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South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to WWII

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Abstract:

This paper introduces the Data Collection Task Force of the South-East European Monetary History Network (SEEMHN DCTF) and its first result. Good policy making should be grounded on good data. To this end, the SEEMHN DCTF works since 2006 towards establishing a SEE macro history database of 19th and 20th century key financial and monetary statistics. All task force members acknowledge that this goal could only be achieved by joining forces and through the exchange of knowledge and experience. Therefore, the SEEMHN DCTF involved cooperation between representatives from all SEE national central banks and scholars who specialise in different fields, geographical regions and time periods. Its first result concerns a new statistics publication entitled South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to World War II. It contains a newly compiled, built and harmonised dataset of long-run key monetary and macroeconomic time series. The aim of this paper is threefold. First, we briefly present this new statistical database. Second, we discuss techniques and technology followed in the data compilation and building process, as well as archives and published sources used. Third, we briefly present the new data project on which the SEEMHN will keep working in the near future.

JEL Classification: E5; N13; N14; N23; N24.
Keywords: SEE; economic and monetary history; long-run monetary and financial data series.

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1. Introduction

In European monetary affairs, 2015 started with some good news, namely Lithuania's accession to the euro area. This event in itself is a positive message for the monetary future of Europe, especially at a time when economies at the 'core', after six years in crisis, are now faced with a challenge of stagnation or at best long-lasting sluggish growth and deflation, while the economies at the 'periphery' are still suffering from high debt ratios, very low employment rates, unprecedented high unemployment and prolonged recessions. The recent adoption of the euro by a peripheral and emerging economy is indicative of the intention of weak economies to follow the European monetary developments and become members of an economic club of powerful nations.

The publication, for the first time, of a complete and comparable historical statistical database on key economic and monetary variables for the South-Eastern European (SEE) countries over a long time span reveals that this intention was a continuing concern of national economic policy makers. In fact, historical narratives and quantitative data suggest that the thread running though the national stories was more or less common. It was characterised by repeated episodes of monetary and banking instability and endless efforts to join sometime the international monetary system. The benefit was cheap foreign borrowing to finance their development process. Narratives and data series also show that the risks of their effort to import policy credibility through currency pegs were equally high, particularly in those cases where the country could not develop sound fiscal and monetary institutions. Hence, stability often became elusive.

Good policy making should be grounded on good data. To this end, the Data Collection Task Force of the South-East European Monetary History Network (DCTF SEEMHN) works, since 2006, towards establishing a SEE macro history database of 19th and 20th century statistics. This paper introduces the network and its first result, a new statistics publication entitled *South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to WWII* (SEEMHN 2014).[1] It contains a newly

We would like to thank all colleagues from both the national central banks and the academic institutions that contributed to this project. Special thanks are due to the scholars who patiently worked with the members of the network for more than seven years and provided firm support and suggestions. Special thanks are due to Roumen Avramov, Victor Axenciuc, Dragana Gnjatovic, Damir Jelic, Ivo Maes, Peter Mooslechner, Matthias Morys, Nikolay Nenovsky, Martin Pontzen and Loredana Ureche-Rangau. We would also like to thank participants in the EABH workshop 'New Scholars in Financial History', Brussels, 9-10 March 2015, the EABH workshop 'Inflation, Output and Money', Prague, 14 May 2015, as well as participants in several national seminars and workshops in which the database was presented by the national working groups. Last but not least, we would like to thank Vassilis Belekoukias who patiently read the manuscript and made editorial comments. The views expressed herein are strictly those of the authors and do not necessarily reflect the views of the contributing national central banks and the Eurosystem. We alone are responsible for any errors or omissions.

[1] The publication is foreworded by the governors of the Bank of Greece, the Bulgarian National Bank, the National Bank of Romania and the Oesterreichische Nationalbank, as well as by: Michael Bordo (Rutgers University), Luis Catao (IMF) and Nicos Christodoulakis (AUEB). Free access is available on the websites of:
Bank of Greece: http://www.bankofgreece.gr/Pages/en/Publications/Studies/seemhn.aspx
Bank of Albania: http://www.bankofalbania.org/web/SEEMHN_7155_2.php
Bulgarian National Bank:
http://www.bnb.bg/ResearchAndPublications/PubNonPeriodical/PubNPFinancialHistory/wwwPubNPSEEMHN/PubNPSEEMHN_INTRODUCTION/index.htm?toLang=_EN

compiled, built and harmonised dataset of long-run monetary and macroeconomic time series for the SEE countries.

The aim of the paper is threefold. First, we briefly present the new statistical database. It removes several quantitative handicaps faced so far by researchers and brings, for the first time ever, SEE monetary history and policy to the forefront. Second, we discuss techniques and technology applied in the data compilation and building process, as well as archival funds and published sources. We emphasise the need for a thorough analysis of the available data sources from archives and libraries in order to select the variables presented. Third, we enhance its dissemination to the broader research community by informing researchers on how to gain access to the data.

The rest of the paper is organized as follows. Section 2 presents the database. In particular, it presents the groups of selected variables, stressing the need for a thorough analysis and a detailed explanation of the definitions applied. This, in turn, requires a better understanding of past standards and institutions. Section 3 describes in depth the sources used, both primary and secondary, and their influence on the choice of the variables. Section 4 addresses some key methodological issues such as the building of new variables; the coordination of the national working groups; the organisation of regular meetings; and the employment of a rigorous peer review process in an attempt to maintain standards and quality, and provide credibility. Finally, Section 5 discusses new topics on which the network will keep working in the near future.

2. Economic history, policy and data

2.1 The SEEMHN

SEE economic and monetary history is more or less *terra incognita*. Up to now, most of the available literature on economic history deals with the advanced countries of Western Europe and the USA. In all international empirical studies, SEE is systematically neglected or included only occasionally and sporadically in cross-country samples. In the national literature also there is not much more on this topic. National studies mostly concern anniversary editions, chronologies and chronicles, and biographies. Therefore, the historical study of the monetary policy pursued by SEE countries was not systematic. A key drawback was the lack of reliable data. Consequently, economic policy implications are largely based on the 'core' countries' experience since we know very little about the monetary past of the 'periphery'.

However, as the current economic crisis revealed, the European 'core' and 'periphery' are being affected differently as their economic structure and management are quite different. Real economy was hit harder in SEE compared to Central and Northern Europe. This confirms the need for a systematic study of the economic and monetary experience of the countries at the 'periphery' with a view to clearing up the

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National Bank of Romania: http://www.bnr.ro/apage.aspx?pid=11792
National Bank of Serbia: http://www.nbs.rs/internet/english/90/seemhn/seemhn_dctf/index.html
Oesterreichische Nationalbank: www.oenb.at/en/Publications/Economics/south-east-european-monetary-history-network-data-volume.html

specificities and idiosyncrasies, which, in turn, determine the nature of policy response and its results.

Good policy making is grounded on good knowledge of past policy responses and outcomes. Knowledge is promoted and experience is exchanged only when they are based on reliable data. Accordingly, quantitative data are an essential tool in this respect. They serve as an infrastructure to deepen our understanding of SEE historical experience and identify its key drivers, tapping existing knowledge and offering new inputs that will provide timely information to economic policy makers.

