsistent with the objectives as set out in paragraphs (a) and (b), in the attainment of national economic development goals."

Brazil

Name of central bank:	Central Bank of Brazil
Year of establishment:	1965
Central bank law:	Law N. 4.595, of December 31, 1964
Currency:	Brazilian real (BRL)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	4,187
Number of regional representations:	9
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Brazil
Securities markets:	Comissão de Valores Mobiliários (CMV)
Insurance companies:	Superintendência de Seguros Privados (SUSEP) (MoF)
Inflation targeting:	Yes, introduction in 1999; 4.5%±2pp
International reserves:	348.86bn USD
Composition of international reserves:	n/a
Main objectives:	

"The purchasing power stability of the Brazilian currency and the soundness of the financial system are the main BCB's institutional objectives." (Homepage)

Brunei Darussalam

Name of central bank:	Autoriti Monetari Brunei Darussalam (AMBD)
Year of establishment:	2010
Central bank law:	Autoriti Monetari Brunei Darussalam Order (2010)
Currency:	Brunei dollar (BND)
Exchange rate arrangement:	Currency board
Ownership:	100% state ownership
Governor's term of office:	n/a
Employees:	196
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Autoriti Monetari Brunei Darussalam (AMBD)
Securities markets:	Autoriti Monetari Brunei Darussalam (AMBD)
Insurance companies:	Autoriti Monetari Brunei Darussalam (AMBD)
Inflation targeting:	No
International reserves:	2.89bn USD
Composition of international reserves:	n/a
Main objectives:	

"(1) The principal objects of the Authority shall be – (a) to achieve and maintain domestic price stability; (b) to ensure the stability of the financial system, in particular by formulating financial regulation and prudential standards; (c) to assist in the establishment and functioning of efficient payment systems and to oversee them; and (d) to foster and develop a sound and progressive financial services sector. (2) Without prejudice to the above-mentioned principal objects, the Authority shall support the general economic policies of the Government to the extent that it considers to be appropriate."

Bulgaria

Name of central bank:	Bulgarian National Bank
Year of establishment:	1989
Central bank law:	Law on the Bulgarian National Bank
Currency:	Bulgarian lev (BGN)
Exchange rate arrangement:	Currency board
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	843
Number of regional representations:	2
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bulgarian National Bank
Securities markets:	Financial Supervision Commission
Insurance companies:	Financial Supervision Commission
Inflation targeting:	No
International reserves:	19.89bn USD
Composition of international reserves:	EUR: 99.2%, USD: 0.8%
Main objectives:	

"(1) The primary objective of the Bulgarian National Bank shall be to maintain price stability through ensuring the stability of the national currency and implementing monetary policy as provided for by this Law. (2) The Bulgarian National Bank shall act in accordance with the principle of the open market economy with free competition, favouring an efficient allocation of resources. From the date of accession of the Republic of Bulgaria to the European Union and without prejudice to the primary objective of price stability, the Bulgarian National Bank shall support the general economic policies in the European Community with a view to contributing to the achievement of the objectives of the European Community as laid down in Article 2 of the Treaty establishing the European Community. (3) Without prejudice to the objectives under paragraphs 1 and 2, the Bulgarian National Bank shall support the policy of sustainable and non-inflationary growth. [...]."

Burundi

Name of central bank:	Bank of the Republic of Burundi
Year of establishment:	1964
Central bank law:	Statuts de la Banque de la République du Burundi
Currency:	Burundian franc (BIF)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	617 (2014)
Number of regional representations:	2
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of the Republic of Burundi
Securities markets:	/
Insurance companies:	Insurance Regulation and Control Agency (under MoF)
Inflation targeting:	No
International reserves:	0.08bn USD
Composition of international reserves:	n/a
Main objectives:	

La Banque Centrale a pour objectif principal de veiller à la stabilité des prix. Sans préjudice de l'objectif précédent, la Banque Centrale contribue à la stabilité du système financier. Tout en privilégiant les deux objectifs précités, la Banque Centrale contribue également à la mise en oeuvre des politiques économiques proprices à la stabilité macro-économique et au développement harmonieux du pays.

Cambodia

Field	Value
Name of central bank:	National Bank of Cambodia
Year of establishment:	1954
Central bank law:	Law on the Organization and Conduct of the National Bank of Cambodia
Currency:	Cambodian riel (KHR)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	1,373
Number of regional representations:	21
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	National Bank of Cambodia
Securities markets:	Securities and Exchange Commission of Cambodia (SECC)
Insurance companies:	Insurance Division (within Ministry of Economy & Finance)
Inflation targeting:	No
International reserves:	6.76bn USD
Composition of international reserves:	n/a

Main objectives:

"The principal mission of the Central Bank is to determine and direct the monetary policy aimed at maintaining price stability in order to facilitate economic development within the framework of the Kingdom's economic and financial policy."

Canada

Field	Value
Name of central bank:	Bank of Canada
Year of establishment:	1934
Central bank law:	Bank of Canada Act
Currency:	Canadian dollar (CAD)
Exchange rate arrangement:	Free floating
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	1,600
Number of regional representations:	5
Number of foreign representations:	1
Location of foreign representations:	New York
Financial markets supervision:	
Banks:	Office of the Superintendent of Financial Institutions
Securities markets:	regional authorities
Insurance companies:	Office of the Superintendent of Financial Institutions
Inflation targeting:	Yes, introduction in 1991; 2%±1pp
International reserves:	69.08bn USD
Composition of international reserves:	USD: 67.6%, EUR: 23.0%, GBP: 8.5%, others: 0.9%

Main objectives:

"WHEREAS it is desirable to establish a central bank in Canada to regulate credit and currency in the best interests of the economic life of the nation, to control and protect the external value of the national monetary unit and to mitigate by its influence fluctuations in the general level of production, trade, prices and employment, so far as may be possible within the scope of monetary action, and generally to promote the economic and financial welfare of Canada; [...]."

Cape Verde

Name of central bank:	Bank of Cape Verde
Year of establishment:	1975
Central bank law:	Organic Law of the Bank of Cape Verde
Currency:	Cape Verde escudo (CVE)
Exchange rate arrangement:	Conventional peg (to euro)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	139
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Cape Verde
Securities markets:	Bank of Cape Verde (Auditoria Geral do Mercado de Valores Mobiliários (AGMVM))
Insurance companies:	Bank of Cape Verde
Inflation targeting:	No
International reserves:	0,49bn USD
Composition of international reserves:	n/a
Main objectives:	

1. The primary function of the Bank is to maintain price stability. 2. As a secondary objective, the Bank shall promote the domestic liquidity, solvency, and proper functioning of a financial system based on market stability and at no time in a manner incompatible with the primary objective of maintaining price stability. 3. Without prejudice to the primary objective of maintaining price stability, the Bank shall participate in the execution of the Government's overall economic policy [...]."

Cayman Islands

Name of central bank:	Cayman Islands Monetary Authority
Year of establishment:	1996
Central bank law:	Monetary Authority Law
Currency:	Cayman Islands dollar (KYD)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	Variable
Employees:	185
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Cayman Islands Monetary Authority
Securities markets:	Cayman Islands Monetary Authority
Insurance companies:	Cayman Islands Monetary Authority
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

6. (1) The principal functions of the Authority are - (a) monetary functions, namely - (i) to issue and redeem currency notes and coins; and (ii) to manage the Currency Reserve, in accordance with this Law; (b) regulatory functions, namely - (i) to regulate and supervise financial services business carried on in or from within the Islands in accordance with this Law and the regulatory laws; (ii) to monitor compliance with the money laundering regulations; and (iii) to perform any other regulatory or supervisory duties that may be imposed on the Authority by any other law; (c) co-operative functions, namely, to provide assistance to overseas regulatory authorities in accordance with this Law; and (d) advisory functions [...]."

China

Name of central bank:	People's Bank of China
Year of establishment:	1948
Central bank law:	Law of the People's Republic of China on the People's Bank of China
Currency:	Chinese yuan (RMB)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	Indefinite
Employees:	128,323
Number of regional representations:	10
Number of foreign representations:	5
Location of foreign representations:	Frankfurt, London, New York, Sydney, Tokyo
Financial markets supervision:	
Banks:	China Banking Regulatory Commission (CBRC)
Securities markets:	China Securities Regulatory Commission (CSRC)
Insurance companies:	China Insurance Regulatory Commission (CIRC)
Inflation targeting:	No
International reserves:	3,330.36bn USD
Composition of international reserves:	n/a
Main objectives:	

"The objective of the monetary policy is to maintain the stability of the value of the currency and thereby promote economic growth."

Chile

Name of central bank:	Central Bank of Chile
Year of establishment:	1925
Central bank law:	Basic Constitutional Act of the Central Bank of Chile
Currency:	Chilean peso (CLP)
Exchange rate arrangement:	Free floating
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	642
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Superintendencia de Bancos e Instituciones Financieras (BSIF)
Securities markets:	Superintendencia de Valores e Seguros (SVS)
Insurance companies:	Superintendencia de Valores e Seguros (SVS)
Inflation targeting:	Yes, introduction in 1999; 2%±1pp
International reserves:	37.21bn USD
Composition of international reserves:	USD: 66.1%, EUR: 15.0%, CAD: 5.0%, others: 13.9%
Main objectives:	

"The Bank shall have as its purposes to look after the stability of the currency and the normal functioning of the internal and external payment systems. The authority of the Bank, for these purposes, shall include that of regulating the amount of currency and credit in circulation, the performance of credit transactions and foreign exchange, as well as the issuance of regulatory provisions regarding monetary, credit, financing and foreign exchage mattters."

Colombia

Field	Value
Name of central bank:	Central Bank of Colombia
Year of establishment:	1923
Central bank law:	Law 31 of 1992 (Law of the Central Bank of Chile)
Currency:	Colombian peso (COP)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	2,436 (2013)
Number of regional representations:	28
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Superintendencia Financiera de Colombia (SFC)
Securities markets:	Superintendencia de Financiera de Colombia (SFC)
Insurance companies:	Superintendencia de Financiera de Colombia (SFC)
Inflation targeting:	Yes, introduction in 1999; 3%±1pp
International reserves:	44.78bn USD
Composition of international reserves:	USD: 90.3%, AUD: 4.9%, CAD: 2.0%, others: 2.8%

Main objectives:

"Banco de la República, on behalf of the State, will see to the maintenance of the national currency's acquisitive capacity as provided in the standards set forth in Article 373 of the Political Constitution and in the present Law."

Comoros

Field	Value
Name of central bank:	Central Bank of the Comoros
Year of establishment:	1981
Central bank law:	Statuts de la Banque Centrale des Comores du 22 avril 2008
Currency:	Comorian franc (KMF)
Exchange rate arrangement:	Conventional peg (to euro)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	59
Number of regional representations:	2
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of the Comoros
Securities markets:	/
Insurance companies:	Central Bank of the Comoros
Inflation targeting:	No
International reserves:	0.18bn USD
Composition of international reserves:	n/a

Main objectives:

"La Banque est la seule autorité monétaire de l'Union des Comores. La Banque garantie la stabilité de la monnaie de l'Union des Comores. Sans préjudice de cet objectif, elle apporte son soutien à la politique économique de l'Union des Comores. La Banque définit et met en œuvre la politique monétaire de l'Union. Elle détient gère les avoirs en Or et les réserves de change de l'Union des Comores. Ces avoirs en or et ces réserves sont inscrits à l'actif de son bilan."

Congo

Name of central bank:	Central Bank of the Congo
Year of establishment:	1964
Central bank law:	Loi N°005/2002 Du 07 mai 2002
Currency:	Congolese franc (CDF)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	1,855
Number of regional representations:	10
Number of foreign representations:	1
Location of foreign representations:	Brussels
Financial markets supervision:	
Banks:	Central Bank of the Congo
Securities markets:	/
Insurance companies:	/
Inflation targeting:	No
International reserves:	0,77bn USD
Composition of international reserves:	n/a
Main objectives:	

"La Banque est chargée de définir et de mettre en œuvre la politique monétaire du pays dont l'objectif principal est d'assurer la stabilité du niveau général des prix. Elle est indépendante dans la réalisation de cet objectif. A cet effet, la Banque, par son Conseil, en la personne du Gouverneur ou de tout autre membre de ses organes de décision, ne doit poser aucun acte de nature à aliéner cette indépendance. Sans préjudice de l'objectif principal de stabilité du niveau général des prix, la banque soutient la politique économique générale du Gouvernement."

Costa Rica

Name of central bank:	Central Bank of Costa Rica
Year of establishment:	1950
Central bank law:	Ley orgánica del Banco Central del Costa Rica (Ley N.° 7558)
Currency:	Costa Rican colón (CRC)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	1,084
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Superintendencia General de Entidades Financieras (SUGEF)
Securities markets:	Superintendencia General de Valores (SUGEVAL)
Insurance companies:	Superintendencia General de Seguros (SUGESE)
Inflation targeting:	No
International reserves:	7.62bn USD
Composition of international reserves:	n/a
Main objectives:	

"El Banco Central de Costa Rica tendrá cómo principales objetivos, mantener la estabilidad interna y externa de la moneda nacional y asegurar su conversión a otras monedas y, como objetivos subsidiarios, los siguientes: a) Promover el ordenado desarrollo de la economía costarricense, a fin de lograr la ocupación plena de los recursos productivos de la Nación, procurando evitar o moderar las tendencias inflacionistas o de flacionistas que puedan surgir en el mercado monetario y crediticio. b) Velar por el buen uso de las reservas monetarias internacionales de la Nación para el logro de la estabilidad económica general. c) Promover la eficiencia del sistema de pagos internos y externos y mantener su normal funcionamiento. d) Promover un sistema de intermediación financiera estable, eficiente y competitivo."

Croatia

Field	Value
Name of central bank:	Croatian National Bank
Year of establishment:	1991
Central bank law:	Act on the Croatian National Bank
Currency:	Croatian kuna (HRK)
Exchange rate arrangement:	Crawl-like arrangement
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	644
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Croatian National Bank
Securities markets:	Croatian Financial Services Supervisory Agency
Insurance companies:	Croatian Financial Services Supervisory Agency
Inflation targeting:	No
International reserves:	14.54bn USD
Composition of international reserves:	EUR: 79.8%, USD: 17.3%, Others: 2.9%

Main objectives:

"(1) The objective of the Croatian National Bank shall be to maintain price stability. (2) Without prejudice to the achievement of its objective, the Croatian National Bank shall support the economic policy of the Republic of Croatia, while acting in accordance with the principle of an open market economy with free competition."

Cuba

Field	Value
Name of central bank:	Central Bank of Cuba
Year of establishment:	1950
Central bank law:	Decree Law 172 on Banco Central de Cuba
Currency:	Cuban convertible peso (CUC)
Exchange rate arrangement:	n/a
Ownership:	100% state ownership
Governor's term of office:	Indefinite
Employees:	565 (2012)
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Cuba
Securities markets:	/
Insurance companies:	Superintendencia de Seguros de Cuba (under MoF)
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a

Main objectives:

The objectives of Banco Central de Cuba are to look for the stability of the national currency's purchasing power, to contribute to archive the macroeconomic equilibrium of the economy and to its orderly development, to have custody of and administer the country's international reserves, to ensure the normal functioning of internal and external payments, to exercise functions related to the discipline and supervision of the financial institutions and representative offices whose establishment is authorized in the country and to carry out any other functions which the laws entrust to it.

Curaçao and Sint Maarten

Name of central bank:	Central Bank of Curacao and Sint Maarten
Year of establishment:	1828
Central bank law:	Centrale Bank-statuut voor Curaçao en Sint Maarten
Currency:	Netherlands Antillean guilder (ANG)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	Indefinite
Employees:	205
Number of regional representations:	1
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Curacao and Sint Maarten
Securities markets:	Central Bank of Curacao and Sint Maarten
Insurance companies:	Central Bank of Curacao and Sint Maarten
Inflation targeting:	No
International reserves:	1.34bn USD
Composition of international reserves:	n/a
Main objectives:	

"1. De doelstellingen van de Bank zijn: a. Het bevorderen van de stabiliteit van de waarde van de geldeenheid van de Landen. b. Het bevorderen van de gezondheid van het financiële systeem van de Landen. c. Het bevorderen van een veilig en efficiënt betalingsverkeer in de Landen. 2. De Landen zullen waarborgen dat hun nationale wetgeving, voor zover in relatie tot de doelstellingen van de Bank, en de daarop berustende uitvoeringsbepalingen, eenvormig en verenigbaar zijn met deze Regeling, alsmede een gelijkluidende ingangsdatum bevatten."

Cyprus

Name of central bank:	Central Bank of Cyprus
Year of establishment:	1963
Central bank law:	Central Bank of Cyprus Law
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	300
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Cyprus
Securities markets:	Cyprus Securities and Exchange Commission (CySEC)
Insurance companies:	Insurance Companies Control Service (ICCS) (under MoF)
Inflation targeting:	No
International reserves:	0.08bn USD
Composition of international reserves:	n/a
Main objectives:	

"(1) The primary objective of the Bank shall be to ensure price stability. (2) Without prejudice to this primary objective and subject to the fulfilment of its obligations under Article 105 paragraph (1) of the Treaty, the Bank shall support the general economic policy of the State."

