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JEL classification: N13, N14, N23, N24, E63, F34

Keywords: fiscal dominance, gold standard, financial supervision, South-East Europe

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We add a historical and regional dimension to the debate on the Greek debt crisis. Analysing the 1841-1939 exchange-rate experience of Greece, Bulgaria, Romania and Serbia/Yugoslavia, we find surprising parallels to the present: repeated cycles of entry to and exit from gold, government debt build-up and default, and financial supervision by West European countries. Periods of stable exchange-rates were more short-lived than in any other part of Europe as a result of "fiscal dominance", i.e., a monetary policy subjugated to the treasury's needs. Granger causality tests show that patterns of fiscal dominance were only broken under financial supervision, when strict conditionality scaled back the influence of treasury; only then were central banks able to pursue a rule-bound monetary policy and, in turn, stabilize their exchange-rates. Fiscal institutions have remained weak in the case of Greece and are at the heart of the current crisis. A lesson for today might be that the EU-IMF programmes – with their focus on improving fiscal capacity and made effective by conditionality similar to the earlier South-East European experience – remain the best guarantor of continued Greek EMU membership. Understandable public resentment against "foreign intrusion" needs to be weighed against their potential to secure the long-term political and economic objective of exchange-rate stabilisation.

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1. Introduction

The on-going Greek financial crisis has laid bare serious economic fragilities in the South-Eastern corner of the 19 member strong euro area: a government debt stock of 170% of annual economic output of the Greek economy, a dangerous bank-sovereign embrace seriously undermining financial stability, and an economy in its seventh year of recession which has declined more than a quarter since its 2008 peak. In tandem with the process of weakening economic data, politics has become more difficult to navigate: torn between creditor demands for structural improvements of the economy and domestic reform fatigue, the Greek government attempts to please simultaneously the international and the domestic audience yet frustrates both in the process. As a result, the scenario of Grexit over the medium term – i.e., the exit of Greece from the euro area coupled with the reintroduction of a national currency – looms large, though few observers expect it to be imminent given the 12th July 2015 accords between Greece and its creditors.

Yet while the Greek financial crisis boasts several superlatives – largest international bail-out ever, highest European Union debt-to-GDP ratio (and second only to Japan among the OECD countries) and a GDP decline of Great Depression proportions – and has generated an extraordinary academic and media attention since it broke in autumn 2009, several dimensions of it remain either completely unexplored or, at best, dangerously neglected. More specifically, a better understanding of Greece's current travails requires adding both a regional and historical dimension. Not only has Greece itself suffered more than its fair share of financial crises since political independence in 1830, but these apparently recurring events have been embedded in a regional context prone to financial instability. To begin with the present: Greece's economic problems – a twin deficit (budget and current account) financed by capital inflows before the 2008 global financial crisis which was brought under control thereafter only by outside financial help – are widely shared regionally, though on a lesser scale. Romania, the second largest South-East European (SEE in the following) economy after Greece, for instance, received 20 billion euro between 2009 and 2011 as part of the European Union balance-of-payments assistance programme (in conjunction with the International Monetary Fund) and has since then followed two similar programmes (2011-13, 2013-15), yet without drawing actual funds.[1] Serbia (since 2009) and Kosovo (2010-2013) both required IMF stand-by-arrangements (with funds drawn) in the wake of the 2008 global

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[1] ec.europa.eu/economy_finance/assistance_eu_ms/romania/index_en.htm (last accessed 21st July 2015).

financial crisis. Similarly, most other South-East European countries were under IMF stand-by-arrangements (with funds drawn) either at some point before the 2008 crisis (Croatia 1994-2006; FYROM 1995-2013; Bulgaria 1997-2004; Turkey 1999-2008; Bosnia-Herzegovina 1999-2015) or have joined the regional "trend" since then (Albania: IMF extended fund facility 2014-2017).[2] The only SEE country to have completely avoided foreign financial – which has always come together with politically sensitive conditions attached to the loans – is tiny Montenegro; though this partly reflects the fact that the country cannot experience a typical balance-of-payments crisis (which would potentially trigger IMF and EU assistance) as a result of its unilateral adoption of the euro. In sum, Greece is only the visible peak of a much-wider regional iceberg which has been in troubled waters since the end of the global capital cycle in 2008.

The problem of this regional iceberg is this: while it might not be visible for a long time – especially when the seas of international finance are calm and global macroeconomic conditions are favourable –, it has never dissolved completely. SEE's current travails stand in a long tradition of persistently weak government budgets, government debt-build up and default, entry into and exit from the dominant fixed exchange-rate system of the day and, last but not least, a delicate relationship between national government and foreign creditors. The Greek experience has tended to be more extreme, yet structurally similar to Bulgaria, Romania and Serbia/Yugoslavia, the other three Balkan countries with a monetary history stretching back to the 19th century.[3] Uncovering and analysing this rich tradition – which in the case of Greece covers more than a century from political independence in 1830 to the outbreak of World War II in 1939 – and reflecting on potential lessons of the past for Greece and SEE today are the purpose of this paper.

This paper is fundamentally concerned with two seemingly simple questions. First, why was adherence to both the Classical Gold standard and the interwar gold standard so short in SEE compared to the rest of Europe despite the clear political intention to join? Second, what was the experience with fixed exchange-rates? All four countries conducted fiscal policies inconsistent with monetary policy required to join and successfully adhere a fixed exchange-rate system. While there was strong political will to join the gold standard in all four countries, political actors failed to realise (or were unable to implement) balanced budgets as a pre-condition for successful adherence. Persistent budget deficits were either

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[2] http://www.imf.org/external/np/fin/tad/exfin1.aspx (last accessed 21st July 2015).
[3] Albania became independent only in 1912; all other present-day SEE countries have become independent only since the early 1990s.

closed through seigniorage (early on through cheap silver and copper coinage, later by means of debt monetisation via the central bank) or capital imports. Reliance on excessive seigniorage – also referred to as inflationary finance or simply government finance by the printing press – did not allow for stable exchange-rates. Yet capital imports also conflicted with the political goal of exchange-rate stabilisation. Before World War I, rapidly increasing debt servicing costs structurally weakened the balance-of-payments of all four countries and made joining gold difficult. In the interwar period, joining was eased by the fact that large depreciation against the pre-1914 parity had become widespread practice (though nowhere was depreciation as large as in SEE), but adhering to the interwar gold standard in the short window 1928-1931 was still burdened by the high debt levels.

Yet while seigniorage and capital imports were problematic on their own, it was their combination (with strong doses of each) in the period ca. 1875 – 1895 that gave rise to a feature characteristic of the SEE experience with fixed exchange-rates ever since: foreign financial supervision. Greece and Serbia accepted such an arrangement after their defaults (in 1893 and 1895, respectively) as part of a debt restructuring; Bulgaria "voluntarily" acceded to it in 1902 as precondition for another international loan. Creditor countries insisted on an end to inflationary finance and set the countries on a path of monetary stability that eventually saw them join the gold standard (Bulgaria: 1906; Serbia: 1909; Greece: 1910). Foreign lenders did not do this for altruistic reasons; they rather saw – not unlike today in the euro area – stable exchange-rates as a means to avoid currency mismatch and hence ensure debt repayment. Yet the fact remains that by improving fiscal capacity, financial supervision achieved what purely domestic initiatives for currency stabilisation since the mid-1860s had eluded: not falling for the perennial temptation of debt monetisation. The resurrection of the gold standard in SEE in the 1920s followed a similar pattern. *De jure* stabilisation in the late 1920s required all four countries to take out international loans in order to replenish currency reserves. In return, they had to accept a considerable amount of foreign financial supervision as well as serious restrictions on debt monetisation (in some cases even outright prohibitions).