To this end, the SEEMHN brings together financial and monetary historians, economists, statisticians and archivists from both the national central banks of the region and academia. Seven central banks offer financial support and human resources. The network's goal is to promote knowledge about SEE monetary history and policy. It is viewed as an international corroboratory on measuring money, output, banking and finance across time and across countries. All network members acknowledge that this goal could only be achieved by publishing a newly compiled, built and harmonised dataset of long-run key monetary and macroeconomic time series for the countries of the region. They also acknowledge that this could only be done by joining forces and exchanging knowledge and experience. Therefore, the SEEMHN involves cooperation between representatives from participating central banks and scholars who specialise in different fields, geographical regions and time periods.[2]

The database is the first result of this joint effort. It goes back to the distant past and helps researchers to analyse SEE monetary, fiscal and financial developments from national independence to WWII. Data availability gives us the chance to remove the 'statistical dark ages' and shed light on the 'dark spots' on the map of the monetary history of the individual countries and the region as well. In particular, it supports relevant research initiatives, which will present empirical evidence and document narratives. It also provides material to address key issues such as:

(i) what the main drivers of SEE's economic backwardness were;

(ii) what the main threats to SEE financial and monetary stability were;

(iii) whether and to what extent SEE countries could be ever considered as intrinsically linked to the mainstream European developments;

(iv) why SEE countries were not able to build and apply sound fiscal and monetary institutions;

(v) how they were affected by past international crisis events (crisis scale and breadth) and how they coped with the crises; and

(vi) what went wrong and what the aftermath of these crises was.

[2] Arta Pisha, Besa Vorpsi and Neraida Hoxhaj (Bank of Albania), Clemens Jobst and Thomas Scheiber (OeNB), Kalina Dimitrova (Bulgarian National Bank), Martin Ivanov (Bulgarian Academy of Science), Sophia Lazaretou (Bank of Greece), Matthias Morys (Univeristy of York), Şevket Pamuk (Boğaziçi University), Ali Coskun Tuncer (University College London), George Virgil Stoenescu, Elisabeta Blejan, Brindusa Costache and Adriana Aloman (National Bank of Romania), Branko Hinic, Milan Sojic and Ljiljana Djurdjevic (National Bank of Serbia), Yüksel Görmez and Serkan Yigit (Central Bank of the Republic of Turkey).

2.2 The SEE macro history database

Structure

The SEEMHN database has been compiled by the central banks of Albania, Austria, Bulgaria, Greece, Romania, Serbia and Turkey. A special introductory chapter[3] introduces the reader to the subject providing some political and economic background information on the history of SEE prior to WWII. It also points out some parallels between the situation 'then' and 'now' and the challenges SEE is facing today.

The main part of the database consists of eight similarly structured country chapters, i.e. Austria-Hungary (1863-1914); Greece (1833-1949); Ottoman Empire (1830-1914); Bulgaria (1879-1947); Romania (1880-1947); Serbia/Yugoslavia (1884-1947); Albania (1920-1944); and Turkey (1923-1947). A complete dataset is presented for each country covering six broad groups of indicators[4], i.e. (1) monetary variables; (2) interest rates; (3) exchange rates; (4) government finances; (5) prices, production and labour; and (6) national accounts and population.

Table 1
A synopsis of the presented SEE macro history database

Countries	***Groups of variables***	***Variables***	***Time span*** from 1870 and beyond– prior to 1950	***Data frequency***	***Unit of account***
Albania Austria-Hungary Bulgaria Greece Ottoman Empire Romania Serbia/Yugoslavia Turkey	1. Monetary variables	-currency reserves -'narrow' money -'broad' money -banknotes in circulation -central bank liabilities at sight -bank deposits -reserve-banknote cover ratios		annual monthly	national currency
	2. Interest rates	-official interest rate -market lending rate -market deposit rate -current yield on government bonds		annual monthly	in per cent
	3. Exchange rates	-British pound -French franc		annual monthly	national currency

[3] Written by Matthias Morys (University of York).
[4] For Greece, there is also a seventh category of variables presenting money, prices and exchange rates covering the period of WWII and its aftermath (1939-1949).

		-US dollar -Mark -gold parity/agio		
	4. Government finances	-revenue (regular and extraordinary) -expenditure (regular and extraordinary) -public debt	annual	national currency
	5. Prices, production and labour	-consumer prices -wholesale prices -import and export prices -industrial production -wages and salaries -employment -school enrolment	annual monthly	national currency, indices
	6. National accounts and population	-nominal GDP -real GDP -GDP deflator -real GDP per capita -imports -exports -population	annual	national currency

Source: Country index tables.

Each country chapter consists of four parts: (1) major monetary events, including a short but solid account of the respective country's institutional framework for monetary policy implementation; (2) a detailed description and definition of the presented variables; (3) a detailed discussion of the primary and secondary data sources used in the data collection process; and (4) the tables with the historical time series by country.

At the beginning of each country chapter an index table provides information on the list of variables presented, the time span covered, the reporting frequency, the applicable unit of account and the codes assigned to the variables. The index table will be used as a roadmap for safe data search. Moreover, the index table is replicated in each country's Excel data file and makes it easier to quickly navigate to the required annual and monthly time series. A synopsis of the database and its details is presented in Table 1.

In part 1 of each county chapter, historical data are preceded by a short description of the respective county's major monetary events. A relevant table replicated in each country chapter provides full details on the dates of, and the reasons for, a nominal exchange rate regime switch, the changes in the official parity rate, the dates of introduction of a national coinage system, the dates of establishment of a note-issuing bank and/or a central bank, the crises of the gold or gold/silver convertibility regime, the episodes of debt default and bank failure.

Compiling, processing and checking data, and constructing indices for such long and distant time periods is an arduous and long procedure. It requires in-depth knowledge of the institutional framework of both the domestic and the international

economic and monetary systems and policy conduct. For this purpose, details are provided concerning the targets and instruments of the monetary policy pursued, the interventions in the exchange market, the causes of fiscal and external imbalances, and the structure of the country's banking system and the process of its development.

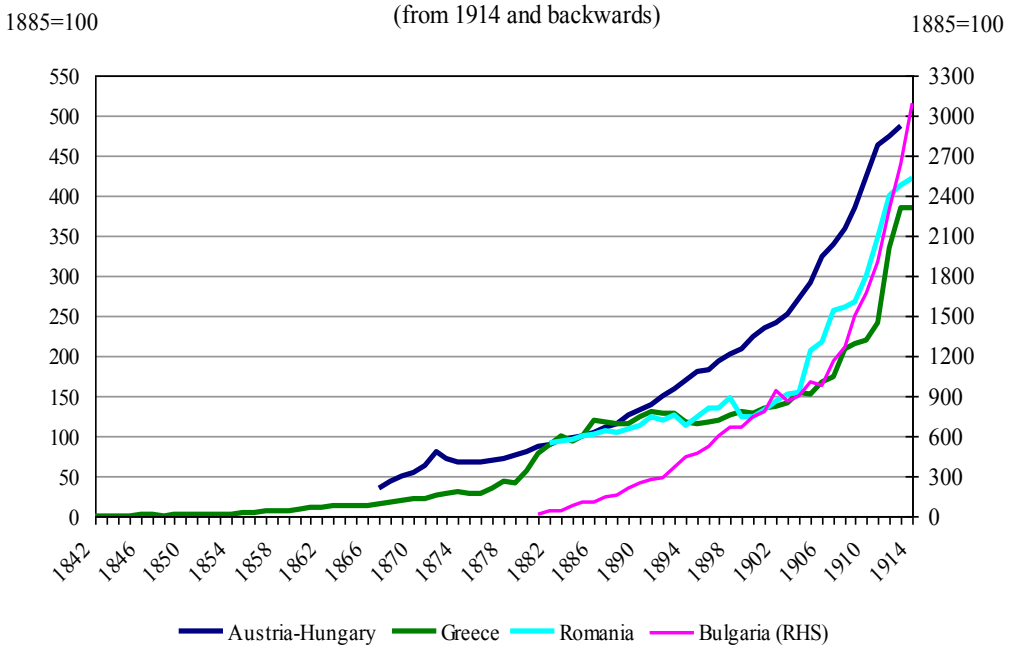
Groups of variables

Part 2 includes detailed explanatory remarks on the definition and description of the variables. Of all the variables, particular emphasis has been placed upon the monetary variables, chiefly for two reasons. First, central banks themselves are better placed to provide these data since access to their archives is easier. And second, monetary variables have played a central role in the conduct of monetary policy. They were constructed by contemporary central bankers to guide policy. Monetary variables are thus the first group of the variables presented in the database. They include (i) currency reserves, (ii) monetary aggregates, (iii) banknote circulation, (iv) the reserve-banknote cover ratios and (v) bank deposits.