Czech Republic

Name of central bank:	Czech National Bank
Year of establishment:	1993
Central bank law:	Act No. 6/1993 Coll., on the Czech National Bank
Currency:	Czech koruna (CZK)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	1,352
Number of regional representations:	7
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Czech National Bank
Securities markets:	Czech National Bank
Insurance companies:	Czech National Bank
Inflation targeting:	Yes, introduction in 1997; 2%±1pp
International reserves:	62.63bn USD
Composition of international reserves:	EUR: 57.1%, USD: 14.8%, CAD: 12.9%, others: 15.6%

Main objectives:

"The primary objective of the Czech National Bank shall be to maintain price stability. In addition, the Czech National Bank shall work to ensure financial stability and the safe and sound operation of the financial system in the Czech Republic. Without prejudice to its primary objective, the Czech National Bank shall support the general economic policies of the Government leading to sustainable economic growth and the general economic policies in the European Union with a view to contributing to the achievement of the objectives of the European Union. The Czech National Bank shall act in accordance with the principle of an open market economy."

Denmark

Name of central bank:	National Bank of Denmark
Year of establishment:	1818
Central bank law:	National Bank of Denmark Act
Currency:	Danish krone (DKK)
Exchange rate arrangement:	Conventional peg (to euro, ERM II)
Ownership:	100% state ownership
Governor's term of office:	Indefinite
Employees:	471
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Danish Financial Supervisory Authority (Finanstilsynet)
Securities markets:	Danish Financial Supervisory Authority (Finanstilsynet)
Insurance companies:	Danish Financial Supervisory Authority (Finanstilsynet)
Inflation targeting:	No
International reserves:	60.10bn USD
Composition of international reserves:	USD: 35%, EUR: 60.2%, GBP: 4.1%, others: 0.7%

Main objectives:

"Danmarks Nationalbank (The National Bank of Denmark) [...] shall as the Central Bank of this country have the object in conformity with this Act and the regulations given under this Act to maintain a safe and secure currency system in this country, and to facilitate and regulate the traffic in money and the extension of credit."

Djibouti

Name of central bank:	Central Bank of Djibouti
Year of establishment:	1977
Central bank law:	Statuts de la Banque Centrale de Djibouti
Currency:	Djiboutian franc (DJF)
Exchange rate arrangement:	Currency board
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	64
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Djibouti
Securities markets:	/
Insurance companies:	Direction de l'économie du Ministère des finances
Inflation targeting:	No
International reserves:	0.35bn USD
Composition of international reserves:	n/a
Main objectives:	

"La Banque Centrale a pour mission générale de veiller à la stabilité de la monnaie nationale et au bon fonctionnement du système bancaire et financier."

Dominican Republic

Name of central bank:	Central Bank of the Dominican Republic
Year of establishment:	1974
Central bank law:	Ley monetaria y financiera
Currency:	Dominican peso (DOP)
Exchange rate arrangement:	Crawl-like arrangement
Ownership:	100% state ownership
Governor's term of office:	Variable
Employees:	1,869
Number of regional representations:	2
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Superintendencia de Bancos de la República Dominicana
Securities markets:	Superintendencia de Valores de la República Dominicana
Insurance companies:	Superintendencia de Seguros de la República Dominicana
Inflation targeting:	Yes, introduction in 2012; 4%±1pp
International reserves:	5.24bn USD
Composition of international reserves:	n/a
Main objectives:	

"El Banco Central tiene por función ejecutar las políticas monetaria, cambiaria y financiera, de acuerdo con el Programa Monetario aprobado por la Junta Monetaria y exclusivamente mediante el uso de los instrumentos establecidos en el Título II de esta Ley [...]. Sin perjuicio de la iniciativa reglamentaria de la Junta Monetaria, el Banco Central propondrá a dicho Organismo los proyectos de Reglamentos Monetarios y Financieros en materia monetaria, cambiaria y financiera. Corresponde al Banco Central la supervisión y liquidación final de los sistemas de pagos, así como del mercado interbancario. Es función del Banco Central compilar y elaborar las estadísticas de balanza de pagos, del sector monetario y financiero, y otras que sean necesarias para el cumplimiento de sus funciones."

Ecuador

Field	Value
Name of central bank:	Central Bank of Ecuador
Year of establishment:	1927
Central bank law:	Estatuto orgánico del Banco Central del Ecuador
Currency:	US dollar (USD)
Exchange rate arrangement:	No separate legal tender (dollarisation)
Ownership:	100% state ownership
Governor's term of office:	Indefinite
Employees:	1,100 (2014)
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Superintendencia de Bancos y Seguros
Securities markets:	Consejo Nacional de Valores
Insurance companies:	Superintendencia de Bancos y Seguros
Inflation targeting:	No
International reserves:	2.02bn USD
Composition of international reserves:	n/a
Main objectives:	

"Promover y coadyuvar a la estabilidad económica del país, tendiente a su desarrollo, para lo cual deberá: realizar el seguimiento del programa macroeconómico; contribuir en el diseño de políticas y estrategias para el desarrollo de la nación; y, ejecutar el régimen monetario de la República, que involucra administrar el sistema de pagos, invertir la reserva de libre disponibilidad y, actuar como depositario de los fondos públicos y como agente fiscal y financiero del Estado."

Egypt

Field	Value
Name of central bank:	Central Bank of Egypt
Year of establishment:	1961
Central bank law:	Statute of the Central Bank of Egypt
Currency:	Egyptian pound (EGP)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	5,635 (2013)
Number of regional representations:	3
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Egypt
Securities markets:	Egyptian Financial Supervisory Authority (EFSA)
Insurance companies:	Egyptian Financial Supervisory Authority (EFSA)
Inflation targeting:	No
International reserves:	12.12bn USD
Composition of international reserves:	n/a
Main objectives:	

"The Bank shall carry out all functions and powers assigned to it by virtue of the Law of the Central Bank, the Banking Sector and Money referred to hereabove. The Bank shall work on realizing price stability and banking system soundness, within the context of the general economic policy of the State. The Bank shall be concerned with formulating and implementing the monetary, credit, and banking policies."

El Salvador

Name of central bank:	Central Reserve Bank of El Salvador
Year of establishment:	1934
Central bank law:	Ley orgánica del Banco Central de Reserva de El Salvador
Currency:	US dollar
Exchange rate arrangement:	No separate legal tender (dollarization)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	457 (2013)
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Superintendencia del Sistema Financiero (SSF)
Securities markets:	Superintendencia del Sistema Financiero (SSF)
Insurance companies:	Superintendencia del Sistema Financiero (SSF)
Inflation targeting:	No
International reserves:	2.51bn USD
Composition of international reserves:	n/a
Main objectives:	

"El Banco Central tendrá por objeto fundamental, velar por la estabilidad de la moneda y será su finalidad esencial promover y mantener las condiciones monetarias, cambiarias, crediticias y financieras más favorables para la estabilidad de la economía nacional."

Eritrea

Name of central bank:	Bank of Eritrea
Year of establishment:	1993
Central bank law:	Bank of Eritrea Proclamation No. 93/1997
Currency:	Eritrean nakfa (ERN)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	n/a
Employees:	140 (2011)
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Eritrea
Securities markets:	/
Insurance companies:	Bank of Eritrea
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

n/a

Estonia

Name of central bank:	Bank of Estonia
Year of establishment:	1919
Central bank law:	Eesti Bank Act
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	231
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Estonian Financial Supervision Authority
Securities markets:	Estonian Financial Supervision Authority
Insurance companies:	Estonian Financial Supervision Authority
Inflation targeting:	No
International reserves:	0.30bn USD
Composition of international reserves:	n/a
Main objectives:	

"The primary aim of the Bank of Estonia is to maintain price stability. The Bank of Estonia also supports the achievement of other economic policy objectives in accordance with the Treaty on the Functioning of the European Union."

Ethiopia

Name of central bank:	National Bank of Ethiopia
Year of establishment:	1964
Central bank law:	National Bank of Ethiopia Establishment Proclamation
Currency:	Ethiopian birr (ETB)
Exchange rate arrangement:	Crawl-like arrangement
Ownership:	100% state ownership
Governor's term of office:	Indefinite
Employees:	652
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	National Bank of Ethiopia
Securities markets:	/
Insurance companies:	National Bank of Ethiopia
Inflation targeting:	No
International reserves:	0.00bn USD
Composition of international reserves:	n/a
Main objectives:	

"The purpose of the National Bank is to maintain stable rate of price and exchange, to foster a healthy financial system and to undertake such other related activities as are conducive to rapid ecoNo.mic development of Ethiopia. "

Fiji

Field	Value
Name of central bank:	Reserve Bank of Fiji
Year of establishment:	1973
Central bank law:	Reserve Bank of Fiji Act
Currency:	Fijian dollar (FJD)
Exchange rate arrangement:	Conventional peg (to currency basket)
Ownership:	100% state ownership
Governor's term of office:	3 years
Employees:	214
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Reserve Bank of Fiji
Securities markets:	Reserve Bank of Fiji
Insurance companies:	Reserve Bank of Fiji
Inflation targeting:	No
International reserves:	0.82bn USD
Composition of international reserves:	n/a
Main objectives:	

"The Principal purposes of the Reserve Bank shall be- (a) to regulate the issue of currency, and the supply, availability and international exchange of money; (b) to promote monetary stability; (c) to promote a sound financial structure; and (d) to foster credit and exchange conditions conducive to the orderly and balanced economic development of the country."

Finland

Field	Value
Name of central bank:	Bank of Finland
Year of establishment:	1811
Central bank law:	Act on the Bank of Finland
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	387
Number of regional representations:	1
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Finnish Financial Supervisory Authority (FIN-FSA)
Securities markets:	Finnish Financial Supervisory Authority (FIN-FSA)
Insurance companies:	Finnish Financial Supervisory Authority (FIN-FSA)
Inflation targeting:	No
International reserves:	6.23bn USD
Composition of international reserves:	USD: 77.2%, GBP: 15.1%, JPY: 7.7%
Main objectives:	

" In accordance with the Treaty, the primary objective of the Bank of Finland shall be to maintain price stability. Without prejudice to the objective laid down in paragraph 1, the Bank of Finland shall also support the achievement of other economic policy objectives in accordance with the Treaty."

France

Name of central bank:	Bank of France
Year of establishment:	1800
Central bank law:	Code monétaire et financier
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	12,269
Number of regional representations:	96
Number of foreign representations:	1
Location of foreign representations:	New York
Financial markets supervision:	
Banks:	Autorité de Contrôle Prudentiel et de Résolution (ACPR)
Securities markets:	Autorité des Marchés Financiers (AMF)
Insurance companies:	Autorité de Contrôle Prudentiel et de Résolution (ACPR)
Inflation targeting:	No
International reserves:	36.37bn USD
Composition of international reserves:	n/a
Main objectives:	

"La Banque de France fait partie intégrante du Système européen de banques centrales, institué par l'article 8 du traité instituant la Communauté européenne, et participe à l'accomplissement des missions et au respect des objectifs qui sont assignés à celui-ci par le traité. Dans ce cadre, et sans préjudice de l'objectif principal de stabilité des prix, la Banque de France apporte son soutien à la politique économique générale du Gouvernement."

Gambia

Name of central bank:	Central Bank of the Gambia
Year of establishment:	1971
Central bank law:	Central Bank of the Gambia Act
Currency:	Gambian dalasi (GMD)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	276
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of the Gambia
Securities markets:	/
Insurance companies:	Central Bank of the Gambia
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"(1) The primary objects of the Bank are to- (a) achieve and maintain price stability; (b) promote and maintain the stability of the currency of The Gambia; (c) direct and regulate the financial, insurance, banking and currency system in the interest of the economic development of the Gambia; and (d) encourage and promote sustainable economic development in the efficient utilisation of the resources of The Gambia though the effective and efficient operation of a financial system. (2) Without prejudice to subsection (1), the Bank shall support the general economic policy of the Government and promote economic growth and effective and efficient operation of a financial system in The Gambia, subject to the direction of the Secretary of State."

Germany

Field	Value
Name of central bank:	Deutsche Bundesbank
Year of establishment:	1948
Central bank law:	Bundesbank Act
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	8 years
Employees:	11,001
Number of regional representations:	35
Number of foreign representations:	2
Location of foreign representations:	New York, Tokyo
Financial markets supervision:	
Banks:	Deutsche Bundesbank, BaFin
Securities markets:	BaFin
Insurance companies:	BaFin
Inflation targeting:	No
International reserves:	36.39bn USD
Composition of international reserves:	USD: 92.2%, JPY: 4.6%, AUD: 3.2%
Main objectives:	

"The Deutsche Bundesbank, being the central bank of the Federal Republic of Germany, is an integral part of the European System of Central Banks (ESCB). It shall participate in the performance of the ESCB's tasks with the primary objective of maintaining price stability, shall hold and manage the foreign reserves of the Federal Republic of Germany, shall arrange for the execution of domestic and crossborder payments and shall contribute to the stability of payment and clearing systems. In addition, it shall fulfil the tasks assigned to it under this Act or other legislation."

Georgia

Field	Value
Name of central bank:	National Bank of Georgia
Year of establishment:	1991
Central bank law:	Organic Law of Georgia on the National Bank of Georgia
Currency:	Georgian lari (GEL)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	339
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	National Bank of Georgia
Securities markets:	National Bank of Georgia
Insurance companies:	National Bank of Georgia
Inflation targeting:	Yes, introduction in 2009, 2016: 5%, 2017:4%
International reserves:	2.32bn USD
Composition of international reserves:	USD: 81.7%, AUD: 8.6%, EUR: 6%
Main objectives:	

"1. The main task of the National Bank shall be to ensure price stability. 2. The National Bank shall ensure stability and transparency of financial system and shall facilitate stable economic growth in the country provided this is possible in a manner to avoid threatening of its main task."

Ghana

Name of central bank:	Bank of Ghana
Year of establishment:	1957
Central bank law:	Bank of Ghana Act
Currency:	Ghana cedi (GHS)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	1,643
Number of regional representations:	5
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Ghana
Securities markets:	Securities and Exchange Commission
Insurance companies:	National Insurance Commission Ghana
Inflation targeting:	Yes, introduction in 2007; 8%±2pp
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"(1) The primary objective of the Bank is to maintain stability in the general level of prices. (2) Without prejudice to subsection (1) the Bank shall support the general economic policy of the Government and promote economic growth and effective and efficient operation of banking and credit systems in the country, independent of instructions from the Government or any other authority."

Greece

Name of central bank:	Bank of Greece
Year of establishment:	1927
Central bank law:	Bank of Greece Statute
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	Max. 35% state ownership, other private ownership
Governor's term of office:	6 years
Employees:	1,867
Number of regional representations:	17
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Greece
Securities markets:	Hellenic Capital Market Commission (HCMC)
Insurance companies:	Department of Private Insurance Supervision (DOPIS)
	(within Bank of Greece)
Inflation targeting:	No
International reserves:	1.50bn USD
Composition of international reserves:	n/a
Main objectives:	

"The primary objective of the Bank of Greece shall be to ensure price stability. Without prejudice to this primary objective, the Bank shall support the general economic policy of the government. As from the adoption of the single European currency (euro) as the national currency of Greece, the Bank of Greece, as an integral part of the ESCB and in accordance with the terms set out in Article 105 paragraph 1 of the Treaty establishing the European Community shall pursue the primary objective of maintaining price stability."

Guatemala

Field	Value
Name of central bank:	Bank of Guatemala
Year of establishment:	1946
Central bank law:	Organic Law of the Banco de Guatemala
Currency:	Guatemalan quetzal (GTQ)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	735
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Superintendencia de Bancos de Guatemala
Securities markets:	Superintendencia de Bancos de Guatemala
Insurance companies:	Superintendencia de Bancos de Guatemala
Inflation targeting:	Yes, introduction in 2005; 4%±1pp
International reserves:	7.27bn USD
Composition of international reserves:	n/a
Main objectives:	

"The Banco de Guatemala has as its fundamental objective, to contribute to the creation and maintenance of the most favorable conditions for the orderly development of the national economy, for which, it will propitiate the monetary, exchange and credit conditions that promote stability in the general level of prices."

Guinea

Field	Value
Name of central bank:	Central Bank of the Republic of Guinea
Year of establishment:	1960
Central bank law:	Statut de la Banque Centrale de Guinée
Currency:	Guinean franc (GNF)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	792 (2010)
Number of regional representations:	5
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of the Republic of Guinea
Securities markets:	/
Insurance companies:	Central Bank of the Republic of Guinea
Inflation targeting:	No
International reserves:	0.05bn USD
Composition of international reserves:	n/a
Main objectives:	

"L'objectif principal de la Banque centrale est d'atteindre et de maintenir la stabilité des prix. L'objectif supplémentaire est de promouvoir un système financier stable. Sans préjudice de la réalisation de ces objectifs, la Banque centrale apporte son soutien à la politique économique générale du Gouvernement de la République de Guinée. La Banque centrale agit conformément au principe d'économie de marché, favorisant une affectation efficiente des ressources."