In seven of the eight cases analysed in this paper (four countries during the periods of the Classical Gold Standard and the interwar gold standard), then, joining the gold standard was either preceded by several years of financial supervision (Bulgaria, Greece and Serbia before World War I) or coincided with international loans-cum-conditionality (the interwar experience); only Romania followed gold on its own between 1890 and 1912. This interconnectedness – which was not shared by any other region of Europe – raises interesting questions: was the infringement on national sovereignty which financial supervision entailed

a price worth paying for sound money? One strand in the regional historiography would probably answer in the affirmative. Roumen Avramov, for instance, who wrote a monumental three volume history of the Bulgarian National Bank, concluded: "The only credible threat to Government interference with monetary policy remains external pressure exerted by foreign creditors and by the panoply of international organizations. The most effective constraints on issuing policy have been imposed through foreign conditionality: closing (or restriction) of the national bank's window for budget financing have been only possible by outside-driven deep institutional reform." (Avramov 2006: 96) Similarly, Lazaretou (2005: 208) argues that "the International Committee for Greek debt management in 1898 provided the legal framework so that the country could enjoy fiscal[ly] responsible governments. … debt monetisation was prevented and strict constraints were imposed on the annual increase of banknote circulation, whereas an increase in tax revenues were demanded so as foreign loans to be completely repaid." Of equal interest, why was Romania (at least before World War I) different and what would it have taken the other three countries to follow its path of domestic monetary reform and "internal" commitment to gold? Was there a Romanian *Sonderweg* within the Balkans, a question that has also been posed by recent research elsewhere (Maerean&Sharp 2014)?

The remainder of this paper is structured as follows: The second section will document key aspects of the SEE exchange-rate experience; it will outline how short periods of gold adherence were compared to other parts of Europe and that performance under gold was poorer than elsewhere. The brevity of adherence did not reflect a lack of political will to join the gold club; on the contrary, the determination to pursue fixed exchange-rates with Western Europe was particularly strong in SEE for a combination of political and economic reasons. The third section provides an introduction by case study to the main theme of this paper. Already the first attempt of the newly independent Balkan countries to join gold in the 1870s and 1880s was thwarted by the fiscal reality. Similar to the well-researched experiences of Italy (Fratianni&Spinelli 1997, 2001) and Spain (Sabaté et al. 2006, 2015), the Balkan countries were characterised from early on by "fiscal dominance", i.e., a monetary policy which does not follow a rule (such as the gold standard rule, cf. Bordo&Kydland 1995) but is subjugated to the government's fiscal needs. Chapters 4 and 5 are then devoted to a more systematic analysis and provide the empirical basis for the core argument of the paper. Chapter 4 documents seigniorage levels for the 1860-1939 period. While high on average in European comparison, they fell considerably when capital imports were available; seigniorage and capital imports were substitutes in closing persistently weak budgets. We

document seven distinct periods (which are almost synchronous for the four countries) in which either seigniorage or capital imports dominated; periods of debt monetisation coincided with floating exchange-rates and periods of sizeable capital imports coincided with fixed exchange-rates (and financial supervision). The evidence presented in sections 2 – 4 is suggestive of fiscal dominance. Section 5 puts this to an econometric test, following similar research for Italy and Spain (cf. above). While fiscal dominance is the broad pattern, it does not hold for all sub-periods. More specifically, the gold rule (for Romania before World War I) and financial supervision (in all other cases) allowed to break the pattern. This suggests that commitment mechanisms – either internal or external – were available that enabled the SEE countries to avoid the perennial temptation of inflationary finance. Section 6 summarises and discusses the lessons of 100 years of exchange-rate experience for the challenges facing Greece and the region today.

2. A troubled track record: fixed exchange-rates in SEE 1870s - 1939

Periods of stable exchange-rates were extraordinarily short and performance during such periods was worse than in other parts of Europe. Yet the brevity of adherence did not reflect a lack of political will to join the gold club; on the contrary, the determination to pursue fixed exchange-rates with the economically more advanced countries of Western Europe was particularly strong in SEE for a combination of political and economic reasons. We provide an overview over all three aspects.

2.1 Length of adherence to the Classical Gold standard and the interwar gold standard

Table 1 shows the duration of gold standard adherence for 24 European countries for the periods of the Classical Gold Standard (1870s-1914) and the interwar gold standard (1925-1931). For the earlier period, no distinction is made between *de jure* adherence (unlimited and immediate convertibility of bank notes into physical gold) and *de facto* adherence (maintaining the exchange-rate within a +/- 2% band to *de jure* gold standard countries, cf. Obstfeld et al. 2005), as the former was practised only by a very small number of countries (possibly only England, France, Germany, Belgium and the Netherlands, cf. Morys 2013). The distinction became important in the interwar period, when countries stabilised their exchange-rate first and subsequently "legalised" it by declaring the prevailing exchange-rate the new gold parity. There was usually some delay between *de facto* and *de jure* stabilisation.

De facto stabilisation meant finding a "sustainable" exchange-rate. *De jure* stabilisation required currency reserves sufficient to defend the new-found level; this often required considerable time, either by accumulating foreign reserves or – the standard case in SEE but also in Central and Eastern Europe (de Cecco 1997) – by obtaining reserves by means of an international loan.

[insert table 1 about here]

The Classical Gold Standard was followed continuously by the Western European and the Nordic countries (with the exception of Austria-Hungary), but adherence was considerably shorter in Southern Europe, SEE and Russia. Countries in these parts of Europe joined gold only in the 1890s, potentially as a result of improved pan-European macroeconomic performance (Flandreau et al. 1998) or higher cyclical integration with the European core economies (Morys&Ivanov forthcoming). Portugal was the only country in this group to follow gold in the 1870s and 1880s, yet adherence ended in 1891 when the government defaulted. Yet while all three groups of countries adhered for shorter periods than the West European and the Nordic countries, SEE exhibits the three shortest spells of all 18 countries: Bulgaria, Serbia and Greece stabilised their exchange-rates only in 1906, 1909 and 1910, respectively (Greece had an even shorter spell – of nine months only – in 1885). Only Romania stands out with 22 years of adherence from 1890 to the outbreak of the first Balkan War in autumn 1912 (same event for Bulgaria and Serbia).

[insert figure 1 about here]

A similar picture emerges for the interwar period. SEE shows the shortest adherence to gold (2 years 8 months), followed by Southern Europe (3 years 6 months). If the benchmark is exchange-rate stabilisation instead of convertibility, both regions change positions (SEE: 6 years 4 months; Southern Europe: 5 years and 2 months), yet also on this account both regions trail Western Europe, the Nordic countries and even the seven newly independent countries of Central and Eastern Europe.

[insert figure 2 about here]

Last but not least, the SEE countries depreciated their currencies against pre-war parity more strongly than anywhere else in Europe (only Portugal exhibited a similar level). Depreciating against the old parity did not necessarily foreshadow poor performance in the interwar period; in some cases such as France it has been argued that this made the gold link more bearable by devaluating compared to Britain which resisted such a move (Eichengreen 1996). But this is not the point in our context: high levels of depreciation are *prima facie* evidence of financing World War I through the printing press (as opposed to taxation, as Britain did). In other words, the extraordinarily high levels of depreciation against the pre-1914 parity are another piece of evidence that debt monetisation played an important role in SEE.

2.2 Performance under gold

How difficult was maintaining fixed exchange-rates during the – rather short – periods in which the four SEE countries adhered to gold? Two important indicators are long-term (bond yields) and short-term interest rates (discount rate, bank rate). Gold standard members expected the good housekeeping seal of approval in the form of lower borrowing costs (Bordo&Rockoff 1996). Bond yields typically fell under gold, but levels remained different across countries. Before World War I, only the Western European and the Nordic countries remained below 4%. Russia, Southern Europe and SEE (in ascending order of yield) showed higher values. SEE countries exhibited the highest yield – and were hence deemed the least trustworthy – of all of Europe. Greece had the highest bond yield of all European defaulters (which includes Portugal and Serbia), whereas Bulgaria and Romania had the highest bond yields of all non-defaulting countries. Average bond yields in the interwar period were higher for all five country groups, reflecting the transition to the troubled interwar years. Yet the internal order of the five groups hardly changed, with SEE again performing worst.