Concerning **currency reserves**, they include metallic (i.e. gold and/or silver, either in bars or in minted coins), total foreign exchange holdings and securities (usually government bonds). Relevant issues such as the concept of currency reserves (official or statutory; 'gross' or 'net'; on- or off-balance-sheet activities) and their valuation (at the current exchange rate or at the official parity rate) were thoroughly addressed.

Monetary aggregates include definitions of money; they primarily refer to the liabilities of private financial institutions, namely deposits and currency. All countries provide complete data series on coins and banknotes in circulation taken from the banks' reports, statistical bulletins and archives. However, the primary data sources lacked definitions of money as a means of payment such as 'narrow money' or as a liquidity index known as 'broad money'. Apparently, the advocates of the 'currency school' of the 19th century could not consider other items –apart from metallic coins and banknotes– such as bank deposits as money substitutes. Thus, in accordance with the monetary policy rules applying in the context of a metallic regime, the national monetary authorities tried to measure the stock of money in the domestic economy by simply reporting the stock of coins and notes in circulation. Furthermore, metallic monetary regimes required each country's central bank or note-issuing bank to maintain a minimum ratio of reserves to banknotes in circulation. This was because excess uncovered note issue was thought to strengthen inflationary pressures in the domestic market compared to abroad, and cause capital outflows and large reserve losses. In other words, the reserve-banknote cover ratio determined the relationship between domestic money stock and metallic and foreign exchange holdings. Obviously, banknote circulation was a key monetary variable, as the central bank or the note-issuing bank was obliged to announce and preserve a 'statutory' minimum proportion of the banknotes in circulation that should be metallic and/or foreign exchange-backed. Therefore, the precise knowledge of the stock of banknotes in circulation was of paramount importance if banknote convertibility was to be secured.

Figure 1a
'Broad' money aggregates
(from 1914 and backwards)

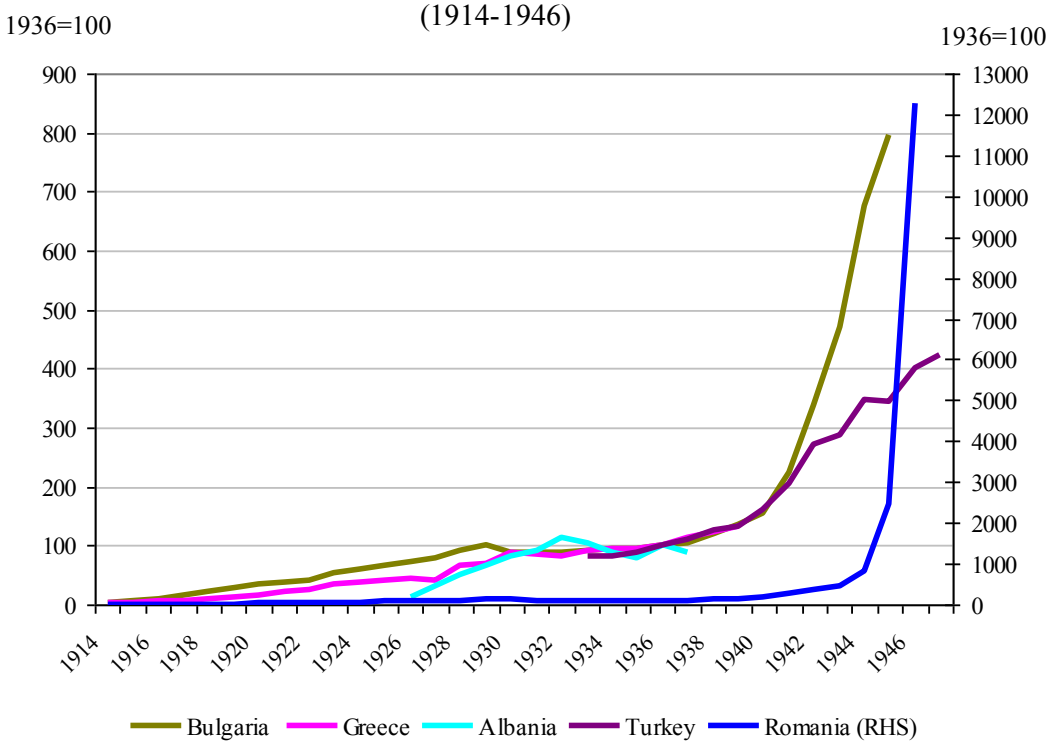


Source: County data tables.

Even though reserves (i.e. metallic and foreign exchange) were endogenously determined, the statutory reserve-banknote ratio was regarded as a key policy variable, i.e. an exogenous variable. This might explain why the monetary authorities of that time were not concerned with monetary aggregates. However, based solely on banknote circulation, one would underestimate money supply. This might be crucial since as from the last quarter of the 19th century or even earlier (as was the case for Austria-Hungary) in all SEE countries barter economy was gradually replaced by an exchange economy employing metallic coins and banknotes for trading goods and services. Accordingly, short-term bank deposits were equally considered as money.

'Narrow' and 'broad' aggregates provide a more precise assessment of the stock of money. Hence, the database contains for all SEE countries 'narrow' and 'broad' definitions of money such as M0, M1, M2 or M3, which were built using the standard definitions commonly employed in building modern data. Figures 1a and 1b plot the respective series on 'broad' money. As seen, liquidity increased during the last two decades of the 19th century as a consequence of the first era of financialisation of the global economy; money supply increased again in the turbulent periods of the 1920s and the 1940s.