Guyana

Name of central bank:	Bank of Guyana
Year of establishment:	1965
Central bank law:	Bank of Guyana Act
Currency:	Guyanese dollar (GYD)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	274
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Guyana
Securities markets:	Guyana Securities Council (under MoF)
Insurance companies:	Bank of Guyana
Inflation targeting:	No
International reserves:	0.53bn USD
Composition of international reserves:	n/a
Main objectives:	

"Within the context of the economic policy of the Government, the Bank shall be guided in all its actions by the objective of fostering domestic price stability through the promotion of stable credit and exchange conditions, as well as sound financial intermediation conducive to the growth of the economy of Guyana."

Haiti

Name of central bank:	Bank of Haiti
Year of establishment:	1979
Central bank law:	Loi du 17 août 1979 créant la Banque de la République d'Haïti
Currency:	Haitian gourde (HTG)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	3 years
Employees:	892
Number of regional representations:	1
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Haiti
Securities markets:	n/a
Insurance companies:	n/a
Inflation targeting:	No
International reserves:	1.82bn USD
Composition of international reserves:	n/a
Main objectives:	

"1) Promouvoir dans le domaine de la monnaie, du crédit et des changes les conditions les plus favorables au développement de l'économie nationale; 2) Encourager le développement et l'utilisation la plus complète et la plus efficace des ressources productives du pays; 3) Adapter les moyens de paiement et la politique de crédit aux besoins légitimes de l'économie haïtienne, et, en particulier, à la croissance de la production nationale; 4) Aider à éviter toutes tendances inflationnistes, spéculatives et déflationnistes qui seraient nuisibles aux intérêts permanents de la nation [...]".

Honduras

Name of central bank:	Central Bank of Honduras
Year of establishment:	1950
Central bank law:	Ley del Banco Central de Honduras
Currency:	Honduran lempira (HNL)
Exchange rate arrangement:	Crawling peg
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	967
Number of regional representations:	3
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Comisión Nacional de Bancos y Seguros
Securities markets:	Comisión Nacional de Bancos y Seguros
Insurance companies:	Comisión Nacional de Bancos y Seguros
Inflation targeting:	No
International reserves:	3.60bn USD
Composition of international reserves:	n/a
Main objectives:	

"El Banco Central de Honduras tendrá por objeto velar por el mantenimiento del valor interno y externo de la moneda nacional y propiciar el normal funcionamiento del sistema de pagos. Con tal fin, formulará, desarrollará y ejecutará la política monetaria, crediticia y cambiaria del país."

Hong Kong

Name of central bank:	Hong Kong Monetary Authority
Year of establishment:	1993
Central bank law:	Exchange Fund Ordinance and Banking ordinance
Currency:	Hong Kong dollar
Exchange rate arrangement:	Currency board
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	841
Number of regional representations:	0
Number of foreign representations:	1
Location of foreign representations:	New York
Financial markets supervision:	
Banks:	Hong Kong Monetary Authority
Securities markets:	Securities and Futures Commission
Insurance companies:	Office of the Commissioner of Insurance
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	USD: 86.5%, others: 13.5%
Main objectives:	

"The functions and objectives of the HKMA are: • to maintain currency stability, within the framework of the linked exchange rate system, through sound management of the Exchange Fund, monetary policy operations and other means deemed necessary; • to promote the safety and stability of the banking system through the regulation of banking business and the business of taking deposits, and the supervision of authorised institutions; and • to enhance the efficiency, integrity and development of the financial system, particularly payment and settlement arrangements. (homepage)"

Hungary

Name of central bank:	Magyar Nemzeti Bank (Hungarian National Bank)
Year of establishment:	1924
Central bank law:	Statutes of the Magyar Nemzeti Bank
Currency:	Hungarian forint (HUF)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	1,274
Number of regional representations:	1
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Hungarian National Bank
Securities markets:	Hungarian National Bank
Insurance companies:	Hungarian National Bank
Inflation targeting:	Yes, introduction in 2001; 3%±1pp
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"(1) The primary objective of the MNB shall be to achieve and maintain price stability.
(2) Without prejudice to its primary objective, the MNB shall support the maintenance of the stability of the financial intermediary system, the enhancement of its resilience, its sustainable contribution to economic growth; furthermore, the MNB shall support the economic policy of the government using the instruments at its disposal."

Iceland

Name of central bank:	Central Bank of Iceland
Year of establishment:	1961
Central bank law:	Law on the Central Bank of Iceland
Currency:	Icelandic króna (ISK)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	178
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Financial Supervisory Authority (FME)
Securities markets:	Financial Supervisory Authority (FME)
Insurance companies:	Financial Supervisory Authority (FME)
Inflation targeting:	Yes, introduction in 2001; 2.5%
International reserves:	4.79bn USD
Composition of international reserves:	USD: 48.1%, EUR: 40.7%,
	GBP: 8.8%, others: 0.8%
Main objectives:	

"The principal objective of the Central Bank of Iceland is to promote price stability. With the approval of the Minister, the Central Bank may declare a quantitative target for inflation. The Central Bank shall promote the implementation of the Government's economic policy as long as it does not consider this inconsistent with its main objective as described in Paragraph 1 above."

Indonesia

Name of central bank:	Bank Indonesia
Year of establishment:	1953
Central bank law:	Act on Bank Indonesia
Currency:	Indonesian rupiah (IDR)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	5,988
Number of regional representations:	41
Number of foreign representations:	4
Location of foreign representations:	London, New York, Singapore, Tokyo
Financial markets supervision:	
Banks:	Financial Services Authority (Otoritas Jasa Keuangan)
Securities markets:	Financial Services Authority (Otoritas Jasa Keuangan)
Insurance companies:	Financial Services Authority (Otoritas Jasa Keuangan)
Inflation targeting:	Yes, introduction in 2005; 4%±1pp
International reserves:	100.63bn USD
Composition of international reserves:	n/a
Main objectives:	

"The objective of Bank Indonesia is to achieve and maintain the stability of the rupiah value."

India

Name of central bank:	Reserve Bank of India
Year of establishment:	1935
Central bank law:	Reserve Bank of India Act
Currency:	Indian rupee (INR)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	Variable
Employees:	15,854
Number of regional representations:	25
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Reserve Bank of India
Securities markets:	Securities and Exchange Board of India (SEBI)
Insurance companies:	Insurance Regulatory and Development Agency (IRDA)
Inflation targeting:	Yes, but introduction in 2016 only; 2016–2018: 8%
International reserves:	327.84bn USD
Composition of international reserves:	n/a
Main objectives:	

"Whereas it is expedient to constitute a Reserve Bank for India to regulate the issue of Bank notes and the keeping of reserves with a view to securing monetary stability in [India] and generally to operate the currency any credit system of the country to its advantage; [...]."

Iran

Name of central bank:	Central Bank of the Islamic Republic of Iran
Year of establishment:	1960
Central bank law:	Monetary and Banking Act
Currency:	Iranian rial (IRR)
Exchange rate arrangement:	Crawl-like arrangement
Ownership:	100% state ownership
Governor's term of office:	Variable
Employees:	3,908 (2014)
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of the Islamic Republic of Iran
Securities markets:	Securities and Exchange Organization (SEO)
Insurance companies:	Bimeh Markazi Iran (Central Insurance of Iran)
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"The objectives of Bank Markazi Iran are to maintain the value of the currency and equilibrium in the balance of payments, to facilitate trade transactions, and to assist the economic growth of the country."

Iraq

Name of central bank:	Central Bank of Iraq
Year of establishment:	1947
Central bank law:	Central Bank of Iraq Law
Currency:	Iraqi dinar (IQD)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	1,676 (2011)
Number of regional representations:	4
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Iraq
Securities markets:	Iraqi Securities Commission
Insurance companies:	Iraqi Insurance Diwan (IID)
Inflation targeting:	No
International reserves:	50.66bn USD
Composition of international reserves:	n/a
Main objectives:	

"The primary objectives of the CBI shall be to achieve and maintain domestic price stability and to foster and maintain a stable and competitive market-based financial system. Subject to these objectives, the CBI shall also promote sustainable growth, employment, and prosperity in Iraq."

Israel

Name of central bank:	Bank of Israel
Year of establishment:	1954
Central bank law:	Bank of Israel Law
Currency:	Israeli new shekel (ILS)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	803
Number of regional representations:	1
Number of foreign representations:	1
Location of foreign representations:	New York
Financial markets supervision:	
Banks:	Bank of Israel
Securities markets:	Israel Securities Authority
Insurance companies:	Capital Markets, Insurance and Savings Division (within MoF)
Inflation targeting:	Yes, introduction in 1997; 1%-3%
International reserves:	88.94bn USD
Composition of international reserves:	USD: 67.6%, EUR: 29.4%, GBP: 3%
Main objectives:	

"The objectives of the Bank are: (1) to maintain price stability as its central goal; (2) to support other objectives of the Government's economic policy, especially growth, employment and reducing social gaps, provided that, in the Committee's opinion, this support shall not prejudice the attainment of Price Stability over the Course of Time; for this purpose, "Price Stability over the Course of Time" means a situation in which the Committee, on the basis of the monetary policy that it has established, expects the inflation rate to be within the price-stability range determined per Subsection (b) within no more than two years. (3) to support the stability and orderly activity of the financial system."

Ireland

Name of central bank:	Central Bank of Ireland
Year of establishment:	1943
Central bank law:	Central Bank Act 1942 (revised)
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	1,516
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Ireland
Securities markets:	Central Bank of Ireland
Insurance companies:	Central Bank of Ireland
Inflation targeting:	No
International reserves:	0.74bn USD
Composition of international reserves:	n/a
Main objectives:	

"(1) In discharging its functions and exercising its powers as part of the European System of Central Banks, the primary objective of the Bank is to maintain price stability. (2) The Bank also has the following objectives: (a) the stability of the financial system overall; (b) the proper and effective regulation of financial service providers and markets, while ensuring that the best interests of consumers of financial services are protected; (c) the efficient and effective operation of payment and settlement systems."

Italy

Field	Value
Name of central bank:	Bank of Italy
Year of establishment:	1893
Central bank law:	Statute of the Bank of Italy
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	Banks, insurance companies and social security institutions
Governor's term of office:	6 years
Employees:	7,032
Number of regional representations:	39
Number of foreign representations:	3
Location of foreign representations:	London, New York, Tokyo
Financial markets supervision:	
Banks:	Bank of Italy
Securities markets:	Commissione Nazionale per le Società e la Borsa (CONSOB)
Insurance companies:	Istituto per la Vigilanza sulle Assicurazioni (IVASS)
Inflation targeting:	No
International reserves:	34.44bn USD
Composition of international reserves:	USD: 67.5%, JPY: 13.7%, GBP: 10.9%, others: 7.9%

Main objectives:

"As the central bank of the Italian Republic, the Bank of Italy is an integral part of the European System of Central Banks (ESCB). It shall perform the tasks and functions entrusted to it in that capacity in compliance with the statute of the ESCB. It shall pursue the objectives assigned to the ESCB under Article 127(1) of the Treaty on the Functioning of the European Union (Treaty)."

Jamaica

Field	Value
Name of central bank:	Bank of Jamaica
Year of establishment:	1960
Central bank law:	Bank of Jamaica Act
Currency:	Jamaican dollar (JMD)
Exchange rate arrangement:	Crawl-like arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	552
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Jamaica
Securities markets:	Financial Services Commission (FSC)
Insurance companies:	Financial Services Commission (FSC)
Inflation targeting:	No
International reserves:	2.66bn USD
Composition of international reserves:	n/a

Main objectives:

"The principal objects of the Bank shall be to issue and redeem notes and coins, to keep and administer the external reserves of Jamaica, to influence the volume and conditions of supply of credit so as to promote the fullest expansion in production, trade and employment, consistent with the maintenance of monetary stability in Jamaica and the external value of the currency; to foster the development of money and capital markets in Jamaica and to act as banker to the Government."

Japan

Name of central bank:	Bank of Japan
Year of establishment:	1882
Central bank law:	Bank of Japan Act
Currency:	Japanese yen (JPY)
Exchange rate arrangement:	Free floating
Ownership:	55% state ownership, 45% private ownership
Governor's term of office:	5 years
Employees:	4,593
Number of regional representations:	32
Number of foreign representations:	7
Location of foreign representations:	Beijing, Frankfurt, Hong Kong, London, New York, Paris, Washington
Financial markets supervision:	
Banks:	Bank of Japan, Financial Services Agency
Securities markets:	Financial Services Agency
Insurance companies:	Financial Services Agency
Inflation targeting:	Yes, introduction in 2013; 2%
International reserves:	1179.50bn USD
Composition of international reserves:	n/a
Main objectives:	

"(1) The purpose of the Bank of Japan, or the central bank of Japan, is to issue banknotes and to carry out currency and monetary control. (2) In addition to what is prescribed in the preceding paragraph, the Bank of Japan's purpose is to ensure smooth settlement of funds among banks and other financial institutions, thereby contributing to the maintenance of stability of the financial system."

Jordan

Name of central bank:	Central Bank of Jordan
Year of establishment:	1963
Central bank law:	The Central Bank of Jordan Law of 1971
Currency:	Jordanian dinar (JOD)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	812
Number of regional representations:	2
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Jordan
Securities markets:	Jordan Securities Commission (JSC)
Insurance companies:	Insurance Commission
Inflation targeting:	No
International reserves:	15.02bn USD
Composition of international reserves:	n/a
Main objectives:	

"The objectives of the Central Bank shall be to maintain monetary stability in the Kingdom and to ensure the convertibility of the Jordan Dinar, and to promote the sustained economic growth in the Kingdom in accordance with the general economic policy of the Government."

Kazakhstan

Name of central bank:	National Bank of Kazakhstan
Year of establishment:	1993
Central bank law:	Law of the Republic of Kazakhstan No. 2155
Currency:	Kazakhstani tenge (KZT)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	3,360 (2013)
Number of regional representations:	16
Number of foreign representations:	1
Location of foreign representations:	Moscow
Financial markets supervision:	
Banks:	Committee for the Control and Supervision of the Financial Market and Financial Organizations (within CB)
Securities markets:	Committee for the Control and Supervision of the Financial Market and Financial Organizations (within CB)
Insurance companies:	Committee for the Control and Supervision of the Financial Market and Financial Organizations (within CB)
Inflation targeting:	Yes, introduction in 2015; 2016-2017: 6%-8%
International reserves:	19.79bn USD
Composition of international reserves:	n/a
Main objectives:	

"The primary purpose of the National Bank of Kazakhstan shall be to ensure price stability in the Republic of Kazakhstan."

Kenya

Name of central bank:	Central Bank of Kenya
Year of establishment:	1966
Central bank law:	Central Bank of Kenya Act
Currency:	Kenyan shilling (KES)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	1,435
Number of regional representations:	3
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Kenya
Securities markets:	Capital Markets Authority (CMA)
Insurance companies:	Insurance Regulatory Authority (IRA)
Inflation targeting:	No
International reserves:	7.51bn USD
Composition of international reserves:	n/a
Main objectives:	

"(1) The principal object of the Bank shall be to formulate and implement monetary policy directed to achieving and maintaining stability in the general level of prices. (2) The Bank shall foster the liquidity, solvency and proper functioning of a stable market-based financial system. (3) Subject to subsections (1) and (2), the Bank shall support the economic policy of the Government, including its objectives for growth and employment."

Kuwait

Field	Value
Name of central bank:	Central Bank of Kuwait
Year of establishment:	1968
Central bank law:	Central Bank of Kuwait Law
Currency:	Kuwaiti dinar (KWD)
Exchange rate arrangement:	Conventional peg (to currency basket)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	975
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Kuwait
Securities markets:	Central Bank of Kuwait
Insurance companies:	Insurance Department in Ministry of Commerce
Inflation targeting:	No
International reserves:	25.66bn USD
Composition of international reserves:	n/a
Main objectives:	

"The objects of the Central Bank shall be: 1. to exercise the privilege of the issue of currency on behalf of the State; 2. to endeavour to secure the stability of the Kuwaiti currency and its free convertibility into foreign currencies; 3. to endeavour to direct credit policy in such a manner as to assist the social and economic progress and the growth of national income; 4. to control the banking system in the State of Kuwait; 5. to serve as Banker to the Government; 6. to render financial advice to the Government."

Korea, South

Field	Value
Name of central bank:	Bank of Korea
Year of establishment:	1950
Central bank law:	Bank of Korea Act
Currency:	Korean Republic Won (KRW)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	2,215
Number of regional representations:	16
Number of foreign representations:	5
Location of foreign representations:	Beijing, Frankfurt, New York, London, Tokyo
Financial markets supervision:	
Banks:	Bank of Korea, Financial Services Commission
Securities markets:	Financial Service Commission
Insurance companies:	Financial Service Commission
Inflation targeting:	Yes, introduction in 1998; 2013-2015: 2.5%-3.5%; 2016-2018: 2.0%
International reserves:	358.51bn USD
Composition of international reserves:	n/a
Main objectives:	

"(1) The purpose of this Act shall be to establish the Bank of Korea and to contribute to the sound development of the national economy by pursuing price stability through the formulation and implementation of efficient monetary and credit policies. (2) The Bank of Korea shall pay attention to financial stability in carrying out its monetary and credit policies."