[insert table 2 about here]

The short end of the yield curve also points to the outlier status of SEE. The average discount varied considerably, with the Bank of England typically charging less than half of the Bulgarian National Bank for short-term funds (the two extreme observations). Before 1914, four of the five highest average discount rates were applied in SEE, with Romania – the best performing SEE economy on this account – on par with Portugal. Results for the interwar period show bigger variation and country-specific idiosyncrasies, but SEE was again the region with the highest average discount rate.

Other indicators support the conclusion that SEE found it difficult to maintain the gold standard. First, they pursued a highly restrictive convertibility regime in both periods. Before World War I, Romania was the only country that offered gold convertibility for a prolonged period of time (Morys 2014: 41-42), yet even here contemporary accounts suggest that the National Bank of Romania would exchange only small amounts of currency for gold but became reluctant if large sums were involved (Sonndorfer 1905: 292). The bar was raised even higher in the interwar period: While the four countries were obliged to institute convertibility (under the international loan agreements), the minimum amount required for gold conversion was so large (even by the standards of the day given the 1922 Genoa policy to make gold convertibility more difficult) that convertibility was effectively removed from private reach. In the Romanian case, for instance, the sum needed (100,000 lei = 600 USD) amounted to five years of a typical Romanian salary (Stoenescu et al. 2014).

Another example of following the rules yet twisting them at the margin relates to the exchange-rate stabilisation of Bulgaria and Yugoslavia in May 1924 and July 1925, respectively. Both countries took part in the first big wave of countries re-establishing the gold link in the interwar period. Yet they could achieve this only by imposing simultaneously capital controls (Dimitrova&Ivanov 2014: 202 and Hinic et al. 2014: 296); which, in essence, was a fundamental deviation from the gold standard orthodoxy which was meant to be re-surrected. The Bulgarian case is particularly instructive in our context, as it shows the close relationship between fixed exchange-rates and foreign debt service in the case of SEE. France – Bulgaria's largest pre-war creditor and also entitled to the largest share of the country's reparation payments following the Neuilly-sur-Seine peace treaty (November 1919) – effectively forced the country on the gold standard in an attempt to secure debt repayment (Nenovsky&Dimitrova 2006). By contrast, Bulgaria thought exchange-rate stabilisation was premature but obliged, imposing capital controls to maintain some control of the balance-of-payments.

Last but not least, the SEE countries exposed themselves to considerable balance sheet risks by relying predominantly on foreign exchange. In the cases of Greece and Bulgaria, for instance, metallic holdings as part of total reserves accounted for only 22.1% and 39.9% immediately after *de jure* stabilisation in May 1928 and December 1928, respectively (Dimirova&Ivanov 2014, Lazaretou 2014). On some level this was perfectly understandable and followed long-standing League of Nations advice (and subtle pressure) to hold foreign exchange reserves: As reserves had been obtained by international loans in the first place, it was appealing to the central bank to generate interest on them. Yet it went

against the recent trend – spearheaded by the Banque de France and the Reichsbank – to move back into physical gold. As a result, the SEE countries exposed themselves to considerable risk which, in the Greek case, has been held responsible for quickly succumbing to the 1931/32 financial crisis (Christodoulakis 2013).

2.3 Only short periods of stable exchange-rates yet no lack of enthusiasm for gold

The short duration of and the difficulties encountered under fixed exchange-rates contrast strongly with the enthusiasm shown for gold; there was a strong and early political consensus to join the gold standard in both periods. In the pre-war period, exchange-rate stabilisation had been preceded in all cases by gold standard legislation several decades earlier. When the Balkan countries became independent, their monetary systems were characterised by foreign coin circulation. In 1860s Serbia, for instance, more than 50 different types of gold, silver and other coin of Austrian, English, French, German, Greek and Ottoman provenance circulated freely (Gnjatovic 2006: 47). One of the first acts of the new political authorities was therefore to withdraw foreign coins and replace them with a set of national coinage; this step was considered so important that it preceded both political independence and the establishment of a bank of note issue; only in the case of Bulgaria (which became independent in all but name in 1878), the three events occurred almost simultaneously.[4]

Legislating for national coinage between 1867 and 1880 raised the issue of the monetary standard. In this process, the four countries pronounced themselves unequivocally in favour of the dominant Western European monetary standard. As Romania's and Serbia's coinage acts (May 1867 and November 1873, respectively) were passed at the time of the gold-bimetallic controversy, both countries sought middle ground and followed the solution found first by regional hegemon Austria in its April 1867 monetary commission: adopt Latin Monetary Union / French coinage but base the monetary standard on gold alone (Verhandlungen der Special-Commission 1867).[5] By the time Bulgaria passed its coinage act in 1880, the question of the monetary standard had been settled in favour gold (suspension of

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[4] Dates for coinage act / political independence / establishment of bank of note issue are as follows: 1. Greece: 1828 / 1830 / 1814. 2. Romania: 1867 / 1859&1878 / 1880. 3. Serbia: 1873 / 1815&1878 / 1884. 4. Bulgaria: 1880 / 1878&1908 / 1879. Where two years are given in the middle entry, the first one refers to some level of autonomy achieved prior to internationally recognised independence.

[5] The Latin Monetary Union (18650 had reduced all the silver coins to tokens except for the 5 French franc coin which remained at the 1803 gold-silver parity of 15.5 : 1. Romania and Serbia cleverly sidestepped the gold-bimetallic controversy by either not including the 5 franc coin in its legislation (Romania, cf. 1867 "Law on the Setting up of the National Monetary System", reprinted in "130 years since the establishment of the modern Romanian monetary system", pp. 275-278) or by not coining it until the Latin Monetary Union had settled the issue in the late 1870s (Serbia, cf. Leconte (1994: 249)).

free silver coinage by the LMU in November 1878 and return to convertibility in the U.S.A. in January 1879 in gold alone); as a result, Bulgaria also passed gold standard legislation (based on French coinage principles, as Romania and Serbia). Only the Greek case was slightly different due to the country's much earlier independence; here there was an earlier silver standard, but in the 1860s Greece also passed bimetallic legislation with an eye towards an easy transition to gold monometallism (Alogoskoufis&Lazaretou 2002). In sum, by 1880 all four countries were theoretically committed to gold, yet it took Romania ten years and the other three countries more than a quarter century to let deeds follow words.

The interwar period also saw a strong early commitment to return to gold. This is obvious in the cases of Bulgaria and Yugoslavia which both belonged to the first wave of countries stabilising their exchange-rate in 1924/25 (Wandschneider 2008). In the Greek case, the currency stabilisation only occurred in January 1927, yet this simply reflected the extraordinarily difficult situation – political, economic and financial – that the country found itself in after the Asia Minor disaster of 1922; re-establishing the gold link had been the government's objective all along (Lazaretou 2005: 224-226). Only in the Romanian case it can be argued that there was no national consensus on gold standard membership: Between 1922 and 1926, the country was governed by a party open to the idea of autarky (though not necessarily implementing it); consequently, it also wanted to remain apart from the international monetary system of the day which was being constructed around the gold standard (Racianu 2012: 43-73). Yet when the Bratianu government fell in 1926, its successor went back to the consensus position of the immediate post-war period and stabilised the exchange-rate as quickly as possible (March 1927).

Last but not least, was the rationale behind joining gold different in SEE from the rest of Europe? Two observations seem in place: First, the potential to attract more foreign capital under fixed exchange-rates seems to have played a bigger role in SEE than elsewhere. Reflecting on Greek stabilisation policies for the same time frame this paper is concerned with, Lazaretou (2005: 232) summarises: "Each time Greek governments needed foreign capital to finance their excess spending, they made credible efforts to achieve fiscal consolidation and monetary discipline, with a view to enhancing the country's reputation in the international capital markets." Similar evidence is available for Bulgaria (Tooze&Ivanov 2011), Serbia (Gnjatovic 2006) and Romania (Stoenescu et al. 2011).