Figure 1b
'Broad' money aggregates
(1914-1946)

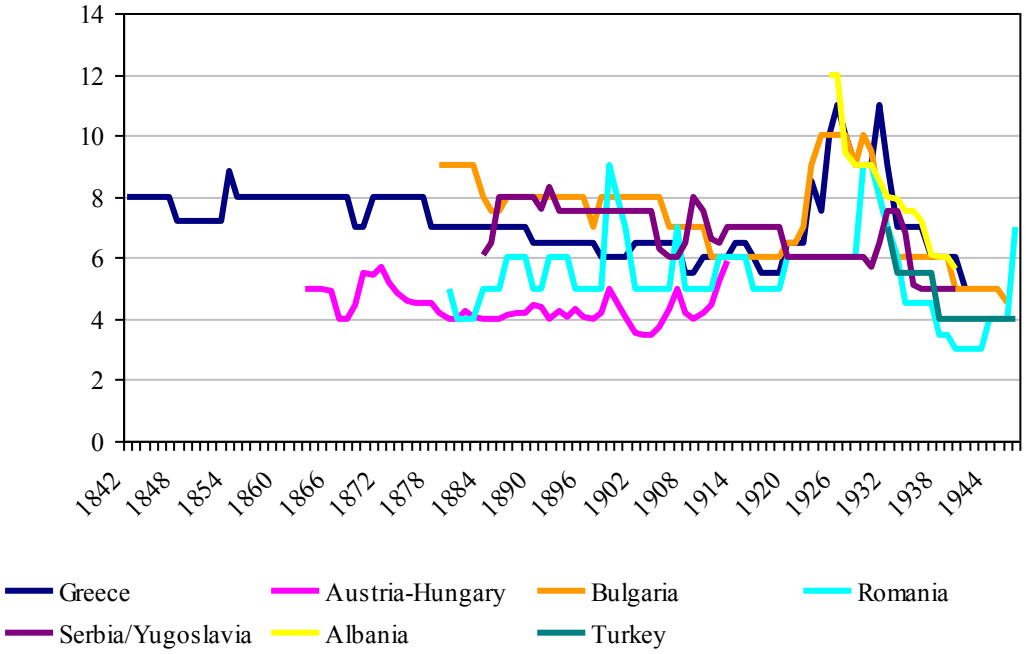


Source: Country data tables.

The second group of variables refers to short-term and the long-term lending and deposit **interest rates.** Special emphasis is placed on the note-issuing bank's and/or the central bank's short-term rate, known as the Lombard rate, bank rate or discount rate. It was imposed on discounts and advances provided by the bank to the commercial banks to meet temporary shortages of liquidity. In other words, it was the operating target of monetary policy. The monetary rule was quite simple and clear-cut. The higher the bank rate, the lower the amount of money that banks would decide to borrow and vice versa. Explicitly, manipulation of the discount window could influence the short-term market lending rate in the domestic money market. Figure 2 shows the respective series on the official discount rates.

Figure 2
The official discount rate
(1842-1947)

in per cent

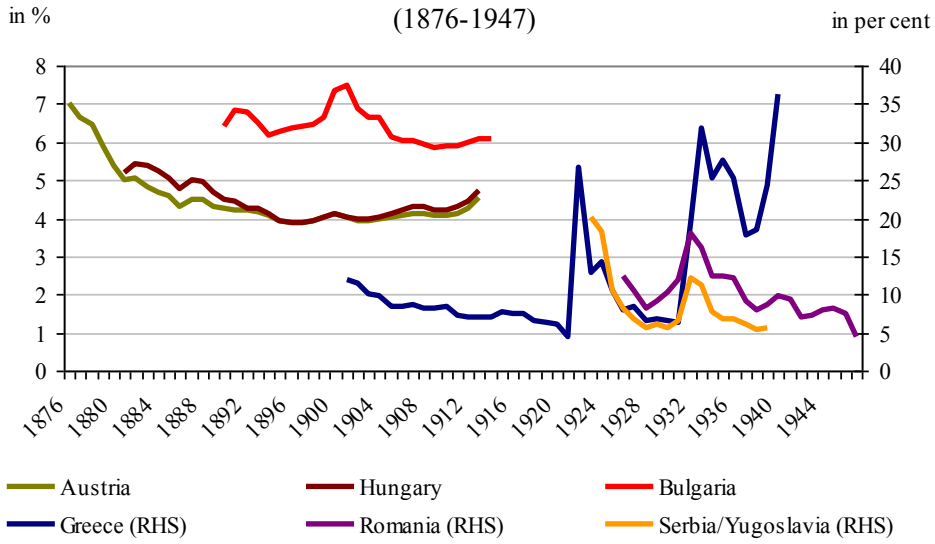


Notes: End-of-year; period averages for Serbia/Yugoslavia and Albania.
Source: Country data tables.

Another key variable is the **government cost of borrowing**. It was best proxied by the current yield of long-term government foreign bond loans. Its evolution over time is considered important for two reasons. First, it is a metric of the government's creditworthiness since peripheral countries, as suffering from the so-called 'original sin', were able to issue loans only in gold or in gold-backed foreign currency. Moreover, the bonds always included 'gold clauses'.[5] Second, it served as a leading indicator for the long-term market lending rate: easy access to the international capital markets would also be associated with cheap borrowing for the real economy. Figure 3 plots the government cost of borrowing for Austria, Hungary, Greece, Bulgaria, Romania and Serbia/Yugoslavia. As is evident, the SEE countries upon their entrance to a fixed rate regime, namely the classical gold standard in the last decade of the 19th century and the first decade of the 20th century, or the interwar gold-exchange standard at the end of the 1920s, were able to enjoy cheaper borrowing rates.

[5] See Eichengreen and Hausmann (1999) and Eichengreen at al. (2003).

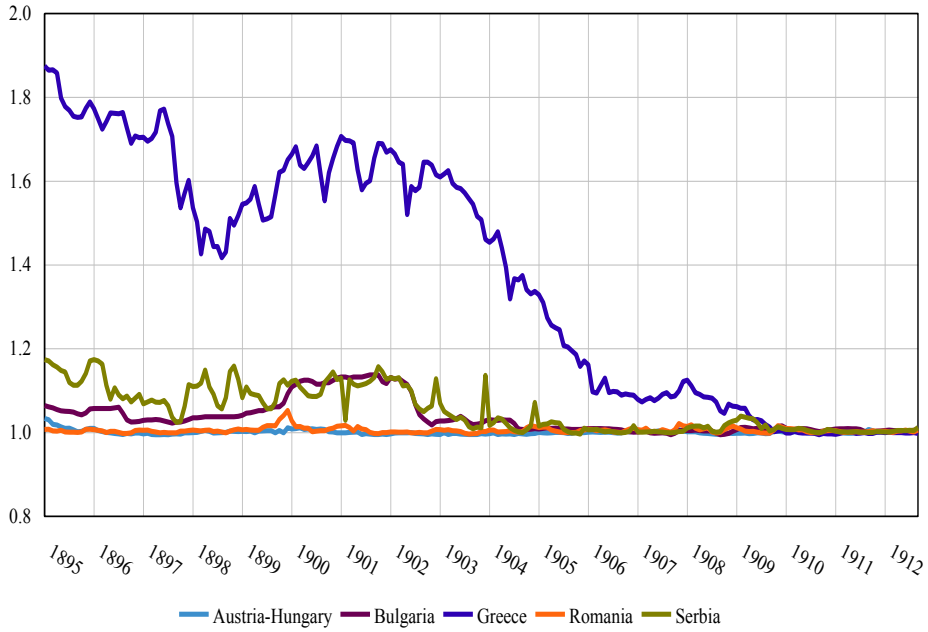
Figure 3
Current yield on fixed-rate government bonds in gold
(1876-1947)



Source: Country data tables.

The third group of select variables refers to the **nominal exchange rates** against the major international currencies such as the British pound, the French franc and the US dollar, and gold as well. Two issues are addressed here. The first one concerns the building of a time series on the 'agio'. Depending upon different monetary regimes in terms of legislation and implementation, the 'agio' is defined as the rate of the depreciation of the paper/silver currency against gold. The second one refers to the parallel market exchange rates, which were officially announced for private compensation deals when a large share of foreign trade turnover was conducted through clearing agreements at a fixed exchange rate, as was the case in the early 1930s. The data series presented in the database refer to the official (legal or free) market exchange rates. They were taken from the statistical reports and bulletins of the country's stock exchange and/or the national central bank's exchange office. However, all SEE countries, prior to the interwar stabilisation of their currency close to the market rate, imposed strict controls on money outflows and set the exchange rate quite lower compared to the true market rates in an attempt to control the heavy devaluation pressures. Hence, in some countries, like Greece, the official rates were underestimated by 30-35%. For some other countries, like Romania and Bulgaria, both official rates and exchange rates with premium are presented.