Kyrgyz Republic

Name of central bank:	National Bank of the Kyrgyz Republic
Year of establishment:	1991
Central bank law:	Law on the National Bank of the Kyrgyz Republic
Currency:	Kyrgyzstani som (KGS)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	698
Number of regional representations:	6
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	National Bank of the Kyrgyz Republic
Securities markets:	Financial Market Supervision and Regulation Service
Insurance companies:	Financial Market Supervision and Regulation Service
Inflation targeting:	No
International reserves:	1.45bn USD
Composition of international reserves:	n/a
Main objectives:	

"The purpose of the activity of the Bank of Kyrgyzstan is to achieve and maintain the stability of prices through implementation of appropriate monetary policy according to this Law. Article 3. Primary task of the Bank of Kyrgyzstan The primary task of the Bank of Kyrgyzstan, facilitating achievement of its purpose (or subordinate to the main purpose), is to support the purchasing power of the national currency, to ensure effectiveness, safety and soundness of the banking and payment system of the republic to promote long-term economic growth of the country."

Lao P.D.R.

Name of central bank:	Bank of the Lao PDR
Year of establishment:	1968
Central bank law:	Decree on the Organisation and Activities of the Bank of Lao PDR
Currency:	Lao kip (LAK)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	528 (2014)
Number of regional representations:	4
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of the Lao PDR
Securities markets:	Bank of the Lao PDR
Insurance companies:	Insurance Department (within MoF)
Inflation targeting:	No
International reserves:	0.97bn USD
Composition of international reserves:	n/a
Main objectives:	

"2.1 To be the government's chief of staff, responsible for the macro management of the currency, credit and payment accounts of the banks in the whole country. To be a modern centre of command ensuring rapid and efficient services for the commercial banks and other monetary institutions under its authority. 2.2 To promote and stabilize the value of the kip within the country and abroad. To raise the efficiency of payment and credit mechanisms in Lao PDR so as to acquire a high degree of effectiveness and transparency. 2.3 To promote, facilitate and control monetary circulation so that it contributes to the economic growth in line with the national socio-economic development plan."

Latvia

Name of central bank:	Bank of Latvia
Year of establishment:	1922
Central bank law:	Law on the Bank of Latvia
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	540
Number of regional representations:	3
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Finance and Capital Market Commission (FCMC)
Securities markets:	Finance and Capital Market Commission (FCMC)
Insurance companies:	Finance and Capital Market Commission (FCMC)
Inflation targeting:	No
International reserves:	3.05bn USD
Composition of international reserves:	USD: 60%, JPY: 13.3%, CAD: 13.3%, others: 13.3%

Main objectives:

"The primary objective of the Bank of Latvia shall be to maintain price stability. Without prejudice to the primary objective, the Bank of Latvia shall support the general economic policies in the European Union in accordance with Article 127(1) of the Treaty."

Lebanon

Name of central bank:	Bank of Lebanon
Year of establishment:	1964
Central bank law:	Code of Money and Credit, Decree No. 13513
Currency:	Lebanese pound (LBP)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	1,229
Number of regional representations:	9
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Banking Control Commission of Lebanon (BCCL) (within CB)
Securities markets:	Capital Market Authority (CMA)
Insurance companies:	Insurance Control Commission (ICC)
Inflation targeting:	No
International reserves:	38.44bn USD
Composition of international reserves:	n/a

Main objectives:

"The overall duty of the Bank shall be the safeguard of currency as a fundamental guarantee for permanent economic and social development, and more specifically: - safeguarding a sound Lebanese currency, - safeguarding economic stability, - safeguarding the basic structure of the banking system, - developing the monetary and financial market."

Lesotho

Name of central bank:	Central Bank of Lesotho
Year of establishment:	1978
Central bank law:	Central Bank of Lesotho Act
Currency:	Lesotho loti (LSL)
Exchange rate arrangement:	Conventional peg (to South African rand)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	250
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Lesotho
Securities markets:	/
Insurance companies:	Central Bank of Lesotho
Inflation targeting:	No
International reserves:	0.84bn USD
Composition of international reserves:	n/a
Main objectives:	

"The objective of the Bank is to achieve and maintain price stability."

Liberia

Name of central bank:	Central Bank of Liberia
Year of establishment:	1999
Central bank law:	Central Bank of Liberia Act of 1999
Currency:	Liberian dollar (LRD)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	296 (2014)
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Liberia
Securities markets:	/
Insurance companies:	Central Bank of Liberia
Inflation targeting:	No
International reserves:	0.26bn USD
Composition of international reserves:	n/a
Main objectives:	

"The principal objective of the Central Bank shall be to achieve and maintain price stability in the Liberian economy. To this end, it shall devise and pursue policies designed to: a. preserve the purchasing power of the national currency; b. promote internal and external equilibrium in the national economy; c. encourage and mobilization of domestic and foreign savings and their efficient allocation for productive economic activities; d. facilitate the emergence of financial and capital markets that are capable of responding to the needs of the national economy; and e. foster monetary, credit and financial conditions conducive."

Libya

Field	Value
Name of central bank:	Central Bank of Libya
Year of establishment:	1956
Central bank law:	Banking Law No. (1) of the Year 2005 Amended by law No. (46) of the Year 2012
Currency:	Libyan dinar (LYD)
Exchange rate arrangement:	Conventional peg (to SDR)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	930 (2011)
Number of regional representations:	3
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Libya
Securities markets:	n/a
Insurance companies:	n/a
Inflation targeting:	No
International reserves:	71.01bn USD
Composition of international reserves:	n/a

Main objectives:

"Within the framework of the general policy of the State, the Bank shall fulfill the following functions: 1- Issue the Libyan currency, and maintain its stability inside the country and abroad. 2- Manage its reserves and the State reserves of gold and foreign currency. 3- Regulate the monetary policy and oversee the currency conversion operations, inside and outside Libya. 4- Regulate the credit and banking policy and oversee its implementation, in line with the general policy of the State. 5- Achieve the goals of the economic policy with respect to the stability of the general level of prices, and the soundness of the banking system."

Lithuania

Field	Value
Name of central bank:	Bank of Lithuania
Year of establishment:	1922
Central bank law:	Law on the Bank of Lithuania
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	609
Number of regional representations:	2
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Lithuania
Securities markets:	Bank of Lithuania
Insurance companies:	Bank of Lithuania
Inflation targeting:	No
International reserves:	1.31bn USD
Composition of international reserves:	n/a

Main objectives:

"1. In accordance with the Treaty on the Functioning of the European Union, the primary objective of the Bank of Lithuania shall be to maintain price stability. 2. Without prejudice to its primary objective, the Bank of Lithuania shall, within the range of its competence, support the general economic policies in the European Union with a view to contributing to the achievement of the objectives of the European Union established in the Treaty on the Functioning of the European Union, and support the economic policy carried out by the Government of the Republic of Lithuania, without prejudice to the primary objective of the Bank of Lithuania and to the extent this meets the objectives of the European Central Bank and of the European System of Central Banks."

Luxembourg

Name of central bank:	Central Bank of Luxembourg
Year of establishment:	1998
Central bank law:	Organic Law of the Central Bank of Luxembourg
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	317
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Commission de Surveillance du Secteur Financier (CSSF)
Securities markets:	Commission de Surveillance du Secteur Financier (CSSF)
Insurance companies:	Commissariat aux assurances
Inflation targeting:	No
International reserves:	0.19bn USD
Composition of international reserves:	n/a
Main objectives:	

"The main task of the Central Bank shall be to participate in the execution of the tasks of the ESCB with a view to achieving its objectives."

Macao

Name of central bank:	Monetary Authority of Macao
Year of establishment:	1980
Central bank law:	Decree-Law 14/96/M of 11th March
Currency:	Macanese pataca (MOP)
Exchange rate arrangement:	Currency board
Ownership:	100% state ownership
Governor's term of office:	3 years
Employees:	175
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Monetary Authority of Macao
Securities markets:	/
Insurance companies:	Monetary Authority of Macao
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"To advise and assist the Chief Executive in formulating and applying monetary, financial, exchange rate and insurance policies; To guide, co-ordinate and oversee the monetary, financial, foreign exchange and insurance markets, ensure their smooth operation and supervise the actions of those operating within them according to the terms established in the regulatory statutes governing each respective area; To monitor internal monetary stability and the external solvency of the local currency, ensuring its full convertibility; To exercise the functions of a central monetary depository and manage the territory's currency reserves and other foreign assets; To monitor the stability of the financial system."

Macedonia

Name of central bank:	National Bank of the Republic of Macedonia
Year of establishment:	1992
Central bank law:	Law on the National Bank of the Republic of Macedonia
Currency:	Macedonian denari (MKD)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	439
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	National Bank of Macedonia
Securities markets:	Securities and Exchange Commission of Macedonia
Insurance companies:	Insurance Supervision Agency (ISA)
Inflation targeting:	No
International reserves:	2.23bn USD
Composition of international reserves:	EUR: 57.9%, USD: 32.3%, others: 9.8%
Main objectives:	

"(1) The primary objective of the National Bank shall be to achieve and to maintain price stability. (2) The other objective of the Bank, subordinated to the primary objective, shall be to contribute to the maintenance of a stable, competitive and market-based financial system. (3) The National Bank shall support the general economic policies without endangering the achievement of the objective set forth in paragraph (1) of this Article."

Madagascar

Name of central bank:	Central Bank of Madagascar
Year of establishment:	1973
Central bank law:	Loi N° 94 - 004 du 10 juin 1994
Currency:	Malagasy ariary (MGA)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	899
Number of regional representations:	11
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Commission de Supervision Bancaire et Financaire (CSBF) (within CB)
Securities markets:	/
Insurance companies:	MoF
Inflation targeting:	No
International reserves:	0.75bn USD
Composition of international reserves:	n/a
Main objectives:	

"La Banque Centrale a pour mission générale de veiller à la stabilité interne et externe de la monnaie."

Malawi

Field	Value
Name of central bank:	Reserve Bank of Malawi
Year of establishment:	1964
Central bank law:	Reserve Bank of Malawi Act
Currency:	Malawian kwacha (MWK)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	796
Number of regional representations:	2
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Reserve Bank of Malawi
Securities markets:	Reserve Bank of Malawi
Insurance companies:	Reserve Bank of Malawi
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"The principal objectives of the Bank shall be (a) to issue legal tender currency in Malawi; (b) to act as banker and adviser to the Government; (c) to maintain external reserves so as to safeguard the inter- national value of the Malawi currency; (d) to implement measures designed to influence the money supply and the availability of credit, interest rates and exchange rates with the view to promoting economic growth, employment, stability in prices and a sustainable balance of payments position ; (e) to promote a sound financial structure in Malawi, including payment systems, clearing systems and adequate financial services; (f) to promote a money and capital market in Malawi; (g) to act as lender of last resort to the banking system ; (h) to supervise banks and other financial institutions; (i) to collect economic data of the financial and other sectors for research and policy purposes; and (j) to promote development in Malawi."

Malaysia

Field	Value
Name of central bank:	Bank Negara Malaysia
Year of establishment:	1959
Central bank law:	Central Bank of Malaysia Act (2009)
Currency:	Malaysian ringgit (MYR)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	2,935
Number of regional representations:	4
Number of foreign representations:	3
Location of foreign representations:	London, New York, Beijing
Financial markets supervision:	
Banks:	Bank Negara Malaysia
Securities markets:	Securities Commission Malaysia
Insurance companies:	Bank Negara Malaysia
Inflation targeting:	No
International reserves:	91.43bn USD
Composition of international reserves:	n/a
Main objectives:	

"The principal objects of the Bank shall be to promote monetary stability and financial stability conducive to the sustainable growth of the Malaysian economy."

Maldives

Field	Value
Name of central bank:	Maldives Monetary Authority
Year of establishment:	1981
Central bank law:	Maldives Monetary Authority Act 1981
Currency:	Maldivian rufiyaa (MVR)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	182
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Maldives Monetary Authority
Securities markets:	Capital Market Development Authority (CMDA)
Insurance companies:	Maldives Monetary Authority
Inflation targeting:	No
International reserves:	0.56bn USD
Composition of international reserves:	n/a
Main objectives:	

"The principal purposes of the Authority shall be: (a) to issue currency and regulate the availability, and international value of the Maldivian Rufiyaa; (b) to provide advisory services to the Government on banking and monetary matters; (c) to supervise and regulate banking so as to promote a sound financial structure; and (d) to promote in the country and outside the country the stability of Maldivian currency and foster financial conditions conducive to the orderly and balanced economic development of Maldives."

Malta

Field	Value
Name of central bank:	Central Bank of Malta
Year of establishment:	1968
Central bank law:	Central Bank of Malta Act
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	363
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Malta Financial Services Authority
Securities markets:	Malta Financial Services Authority
Insurance companies:	Malta Financial Services Authority
Inflation targeting:	No
International reserves:	0.40bn USD
Composition of international reserves:	n/a
Main objectives:	

"In accordance with the Treaties and the Statute, the primary objective of the Bank shall be to maintain price stability. Without prejudice to its primary objective, the Bank shall support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union as laid down in Article 3 of the Treaty on European Union and shall act in accordance with the principles set out in Article 119 of the Treaty on the Functioning of the European Union."

Mauritania

Field	Value
Name of central bank:	Central Bank of Mauritania
Year of establishment:	1973
Central bank law:	Ordonnance n° 004/2007
Currency:	Mauritanian ouguiya (MRO)
Exchange rate arrangement:	Crawl-like arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	439 (2010)
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Mauritania
Securities markets:	/
Insurance companies:	Department of Insurance Supervision (within Ministry of Trade)
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"L'objectif principal de la Banque est de maintenir la stabilité des prix. En outre, sans préjudice de l'objectif de stabilité des prix, la Banque poursuivra la stabilité du système financier et contribuera à la mise en oeuvre des politiques èconomiques générales définies par le Gouvernement."

Mauritius

Field	Value
Name of central bank:	Bank of Mauritius
Year of establishment:	1967
Central bank law:	Bank of Mauritius Act 2004
Currency:	Mauritian rupee (MUR)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	3 years
Employees:	233
Number of regional representations:	1
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Mauritius
Securities markets:	Commission des Services Financiers de Maurice
Insurance companies:	Commission des Services Financiers de Maurice
Inflation targeting:	No
International reserves:	3.77bn USD
Composition of international reserves:	n/a
Main objectives:	

"(1) The primary object of the Bank shall be to maintain price stability and to promote orderly and balanced economic development. (2) The other objects of the Bank shall be – (a) to regulate credit and currency in the best interests of the economic development of Mauritius; (b) to ensure the stability and soundness of the financial system of Mauritius; and (c) to act as the central bank for Mauritius."

Mexico

Name of central bank:	Bank of Mexico
Year of establishment:	1925
Central bank law:	Banco de México Law
Currency:	Mexican peso (MXN)
Exchange rate arrangement:	Free floating
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	3,053
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Comisión Nacional Bancaria y de Valores (CNBV)
Securities markets:	Comisión Nacional Bancaria y de Valores (CNBV)
Insurance companies:	Comisión Nacional de Seguros y Fianzas (CNFS)
Inflation targeting:	Yes, introduction in 2001; 3%±1pp
International reserves:	168.37bn USD
Composition of international reserves:	n/a
Main objectives:	

"The Banco de México's purpose shall be to provide the country's economy with domestic currency. In pursuing this purpose, its primary objective shall be to seek the stability of the purchasing power of said currency. The Bank shall also have the purpose of promoting."

Moldova

Name of central bank:	National Bank of Moldova
Year of establishment:	1991
Central bank law:	Law on the National Bank of Moldova
Currency:	Moldova Len (MDL)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	487
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	National Bank of Moldova
Securities markets:	National Commission for Financial Markets (NMFM)
Insurance companies:	National Commission for Financial Markets (NMFM)
Inflation targeting:	Yes, introduction in 2010; 5%±1pp
International reserves:	1.74bn USD
Composition of international reserves:	USD: 62%, EUR: 20.5%,
	GBP: 15.5%, others: 1%
Main objectives:	

"(1) The primary objective of the National Bank is to achieve and maintain price stability. (2) Without prejudice to the primary objective, the National Bank shall foster and maintain a stable market-based financial system and support the general economic policy of the State."