Yet arguably even more important was the political dimension to exchange-rate stabilisation. In a region which had never been entirely sure about its European belongings (Mazower 2001, Todorova 2009), adopting the gold standard promised to bring the Balkan

countries closer to "Europe" (Einaudi 2007). We will return to this issue when distilling the lessons of the past for the present in section 6, as the specific political dimension of Greece's EMU membership is probably one of the aspects of the current crisis least well understood by Greece's international creditors.

In summary: Economic and political motivation consistently pushed SEE towards exchange-rate stabilisation and the gold standard. We will now turn to the fiscal realities which pulled the four countries – with equal and often stronger force – away from it.

3. Gold standard legislation but silver and copper coinage: 1867 – 1880s

One of the salient features of the SEE experience was the chasm between the economically and politically desirable (or even the actual legislation) on the one hand, and its implementation on the other. Implementation was constrained by the fiscal needs of the young Balkan countries which operated on approximately a third of West European per capita income levels (Morys 2006) but faced high expenditure. Following independence, a government and administrative structure needed to be built from scratch which was expensive in relative terms given the small size of the countries. Military expenditure was high given lingering border conflicts and the irredentist political agenda. Last but not least, wars occurred more frequently (Balkan Wars 1912/13, Greco-Turkish War 1919-1922) and if and when they occurred, they often resulted in large population movements and hence financial needs to resettle refugees (Bulgaria and Greece in the 1920s).

The tension between gold standard aspirations and fiscal reality can already be detected in the early stages of the Balkan countries. We will use it in this section as a case study introduction for a more systematic analysis of seigniorage and fiscal dominance in sections 4 and 5. By the mid-1880s, the monetary system in all four countries bore little resemblance with the gold standard concept articulated in the 1867-1880 legislation (cf. section 2). In his magisterial 1886 survey of the various national monetary systems across the globe, the leading financial practitioner Ottomar Haupt put this dichotomy in succinct words for the case of Romania (the SEE economy he covers most elaborately given its size): "La Roumanie nous offer le triste spectacle du résultat de prétendre de maintenir la *valuta* au niveau de la parité de l'or, sans en posséder une quantité suffisante permettant de l'entourer de toutes les guaranties nécessaires à cet effet." (Haupt 1886: 361) In Haupt's view, the government's need for seigniorage was to blame for this poor state of affairs.

Seigniorage – defined as income from the issuance of money – could take two forms: either the minting of coin whose nominal value was superior to its physical value (silver, copper) or issuing bank notes (against government debt of often questionable quality and liquidity). As banks of note issue came into existence only later, seigniorage was initially confined to coinage. A closer look at the minting practice in SEE will demonstrate that governments used coinage to extract seigniorage, derailing the monetary system in the process.

We already mentioned that the SEE countries did not follow the LMU principles in full; in suppressing the remaining link to bimetallism (the 5 Franc piece), they pursued the gold standard while relying on LMU coinage. In other areas, they adapted LMU coinage rules to suit their fiscal needs; the broad pattern was to mint as much copper (to be precise, copper alloys) as possible (where seigniorage was highest), followed by silver (where seigniorage increased over time due to the declining silver price in bullion markets); the mintage of gold was to be kept to a minimum.

Following this logic, Romania decided against the coinage of the smallest LMU silver coin (0.2 Franc = 20 centimes), relying on increased copper coinage below that threshold instead[6] (articles 5 and 9 of the 1867 coinage act; Leconte 1995: 266, 279). Bulgaria even actively went against LMU coinage principles and minted this coin in copper instead of silver (Bulgarian National Bank 2009). The fiscal benefits of this seemingly small aberration from coinage orthodoxy were significant: The 20 centimes coin – an important coin at the time, as it amounted to ca. 10% of a typical daily wage – accounted for 7.2% of total Bulgarian coinage before World War I (which amounted to 83.8 million Franc). The Romanian coinage legislation of 1867 was refreshingly honest about the fiscal constraints of the young Romanian state (article 9): "Copper coins will be minted and issued first, for there is a more stringent need for them in circulation. Silver and, later, gold coins will be minted and issued as soon as the financial means allow it." And so it happened: countries first coined copper, followed after some time by a first silver issue; gold coinage was postponed even further. Bulgaria, for instance, coined gold coins for the first time in 1894, that is 14 years after passing gold standard legislation. Yet even then, gold coinage remained exceedingly small: By World War I, both Bulgaria and Romania – the two countries for which we have full records not only of gold and silver but also of copper coin – had coined in gold only 6.0% and 7.8%, respectively; most of the coinage was in silver, with copper taking a larger share

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[6] Unified LMU coinage only related to gold and silver coin.

than gold in both countries (table 3). To put the numbers differently: Bulgaria and Romania generated seigniorage from 94.0% and 92.2% of their coinage, respectively. In the next section we will show that this income amounted to 9.7% and 5.5% of total government revenue, respectively, in the early period (table 6).

[insert table 3, figure 3, figure 4 about here]

Yet while this coinage practice benefitted the treasury, it led all four countries away from the gold standard. Gold coin (in so far as it circulated at all) developed a premium (the so-called agio) against silver, copper and, later on, bank notes. To substantiate this point, we calculated the various components of the monetary base for the SEE countries and compare them to England, France and Germany (table 4). For the three West European countries and Romania, the data can be taken from Haupt (1886); for the other three countries, some additional information on coinage and the central bank balance sheet was required.

[insert table 4 about here]

The total sum in table 4 (upper part) is identical to the modern concept of "monetary base", that is, coins and notes in circulation.[7] Yet Haupt constructs the sub-components in a way that is instructive for our purposes. He lists gold and silver coinage at the central bank (which is not monetary base), but subtracts these values then from "bank notes in circulation" to arrive at a position labelled "uncovered bank notes". In this way, it can easily be seen how "golden" the monetary base was in different countries in the mid-1880s.

The basic message of table 4 is this: residents in the core countries experienced the gold standard by being exposed to gold coin on a daily basis; by contrast, everyday transactions were carried out in SEE by silver, copper and paper currency. In England, France, and Germany, gold as a percentage of the monetary base exceeded 50%, reaching 75.9% in England as the quintessential gold standard country. As mentioned above, this Hauptian perspective includes gold held at the central bank. But even leaving aside gold bullion and coin stashed away at the central bank, gold in circulation still accounted for more than a third of the total. Britain stood out also on this account with a value of more than half. Conversely, the amount of uncovered bank notes was small in all three cases.

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[7] A modern definition would also include liquid liabilities at the central bank other than bank notes, but such liabilities at the time were small compared to the amount of bank notes in circulation. Cf. Reichsbank (1925).

The composition of the monetary base could not be more different for SEE. Gold remained below 10% in the cases of Romania, Bulgaria and Serbia; the same was probably true for Greece, where our estimate for "gold coinage in circulation" exceeds 10% but should be seen as an upper bound estimate.[8] In Serbia and Bulgaria, circulation was dominated by silver, reflecting the fact that both countries had begun issuing bank notes only recently (in 1884 and 1885, respectively). In the cases of Greece and Bulgaria, by contrast, the single largest item was bank notes; in the Greek case, this reached a staggering 66.5%.

In summary, the fiscal needs of the young Balkan countries made an illusion out of the gold standard legislation passed in all four countries between 1867 and 1880. Silver, copper and bank notes dominated circulation and traded at a heavy discount against the little gold that there was in the country. Did the fiscal constraints ease over time, allowing the SEE countries to move to sound money which they desired so much? This is what we turn to now.

4. Covering budget deficits: seigniorage versus capital imports

The opportunity to generate seigniorage through mintage was severely limited soon, as it relied on the public's demand for coin. It was therefore probably no coincidence that the SEE banks of note issue were all founded within a relatively short time period after the coinage act. Five years passed in the Bulgarian case[9], and the National Bank of Serbia was founded 11 years after the coinage act (1884 versus 1873). 13 years each passed in the cases of Greece (1841 versus 1828) and Romania (1880 versus 1867).