Figure 4
Deviation from the mint parity
(January 1895–September 1912)



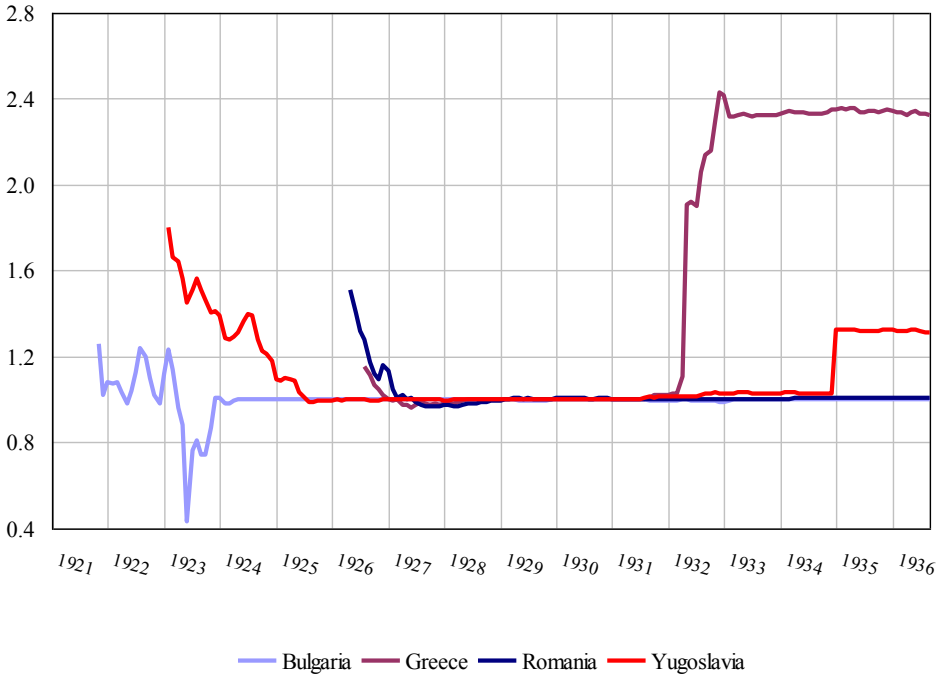
Source: Morys (2014). Calculations based on data series provided in the countries' chapters.

Figure 4 plots the exchange rate of five SEE countries compared to the mint parity over the pre-WWI period. We see that even though all countries had passed bimetallic coinage legislation between 1867 and 1890[6], thus signalling their long-term perspective of joining the gold standard, well up to the late 19th century no country had actually joined gold. Entering the gold standard was a slow and painful process. For example, it took Greece more than a decade to stabilise its currency after the 1898 foreign debt compromise; it eventually joined gold at the original mint parity as late as 1910. Serbia also experienced strong depreciation during the 1890s before it stabilised its currency after 1905. The same was true for Austria-Hungary, Bulgaria[7] and Romania, which also saw depreciations of their exchange rates for a long time before joining, albeit less heavy.[8] Exchange rate stabilisation was achieved by all SEE countries at around the turn of the century. Favourable global macroeconomic conditions starting in the mid-1890s helped increase European trade and money integration (see Eichengreen and Flandreau 1997, Flandreau and Zumer 2004).

Figure 5 plots the interwar exchange rate developments. By 1928, all SEE counties had joined the gold-exchange standard by *de jure* stabilisation after devaluing their currencies *vis-à-vis* the pre-war 'old' mint parity by a factor of more than 10. Bulgaria was the first one to stabilise its currency as early as 1924 and Serbia was the last one, as late as 1931.

[6] Effectively, paper notes were 'loosely' backed by silver.
[7] The depreciation rate of the Bulgarian leva has been estimated by using the agio (i.e. the gold premium against silver) until December 1906 and afterwards the exchange rate movements *vis-à-vis* the pound sterling. A detailed analysis of the agio in Bulgaria is provided in Dimitrova and Fantacci (2011).
[8] Greece joined gold in 1910, Romania in 1890, Austria-Hungary in 1892 and Bulgaria in 1906.

Figure 5
Deviation from the gold-exchange standard parity
(November 1921–September 1936)



Source: Morys (2014). Calculations based on data series provided in the countries' chapters.

Government finances were the next group of variables. It includes flows (revenue and expenditure) and stocks (public debt). Revenue refers to realised total revenue and taxes (direct and indirect). Expenditure concerns primary spending and interest payments. It also concerns ordinary and extraordinary spending. Availability of these series is quite important since it helps researchers to shed light on key issues, e.g. what the driving forces of permanent fiscal imbalances were; what the characteristics of the fiscal policies pursued by these countries were (procyclical versus countercyclical); how the fiscal shocks were originated (wartime emergences versus excess public consumption and public infrastructure spending); how the budget deficits were usually covered.

The last two groups discussed in the statistical base refer to prices, production and labour as well to national accounts. Analytically, **price movements** were described by a consumer price index or a cost-of-living index as well as a wholesale price index. **Production** was best assessed by an industrial production index (value or volume) or an economic activity index. For some countries **labour market statistics** are available in the form of employment or unemployment, wages and salaries and school enrolment as well. **National accounts** include trade statistics (imports and exports of goods and services), newly built data on GDP, real GDP and GDP per capita, and population. For all countries, GDP data series are reproduced from countries' recently concluded special studies on measuring national output.

3. Sources

One of the project's challenges was to identify the appropriate sources of information deposited in archives and libraries, which would allow us to extract the data series required to develop or retrace certain indicators that describe the monetary and financial developments in SEE during the period under study.

Identifying the appropriate sources for those indicators that were initially considered by the national working groups was a first problem in this respect. As is well-known, sources of information either stored in archives or published and deposited in libraries often curb the enthusiasm of researchers, whose efforts are focused on those areas of research for which sufficient documentary sources exist and access to which is quite easy. Much in the same way, the available sources of information have determined the original list of indicators chosen for this project. Over time, the original list was gradually supplemented with other indicators for which documentary sources had been identified, while for some others publication was not possible due to lack of sufficient primary data sources. As an example in this respect, we can refer to the lack of school enrolment data for all countries except Turkey and Serbia as well as data on government bonds yields and interest rates for the Ottoman Empire.

Another problem besides the identification of possible sources of information was the accurate interpretation of the available data. It is no secret that both archived documents and publications on certain economic phenomena provide information and interpretations that are useful at that particular time of period, according to the prevailing standards and requirements. Under these circumstances, the working groups decided to engage not only in tracing of the available data sources, but also in a critical approach to the use of such sources.

Before retrieving information from documents stored in archives or contemporary publications, it was of outmost importance to disclose the methods and techniques used for the determination of the indicators used or built, particularly for those indicators which rely on primary sources, such as price indices, production indices, money supply components and gross domestic product, as well as a comparison against current methods and techniques. Thus, no matter of the differences in determining indicators along time, the datasets described should observe currently accepted definitions and measurements. An example is that of the price index published in the Romanian financial newsletter *Argus*. Even though this index refers to the two decades between the two World Wars, we resolved to refrain from publishing the respective time series as more thorough analysis showed that the method employed to determine the index at that time is not in line with contemporary standards applicable to price indices, and, as a result, the index does not provide a generally accepted accurate picture of the evolution of the price level in Romania over time.