Montenegro

Name of central bank:	Central Bank of Montenegro
Year of establishment:	1909
Central bank law:	Central Bank of Montenegr Law
Currency:	Euro (EUR)
Exchange rate arrangement:	No separate legal tender
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	361
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Montenegro
Securities markets:	Securities Commission of Montenegro
Insurance companies:	Insurance Supervision Agency of Montenegro
Inflation targeting:	No
International reserves:	0.69bn USD
Composition of international reserves:	n/a
Main objectives:	

"The main objective of the Central Bank shall be to foster and maintain the financial system stability, including fostering and maintaining a sound banking system and safe and efficient payment systems. The Central Bank shall contribute to achieving and maintaining price stability. The Central Bank shall, without prejudice to pursuing its objectives, support the pursuing of economic policy of the Government of Montenegro (hereinafter: the Government), acting thereby in accordance with the principles of free and open market and freedom of entrepreneurship and competition."

Mongolia

Name of central bank:	Bank of Mongolia
Year of establishment:	1924
Central bank law:	Law of Mongolia on Central Bank
Currency:	Mongolian tögrög (MNT)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	464
Number of regional representations:	12 branches and 5 divisions
Number of foreign representations:	1
Location of foreign representations:	London
Financial markets supervision:	
Banks:	Bank of Mongolia
Securities markets:	Financial Regulatory Commission
Insurance companies:	Financial Regulatory Commission
Inflation targeting:	No
International reserves:	1.19bn USD
Composition of international reserves:	n/a
Main objectives:	

"1. The main objective of the Bank of Mongolia shall be to ensure stability of the togrog. 2. Within its main objective the Bank of Mongolia shall also promote balanced and sustained development of the national economy, through maintaining the stability of money, financial markets and the banking system."

Morocco

Name of central bank:	Central Bank of Morocco
Year of establishment:	1959
Central bank law:	Statuts de Bank Al-Maghrib
Currency:	Moroccan dirham (MAD)
Exchange rate arrangement:	Conventional peg (to currency basket)
Ownership:	100% state ownership
Governor's term of office:	Variable
Employees:	2,280
Number of regional representations:	2
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Morocco
Securities markets:	Conseil Déontologique des Valeurs Mobilières (CDVM)
Insurance companies:	Direction des Assurances et de la Prévoyance Sociale (within MoF)
Inflation targeting:	No
International reserves:	21.39bn USD
Composition of international reserves:	n/a

Main objectives:

"La Banque exerce le privilège d'émission des billets de Banque et des pièces de monnaie ayant cours légal sur le territoire du Royaume. Dans le but d'assurer la stabilité des prix, la Banque arrête et met en oeuvre les instruments de politique monétaire définis à l'article 25 ci-dessous."

Mozambique

Name of central bank:	Bank of Mozambique
Year of establishment:	1975
Central bank law:	"Lei nº. 01/92 de 03 de Janeiro "
Currency:	Mozambican metical (MZN)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	1,036
Number of regional representations:	7
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Mozambique
Securities markets:	Bank of Mozambique
Insurance companies:	Instituto de Supervisão de Seguros de Moçambique (ISSM)
Inflation targeting:	No
International reserves:	2.30bn USD
Composition of international reserves:	USD: 55.3%, GBP: 2.2%, EUR: 1.8%, others: 40.7%

Main objectives:

"1. O Banco tem por objectivo principal a preservação do valor da moeda nacional. 2. No prosseguimento do seu objecto, o Banco visa ainda alcançar os seguintes fins: a) promover a realização de correcta política monetária; b) orientar a política de crédito com vista à promoção do crescimento e desenvolvimento económico e social do país; c) gerir disponibilidades externas de forma a manter adequado volume de meios de pagamento necessários ao comércio internacional; d) disciplinar a actividade bancária; 3. Na realização dos objectivos definidos nos nºs. 1 e 2 do presente artigo, o banco observa as políticas do Governo."

Myanmar

Name of central bank:	Central Bank of Myanmar
Year of establishment:	1948
Central bank law:	Central Bank of Myanmar Law
Currency:	Burmese kyat (MMK)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	n/a
Employees:	1,127 (2012)
Number of regional representations:	2
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Myanmar
Securities markets:	/
Insurance companies:	Insurance Business Supervisory Board
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"5. The aim of the Central Bank shall be to preserve and maintain the domestic price stability. 6. The Central Bank shall, in accordance with its aim, also endeavor to attain the following objectives: (a) to promote monetary stability (b) to enhance financial system stability; (c) to develop efficient payments and settlement system, (d) to support the general economic policy of the Government conducive to the sustained economic development."

Namibia

Name of central bank:	Bank of Namibia
Year of establishment:	1990
Central bank law:	Bank of Namibia Act 15 of 1997
Currency:	Namibia dollar (NAD)
Exchange rate arrangement:	Conventional peg (to South African Rand)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	302
Number of regional representations:	1
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Namibia
Securities markets:	Namibia Financial Institutions Supervisory Authority
Insurance companies:	Namibia Financial Institutions Supervisory Authority
Inflation targeting:	No
International reserves:	1.68bn USD
Composition of international reserves:	n/a
Main objectives:	

"The objects of the Bank shall be- (a) to promote and maintain a sound monetary, credit and financial system in Namibia and sustain the liquidity, solvency and functioning of that system; (b) to promote and maintain internal and external monetary stability and an efficient payments mechanism; (c) to foster monetary, credit and financial conditions conducive to the orderly, balanced and sustained economic development of Namibia; (d) to serve as the Government's banker, financial advisor and fiscal agent; and (e) to assist in the attainment of national economic goals."

Nepal

Name of central bank:	Nepal Rastra Bank
Year of establishment:	1956
Central bank law:	Nepal Rastra Bank Act, 2058 (2002)
Currency:	Nepalese rupee (NPR)
Exchange rate arrangement:	Conventional peg (to Indian rupee)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	1,312
Number of regional representations:	7
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Nepal Rastra Bank
Securities markets:	Securities Board of Nepal
Insurance companies:	Beema Samiti (Insurance Board)
Inflation targeting:	No
International reserves:	7.91bn USD
Composition of international reserves:	n/a
Main objectives:	

"(1) The objectives of the Bank shall be as follows:- (a) To formulate necessary monetary and foreign exchange policies in order to maintain the stability of price and balance of payment for sustainable development of economy, and manage it; (b) To promote stability and liquidity required in banking and financial sector; (c) To develop a secure, healthy and efficient system of payment; (d) To regulate, inspect, supervise and monitor the banking and financial system; and (e) To promote entire banking and financial system of the Kingdom of Nepal and to enhance its public credibility. (2) The Bank shall, without any prejudice to the objectives referred to in subsection (1), extend co-operation in the implementation of the economic policies of Government of Nepal."

Netherlands

Name of central bank:	Netherlands Bank
Year of establishment:	1814
Central bank law:	Bank Act 1998
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	1,707
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Netherlands Bank
Securities markets:	Netherlands Bank
Insurance companies:	Netherlands Bank
Inflation targeting:	No
International reserves:	8.84bn USD
Composition of international reserves:	USD: 87.8%, AUD: 12.2%
Main objectives:	

"1. In implementation of the Treaty, the Bank's objective shall be to maintain price stability. 2. In implementation of the Treaty, the Bank shall, without prejudice to the objective of price stability, support the general economic policies in the European Community with a view to contributing to the achievement of the objectives of the Community as laid down in Article 2 of the Treaty. 3. The Bank shall act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources, and in compliance with the principles set out in Article 3a1 of the Treaty. 4. The Bank shall also have the objective of performing tasks other than those referred to in section 3, insofar as these are conferred upon it by or pursuant to the law."

New Zealand

Name of central bank:	Reserve Bank of New Zealand
Year of establishment:	1933
Central bank law:	Reserve Bank of New Zealand Act (1989)
Currency:	New Zealand dollar (NZD)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	247
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Reserve Bank of New Zealand
Securities markets:	Financial Markets Authority
Insurance companies:	Reserve Bank of New Zealand
Inflation targeting:	Yes, introduction in 1989; 1%-3%
International reserves:	13.10bn USD
Composition of international reserves:	n/a
Main objectives:	

"The primary function of the Bank is to formulate and implement monetary policy directed to the economic objective of achieving and maintaining stability in the general level of prices."

Nicaragua

Name of central bank:	Central Bank of Nicaragua
Year of establishment:	1961
Central bank law:	Ley Orgánica del Banco Central de Nicaragua
Currency:	Nicaraguan córdoba (NIO)
Exchange rate arrangement:	Crawling peg
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	542
Number of regional representations:	2
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Superintendencia de Bancos y de Otras Instituciones Financieras
Securities markets:	Superintendencia de Bancos y de Otras Instituciones Fin.
Insurance companies:	Superintendencia de Bancos y de Otras Instituciones Fin.
Inflation targeting:	No
International reserves:	2.35bn USD
Composition of international reserves:	n/a
Main objectives:	

"El objetivo fundamental del Banco Central es la estabilidad de la moneda nacional y el normal desenvolvimiento de los pagos internos y externos."

Norway

Field	Value
Name of central bank:	Central Bank of Norway (Norges Bank)
Year of establishment:	1816
Central bank law:	Norges Bank Act
Currency:	Norwegian krone (NOK)
Exchange rate arrangement:	Free floating
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	856
Number of regional representations:	0
Number of foreign representations:	4
Location of foreign representations:	London, New York, Shanghai, Singapore
Financial markets supervision:	
Banks:	Finanstilsynet
Securities markets:	Finanstilsynet
Insurance companies:	Finanstilsynet
Inflation targeting:	Yes, introduction in 2001; ≈ 2.5%
International reserves:	54.58bn USD
Composition of international reserves:	USD: 51.8%, JPY: 8.6%,
	EUR: 28.3%, others: 11.3%

Main objectives:

"Norges Bank is Norway's central bank. The Bank shall be an executive and advisory body for monetary, credit and foreign exchange policy. It shall issue banknotes and coin, promote an efficient payment system domestically as well as vis-à-vis other countries, and monitor developments in the money, credit and foreign exchange markets."

Nigeria

Field	Value
Name of central bank:	Central Bank of Nigeria
Year of establishment:	1959
Central bank law:	Central Bank of Nigeria Act (2007)
Currency:	Nigerian naira (NGN)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	6,588 (2014)
Number of regional representations:	37
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Nigeria
Securities markets:	Securities and Exchange Commission (SEC)
Insurance companies:	National Insurance Commission (NAICOM) (gov. agency)
Inflation targeting:	No
International reserves:	28.28bn USD
Composition of international reserves:	n/a

Main objectives:

"The Principal objects of the Bank shall be to - (a) ensure monetary and price stability; (b) issue legal tender currency in Nigeria; (c) maintain external reserves to safeguard the international value of the legal tender currency; (d) promote a sound financial system in Nigeria; and (e) act as banker and provide economic and financial advice to the Federal Government."

Oman

Name of central bank:	Central Bank of Oman
Year of establishment:	1975
Central bank law:	Banking Law (1974)
Currency:	Omani rial (OMR)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	Variable
Employees:	710 (2014)
Number of regional representations:	2
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Oman
Securities markets:	Oman Capital Market Authority (CMA)
Insurance companies:	Oman Capital Market Authority (CMA)
Inflation targeting:	No
International reserves:	17.19bn USD
Composition of international reserves:	n/a
Main objectives:	

"(a) To promote the development of banking institutions which will ensure the maintenance of financial stability, contribute to the economic, industrial and financial growth and enhance the position of the Sultanate in international financial affairs; (b) To empower the central bank to issue currency and maintain the domestic and international value of that currency, to supervise banks and the banking business in the Sultanate and to advise the Government of the Sultanate on domestic and international economic affairs. (c) To facilitate the expansion of the free market economy of the Sultanate through greater use of recognized banking institutions and methods; and (d) To contribute to the fiscal and monetary development of the Sultanate through active participation in the international monetary community and in the proceedings, negotiations and decisions of international monetary organizations in which the Sultanate shall participate."

Pakistan

Name of central bank:	State Bank of Pakistan
Year of establishment:	1948
Central bank law:	State Bank of Pakistan Act, 1956
Currency:	Pakistani rupee (PKR)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	3 years
Employees:	1,190
Number of regional representations:	15
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	State Bank of Pakistan
Securities markets:	Securities and Exchange Commission of Pakistan (SECP)
Insurance companies:	Securities and Exchange Commission of Pakistan (SECP)
Inflation targeting:	No
International reserves:	17.16bn USD
Composition of international reserves:	n/a
Main objectives:	

"WHEREAS it is necessary to provide for the constitution of a State Bank to regulate the monetary and credit system of Pakistan and to foster its growth in the best national interest with a view to securing monetary stability and fuller utilisation of the country's productive resources [...]."

Palestine

Name of central bank:	Palestine Monetary Authority
Year of establishment:	1994
Central bank law:	Law No. 2 of 1997 on the Palestinian Monetary Authority
Currency:	n/a
Exchange rate arrangement:	n/a
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	337
Number of regional representations:	1
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Palestine Monetary Authority
Securities markets:	Palestine Capital Market Authority
Insurance companies:	Palestine Capital Market Authority
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

The objectives of the Monetary Authority are ensuring the soundness of banking operations, maintaining monetary stability, and encouraging economic growth in Palestine, in accordance with the general policy of the National Authority.

Papua New Guinea

Name of central bank:	Bank of Papua New Guinea
Year of establishment:	1973
Central bank law:	Central Banking Act 2000
Currency:	Papua New Guinean kina (PGK)
Exchange rate arrangement:	Crawl-like arrangement
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	379
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Papua New Guinea
Securities markets:	Securities Commission of Papua New Guinea (SCPNG)
Insurance companies:	Insurance Commissioner (for general insurance), Bank of Papua New Guinea (for life insurance)
Inflation targeting:	No
International reserves:	1.68bn USD
Composition of international reserves:	n/a
Main objectives:	

"For the advantage of the people of Papua New Guinea, the objectives of the Central Bank are - a) to formulate and implement monetary policy with a view to achieving and maintaining price stability; and (b) to formulate financial regulation and prudential standards to ensure stability of the financial system in Papua New Guinea; and (c) to promote an efficient national and international payments system; and (d) subject to the above, to promote macro-economic stability and economic growth in Papua New Guinea."

Paraguay

Field	Value
Name of central bank:	Central Bank of Paraguay
Year of establishment:	1952
Central bank law:	Organica del Banco Central del Paraguay
Currency:	Paraguayan guaraní (PYG)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	889
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Paraguay
Securities markets:	Comisión Nacional de Valores (CNV)
Insurance companies:	Central Bank of Paraguay
Inflation targeting:	Yes, introduction in 2013; 4.5%±2pp
International reserves:	5.48bn USD
Composition of international reserves:	n/a
Main objectives:	

"Son objetivos fundamentales del Banco Central del Paraguay preservar y velar por la estabilidad del valor de la moneda y promover la eficacia y estabilidad del sistema financiero."

Peru

Field	Value
Name of central bank:	Central Reserve Bank of Peru
Year of establishment:	1922
Central bank law:	Central Reserve Bank Of Peru: Organic Law
Currency:	Peruvian nuevo sol (PEN)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	931
Number of regional representations:	7
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Superintendencia de Banca, Seguros y AFP
Securities markets:	Superintendencia del Mercado de Valores (SMV)
Insurance companies:	Superintendencia de Banca, Seguros y AFP
Inflation targeting:	Yes, introduction in 2002; 2%±1pp
International reserves:	59.40bn USD
Composition of international reserves:	USD: 91%, GBP: 3.8%, JPY: 1.1%, others: 4.1%
Main objectives:	

"The purpose of the Bank is to preserve monetary stability. Its functions are to regulate the money supply, administer the international reserves, issue notes and coins and report on the nation's finances."

Philippines

Field	Value
Name of central bank:	Central Bank of the Philippines
Year of establishment:	1949
Central bank law:	New Central Bank Act
Currency:	Philippine peso (PHP)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	5,334
Number of regional representations:	3 regional offices and 19 branches
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bangko Sentral ng Pilipinas
Securities markets:	Securities and Exchange Commission (agency within Office of the President)
Insurance companies:	Insurance Commission (MoF)
Inflation targeting:	Yes, introduction in 2002; 3%±1pp
International reserves:	72.35bn USD
Composition of international reserves:	USD: 78.8%, JPY: 10%, EUR: 5%, others: 6.2%

Main objectives:

"The primary objective of the Bangko Sentral is to maintain price stability conducive to a balanced and sustainable growth of the economy. It shall also promote and maintain monetary stability and the convertibility of the peso."

Poland

Field	Value
Name of central bank:	National Bank of Poland
Year of establishment:	1924
Central bank law:	Act on the National Bank of Poland (Narodowy Bank Polski) of 29 August 1997
Currency:	Polish złoty (PLN)
Exchange rate arrangement:	Free floating
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	3,387
Number of regional representations:	16
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Polish Financial Supervision Authority (PFSA)
Securities markets:	Polish Financial Supervision Authority (PFSA)
Insurance companies:	Polish Financial Supervision Authority (PFSA)
Inflation targeting:	Yes, introduction in 1998; 2.5%±1pp
International reserves:	89.42bn USD
Composition of international reserves:	USD: 39%, EUR: 29%, GBP: 12%, others: 20%

Main objectives:

"The basic objective of the activity of the NBP shall be to maintain price stability, while supporting the economic policy of the Government, insofar as this does not constrain the pursuit of the basic objective of the NBP."