While the bank charter does not list financing the government among its tasks in any of the four cases, the role of banker to the government was well understood from the beginning (Morys 2014: 41-44). The seigniorage rationale for the foundation of a bank of note issue is well exemplified by the Greek experience. The government initially made up budget shortfalls by a combination of revenue from coinage and the proceeds from international loans, but both revenue streams soon dried up. The country found it difficult to service its foreign debt and was shut out from international capital markets (it eventually

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[8] Haupt's estimate for Greece is for September 1885, the last month of a short spell of convertibility in Greece which only lasted from January to September 1885 (Lazaretou 2005). We therefore recalculate Haupt's estimate for December 1886 based on two assumptions: first, all the metallic stock at the National Bank of Greece was in gold; second, the gold coinage in circulation remained unchanged compared to September 1885. The first assumption is based on the good advice of Sofia Lazaretou whom we thank for her help; the second assumption is not plausible (given the balance-of-payments deficit at the time which resulted in course forcé) but serves well the purpose of establishing an upper bound.

[9] The Bulgarian National Bank did initially not possess the right of note issue but obtained this "concession" as part of a fundamental re-organisation in 1885. Cf. Dimitrova&Ivanov (2014) and Avramov (2006).

defaulted in 1843); as sufficient coinage had been issued since 1828, coinage revenue also dropped. In this situation, the young Greek state was effectively forced to found a bank of note issue in the form of the National Bank of Greece (1841).

The possibility of debt monetisation did not mean that SEE governments would constantly rely on it; balance sheet data from the National Bank of Greece suggest that direct loans to the government existed between 1843 and 1860 but were infrequent and of small size. In the Bulgarian case, such loans are for the first time reported in 1899. But Pandora's box was open, once a bank of note issue existed. In the Greek case, for instance, loans to the government accounted for 44.5% of bank total assets in 1878 (the year before capital markets re-opened following the 1879 debt compromise) and for 55.2% in 1897 (when Greece came under international financial supervision); these numbers amounted to 18.0% and 29.3% of Greek GDP, respectively.

The well-preserved balance sheet and coinage data allowed to construct a long-run time series for seigniorage (ΔMBTC, cf. data appendix for details on the sources and the construction of the time series). Table 5 shows seigniorage as percentage of GDP in Bulgaria, Greece, Romania and Serbia/Yugoslavia and compares the region with Italy. The Italian experience serves as an important benchmark, as the country's recurring problems with maintaining fixed exchange-rates due to fiscal dominance from unification (1860) to entry into the euro (1999) have been well-documented in several studies by Fratianni and Spinelli; direct comparison with our results is possible, as we followed the definitions proposed by the two Italian scholars.

[insert table 5 about here]

Comparing the Italian and the SEE long-term average, table 5 shows that Italy relied more strongly on seigniorage than SEE (1.61% vs. 0.98%), though the Greek experience is not far behind Italy (1.42%). Crucially, the Italian results are strongly driven by the experience of World War I; wars tend to be financed by inflation, yet the specific circumstances are highly idiosyncratic. The low value for Greece, for instance, is largely explained by the late entry into World War I (in June 1917, i.e., substantially later than the other four countries). Confining the analysis to peacetime years, Italy and the SEE-4 had rather similar experiences with inflationary finance: seigniorage as percentage of GDP accounted on average for 0.79% of GDP in both cases. This finding is strong *prima facie* evidence that the four SEE countries

might equally have suffered from fiscal dominance; which, similar to the Italian experience, could explain the weakness and the brevity of fixed exchange-rates.

Table 5 also shows considerable differences between the SEE countries. The Romanian experience looks most benign. The country relied in both periods least strongly on seigniorage. Particularly low is the value for the pre-1914 period (0.14%), which, incidentally, was the only period when a SEE country stabilized its exchange-rate fully on its own. By contrast, the Greek experience was the most troubled one. It relied more strongly on seigniorage in both periods than any of the other three countries (or indeed Italy). Serbia/Yugoslavia and Bulgaria fall somewhere in the middle. It is also noteworthy that the order of reliance on seigniorage does not change between the periods: Greece, Serbia/Yugoslavia, Bulgaria, and Romania.

Yet in providing average numbers, table 5 glosses over substantial differences between sub-periods of the six- to eight-decade long experience. From a theoretical perspective, there are good reasons to believe that seigniorage will vary over time. Government needs to live up to the following budget constraint:

$$G_t - T_t \quad = \quad\quad TR_t \quad + \quad \Delta S_t$$

Any budget deficit in period t ($G_t - T_t > 0$) will either be monetised ($TR_t > 0$) or be covered by newly issued government bonds, leading to an increase in consolidated government debt ($\Delta S_t > 0$) where S_t is the total debt stock in period t. Given the scarcity of domestic savings in SEE, issuing new government debt effectively meant turning to international capital markets. Three options were available to SEE governments to close chronically weak budgets: seigniorage, international capital markets or a combination of the two.

In the following, we will present evidence that Bulgaria, Greece, Romania and Serbia/Yugoslavia alternated between these three distinct financing modes, in each period maximising government revenue. The choice of exchange-rate regime became subordinated to this maximisation procedure. Countries followed floating exchange-rates, when seigniorage was the preferred option; and they switched to fixed exchange-rates, when closing the budget deficits by means of international capital markets. This then explains why fixed exchange-rates were so extraordinarily short-lived in SEE.

Costs and benefits of seigniorage versus international capital markets can change over time for a variety of reasons. Push factors – which mainly reflect economic conditions (and saving in particular) in the main lending countries, namely Britain, France and Germany –

make reliance on international capital markets more attractive at some points than at others. For instance, when lending from the European core to the European periphery dried up in the 1930s, the SEE countries were effectively only left with the seigniorage option. Other reasons relate to conditions at home: a newly independent country might not be able to tap international investors immediately, but only after incrementally building up some good reputation. In this scenario, seigniorage will become less attractive relative to capital markets over time. Last but not least, the intermediate option – relying on seigniorage *and* capital markets – might not be a stable equilibrium. Inflationary finance erodes the value of the currency, thereby making hard currency debt more difficult to serve.

We contend that these theoretical considerations combined with some SEE-specific chronology can help explain the history of exchange-rates in SEE. They will lead us to seven distinct periods (which are almost synchronous between countries). We will then use this periodization to calculate period-specific seigniorage levels (table 6) and capital imports (table 7). The seven periods were as follows:

Period 1: Early independence - seigniorage

Initially, the four countries relied on seigniorage only. As economically backward countries which had obtained autonomy/independence only recently, Romania, Serbia and Bulgaria needed to establish some reputation before accessing international bond markets. The Greek case was historically somewhat different, but fits the same economic scheme. Politically motivated lending by England and France in 1824/25 (with a view towards supporting independence from the Ottoman Empire) resulted in default by Greece in 1843. Subsequently, Greece was shut out of bond markets and hence exclusively reliant on seigniorage.[10]

Period 2: Opening up to capital markets – seigniorage&international capital markets

The second period began with the SEE countries taking out their first international loan; yet countries were not willing to forgo the well-established practice of seigniorage. In a surprisingly uniform manner, exactly eight years passed in the case of Romania, Serbia and Bulgaria between the coinage acts (1867 / 1873 / 1880) and when the first international loan was taken out (1875 / 1881 / 1888). In the Greek case, the second period began with the 1879

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[10] Our calculations only begin in 1861. In the Greek case, seigniorage initially mainly came through coinage and only beginning in 1861 by National Bank of Greece loans. We elude however precise information on Greeek coins for the pre-Latin Monetary Union period (Greece joined the LMU in 1868).

debt compromise which opened bond markets anew to the country. Relying on both forms of finance was toxic in that high levels of hard currency borrowing and a weakening exchange-rate led to debt sustainability issues. Greece and Serbia, which had started with a clean balance sheet in 1879 and 1881, respectively, had accumulated debt-to-GDP ratios of 176% and 138% in 1893 and 1895, respectively, leading to debt default. In exchange for debt restructuring, creditors insisted on a prohibition of further debt monetisation in an attempt to secure repayment of the remaining debt. The *quid pro quo* was similar for Bulgaria, though the country did not default but entered financial supervision "voluntarily" to obtain another international loan. In the Romanian case, further debt monetisation was effectively ruled out when the country joined the gold standard in 1890.