Going back to the sources of information used to trace the data published, an in depth analysis has shown that most information comes from publications of the note-issuing bank or the central bank and the national institutions as well, discharging monetary, financial and statistical duties. By way of exception, due to lack of other available information, the working group assigned to Albania have made extensive use of the statistical data published by an international organisation such as the League of Nations. Unpublished information traced back to documents stored in national archives has also been used to a large extent, particularly studies conducted

by the central banks for internal purposes or background documents used as supporting material for the preparation of their balance sheet. Another category comprises monographs, review papers and studies published by contemporary researchers at national and international level.

As a rule, the working groups have shown preference for primary information derived from documents stored in archives, periodicals published by banking and financial institutions (i.e. reports, balance sheets and statements), press releases by the same institutions in contemporary daily newspapers, as well as information from publications of the national institutes of statistics. Complementary sources such as review papers or studies published by contemporary researches have been considered only when primary sources were not available. An interesting example in this respect is that of retracing the dataset of the exchange rates for the Greek drachma almost entirely based on information retrieved from the periodicals of National Bank of Greece and the Bank of Greece, but also from contemporary studies which had already been published. They were used for cross checking the original time series and completing the missing figures. Nevertheless, due to the lack of other available (official) information, the data published by Delivanis (1946) and Delivanis and Cleveland (1949) have been used to complete the gap from 1941 to 1944.

Our main concern was the accuracy of information. We looked for a concrete interpretation of the data published by the national central banks in their half-yearly and annual balance sheets and reports, as well as in their monthly and weekly reports featured in specialised journals or daily newspapers of the time. To this end, the information so published by the central banks was cross-checked and compared with unpublished data maintained in various archives. The data used in the preparation of the balance sheets and reports, as maintained in the archives of the national central banks, were of great help in interpreting the official data. Thus, researchers have the opportunity to thoroughly analyse every balance sheet item. For instance, in the case of Romania, international reserve data were retraced based not only on the official information published by the country's central bank, but also on the data stored in the bank's archives which served for preparing the half-yearly and the annual balance sheet between 1929 and 1947.

Another issue that has been frequently encountered when preparing the datasets is the review and the updating of previous research datasets from authors participating in the project. Therefore, the working groups assigned to the Ottoman Empire have relied on the results of some of their previous research on the exchange rates, the consumer price index and government finances (Pamuk 2000). This is also the case for Bulgaria, where the GDP dataset is based on previously published work (Ivanov 2012), as well as for Serbia, where the data on government finances are based on the work of Gnjatovic (2009).

As already noted, the presented indicators have been classified into six main categories. In what follows we shall make an attempt at detailing the sources of information used by participating countries, as well as the difficulties encountered when interpreting the data series in each category.

Monetary variables

Monetary variables have been based mainly on annual and half-yearly reports and balance sheets, as published by the banks of note-issuing and the central banks, as well as the monthly or weekly statements released by these banks to the daily newspapers.

The records of the note-issuing banks are retained in the banks' archives. For some countries, however, they are maintained at the national archives; this is the case for Albania. Consequently, for Austria-Hungary significant information on the preparation of the balance sheets was found in the central bank's archive. This is also the case for the National Bank of Romania. In the case for Greece, significant information for the tracing of monetary variables was found in the archives of National Bank of Greece, which retains not only its own documents but also the records of other banking institutions in Greece, including two other note-issuing banks, namely the Bank of Crete and the Bank of Epirus and Thessaly.

Specific mention should be made of the Ottoman Bank, a foreign credit institution whose documents are retained in the archives of the bank in London. We should also not forget the efforts of the National Bank of Serbia to digitise and make available the bank's annual reports and balance sheets on its own website.

Moreover, studies published at the time as well as the results of research conducted by contemporary authors were also used to complete the documentation process.

Interest rates

The data published by the note-issuing banks in their annual reports as well as in the daily newspapers were used in order to retrace the datasets on the evolution of short-term official lending interest rates (i.e. the discount rate and the Lombard rate). The information released by the stock exchanges in the capital cities of the participating countries (Austria, Greece, Romania and Serbia) in their own bulletins, as well as in the specialised or the daily newspapers were used to establish the evolution of medium- to long-term lending market interest rates. Another example is that of Bulgaria, which made use of the data concerning the trading of the Bulgarian government bonds on the Vienna stock exchange, as published in the stock exchange journal and the Austrian daily newspapers. On the other hand, Albania extracted information from an international organisation, i.e. the League of Nations and its Statistical Yearbook, due to the absence of any national source. Although primary (national) sources of information prevailed, secondary sources were also available, in the form of studies and papers published then and now.

Exchange rates

The working groups resorted to the information published in the daily press of the time (Austria-Hungary and the Ottoman Empire), the information extracted from the central banks' reports (Turkey), or to a combination of various sources of information, such as data preserved in various archives, statements published by the note-issuing banks in their own bulletins or in the daily press, data published by the local stock exchanges, as well as the statistical yearbooks of the national and/or the international statistical authorities (Bulgaria, Greece, Romania, Serbia, Albania). This set of information was integrated with the data included in several review papers and various studies of the time in an attempt to cover the gaps of missing data (Serbia, Greece and Bulgaria).

Government finances

In order to establish the datasets for government revenue and expenditure and trace back the development of government debt, most authors combined primary sources such as the *Government Budget* and the *Report,* with the results of contemporary research. Turkey is an exception to this rule since data rely only on the information published by the central bank and the national institute of statistics.

The working groups on Austria-Hungary and Romania mainly relied on the primary information available in the government's statistical and financial yearbooks or the annual reports and the statements published by the ministry of finance. This information set was integrated with the data collected from the review papers published by other researchers. For the Ottoman Empire and Serbia the working groups used their own previous studies on the same matter, while for Bulgaria the data are taken from statistical yearbooks. For Greece, the presented dataset relied on the information recently published and based on official data released in the government *Reports* (see Protzas et al. 2012).

Prices, production and labour

The datasets on prices, production and labour have been extracted mostly from recent papers published either by the working groups of the project or by other researchers (see Austria and the Ottoman Empire). However, for Serbia, Romania, Albania, Greece, Bulgaria, and Turkey the respective time series were retrieved from both primary and secondary data sources such as the country's statistical yearbooks and bank's journals.

National accounts and population

This category generally comprises three datasets: population, foreign trade and gross domestic product.

As regards population data, most authors have relied on information from the yearbooks published by the national statistical authorities. Serbia aggregated primary information with the information published in a review paper based on the data series reported in the country's statistical yearbooks. In the absence of any national data sources, the presented data series for Albania was retrieved from internationally renowned review papers, such as the one published by Angus Maddison (2003), whose data were used together with the data extracted from official statistical publications.

With respect to the data concerning the volume and the value of foreign trade, the most frequently encountered sources of information are the national statistical yearbooks and the data published by the national banks in their own bulletins. There is however a slight difference in the data series for the Ottoman Empire, which rely on the results from previous studies published by Pamuk (1987 and 2006).

As far as the dataset on GDP is concerned, most working groups relied on the results of previous estimates already published. For example, the data for the Ottoman Empire reflect the estimates in Pamuk (2006). The same is also true for Greece (see the estimates in Kostelenos et al. 2007) and for Romania (Axenciuc 2012). The data on Bulgaria's GDP relies on the recent estimates in Ivanov (2012), while for Serbia, national income estimates are used as published in national review papers.