Qatar

Name of central bank:	Qatar Central Bank
Year of establishment:	1993
Central bank law:	Law No. (33) of the Year 2006
Currency:	Qatari riyal (QAR)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	800 (2016)
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Qatar Central Bank
Securities markets:	Qatar Financial Markets Authority
Insurance companies:	Qatar Central Bank
Inflation targeting:	No
International reserves:	35.99bn USD
Composition of international reserves:	n/a
Main objectives:	

"The Bank shall act to implement the general economic and developmental policy of the State in a way which does not contradict the following objectives: 1. Stability of Riyal rate of exchange and its capability of being exchanged for other currencies 2. Stability of commodities and services prices 3. Financial and banking stability"

Portugal

Name of central bank:	Bank of Portugal
Year of establishment:	1846
Central bank law:	Organic Law
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	1,777
Number of regional representations:	1
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Portugal
Securities markets:	Comissão do Mercado de Valores Mobiliários (CMVM)
Insurance companies:	Autoridade de Supervisão de Seguros e Fundos de Pensões (ASF)
Inflation targeting:	No
International reserves:	4.98bn USD
Composition of international reserves:	n/a
Main objectives:	

«The Bank shall pursue the objectives and shall participate in the performance of the tasks entrusted to the ESCB and shall be subject to the provisions of the Statute of the ESCB and of the European Central Bank, hereinafter called "ESCB/ECB Statute", acting in accordance with the guidelines and instructions of the European Central Bank, hereinafter called "ECB", pursuant to the same Statute.»

Romania

Name of central bank:	National Bank of Romania
Year of establishment:	1880
Central bank law:	Law No. 312 / 28.06.2004 on the Statute of the National Bank of Romania
Currency:	Romanian Leu (RON)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	1,905
Number of regional representations:	4 (and 16 agencies)
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	National Bank of Romania
Securities markets:	Financial Supervisory Authority (ASF)
Insurance companies:	Financial Supervisory Authority (ASF)
Inflation targeting:	Yes, introduction in 2005; 2.5%±1pp
International reserves:	35.15bn USD
Composition of international reserves:	USD: 16.6%, EUR: 79.1%, others: 4.3%

Main objectives:

«The primary objective of the National Bank of Romania shall be to ensure and maintain price stability.»

Russia

Name of central bank:	Central Bank of the Russian Federation
Year of establishment:	1990
Central bank law:	Federal Law on the Central Bank of the Russian Federation
Currency:	Russian ruble (RUB)
Exchange rate arrangement:	Free floating
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	59,400
Number of regional representations:	7
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of the Russian Federation
Securities markets:	Central Bank of the Russian Federation
Insurance companies:	Central Bank of the Russian Federation
Inflation targeting:	Yes, introduction in 2015; ≈4%
International reserves:	309.39bn USD
Composition of international reserves:	USD: 43.1%, EUR: 40.1%, GBP: 10.7%, others: 6.1%.

Main objectives:

"The purposes of the Bank of Russia shall be as follows: to protect the rouble and ensure its stability; to develop and strengthen the banking system of the Russian Federation; to ensure stability of and develop the national payment system; to develop the financial market of the Russian Federation; to ensure stability of the financial market of the Russian Federation. Deriving profit shall not be the purpose of the Bank of Russia."

Rwanda

Name of central bank:	National Bank of Rwanda
Year of establishment:	1964
Central bank law:	Law N° 55/2007 of 30/11/2007 (governing the Central Bank of Rwanda)
Currency:	Rwandan franc (RWF)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	379 (2016)
Number of regional representations:	5
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	National Bank of Rwanda
Securities markets:	Capital Market Authority (CMA)
Insurance companies:	National Bank of Rwanda
Inflation targeting:	No
International reserves:	0.92bn USD
Composition of international reserves:	n/a

Main objectives:

"The main missions of the Bank shall be: 1° to ensure and maintain price stability; 2° to enhance and maintain a stable and competitive financial system without any exclusion; 3° to support Government's general economic policies, without prejudice to the two missions referred to in Paragraphs 1° and 2° above."

Samoa

Name of central bank:	Central Bank of Samoa
Year of establishment:	1984
Central bank law:	Central Bank of Samoa Act 1984
Currency:	Samoan tālā (WST)
Exchange rate arrangement:	Conventional peg (to currency basket)
Ownership:	100% state ownership
Governor's term of office:	3 years
Employees:	103
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Samoa
Securities markets:	Central Bank of Samoa
Insurance companies:	Central Bank of Samoa
Inflation targeting:	No
International reserves:	0.12bn USD
Composition of international reserves:	n/a

Main objectives:

"The functions of the Bank are: (a) To regulate the issue supply availability and international exchange of money; (b) To advise the Government on banking and monetary matters; (c) To promote internal and external monetary stability; (d) To promote a sound financial structure; (e) To promote credit and exchange conditions conducive to the orderly and balanced economic development of Samoa; (f) To supervise and regulate banking business and the extension of credit; and (g) To regulate the insurance industry in Samoa, and other financial institutions, in accordance with any Act making provision in that regard."

São Tomé e Príncipe

Name of central bank:	Central Bank of São Tomé e Príncipe
Year of establishment:	1992
Central bank law:	Lei Orgânica do Banco Nacional de São Tomé e Príncipe
Currency:	São Tomé and Príncipe dobra (STD)
Exchange rate arrangement:	Conventional peg (to euro)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	112
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of São Tomé e Príncipe
Securities markets:	/
Insurance companies:	Central Bank of São Tomé e Príncipe
Inflation targeting:	No
International reserves:	0.07bn USD
Composition of international reserves:	n/a
Main objectives:	

"O Banco é único órgão emissor do País e o Banqueiro do Estado, competindo-lhe proceder à formulação e execução das políticas monetárias de crédito e de juros, bem como executar e administrar a política cambial assegurando a estabilidade interna e externa da moeda, fiscalizar e controlar as actividades do sistema financeiro nacional."

San Marino

Name of central bank:	Central Bank of the Republic of San Marino
Year of establishment:	2005
Central bank law:	Law No. 96 of 29 June 2005 – Central Bank Statutes
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	67% state ownership, 33% banks and insurance companies from San Marino
Governor's term of office:	5 years
Employees:	96
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of the Republic of San Marino
Securities markets:	/
Insurance companies:	Central Bank of the Republic of San Marino
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"La Banca Centrale esercita i propri poteri al fine di: a. promuovere la stabilità del sistema finanziario e tutelare il risparmio, a cui la Repubblica riconosce un rilevante valore sociale, attraverso la vigilanza sulle attività creditizie, finanziarie e assicurative svolte dagli intermediari autorizzati; b. fornire servizi bancari e finanziari allo Stato e alla Pubblica Amministrazione anche al fine di coordinare la gestione delle disponibilità e la scelta delle forme di finanziamento; c. fornire un adeguato sostegno al sistema finanziario della Repubblica assolvendo anche a funzioni di stimolo ed orientamento; d. agevolare l'attività economica e finanziaria con la predisposizione e il mantenimento di sistemi di pagamento della Repubblica efficienti e sicuri."

Saudi Arabia

Name of central bank: Saudi Arabian Monetary Agency

Year of establishment: 1952

Central bank law: Charter of the Saudi Arabian Monetary Agency

Currency: Saudi riyal (SAR)

Exchange rate arrangement: Conventional peg (to US dollar)

Ownership: 100% state ownership

Governor's term of office: 4 years

Employees: 2,616 (2009)

Number of regional representations: 10

Number of foreign representations: 0

Location of foreign representations: /

Financial markets supervision:

Banks: Saudi Arabian Monetary Agency

Securities markets: Capital Market Authority (CMA)

Insurance companies: Saudi Arabian Monetary Agency

Inflation targeting: No

International reserves: 603.99bn USD

Composition of international reserves: n/a

Main objectives:

"The objectives of the Saudi Arabian Monetary Agency shall be: a. To issue and strengthen the Saudi currency and to stabilize its internal and external value; b. To deal with the banking affairs of the Government; c. To regulate commercial banks and exchange dealers."

Serbia

Name of central bank: National Bank of Serbia

Year of establishment: 1884

Central bank law: Law on the National Bank of Serbia

Currency: Serbian dinar (RSD)

Exchange rate arrangement: Floating

Ownership: 100% state ownership

Governor's term of office: 6 years

Employees: 2,374

Number of regional representations: 5

Number of foreign representations: 0

Location of foreign representations: /

Financial markets supervision:

Banks: National Bank of Serbia

Securities markets: Republic of Serbia Securities Commission (SEC)

Insurance companies: National Bank of Serbia

Inflation targeting: Yes, introduction in 2009; 4%±1.5pp

International reserves: 10.71bn USD

Composition of international reserves: n/a

Main objectives:

"The primary objective of the National Bank of Serbia shall be to achieve and maintain price stability. Without prejudice to its primary objective, the National Bank of Serbia shall contribute to the maintenance and strengthening of the stability of the financial system. Without prejudice to its objectives referred to in paragraphs 1 and 2 of this Article, the National Bank of Serbia shall support the pursuance of economic policy of the Government of the Republic of Serbia (hereinafter: the Government), operating in accordance with the principles of a market economy."

Seychelles

Name of central bank:	Central Bank of Seychelles
Year of establishment:	1978
Central bank law:	Central Bank of Seychelles Act, 2004
Currency:	Seychelle rupee (SCR)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	158
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Seychelles
Securities markets:	Seychelles Financial Services Authority
Insurance companies:	Seychelles Financial Services Authority
Inflation targeting:	No
International reserves:	0.53bn USD
Composition of international reserves:	n/a
Main objectives:	

"The objectives of the Bank are – (a) to promote domestic price stability; (b) to advise the Government on banking, monetary and financial matters, including the monetary implications of proposed fiscal, credit policies or operations of the Government; (c) to promote a sound financial system."

Sierra Leone

Name of central bank:	Bank of Sierra Leone
Year of establishment:	1964
Central bank law:	Banking Act, 2011
Currency:	Sierra Leonean leone (SLL)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	456
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Sierra Leone
Securities markets:	Bank of Sierra Leone
Insurance companies:	Sierra Leone Insurance Commission (SLICOM)
Inflation targeting:	No
International reserves:	0.47bn USD
Composition of international reserves:	n/a
Main objectives:	

"The objective of this Act is to promote a safe and sound banking system and to provide an appropriate level of protection for depositors' interests."

Slovac Republic

Name of central bank:	National Bank of Slovakia
Year of establishment:	1993
Central bank law:	Act on the National Bank of Slovakia
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	1,053
Number of regional representations:	5
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	National Bank of Slovakia
Securities markets:	National Bank of Slovakia
Insurance companies:	National Bank of Slovakia
Inflation targeting:	No
International reserves:	1.19bn USD
Composition of international reserves:	n/a
Main objectives:	

"The primary objective of the National Bank of Slovakia shall be to maintain price stability."

Singapore

Name of central bank:	Monetary Authority of Singapore
Year of establishment:	1971
Central bank law:	Monetary Authority of Singapore Act
Currency:	Singapore dollar (SGD)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	2 years
Employees:	1,405
Number of regional representations:	0
Number of foreign representations:	3
Location of foreign representations:	Beijing, London, New York
Financial markets supervision:	
Banks:	Monetary Authority of Singapore
Securities markets:	Monetary Authority of Singapore
Insurance companies:	Monetary Authority of Singapore
Inflation targeting:	No
International reserves:	245.72bn USD
Composition of international reserves:	n/a
Main objectives:	

"The principal objects of the Authority shall be — a) to maintain price stability conducive to sustainable growth of the economy; b) to foster a sound and reputable financial centre and to promote financial stability; c) to ensure prudent and effective management of the official foreign reserves of Singapore; and to grow Singapore as an internationally competitive financial centre."

Slovenia

Name of central bank:	Bank of Slovenia
Year of establishment:	1991
Central bank law:	Banka Slovenije Act
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	447
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Slovenia
Securities markets:	Securities Market Agency
Insurance companies:	Insurance Supervision Agency
Inflation targeting:	No
International reserves:	0.35bn USD
Composition of international reserves:	USD: 99.2%, others: 0.8%
Main objectives:	

"(1) The primary objective of Banka Slovenije shall be to maintain price stability. (2) Without prejudice to the objective of ensuring price stability, Banka Slovenije shall support general economic policy in accordance with the objectives set in the Treaty establishing the European Community. (3) In pursuing the primary objective specified in the first paragraph of this Article and the objective specified in the second paragraph of this Article, Banka Slovenije shall strive for financial stability, while taking into account the principles of an open market economy and free competition."

Solomon Islands

Name of central bank:	Central Bank of Solomon Islands
Year of establishment:	1983
Central bank law:	Central Bank of Solomon Islands Act
Currency:	Solomon Islands dollar (SBD)
Exchange rate arrangement:	Conventional peg (to currency basket)
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	138
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Solomon Islands
Securities markets:	n/a
Insurance companies:	Central Bank of Solomon Islands
Inflation targeting:	No
International reserves:	0.48bn USD
Composition of international reserves:	n/a
Main objectives:	

"The principal objects of the Central Bank shall be— (a) to regulate the issue, supply, availability and international exchange of money; (b) to advise the Government on banking and monetary matters; (c) to promote monetary stability; (d) to supervise and regulate banking business; (e) to promote a sound financial structure; and (f) to foster financial conditions conducive to the orderly and balanced economic development of Solomon Islands."

Somalia

Name of central bank:	Central Bank of Somalia
Year of establishment:	1960
Central bank law:	Central Bank of Somalia Act (Law no. 130 of 22 April 2012)
Currency:	Somali shilling (SOS)
Exchange rate arrangement:	Free floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	71 (2012)
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Somalia
Securities markets:	n/a
Insurance companies:	Central Bank of Somalia
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"1. The primary objective of the Bank shall be to achieve and to maintain domestic price stability. 2. The other objective of the Bank, which shall be subordinated to the primary objective of the Bank, shall be to foster and maintain a stable and competitive market-based financial system. 3. Without prejudice to these two objectives, the Bank shall support the general economic policies of the Government."

South Africa

Name of central bank:	South African Reserve Bank
Year of establishment:	1921
Central bank law:	South African Reserve Bank Act 90 of 1989
Currency:	South African rand (ZAR)
Exchange rate arrangement:	Floating
Ownership:	Mixed ownership
Governor's term of office:	5 years
Employees:	2,233
Number of regional representations:	6
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	South African Reserve Bank
Securities markets:	Financial Services Board (FSB)
Insurance companies:	Financial Services Board (FSB)
Inflation targeting:	Yes, introduction in 2000; 3%-6%
International reserves:	38.92bn USD
Composition of international reserves:	n/a
Main objectives:	

"The primary objective of the Bank shall be to protect the value of the currency of the Republic in the interest of balanced and sustainable economic growth in the Republic."

South Sudan

Name of central bank:	Bank of South Sudan
Year of establishment:	2011
Central bank law:	Bank of South Sudan Act, 2011
Currency:	South Sudanese pound (SSP)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	261
Number of regional representations:	3
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of South Sudan
Securities markets:	n/a
Insurance companies:	n/a
Inflation targeting:	No
International reserves:	0.23bn USD
Composition of international reserves:	n/a
Main objectives:	

"(1) The primary objective of the Bank shall be to maintain monetary and domestic price stability. (2) The other objectives of the Bank, which shall be subordinated to the primary objective of the Bank, shall be to foster the liquidity, solvency and effective functioning of a stable market based financial system, and to promote a safe, sound and efficient national payment system which aims to maintain the stability of the financial system as a whole. (3) Without prejudice to its primary objectives, the Bank shall support the general economic policies of the Government, and promote sustainable economic growth."

Spain

Name of central bank:	Bank of Spain
Year of establishment:	1829
Central bank law:	Law of Autonomy of the Banco de España
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating (monetary union)
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	2,891
Number of regional representations:	15
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Spain
Securities markets:	Comisión Nacional del Mercado de Valores (CNMV)
Insurance companies:	Dirección General de Seguros y Fondos de Pensiones
Inflation targeting:	No
International reserves:	38.71bn USD
Composition of international reserves:	n/a
Main objectives:	

"Without prejudice to its main objective of maintaining price stability and fulfilling its duties as a member of the ESCB in accordance with the terms of article 105.1 of the Treaty, the Bank shall support the general economic policy of the government."

Sri Lanka

Name of central bank:	Central Bank of Sri Lanka
Year of establishment:	1950
Central bank law:	Monetary Law Act
Currency:	Sri Lankan rupee (LKR)
Exchange rate arrangement:	Crawl-like arrangement
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	1,422
Number of regional representations:	5
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Sri Lanka
Securities markets:	Securities and Exchange Commission (SEC) of Sri Lanka
Insurance companies:	Insurance Board of Sri Lanka (IBSL)
Inflation targeting:	No
International reserves:	6.47bn USD
Composition of international reserves:	n/a

Main objectives:

"[…] the Central Bank is hereby charged with the duty of securing, so far as possible by action authorised by this Act, the following objectives, namely – (a) economic and price stability; and (b) financial system stability, with a view to encouraging and promoting the development of the productive resources of Sri Lanka."