Period 3: financial supervision / gold standard – international capital markets

The third period begins with the prohibition of debt monetisation – either through the gold rule or imposed by creditors – and came to an end with the war period which, in the case of SEE, began with the first Balkan War in autumn 1912 (1911 is hence the last full year).

Period 4: war period – seigniorage

Shut out from international capital markets (including loans from their Western European wartime allies), all four countries resorted to the printing press. Seigniorage levels reached unprecedented levels, climbing to 57.3% on average for Romania between 1912 and 1918.

Period 5: Post-war stabilisation – seigniorage

The war was followed by a period of post-war stabilisation; as all four countries had to deal with the legacy of WW I largely on their own, debt monetisation remained high. In the case of Bulgaria, seigniorage levels in the post-war stabilisation period were even higher than during wartime.

Period 6: Financial supervision, gold standard – international capital markets

The sixth period begins with exchange-rate stabilisation and ends with countries leaving the gold standard. It coincided with a second round of financial supervision (this time including Romania). When the League of Nations (Bulgaria, Greece) and the French government (Romania, Yugoslavia) made stabilisation loans available (to replenish reserves and allow *de jure* adherence), they insisted on restrictions of debt monetisation (or even outright prohibition) and were present on the ground to ensure compliance (de Cecco 1997).

Period 7: Post gold standard – seigniorage

The last period begins with countries exiting the gold standard and ends in 1939. With international capital markets effectively closed to the European periphery (not only to SEE), seigniorage became (again) the only option.

[insert table 6, table 7 about here]

Tables 6 and 7 show well the substitutional effect between seigniorage and foreign capital. Seigniorage was high when capital imports were not available (periods 1 and 7) or of limited volume (periods 4 and 5). By contrast, when capital imports were high (periods 3 and 6), seigniorage was low. In the latter scenario, seigniorage even reached negative values, as governments paid back loans to their central bank. Only the second period witnessed the coexistence of inflationary finance and capital imports: while seigniorage continued, it fell in all cases bar Greece compared to the earlier period. The gradual phasing out of seigniorage before World War I, as predicted above, is well demonstrated with average values falling from 7.9% (period 1) over 4.3% (period 2) to -0.5% (period 3).

The eradication of inflationary finance in periods 3 and 6 indicate that seigniorage was not "a way of life" in SEE. If efforts to avoid the perennial temptation of debt monetisation were only pursued vigorously enough, all SEE countries were able to either avoid budget deficits completely (which happened in some years during periods 3 and 6) or close modest deficits by means of capital imports. Under these circumstances were SEE governments able to achieve their political and economic objective of exchange-rate stabilisation.

Yet the evidence also suggests that pursuing such efforts was extraordinarily difficult. The necessary reforms – making the central bank more independent from the government, improving tax collection to avoid budget deficits in the first place etc. – were apparently so demanding that they could be achieved only in one case purely domestically (Romania before World War I). In all other seven cases, it is hard to avoid the impression that creditor-imposed conditionality was required to make up for domestic institutional weaknesses at pursuing ambitious reform agendas.

In summary, seigniorage played most, though not always an important role in closing weak government budgets in SEE. Can we conclude from this that Bulgaria, Greece, Romania and Serbia/Yugoslavia suffered from fiscal dominance? And how would we

reconcile such a finding with the two short periods in which seigniorage was unimportant? Testing for fiscal dominance is what we turn to now.

5. Fiscal dominance in South-East Europe – and how the pattern was broken

The evidence presented so far suggests that all four countries suffered from fiscal dominance. Rather than following a monetary policy rule such as the gold rule, monetary policy appears driven by fiscal needs: was monetary policy dominated by fiscal policy?

The hypothesis tested in the following is that the SEE countries were characterised by fiscal dominance, but that the pattern was broken either by the gold rule (Romania before World War I) or by financial supervision (all other cases). Following Fratianni&Spinelli (2001) and Sabaté et al. (2006), testing for fiscal dominance involves two steps: In a first step, money growth is decomposed into its various components; if money growth was driven primarily by the growth of the monetary base – and in particular by growth in the treasury component of the monetary base - , then this constitutes *prima facie* evidence of fiscal dominance. In a second step, the causality between deficits and seigniorage is established. Fiscal dominance means that a budget deficit is subsequently monetised. This logic implies that causality should run from deficit to seigniorage, which can be tested with the help of a Granger causality test.

First step: Money growth accounting

The purpose of money growth accounting, as pioneered by Friedman&Schwartz (1963), is to establish the relative importance of the various individual components to overall money growth. Define the money stock (M) as the monetary base (MB) time the money multiplier (m). The monetary base, in turn, is the sum of its foreign component (MBFOR), its domestic component (MBDOM) and its treasury component (MBTR). The foreign component consists chiefly of foreign exchange reserves; the domestic component includes, among other things, discounts and advances to financial institutions (before World War I potentially also to the non-banking public). The treasury component principally consists of central bank lending to the government. In practice, a distinction between foreign and domestic component is difficult in cases in which the central bank balance sheet does not allow to distinguish unambiguously between foreign exchange reserves and metallic holdings (only the former category are unambiguously part of MBFOR), as is the case for some of the SEE countries.

Yet as our focus is on the contribution of MBTR to overall money growth, we added MBFOR and MBDOM and view them as "rest" monetary base (MBRES):

$$M_t = m_t * MB_t$$

$$M_t = m_t * (MBFOR_t + MBDOM_t + MBTR_t)$$

$$M_t = m_t * (MBRES_t + MBTR_t)$$

The growth rate of M can then be decomposed into the growth of the multiplier and the growth of the monetary base; in turn, the growth of the monetary base can be expressed in terms of contribution of MBTR and MBRES (and their interactions[11]).

[insert table 8 about here]

Table 8 provides the decomposition for the seven periods discussed in chapter 4 and then summarizes the results in two different ways: as full period and comparing periods 3 & 6 with the other five periods. In the case of Serbia/Yugoslavia, no time series for broad money is available; in turn, only monetary base growth itself is decomposed.

In the cases of Greece and Bulgaria, MBTR growth was the single largest contributor to overall money growth: approximately half of total money growth (47.9% and 55.5%, respectively) can be attributed to growth in the monetary base. In other words, the long record suggests that debt monetisation drove the money supply. In the cases of Serbia/Yugoslavia and Romania, growth of the foreign and domestic component of the monetary base was more important, yet the absolute contribution was high (7.6% and 2.5%, respectively). The contribution of money multiplier growth remained low in all cases, suggesting limited overall financial development in SEE before World War II.

The aggregrated data misses important detail for the different periods. We demonstrate this with respect to Greece, but the broad pattern is the same region-wide. When comparing the two periods under financial supervision with the other five, we see that money growth had different drivers. In "domestic" regimes, MBTR growth stood annually at 6.6%, contributing 62.0% to overall growth; by contrast, in the two "foreign" regimes, money

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[11] There is no specific interpretative meaning to the interaction term. It simply reflects that MB is the sum (and not the multiple) of MBRES and MBTR.

growth is largely attributable to money multiplier growth. The contribution of MBRES remains limited throughout. The money multiplier apparently grew under "foreign" regimes as a result of increased confidence in the domestic banking system; in so doing, money multiplier growth counteracts the fact that MBTC growth not only declines but goes into reverse; vice versa, excessive MBTR growth under "domestic" regimes reduced confidence in the banking system and hence became negative. This also explains why overall money growth between the two regimes is not markedly different. This pattern is very clear in the first three periods, when MBTC growth falls from one period to the next, whereas money multiplier growth increases simultaneously.