One may notice that, while most financial, banking and monetary data have been drawn from primary sources, with authors frequently arguing in favour of revising previously published results, the data from other areas of interest (e.g. national output) have more heavily relied on the research of individual experts, with more focus on the accuracy of the sources of information available to them.

4. Methodological issues

Methodological issues related to building new variables

Building long-term monetary and economic series is always a challenge due to changes in methodology (economic concepts, changes in the monetary standard and data reporting) and missing data. As mentioned above (section 2.2), the major challenge was constructing monetary variables, government finances and GDP data.

While the definition of total international (currency) reserves is a broader economic concept of foreign (convertible) assets against which central banks could implement expansionary monetary policy, under different monetary regimes, there are different legal constraints in each country as to what liabilities could be covered by what assets. A clear distinction between the two concepts (economic and legal) is provided in each country data definition and description, and country datasets enable the reader to alternatively construct both. Besides, data on reserves/cover stock and liabilities allow for calculating (if not reported) the reserve-banknote cover ratios.

Constructing monetary base and aggregates back in the past[9] was a more difficult task given that a breakdown of deposits was not always available at the central banks, as was also the case for data on coins in circulation and commercial banks' cash and deposits. Therefore, different components are provided separately starting from the date when reported data allow for a meaningful compilation or estimation. Apart from using balance sheet and statistical data, the construction of 'broad' monetary aggregates in some cases required utilising newspaper sources for commercial banks' balance sheets. Whenever data reporting was interrupted, interpolations and other statistical techniques were appropriately used for the sake of time series continuity. Given that most monetary variables are taken from the central banks' balance sheets, those indicators refer to end-of-period values.

While official short-term interest rates were continuously available (end-of-period data), one could also construct period average values based on information provided for the dates of change. Long-term lending interest rates are best proxied by current yields of long-term government bonds (and/or mortgage interest rates) based on current price quotations which are also reported. While most countries report bond prices quoted on their national stock exchanges, the data on Bulgarian government bonds were kindly provided by our DCTF Austrian partners and refer to quotations on the Vienna Stock Exchange.[10]

At different periods of time, for some countries there are differences between exchange rates reporting standards and respectively different primary sources were used. While annual data are the average of the monthly reported values, the latter ones

[9] The first estimates of monetary aggregates in central banks' reports and analyses appear as early as in the 1920s.

[10] At the outbreak of WWI, the Vienna Stock Exchange was closed and data end in June 1914.

are either directly reported monthly averages or averages of the minimum and the maximum monthly values or averages of four-weekly observations or even averages of mid-day quotations. Similarly, the data refer to the nominal, selling and/or buying rate of banknotes or bills of exchange drawn on both domestic and foreign markets. In addition, the agio indicators are reported in different units of account (exchange rate quotations or in percentages) representing the gold/silver premium against paper currency (Austria-Hungary), the paper/gold drachma exchange rate for Greece and the gold premium against silver and (silver-backed) paper currencies for Bulgaria, Romania and Serbia.

The second challenge refers to the construction of the variables of fiscal revenue and expenditure according to the modern standards of government statistics. Apart from providing primary data reported for ordinary and extraordinary revenue and expenditure, some countries invested more time and resources to identify budget financial transactions (e.g. interest payments and debt redemptions) and to adjust the extraordinary components accordingly, while others have provided data on foreign debt payments or different components of budget revenue and expenditure. In addition, public (central government) debt and its foreign and domestic components are also collected and reported.

In the broad category of prices, production and labour, indices of consumer prices, market wholesale prices or individual product prices are available for all countries. Some countries also report export and import price data from the interwar period backwards. Additional indicators like industrial production (value, volume and indices), labour market data (unemployment, labour force, wages) and educational indicators like school enrolment are also added for some countries.

The third main challenge was the construction of a broad economic activity indicator like GDP. While in the 1920s the concept of national income and GNP was prevalent and some countries reported nominal and real GNP using statistical resources, for others there are only GDP estimates extended back in the past which are provided based on secondary sources. Concerning trade, foreign trade data (only exports/imports of goods) were regularly reported and easily collected. Finally, the presented data on population were based on population censuses as well as on statistical interpolations in-between census years applied by the statisticians at that time.

Increasing comparability between countries' databases

Comparability is essential for a project of multi-country databases. It is usually constrained by differences in legal definitions; differences in data reporting methods; and data availability. In order to increase comparability across countries' datasets and construct a harmonized multi-country database, in the process of data exploration we strictly paid attention to those three aspects. Data unavailability, in particular of compound indicators (e.g. monetary aggregates, total reserves), was overcome first by checking and collecting primary data and, second, by constructing the aggregate indicator, quoting the respective primary source and using items that appeared in balance sheets. Even when data of compound indicators were readily available in the balance sheet and other official statistical resources, for the sake of comparability, we carefully studied their composition and legislative constraints. In addition to providing data for the respective aggregate indicators, we also published their components, thus allowing the researchers to use whatever sub-component and/or sub-aggregate they need for their comparative analyses. For those periods that

primary data were not available, we resorted to the appropriate statistical methods (e.g. linear interpolation) for generating a continuous time series. We provided the necessary motivation for such interventions. This scrutiny of data enabled us to provide useful information about episodes of different data reporting standards under different monetary regimes and even incidences of data manipulation. A detailed and concrete description of the relevant variable also assisted the same purpose. This is because recording important differences in the reporting methods often reflects changes in the monetary policy regime. Another option for enhancing comparability was also the decision by all project participants to use the standardized definitions used in compiling modern data. This enables researchers to make comparisons across time and across countries.

Coordination of the working groups

For the purpose of coming out with reliable datasets, the coordination of the country working groups involved expertise available in the fields of economics, statistics, historical and archival work within the seven participating central banks, as well as from the national academic community. Besides, country groups were consulted by national and international academic researchers whose work pays attention to SEE monetary and economic historical developments.

A by-product of this enlarged cooperation was the increasing amount of studies, which, alongside the process of data collection and construction, DCTF members presented at the network's annual conferences and got valuable feedback which helped them to check and enrich the original dataset. Considered as a useful outcome, their work was published in their central banks' conference proceedings, working papers and other research publications, and is provided in the list of references at the back of each country chapter.

DCTF meetings

Since 2006, the DCTF has organised 13 meetings, nine of which were regularly held alongside the SEEMHN annual conferences, at which DCTF members presented the progress of their work on individual variables' construction and sources. The proceedings of each meeting were carefully prepared and a workflow chart was drawn ahead of the next meeting.

At the 4th DCTF non regular meeting in 2008 in Vienna, the first views with respect to the outcome and its feasibility were discussed, including the publication and its content. Initial costs and resources (editing, layout, printing, data in Excel and CD production, shipping, etc.) were shared among the representatives of the Bank of Greece, the Bulgarian National Bank and the Oesterreichische Nationalbank.

At the 6th DCTF meeting in 2009 in Athens, the identical outline of each country chapter was proposed. Besides, following international databases (like the ones managed by the IMF, the WB and the OECD) which set the modern statistical standards, the six broad groups of indicators were defined and a preliminary list of the main and additional indicators in each group was drawn.