Sudan

Name of central bank:	Central Bank of Sudan
Year of establishment:	1960
Central bank law:	Bank of Sudan Act, 2002
Currency:	Sudanese pound (SDG)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	2,071 (2014)
Number of regional representations:	17
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Sudan
Securities markets:	n/a
Insurance companies:	n/a
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a

Main objectives:

"(a) issue currency of the types thereof, organize, control and supervise the same; (b) lay down monetary and financing policies and implement the same, in such a way, as may achieve the national objectives of the national macro economy, in consultation with the minister; (c) organize banking business, monitor and supervise, strive to promote and develop and raise the efficiency thereof, in such way, as may achieve the balanced economic and social development; (d) strive to achieve economic stability and the stability of the par value of the Sudanese Pound; (e) act, in its capacity as the Government banker, as an advisor and agent thereof, in the monetary and financial affairs; (f) abide, in the discharge thereby, of the duties, achievement of the objects, exercise of the powers thereof, by the ordinance of Islamic Sharia, in Islamic banking system, and conventional banking customs, in the conventional banking system."

Suriname

Name of central bank: Central Bank of Suriname

Year of establishment: 1957

Central bank law: Central Bank Act 1956

Currency: Surinamese dollar (SRD)

Exchange rate arrangement: Stabilized arrangement

Ownership: 100% state ownership

Governor's term of office: 5 years

Employees: 461

Number of regional representations: 0

Number of foreign representations: 0

Location of foreign representations: /

Financial markets supervision:

Banks: Central Bank of Suriname

Securities markets: /

Insurance companies: Central Bank of Suriname

Inflation targeting: No

International reserves: 0.22bn USD

Composition of international reserves: n/a

Main objectives:

"a. to promote the stability of the monetary unit of Suriname; b. to provide for the monetary circulation in Suriname to the extent that it concerns banknotes, as well as facilitating payments by giro ; c. to promote the development of a sound banking and credit system in Suriname; d. to supervise the banking and credit system, the pension and insurance system, foreign exchange transactions, and the transfer of financial resources to and from abroad, all of this subject to the applicable statutory regulations; the supervision also aims to preserve the integrity of the institutes operating in these sectors and subsectors; e. to promote and facilitate the flow of payments between Suriname and foreign countries; f. to promote the balanced socio-economic development of Suriname."

Swaziland

Name of central bank: Central Bank of Swaziland

Year of establishment: 1974

Central bank law: Central Bank of Swaziland Order, 1974

Currency: Swazi lilangeni (SZL)

Exchange rate arrangement: Conventional peg (to South African rand)

Ownership: 100% state ownership

Governor's term of office: 5 years

Employees: 268

Number of regional representations: n/a

Number of foreign representations: 0

Location of foreign representations: /

Financial markets supervision:

Banks: Central Bank of Swaziland

Securities markets: Financial Services Regulatory Authority (FSRA)

Insurance companies: Financial Services Regulatory Authority (FSRA)

Inflation targeting: No

International reserves: 0.47bn USD

Composition of international reserves: n/a

Main objectives:

"The objects of the Bank shall be to - (a) formulate and implement monetary policy to the end of promoting monetary stability; (b) issue and redeem currency which is legal tender within Swaziland under section 23; (c) issue securities in its own account; (d) formulate and implement appropriate intervention policies in the foreign exchange market; (e) hold and manage the official foreign reserves of Swaziland; (f) promote, regulate and supervise the efficient and secure operation of payment systems; and g) supervise banks, credit institutions and other financial institutions to the end of promoting a sound financial structure."

Sweden

Name of central bank:	Sveriges Riksbank
Year of establishment:	1668
Central bank law:	Sveriges Riksbank Act
Currency:	Swedish krona (SEK)
Exchange rate arrangement:	Free floating
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	341
Number of regional representations:	1
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Finansinspektionen
Securities markets:	Finansinspektionen
Insurance companies:	Finansinspektionen
Inflation targeting:	Yes, introduction in 1995; 2%
International reserves:	49.83bn USD
Composition of international reserves:	USD: 53.6%, EUR: 34.1%,
	AUD: 4.9%, others: 11.4%

Main objectives:

"The objective of the Riksbank's activities shall be to maintain price stability. The Riksbank shall also promote a safe and efficient payments system."

Switzerland

Name of central bank:	Swiss National Bank
Year of establishment:	1907
Central bank law:	Federal Act on the Swiss National Bank (National Bank Act)
Currency:	Swiss franc (CHF)
Exchange rate arrangement:	Floating
Ownership:	Mixed ownership
Governor's term of office:	6 years
Employees:	782
Number of regional representations:	6
Number of foreign representations:	1
Location of foreign representations:	Singapore
Financial markets supervision:	
Banks:	Eidgenössische Finanzmarktaufsicht (FINMA)
Securities markets:	Eidgenössische Finanzmarktaufsicht (FINMA)
Insurance companies:	Eidgenössische Finanzmarktaufsicht (FINMA)
Inflation targeting:	No
International reserves:	560.63bn USD
Composition of international reserves:	USD: 42.9%, EUR: 32.6%,
	JPY: 7.8%; others: 16.7%

Main objectives:

"The National Bank shall pursue a monetary policy serving the interests of the country as a whole. It shall ensure price stability. In so doing, it shall take due account of the development of the economy."

Taiwan

Name of central bank:	Central Bank of the Republic of China (Taiwan)
Year of establishment:	1961
Central bank law:	Central Bank of the Republic of China (Taiwan) Act
Currency:	New Taiwan dollar (TWD)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	795
Number of regional representations:	n/a
Number of foreign representations:	2
Location of foreign representations:	London, New York
Financial markets supervision:	
Banks:	Financial Supervisory Commission (FSC)
Securities markets:	Financial Supervisory Commission (FSC)
Insurance companies:	Financial Supervisory Commission (FSC)
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"The primary objectives of the Bank's operations shall be: 1. To promote financial stability; 2. To guide sound banking operations; 3. To maintain the stability of the internal and external value of the currency; 4. To foster economic development within the scope of the above objectives."

Syria

Name of central bank:	Central Bank of Syria
Year of establishment:	1956
Central bank law:	Law No. 23 of the Central Bank of Syria
Currency:	Syrian pound (SYP)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	Variable
Employees:	1,676 (2011)
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Syria
Securities markets:	Syrian Commission on Financial Markets and Securities
Insurance companies:	Syrian Insuranse Supervisory Commission (SISC)
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"A-Development of the monetary and financial market and the organization thereof according to the national economy needs. B- Maintain the purchasing power of the Syrian currency. C-Realize stability of the foreign exchange rate of the Syrian currency and secure free exchange thereof to other currencies. D-Expand possibility of utilizing resources and potentials and work towards the development of national income."

Tajikistan

Name of central bank:	National Bank of Tajikistan
Year of establishment:	1991
Central bank law:	Law of the Republic of Tajikistan on the National Bank of Tajikistan
Currency:	Tajikistani somoni (TJS)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	559 (2011)
Number of regional representations:	5
Number of foreign representations:	1
Location of foreign representations:	Moscow
Financial markets supervision:	
Banks:	National Bank of Tajikistan
Securities markets:	Securities and Foreign Investment Office (within MoF)
Insurance companies:	State Insurance Supervisory Service (SISS) (within MoF)
Inflation targeting:	No
International reserves:	0.03bn USD
Composition of international reserves:	n/a

Main objectives:

"1. The main goal of the National Bank of Tajikistan is maintenance of the long-term domestic price stability. 2. Supplemental goals of the National Bank of Tajikistan are: - maintenance of the stability of state banking system; - assistance to the efficient and uninterrupted operation of the payment system. 3. Profit-making is not the main goal of the National Bank of Tajikistan."

Tanzania

Name of central bank:	Bank of Tanzania
Year of establishment:	1966
Central bank law:	Bank of Tanzania Act
Currency:	Tanzanian shilling (TZS)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	1389
Number of regional representations:	4
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Tanzania
Securities markets:	Capital Market and Securities Authority (CMSA)
Insurance companies:	Tanzania Insurance Regulatory Authority (TIRA)
Inflation targeting:	No
International reserves:	3.93bn USD
Composition of international reserves:	n/a

Main objectives:

"The principal functions of the Bank shall be to exercise the functions of a central bank and, without prejudice to the generality of the foregoing, to formulate, implement and be responsible for monetary policy, including exchange rate policy, to issue currency, to regulate and supervise banks and financial institutions including mortgage financing, development financing, lease financing, licencing and revocation of licences and to deal, hold and manage gold and foreign exchange reserves of Tanzania."

Thailand

Name of central bank:	Bank of Thailand
Year of establishment:	1942
Central bank law:	Bank of Thailand Act, B.E. 2485
Currency:	Thai baht (THB)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	Indefinite
Employees:	3,631
Number of regional representations:	3
Number of foreign representations:	3
Location of foreign representations:	Beijing, London, New York
Financial markets supervision:	
Banks:	Bank of Thailand
Securities markets:	Securities and Exchange Commission (SEC)
Insurance companies:	Office of Insurance Commission (OIC)
Inflation targeting:	Yes, introduction in 2000; 2.5%±1.5pp
International reserves:	149.29bn USD
Composition of international reserves:	n/a
Main objectives:	

"The BOT's objectives are to carry on such tasks as pertain to central banking in order to maintain monetary stability, financial instituttion system stability and payment systems stability."

Timor-Leste

Name of central bank:	Central Bank of Timor-Leste
Year of establishment:	2011
Central bank law:	Organic Law of the Central Bank of Timor-Leste
Currency:	US dollar (USD)
Exchange rate arrangement:	No separate legal tender (dollarisation)
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	78 (2012)
Number of regional representations:	1
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Timor-Leste
Securities markets:	/
Insurance companies:	Central Bank of Timor-Leste
Inflation targeting:	No
International reserves:	0.43bn USD
Composition of international reserves:	n/a
Main objectives:	

"1. The Bank's primary objective shall be to achieve and maintain domestic price stability. 2. Subsidiary to the primary objective, the Bank shall promote and maintain a stable and competitive financial system based on free market principles. 3. Notwithstanding the preceding paragraphs, the Bank shall support the general economic policies of the Government."

Tonga

Name of central bank:	National Reserve Bank of Tonga
Year of establishment:	1989
Central bank law:	National Reserve Bank of Tonga Act, 1988
Currency:	Tongan pa'anga (TOP)
Exchange rate arrangement:	Pegged exchange rate within horizontal bands
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	80 (2013)
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	National Reserve Bank of Tonga
Securities markets:	n/a
Insurance companies:	National Reserve Bank of Tonga
Inflation targeting:	No
International reserves:	0.14bn USD
Composition of international reserves:	n/a
Main objectives:	

"The principal purposes of the Bank shall be – (a) to regulate the issue of currency, and the supply, availability and international exchange of money; (b) to manage the external reserves of the Kingdom; (c) to promote monetary stability; (d) to promote a sound financial structure; (e) to foster credit and exchange conditions conducive to the orderly and balanced economic development of the Kingdom; (f) to provide advisory services to the Minister on banking and monetary matters; (g) to be the principal banker and fiscal agent of the Government; (h) to undertake banking business, in Tonga or elsewhere, subject to the provisions of this Act; (i) to undertake the licensing and supervision of financial institutions."

Trinidad and Tobago

Name of central bank:	Central Bank of Trinidad and Tobago
Year of establishment:	1964
Central bank law:	Central Bank Act
Currency:	Trinidad and Tobago dollar (TTD)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	654
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Trinidad and Tobago
Securities markets:	Trinidad and Tobago Securities and Exchange Commission
Insurance companies:	Central Bank of Trinidad and Tobago
Inflation targeting:	No
International reserves:	9.79bn USD
Composition of international reserves:	n/a
Main objectives:	

"The Bank shall have as its purpose the promotion of such monetary credit and exchange conditions as are most favourable to the development of the economy of Trinidad and Tobago, and shall, without prejudice to the other provisions of this Act— (a) have the exclusive right to issue and redeem currency notes and coin in Trinidad and Tobago; (b) act as banker for, and render economic, financial and monetary advice to the Government; (c) maintain, influence and regulate the volume and conditions of supply of credit and currency in the best interest of the economic life of Trinidad and Tobago; (d) maintain monetary stability, control and protect the external value of the monetary unit, administer external monetary reserves, encourage expansion in the general level of production, trade and employment; [...]."

Turkey

Field	Value
Name of central bank:	Central Bank of the Republic of Turkey
Year of establishment:	1931
Central bank law:	Law on the Central Bank of the Republic of Turkey
Currency:	Turkish lira (TRY)
Exchange rate arrangement:	Floating
Ownership:	Mixed ownership, Treasury and Turkish banks
Governor's term of office:	5 years
Employees:	4,746
Number of regional representations:	21
Number of foreign representations:	9
Location of foreign representations:	Beijing, Frankfurt, Kuala Lumpur, London, Moscow, New York, Sydney, Tokyo, Washington

Financial markets supervision:

Field	Value
Banks:	Banking Regulation and Supervision Agency (BRSA)
Securities markets:	Capital Markets Board of Turkey
Insurance companies:	Insurance Supervisory Board (ISB) (within Treasury) and General Directorate of Insurance (GDI)
Inflation targeting:	Yes, introduction in 2006; 5%±2pp
International reserves:	91.43bn USD
Composition of international reserves:	n/a

Main objectives:

"The primary objective of the Bank shall be to maintain price stability. The Bank shall determine on its own discretion the monetary policy that it shall implement and the monetary policy instruments that it is going to use in order to maintain price stability. The Bank shall, provided that it shall not conflict with the objective of maintaining price stability, support the growth and employment policies of the Government."

Tunisia

Field	Value
Name of central bank:	Central Bank of Tunisia
Year of establishment:	1958
Central bank law:	Loi N° 58-90 du 19 septembre 1958 portant création et organisation de la Banque Centrale de Tunisie
Currency:	Tunisian dinar (TND)
Exchange rate arrangement:	Crawl-like arrangement
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	929
Number of regional representations:	11
Number of foreign representations:	0
Location of foreign representations:	/

Financial markets supervision:

Field	Value
Banks:	Central Bank of Tunisia
Securities markets:	Conseil du Marché Financier (CMF)
Insurance companies:	Comité Général des Assurances (CGA)
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a

Main objectives:

"La Banque Centrale a pour mission générale de préserver la stabilité des prix."

Turkmenistan

Name of central bank:	Central Bank of Turkmenistan
Year of establishment:	1992
Central bank law:	Law of Turkmenistan on the Central Bank of Turkmenistan
Currency:	Turkmenistan manat (TMT)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	n/a
Employees:	572 (2011)
Number of regional representations:	5
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Turkmenistan
Securities markets:	Ministry of Finance
Insurance companies:	Ministry of Finance
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"1. The basic purposes of Central Bank of Turkmenistan shall be to: 1) maintain stability of manat; 2) develop and strengthen the banking system of Turkmenistan. 2. Profit making shall not be a purpose of the activity of Central Bank of Turkmenistan."

Uganda

Name of central bank:	Bank of Uganda
Year of establishment:	1966
Central bank law:	Bank of Uganda Act
Currency:	Ugandan shilling (UGX)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	1,022
Number of regional representations:	4
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Uganda
Securities markets:	Capital Markets Authority (CMA)
Insurance companies:	Insurance Regulatory Authority of Uganda (IRA)
Inflation targeting:	Yes, introduction in 2012; 5%±2pp
International reserves:	2.84bn USD
Composition of international reserves:	n/a
Main objectives:	

"The functions of the bank shall be to formulate and implement monetary policy directed to economic objectives of achieving and maintaining economic stability."

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United Arab Emirates

Name of central bank:	Central Bank of the UAE
Year of establishment:	1991
Central bank law:	Union Law (10) of 1980 concerning the central bank, the monetary system and organization of banking
Currency:	United Arab Emirates dirham (AED)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	550 (2007)
Number of regional representations:	5
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of the UAE
Securities markets:	Securities and Commodities Authority (SCA)
Insurance companies:	Insurance Authority
Inflation targeting:	No
International reserves:	92.57bn USD
Composition of international reserves:	n/a
Main objectives:	

"The Bank shall direct the monetary, credit and banking policy and supervise over its implementation in accordance with the State's general policy and in such ways as to help support the national economy and stability of the currency."

Ukraine

Name of central bank:	National Bank of Ukraine
Year of establishment:	1991
Central bank law:	Law of Ukraine on the National Bank of Ukraine
Currency:	Ukrainian hryvnia (UAH)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	5,310
Number of regional representations:	25
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	National Bank of Ukraine
Securities markets:	National Securities and Stock Market State Commission
Insurance companies:	National Commission for Regulation of Financial Services Markets
Inflation targeting:	No
International reserves:	12.36bn USD
Composition of international reserves:	n/a
Main objectives:	

"According to the Constitution of Ukraine, the main function of the National Bank is to ensure stability of the monetary unit of Ukraine. When exercising its main function the National Bank shall proceed from the priority of achievement and retention of the price stability in the country. The National Bank shall within its terms of reference promote the banking system stability provided its actions related thereto do not impede attainment of the objective established by the second part of this article. The National Bank shall also promote sustainability of the economic growth and second the economic policy of the Cabinet of Ministers of Ukraine provided that it does not prevent the NBU from attainment of the objectives determined in the second and third parts of this article."