Second step: Granger causality test

For fiscal dominance to hold, causality must run from the budget deficit (G – T) to debt monetisation (ΔMBTR). Such a test involves three steps: (a) a unit root test to establish that (G-T) and seigniorage are I(0); (b) applying lag length selection criteria to find the appropriate lag length for the two Granger causality VARs; (c) running the Granger causality test which takes the following form:

$$y_t = \alpha_0 + \alpha_1 y_{t-1} + \ldots + \alpha_l y_{t-l} + \beta_1 x_{t-1} + \ldots + \beta_l x_{t-l} + \varepsilon_t$$

$$x_t = \alpha_0 + \alpha_1 x_{t-1} + \ldots + \alpha_l x_{t-l} + \beta_1 y_{t-1} + \ldots + \beta_l y_{t-l} + u_t$$

where y_t and x_t are seigniorage and budget deficit, respectively, and l is the lag length established in the second step. Granger causality tests the following hypothesis for both equations:

$$H_0: \beta_1 = \beta_2 = \ldots = \beta_l = 0$$

The null hypothesis states that "budget deficit" does not Granger cause "seigniorage" for the first equation (in the following: H_{0-A}) and that "seigniorage" goes not Granger cause "budget deficit" in the second equation (in the following: H_{0-B}). For fiscal dominance to hold, we expect to reject H_{0-A} (small p-values) but fail to reject H_{0-B} (large p-values).

Estimation steps 1 and 2: order of integration and lag-length criteria

We rely on the Augmented Dickey-Fuller Unit Root Test which in all cases points to stationary time series, as is to be expected from economic theory (both time series were normalised by Y). In the cases of Greece, Serbia/Yugoslavia and Romania, all 5 lag length selection criteria point to one lag (LR, FPE, AIC, SIC and HQC; based on a max lag length of 6). In the case of Bulgaria, 4 out of 5 criteria point to one lag. We can hence apply Granger causality tests based on a VAR with a lag length of 1 for all our cases.

Estimation step 3: Granger causality test

Table 9 distinguishes three different estimations for each country: the full time span, periods 1-2-4-5-7 alone ("domestic regime") and periods 3-6 alone ("foreign regime": gold rule for Romania pre-1914 and financial supervision in all other cases). As for the full period, we reject H_{0-A} at the levels of 1% (Greece) and of 5% (Serbia), but fail to reject H_{0-B} (p-values of 69.1% and 78.7%). In the logic of the Granger causality test, this means that causality runs one-way from the budget deficit to seigniorage. Results of the full period are less clear-cut for Bulgaria and Romania, even though the Bulgarian p-value for H_{0-A} is close to the 10%-mark.

[insert table 9 about here]

Crucially, we obtain strong econometric evidence for all four countries for one-way causality from budget deficit to seigniorage when confining the estimation to periods 1-2-4-5-7 ("domestic regime"). The improvement of results over the full period is not surprising, as periods 3-6 (with their seigniorage prohibition) no longer "dilute" results. By contrast, if estimating only periods 3-6 ("foreign regime"), the causality pattern breaks down in all four cases.

In summary, our econometric estimations show that all four countries suffered from fiscal dominance, as evidenced by a high contribution of the treasury component of the monetary base to overall money growth and Granger causality evidence linking budget deficits with seigniorage. But the pattern was not consistent and broke down in periods in which a country committed to eradicate debt monetisation, either by following the gold rule or as part of a financial supervision arrangement.

6. Conclusions

This paper has shown that Bulgaria, Greece, Romania and Serbia/Yugoslavia all suffered from fiscal dominance from political independence in the 19th century to the outbreak of World War II. Faced with continuous budget deficits, debt monetisation became the norm and monetary policy became subordinated to the needs of the treasury. SEE, then, had a great deal in common with Southern Europe whose two largest economies – Italy and Spain – were also characterised by fiscally dominated monetary policies. As a result, they also shared the difficulties of joining and successfully adhering to the gold standard with the Southern European economies.

Yet a special feature of the SEE experience was the excessive reliance on capital imports as an alternative way of closing budget deficits. (Re-)opening to international capital markets at around 1880, Greece and Serbia accumulated within 15 years debt of more than a year's economic output and subsequently defaulted. The two defaults gave rise to one of the defining features of the SEE experience: financial supervision by the main lending countries in return for improved debt repayment and servicing conditions. Various factors explain the SEE *Sonderweg*, a unique experience at least within the European context. Politicians in the main lending countries turned a blind eye (or even actively encouraged) the debt build-up in SEE for geopolitical reasons (Feis 1930, Tooze&Ivanov 2011), yet felt they needed to protect their bondholders when default loomed. Another reason was probably that the SEE countries were all small (compared to Italy and Spain) and political pressure could hence be more easily applied. In this respect, the extremely intrusive financial monitoring that Greece has been exposed to since 2010 follows in the footsteps of a long regional tradition dating back more than a century.

The fact that the current financial monitoring is not a first in the country's history is not lost on the average Greek (or Romanian or Serb whose countries have undergone similar programmes – though of much smaller scale – in recent years). In fact, it makes dealing with the current crisis all the more difficult, as it feeds on a widespread perception in SEE that the real economic and political power lies with "outside forces". While there might be some truth to this sentiment and Greece's international creditors would be well advised to pay more attention to this psychological undercurrent, our research has tried to highlight one of the positive effects of financial supervision. In seven out of eight cases analysed in this paper, financial supervision either paved the way towards the gold standard (Bulgaria, Greece and

Serbia before World War I) or guaranteed faithful adherence to it (the interwar experience of all four countries). In a region in which subsequent governments fell for the perennial temptation of debt monetisation, foreign pressure achieved what domestic institutions had eluded: break the dominant pattern of fiscal dominance and allow monetary policy to be rule-based.

In so doing, financial supervision in cooperation with national governments not only lived up to the specific details of a debt restructuring agreement or a League of Nations loan. They allowed the gold standard legislation – which commanded broad political support yet had been dormant often for decades in the face of fiscal dominance – to be eventually implemented.

Herein lies arguably the lesson for the present. Euro membership commands broad support among the Greek public (ca. 80%); in the words of one of the more insightful books on the current Greek crisis: "Greeks, for reasons that go way deeper than economics, desperately want to remain at the heart of Europe, and euro membership is the ultimate symbol of that." (Paleiologos 2014: 244) Fully aware of its own poor track record in monetary policy, Greece deliberately "tied its own hands" by entering the euro in 2001. Many Greeks fear that "untying its own hands" – i.e., a return to the drachma – would revive the inflationary finance of the past, and there is little in our analysis that could allay such fears. In an attempt to save euro membership, Greeks are even grudgingly accepting the financial monitoring by the IMF and the EU, following the time-honoured path of their forefathers under the gold standard. Yet at the same time, they resent the intrusion and the loss of sovereignty that this policy comes with. The challenge for the foreseeable future will be to keep financial monitoring effective – in order to secure Greece's political and economic objective of long-term EMU membership – , but make it more digestible to the Greek public.

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Data appendix

Time series needed for descriptive statistics and econometric calculations are all derived from seven macroeconomic time series for each country, thought they might have required further basic arithmetic operations as described in the main text. Any other data used in the text are described in the main text, footnotes or source descriptions in figures and tables.

The seven time series are:

M   broad money

MB   monetary base

MBTC   treasury component of the monetary base

Y   output

T   total government revenue

G   total government expenditure

DEBT   total government debt

Most of the time series were taken from *South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to World War I*I (Vienna 2014: Austrian National Bank, Bank of Greece, Bulgarian National and National Bank of Romania) with data for Bulgaria by Dimitrova and Ivanov, for Greece by Lazaretou, for Romania by Stoenescu et al. and for Serbia/Yugoslavia by Hinic et al.