The 8th DCTF meeting in 2010 in Sofia introduced the index table at the beginning of each country chapter as a useful tool for safe data search across countries' datasets and the idea for each variable code. The finally agreed code generation procedure comprised the respective country prefix (AH, AL, BG, GR, OE, RO, SE, YU or TR), the number of each group variable (1, 2, 3, 4, 5 or 6), and a letter

identifying the respective time series within the group (A, B, C, etc.). At the end, A stands for annual, M for monthly time series and D for dates of change. Having the series' codes in the index table and the data tables (as well as in the text of individual country chapters where the variable is referred to) largely contributed to the reader-friendly organization of all the data in the supplementary Excel file, where codes are hyperlinked.

The 2-day 10th DCTF meeting in 2011 at the Deutsche Bundesbank was crucial for finalizing the work on constructing individual variables and starting looking at them in cross-country comparison. With a view to obtaining a higher degree of comparability of the data and the text structure, two groups were set for peer-review of country chapters (group 1: Austria-Hungary, Greece, Serbia/Yugoslavia and Ottoman Empire; group 2: Albania, Bulgaria, Romania and Turkey). The revised chapters were then proposed for comments and remarks to any other DCTF member, which substantially contributed to the individual country chapters' refinement in terms of harmonized text and data presentation.

With a view to sharing the publication costs among a broad group of participating central banks, the National Bank of Romania decided to join the team of those central banks which were deeply involved in the production of the data volume.

Apart from the DCTF meetings, the 2-stage editing process carried out by the Bank of Greece was also very useful for the standard academic style and the English-language refinement of the publication.

5. New research topics: the future of the SEEMHN DCTF

The DCTF of the SEEMHN is now ready to proceed to the next step, which concerns the study of the central banks' balance sheet. This topic was rather neglected during the years of the *Great Moderation.* However, after the 2008 crisis it became a key topic in monetary policy. Senior officials from central banks as well as academic scholars and economists have expressed their ever increasing interest in the size of the central bank balance sheet. This is because monetary policy is implemented through the central bank balance sheet; the latter mirrors the central bank's policies. Explicitly, all operations that a typical central bank conducts, that is currency issue, foreign exchange operations, funds investment, monetary policy operations and emergency liquidity assistance, affect its balance sheet structure and size.

The study of its structure and its evolution over time provides useful information on monetary policy implementation. The items on the asset side include foreign reserves, lending to banks, the real economy and the government. The items on the liability side include banknotes, bank deposits, government deposits and capital. According to Bindseil (2004), the items on the central bank balance sheet are ordered into four categories: autonomous liquidity factors, open market operations, standing facilities and commercial banks' reserves with the central bank. Each category can be analysed and discussed separately. The balance sheet can also be considered as a preliminary overview of central bank profitability issues and financial independence. Profitability factors are operating costs and the possible obligation of the central bank imposed by the government to engage in loss-making activities such as granting cheap credit to the government and bailing out distressed banks. Profitability is also affected by changes in exchange rates and long-term interest rates. Lack of profitability is a key issue since profitability reflects the central bank's credibility and independence.

The DCTF considers the study of the balance sheet as of paramount importance since it can help us to answer key questions such as (i) what the major institutional reforms in the monetary policy implementation framework and bank supervision after the interwar crisis were; (ii) whether the structure of the balance sheet reveals that the central bank, amid the crisis, remained closely focused on the chosen monetary policy strategy of a currency peg; (iii) what monetary policy operations were conducted (i.e. liquidity-providing standing facility); (iv) whether the central bank was deeply involved in government re-financing which, in turn, indicated low profitability and high dependence on government interference.

We think that the DCTF has a key role in this project since central banks themselves are better placed to provide these data as to access to their balance sheets it is rather difficult for individual and external researchers. There is also need for further explanation and comments. Based on its past experience, the DCTF can provide the framework for harmonizing the documentation and presentation of the select data. It can also complement balance sheets with weekly or monthly statements and reports with information on the composition/turnover of items, like foreign reserves, discounts, etc.

Free access on the new set of data will be available on the websites of all participating central banks. This option is considered as a flexible one as data updating and uploading become easier.

References

Axenciuc, V. (2012), *Produsul intern brut al României 1862-2000 Serii statistice seculare si argumente metodologice,* volume I-II, Economica Publishing House, Bucharest (in Romanian).

Bindseil, U. (2004), *Monetary Policy Implementation, Theory Past and Present*, Oxford University Press.

Delivanis, D. (1946), *The drachma from September 1939 to the monetary stabilisation of January 1946 and its first effects,* Papazisis Publishers (in Greek).

Delivanis, D. and W. C. Cleveland (1949), *Greek monetary developments,* Bloomington Indiana University Press.

Dimitrova, K. and L. Fantacci (2011), 'Monetary policy in Southeast Europe on the road to the gold standard', in Anders Őgren and Lars Fredrik Øksendal (eds.), *Gold standard peripheries. Monetary policy, adjustment and flexibility in a global setting*, 174–187, Palgrave Macmillan, London.

Eichengreen, Barry and Marc Flandreau (1997), eds. *The gold standard in theory and history,* 2nd edition London, New York, Routledge.

Eichengreen, B., R. Hausman and U. Panizza (2003), 'Currency mismatches, debt intolerance and original sin: Why they are not the same and why it matters', *NBER Working Paper 10036*.

Eichengreen, B. and R. Hausmann (1999), 'Exchange rate and financial fragility', Federal Reserve of Kansas City, *New challenges for monetary policy*. A Symposium sponsored by the Federal Reserve of Kansas City, 329–368.

Flandreau, M. and F. Zumer (2004), *The making of global finance, 1880-1913*, Development Centre Studies, OECD, Paris.

Gnjatovic, D. (2009), 'Foreign long-term government loans of Serbia, 1862–1914', in *Economic and Financial Stability in SEE in a Historical and Comparative Perspective,* SEEMHN and NBS*, Conference Proceedings,* 33–53, Belgrade.

Ivanov, M. (2012), Brutniat vytreshen product na Balgaria, 1870–1945/Gross Domestic Product of Bulgaria, 1870–1945, Sofia, (bilingual publication)..

Kostelenos, G., D. Vasiliou, Em. Kounaris, S. Petmezas and M. Sfakianakis (2007), *Sources of the economic history of modern Greece: quantitative data and statistical series: Greek domestic product, 1830–1939*, Centre for Planning and Economic Research and the National Bank of Greece (in Greek with an English summary).

Maddison A., (2003), *Dataset. The World Economy: Historical Statistics*, Organisation for Economic Co-operation and Development Centre.

Morys, M. (2014), 'Introduction', in *South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to World War II*, published by: Bank of Greece, Bulgarian National Bank, National Bank of Romania, Oesterreichische Nationalbank, Athens, Sofia, Bucharest, Vienna, chapter 1, 25-53.

Pamuk, Ş. (1987), *The Ottoman Empire and European capitalism, 1820–1913: trade, investment and production*, Cambridge University Press, London.

Pamuk, Ş. (2000), *A monetary history of the Ottoman Empire,* Cambridge University Press, London.

Pamuk, Ş. (2006), 'Estimating economic growth in the Middle East since 1820', *The Journal of Economic History*, 66(3), 809–828.

Prontzas, V., P. Kimourzis and N. Melios (2012)*, Sources of the economic history of Modern Greece: Quantitative data and statistical series: Public Revenue, 1833–1939*, Centre for Planning and Economic Research and the National Bank of Greece (in Greek with an English summary).

SEEMHN (2014), *South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to World War II*, published by: Bank of Greece, Bulgarian National Bank, National Bank of Romania, Oesterreichische Nationalbank, Athens, Sofia, Bucharest, Vienna.

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