United Kingdom

Field	Value
Name of central bank:	Bank of England
Year of establishment:	1694
Central bank law:	Bank of England Act 1998
Currency:	Pound sterling (GBP)
Exchange rate arrangement:	Free floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	3,983
Number of regional representations:	12
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Prudential Regulation Authority
Securities markets:	Prudential Regulation Authority
Insurance companies:	Prudential Regulation Authority
Inflation targeting:	Yes, introduction in 1992: 2%
International reserves:	101.59bn USD
Composition of international reserves:	EUR: 83%, USD: 9.2%,
	JPY: 4.6%, others: 3.2%

Main objectives:

"In relation to monetary policy, the objectives of the Bank of England shall be— (a) to maintain price stability, and (b) subject to that, to support the economic policy of Her Majesty's Government, including its objectives for growth and employment."

United States of America

Field	Value
Name of central bank:	Federal Reserve
Year of establishment:	1914
Central bank law:	Federal Reserve Act
Currency:	US dollar (USD)
Exchange rate arrangement:	Free floating
Ownership:	Private ownership by member banks
Governor's term of office:	4 years
Employees:	18,574
Number of regional representations:	24
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	mainly Federal Reserve System
Securities markets:	mainly US Securities and Exchange Commission
Insurance companies:	mainly Federal Insurance Office (FIO) (within Treasury)
Inflation targeting:	No
International reserves:	39.24bn USD
Composition of international reserves:	EUR: 60.4%, JPY: 39.6%

Main objectives:

"The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates."

Uruguay

Name of central bank:	Central Bank of Uruguay
Year of establishment:	1967
Central bank law:	Ley Orgánica
Currency:	Uruguayan peso (UYU)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	592
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Superintendencia de Servicios Financieros (within CB)
Securities markets:	Superintendencia de Servicios Financieros (within CB)
Insurance companies:	Superintendencia de Servicios Financieros (within CB)
Inflation targeting:	Yes, introduction in 2007; 3%–7%
International reserves:	15.16bn USD
Composition of international reserves:	USD: 97.6%, EUR: 0.8%, others: 1.6%
Main objectives:	

"El Banco Central del Uruguay tendrá como finalidades primordiales: A) La estabilidad de precios que contribuya con los objetivos de crecimiento y empleo. B) La regulación del funcionamiento y la supervisión del sistema de pagos y del sistema financiero, promoviendo su solidez, solvencia, eficiencia y desarrollo."

Uzbekistan

Name of central bank:	Central Bank of Uzbekistan
Year of establishment:	1991
Central bank law:	Law of the Republic of Uzbekistan about Central Bank of the Republic of Uzbekistan
Currency:	Uzbekistani som (UZS)
Exchange rate arrangement:	Crawl-like arrangement
Ownership:	100% state ownership
Governor's term of office:	Indefinite
Employees:	2,065 (2012)
Number of regional representations:	14
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Uzbekistan
Securities markets:	Center for Coordination and Development of Securities Market
Insurance companies:	State Insurance Inspectorate (under MoF)
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"Under the Law of the Republic of Uzbekistan 'About the Central Bank of the Republic of Uzbekistan' the main purpose of the Central Bank is to ensure the stability of the national currency."

Vanuatu

Field	Value
Name of central bank:	Reserve Bank of Vanuatu
Year of establishment:	1980
Central bank law:	Reserve Bank of Vanuatu Act
Currency:	Vanuatu vatu (VUV)
Exchange rate arrangement:	Other managed arrangement
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	92 (2014)
Number of regional representations:	0
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Reserve Bank of Vanuatu
Securities markets:	Reserve Bank of Vanuatu
Insurance companies:	Vanuatu Financial Services Commission
Inflation targeting:	No
International reserves:	0.26bn USD
Composition of international reserves:	n/a
Main objectives:	

"The principal objects of the Reserve Bank shall be - to regulate the issue, supply, availability and international exchange of money; - to supervise and regulate banking business and the extension of credit; - to advice the Government on banking and monetary matters; - to promote monetary stability; - to promote a sound financial structure; and - to foster financial conditions conducive to the orderly and balanced economic development of Vanuatu and - to regulate and supervise domestic and international (offshore) banks."

Venezuela

Field	Value
Name of central bank:	Central Bank of Venezuela
Year of establishment:	1940
Central bank law:	Law of the Central Bank of Venezuela
Currency:	Bolívar fuerte (VEF)
Exchange rate arrangement:	Conventional peg (to US dollar)
Ownership:	100% state ownership
Governor's term of office:	7 years
Employees:	2,727 (2007)
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Superintendencia de las Instituciones del Sector Bancario (Sudeban)
Securities markets:	Superintendencia Nacional de Valores (Sunaval)
Insurance companies:	Superintendencia de la Actividad Aseguradora (Sudeaseg)
Inflation targeting:	No
International reserves:	5.08bn USD
Composition of international reserves:	n/a
Main objectives:	

"The main purpose of the Central Bank of Venezuela is to achieve price stability and preserve the currency value. The Central Bank of Venezuela shall contribute to the sound development of the national economy, based on the principles of the social and economic system of the Republic."

Vietnam

Name of central bank:	State Bank of Vietnam
Year of establishment:	1951
Central bank law:	Law on the State Bank of Vietnam
Currency:	Vietnamese dong (VND)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	Variable
Employees:	5,000 (2007)
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	State Bank of Vietnam
Securities markets:	State Securities Commission (SSC)
Insurance companies:	Insurance Supervisory Authority (within MoF)
Inflation targeting:	No
International reserves:	27.88bn USD
Composition of international reserves:	n/a
Main objectives:	

"SBV has a function of State management of currency and banking operations, and acts as a bank for credit organisations. The bank is allowed to issue currency and conduct monetary services in favour of the Government. SBV's operations are aimed to stabilise currency value, help assure safe banking activities and a secured system of credit organisations, and boost the socio-economic development in conformity with socialist orientations."

Yemen

Name of central bank:	Central Bank of Yemen
Year of establishment:	1971
Central bank law:	Law (N° 14 - of 2000) on the Central Bank of Yemen
Currency:	Yemeni rial (YER)
Exchange rate arrangement:	Stabilized arrangement
Ownership:	100% state ownership
Governor's term of office:	4 years
Employees:	1,924 (2012)
Number of regional representations:	n/a
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Central Bank of Yemen
Securities markets:	Department within Ministry of Industry and Trade
Insurance companies:	Department within Ministry of Industry and Trade
Inflation targeting:	No
International reserves:	n/a
Composition of international reserves:	n/a
Main objectives:	

"1. The primary objective of the Bank shall be to achieve and maintain price stability. Another objective shall be to foster the liquidity, solvency, and proper functioning of a stable, market-based financial system. 2. Without prejudice to the principal objective described in paragraph (1) above, the Bank shall carry out its activities within the framework of the government's economic policy."

Zambia

Name of central bank:	Bank of Zambia
Year of establishment:	1964
Central bank law:	Bank of Zambia Act, 1996
Currency:	Zambian kwacha (ZMW)
Exchange rate arrangement:	Floating
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	542
Number of regional representations:	1
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Bank of Zambia
Securities markets:	Securities and Exchange Commission
Insurance companies:	Pensions and Insurance Authority
Inflation targeting:	No
International reserves:	2.53bn USD
Composition of international reserves:	n/a
Main objectives:	

"The Bank shall formulate and implement monetary and supervisory policies that will ensure the maintenance of price and financial systems stability so to promote balanced macro-economic development."

Zimbabwe

Name of central bank:	Reserve Bank of Zimbabwe
Year of establishment:	1964
Central bank law:	Reserve Bank of Zimbabwe Act
Currency:	Multi-currency regime
Exchange rate arrangement:	No separate legal tender
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	509
Number of regional representations:	1
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Reserve Bank of Zimbabwe
Securities markets:	Securities and Exchange Commission of Zimbabwe
Insurance companies:	Insurance and Pensions Commission (IPEC)
Inflation targeting:	No
International reserves:	0.29bn USD
Composition of international reserves:	n/a
Main objectives:	

"The functions of the Bank shall be— (a) to regulate Zimbabwe's monetary system; and (b) to achieve and maintain the stability of the Zimbabwe dollar; and (c) to foster the liquidity, solvency, stability and proper functioning of Zimbabwe's financial system; and (d) to advance the general economic policies of the Government; and (e) to supervise banking institutions and to promote the smooth operation of the payment system; and (f) subject to Part VII, to formulate and execute the monetary policy of Zimbabwe; and (g) to act as banker and financial adviser to, and fiscal agent of, the State [...]".

Community of Central African States (Communauté Économique et Monétaire de l'Afrique Centrale (CEMAC))

Field	Value
Name of central bank:	Banque des États de l'Afrique Centrale (BEAC)
Year of establishment:	1972
Central bank law:	Statuts de la Banque des États de l'Afrique Centrale
Currency:	Franc CFA (BEAC) (XAF)
Exchange rate arrangement:	Conventional peg (to euro)
Ownership:	100% public ownership
Governor's term of office:	7 years
Employees:	2,407 (2011)
Number of regional representations:	6
Number of foreign representations:	1
Location of foreign representations:	Paris
Financial markets supervision:	
Banks:	Commission Bancaire de l'Afrique Centrale (COBAC)
Securities markets:	National authorities
Insurance companies:	National authorities
Inflation targeting:	No
International reserves:	9.79bn USD
Composition of international reserves:	n/a
Main objectives:	

"La Banque Centrale émet la monnaie de l'Union Monétaire et en garantit la stabilité. Sans préjudice de cet objectif elle apporte son soutien aux politiques économiques générales élaborées dans l'Union."

Eastern Carribean Currency Union

Field	Value
Name of central bank:	Eastern Carribean Central Bank
Year of establishment:	1983
Central bank law:	Eastern Carribean Central Bank Agreement, 1983
Currency:	East Caribbean dollar (XCD)
Exchange rate arrangement:	Currency board
Ownership:	100% state ownership
Governor's term of office:	5 years
Employees:	223 (2013)
Number of regional representations:	7
Number of foreign representations:	0
Location of foreign representations:	/
Financial markets supervision:	
Banks:	Eastern Carribean Central Bank
Securities markets:	Eastern Caribbean Securities Regulatory Commission
Insurance companies:	National authorities
Inflation targeting:	No
International reserves:	1.56bn USD
Composition of international reserves:	n/a
Main objectives:	

"The purposes of the Bank are - (1) to regulate the availability of money and credit; (2) to promote and maintain monetary stability; (3) to promote credit and exchange conditions and a sound financial structure conducive to the balanced growth and development of the economies of the territories of the Participating Governments; (4) to actively promote through means consistent with its other objectives the economic development of the territories of the Participating Governments."

Euro Area

Name of central bank:	European Central Bank
Year of establishment:	1998
Central bank law:	Protocol (No 4) on the Statute of the European System of Central Banks and of the European Central Bank
Currency:	Euro (EUR)
Exchange rate arrangement:	Free floating
Ownership:	100% state ownership (national central banks)
Governor's term of office:	8 years
Employees:	2,871
Number of regional representations:	/
Number of foreign representations:	2
Location of foreign representations:	Washington, Brussels
Financial markets supervision:	
Banks:	European Central Bank and national authorities
Securities markets:	National authorities
Insurance companies:	National authorities
Inflation targeting:	No
International reserves:	245.65bn USD
Composition of international reserves:	n/a
Main objectives:	

"In accordance with Article 127(1) and Article 282(2) of the Treaty on the Functioning of the European Union, the primary objective of the ESCB shall be to maintain price stability. Without prejudice to the objective of price stability, it shall support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union as laid down in Article 3 of the Treaty on European Union [...]."

Economic Community of West African States (Communauté économique des États de l'Afrique de l'Ouest (CEDEAO))

Name of central bank:	Banque Centrale des États de l'Afrique de l'Ouest (BCEAO)
Year of establishment:	1959
Central bank law:	Statuts de la Banque Centrale des Etats de l'Afrique de l'Ouest
Currency:	Franc CFA (BCEAO) (XOF)
Exchange rate arrangement:	Conventional peg (to EUR)
Ownership:	100% state ownership
Governor's term of office:	6 years
Employees:	3,571
Number of regional representations:	8
Number of foreign representations:	1
Location of foreign representations:	Paris
Financial markets supervision:	
Banks:	Banque Centrale des États de l'Afrique de l'Ouest
Securities markets:	Conseil Régional de l'Epargne Publique et des Marchés Financiers
Insurance companies:	National authorities
Inflation targeting:	No
International reserves:	9.82bn USD
Composition of international reserves:	n/a
Main objectives:	

"L'objectif principal de la politique monétaire de la Banque Centrale est d'assurer la stabilité des prix. L'objectif d'inflation est défini par le Comité de Politique Monétaire. Sans préjudice de cet objectif, la Banque Centrale apporte son soutien aux politiques économiques de l'Union Economique et Monétaire Ouest Africaine (UEMOA), en vue d'une croissance saine et durable."

Excel VBA Code for Central Bank Handbook

In this appendix, I provide a program which I wrote for the automatic graphical compilation of the country pages of the central bank handbook above.

```
Sub Daten_anzeigen()

Dim str As String, Zeile As Byte, strTbl As Worksheet, Texte As String

Application.ScreenUpdating = False
Application.Calculation = xlCalculationManual

strWorksheet = [Countrycode]
Worksheets(strWorksheet).Activate
Set strTbl = ActiveSheet
Zeile = Range(Cells(11, 3), Cells(97, 3)).Find([Year]).Row
'Country
tbl_01.Cells(2, 1) = [Country]
'Name of central bank
tbl_01.Cells(7, 2) = strTbl.Range("C1")
'Year of establishment
tbl_01.Cells(9, 2) = strTbl.Range("C2")
'Central bank law
tbl_01.Cells(11, 2) = strTbl.Range("C3")
'Currency
tbl_01.Cells(13, 2) = strTbl.Cells(Zeile, 22)
'Exchange rate arrangement
tbl_01.Cells(15, 2) = strTbl.Cells(Zeile, 23)
'Ownership
tbl_01.Cells(17, 2) = strTbl.Cells(Zeile, 24)
'Government body
tbl_01.Cells(19, 2) = strTbl.Cells(Zeile, 4)
'Employees
If strTbl.Cells(Zeile, 8) = "" Then
tbl_01.Cells(21, 2) = strTbl.Cells(Zeile, 9)
Else
tbl_01.Cells(21, 2) = strTbl.Cells(Zeile, 8)
End If
'Number of regional representations
tbl_01.Cells(23, 2) = strTbl.Cells(Zeile, 10)
'Number of foreign representations
```

```
tbl_01.Cells(25, 2) = strTbl.Cells(Zeile, 12)
'Location of foreign representations
tbl_01.Cells(27, 2) = strTbl.Cells(Zeile, 13)
'Financial markets supervision
For i = 0 To 2
tbl_01.Cells(30 + i, 2) = strTbl.Cells(Zeile, 17 + i)
Next i
'Inflation target
If strTbl.Cells(Zeile, 26) = "" Then
tbl_01.Cells(34, 2) = "no"
Else
tbl_01.Cells(34, 2) = strTbl.Cells(Zeile, 26)
End If
'Composition of international reserves
If strTbl.Cells(Zeile, 27) = "" Then
tbl_01.Cells(36, 2) = "not reported"
Else
tbl_01.Cells(36, 2) = strTbl.Cells(Zeile, 27)
End If
'Text_main_objectives
Texte = strTbl.Range("C4")
tbl_01.Activate
ActiveSheet.Shapes.Range(Array("text_objectives")).Select
Selection.ShapeRange(1).TextFrame2.TextRange.Characters.Text = Texte
'Logo
tbl_03.Select
ActiveSheet.Shapes([Country]).Select
Selection.Copy
tbl_01.Select
Cells(1, 2).Select
ActiveSheet.Paste
On Error Resume Next
ActiveSheet.Shapes("Logo").Delete
On Error GoTo Error
'Attribute unambigious name to central bank logo
ActiveSheet.Shapes([Country]).Name = "Logo"
tbl_01.Activate
```

Application.ScreenUpdating = True

Application.Calculation = xlCalculationAutomatic

Exit Sub

Error: MsgBox ("An error has occurred.")

End Sub

Affidavit

I hereby declare that the dissertation entitled **The Organisation and Structure of Central Banks** is my own work. I have used only the sources indicated and have not made unauthorised use of services of a third party. Where the work of others has been quoted or reproduced, the source is always given. I have not presented this thesis or parts thereof to a university as part of an examination or degree.