Where time series where taken from this publication, we list the code of the relevant time series. In all other cases, we provide a full reference.

Bulgaria

M		BG1Q
MB		BG1M
MBTC	1880-1923	BG1O + BG4E
	1924-1939	BG1O + Bulgarian floating debt as reported in League of Nations Statistical Yearbook (various issues)
Y		BG6A
T		BG4A
G		BG4B
DEBT		BG4D

Greece

M		GR1H
MB		GR1I
MBTC		GR4H
Y		GR6A
T		GR4A
G		GR4E
DEBT	1884-1913	Flandreau&Zumer (2004: 116)
	1924	League of Nations Statistical Yearbook (1926: 140)
	1928	League of Nations Statistical Yearbook (1928: 181)

Romania

M		RO1O
MB		RO1N
MBTC	1881-1913	RO1K (complemented by own calculations for 1867-1880 based material provided by the National Bank of Romania)
	1914-1939	RO1K + Romanian floating debt as reported in League of Nations Statistical Yearbook (various issues)
Y		RO6A
G		RO4E (complemented by Mitchell (2007) for 1867-1869)
T		RO4A

Serbia/Yugoslavia

M		no such data are available (cf. main text and Hinic et al. (2014))
MB		SE1F and YU1F
MBTC		SE4E and YU4K
Y	1880-1913	own calc. based on unpublished Palairet spot estimate for 1910
	1923-1939	YU6A
G		SE4B and YU4E
T		SE4A and YU4A
DEBT		SE4D and YU4H

Table 1
Gold standard adherence of 24 European countries, 1870 - 1936

	Classical Gold Standard			depreciation interwar parity compared to pre-war parity	Interwar Gold Standard					
	exchange-rate stabilisation (de facto or de jure)	end of gold standard	Duration on gold		exchange-rate stabilisation		end of gold standard		duration on gold	
					de facto	de jure	by means of capital controls	by formal suspension or devaluation	de facto	de jure
South-Eastern Europe (4 countries)										
Bulgaria	01/1906	09/1912	6y 9m	26.71	05/1924	12/1928	10/1931	n.a.	7y 6m	2y11m
Greece	01/1885	09/1885	9m		01/1927	05/1928	09/1931	04/1932	5y 4m	4y 0m
	01/1910	06/1914	4y 6m	14.87						
Romania	01/1890	11/1912	22y11m	32.26	03/1927	02/1929	10/1931	n.a.	4y 8m	2y 9m
Serbia/	07/1909	09/1912	3y 3m	10.96	07/1925	05/1931	05/1932	01/1935	7y 11m	1y 1m
Yugosl.		average	9y 6m					average	6y 4m	2y 8m
Western Europe (7 countries)										
Austria	01/1896	07/1914	18y 7m	n.a.	10/1922	12/1924	10/1931	04/1933	9y 1m	7y 1m
Belgium	09/1873	07/1914	40y11m	6.94	10/1926	10/1926	03/1935	03/1935	8y 6m	8y 6m
France	09/1873	07/1914	40y11m	4.93	12/1926	06/1928		09/1936	9y10m	8y 4m
Germany	07/1873	07/1914	41y 1m	n.a.	09/1924	08/1924	07/1931	n.a.	6y 9m	7y
Netherl.	1873	07/1914	41y	1.00	11/1924	04/1925		09/1936	11y11m	11y 6m
U.K.	01/1870	07/1914	44y 7m	1.00	01/1925	05/1925		09/1931	6y 9m	6y 5m
Switzerl.	01/1874	07/1914	40y 7m	1.00	11/1924	06/1925		09/1936	11y11m	11y 4m
		average	38y 3m					average	9y 3m	8y 7m
Southern Europe (2 countries)										
Italy	1883	1891	8y		07/1927	12/1927	05/1934	09/1936	6y11m	6y 6m
	1904	07/1914	10y 7m	3.67						
Portugal	1870	1891	21y	24.30	06/1928	06/1931	10/1931	10/1931	3y 5m	5m
		average	19y 5m					average	5y 2m	3y 6m
Nordic countries (4 countries)										
Denmark	1873	07/1914	41y	1.00	06/1926	01/1927		09/1931	5y 4m	4y 9m
Finland	1873	07/1914	41y	7.66	11/1923	12/1925	10/1931		8y	5y 11m
Norway	1873	07/1914	41y	1.00	09/1927	05/1928		09/1931	4y 1m	3y 5m
Sweden	1873	07/1914	41y	1.00	01/1922	04/1924		09/1931	9y 9m	7y 6m
		average	41y					average	6y10m	5y 5m
Central and Eastern Europe (pre-war: 1 country; interwar: 6 countries)										
Russia	1894	07/1914	20y 7m							
Czechoslovakia				6.84	03/1923	03/1925	10/1931	02/1934	8y 8m	6y 8m
Estonia				n.a.	12/1924	01/1928	11/1931	06/1933	7y	3y11m
Hungary				n.a.	01/1925	04/1925	07/1931		6y 7m	6y 4m
Latvia				n.a.	11/1922	08/1922	10/1931		9y	9y 3m
Lithuania				n.a.	01/1922		10/1935		13y10m	
Poland				n.a.	10/1926	10/1927	04/1936		6y 7m	5y 7m
		average	20y 7m					average	8y 7m	6y 4m

Sources: League of Nations Statistical Yearbooks 1927, 1929, 1932/33, 1935/36 and 1938/39, Bernanke&James (1991/2000: 74), Eichengreen (1992: 188-191), Flandreau&Zumer (2004), Wandschneider (2008: 155), Straumann (2010: 25, 74, 78), Urban (2012), Morys (2014: 44-49).

Table 2
Discount rates and long-term bond yields during gold standard adherence
for 24 European countries, 1870 - 1936

	Classical Gold Standard		Interwar Gold Standard	
	avg. interest rate while on gold		avg. interest rate while on gold	
	discount rate	bond yield	discount rate	bond yield
South-Eastern Europe (4 countries)				
Bulgaria	6.81%	6.51%	9.72%	11.15%
Greece	6.00%	8.18%	9.81%	8.38%
Romania	5.51%	4.68%	7.43%	9.46%
Serbia/Yugoslavia	6.33%		6.22%	9.58%
average	**6.16%**	**6.46%**	**8.30%**	**9.64%**
Western Europe (7 countries)				
Austria	4.30%	4.07%	7.99%	6.97%
Belgium	3.45%	[1]3.22%	3.86%	4.55%
France	3.02%	[1]3.25%	3.50%	5.48%
Germany	4.17%	[1]3.69%	7.20%	7.81%
Netherlands	3.32%	[1]3.26%	3.56%	3.85%
United Kingdom	3.37%	[1]2.78%	4.51%	4.50%
Switzerland	[2]3.79%	[2]3.09%	2.91%	4.39%
average	**3.63%**	**3.34%**	**4.79%**	**5.36%**
Southern Europe (2 countries)				
Italy I (1884-1891)	5.30%	4.51%	5.51%	4.83%
Italy II (1904-1914)	4.49%	3.39%		
Portugal	[3]5.52%	[3]5.63%	7.75%	6.66%
average	**5.01%**	**4.51%**	**6.63%**	**5.75%**
Nordic countries (4 countries)				
Denmark	4.39%	[4]3.35%	4.80%	4.69%
Finland	4.90%		7.56%	7.90%
Norway	4.81%	3.84%	4.99%	5.16%
Sweden	4.76%	[5]3.57%	4.54%	4.57%
average	**4.72%**	**3.59%**	**5.47%**	**5.58%**
Central and Eastern Europe (pre-war: 1 country; interwar: 6 countries)				
Russia	5.23%	4.22%		
Czechoslovakia			5.36%	5.75%
Estonia			8.26%	8.83%
Hungary			7.01%	8.09%
Latvia			7.28%	
Lithuania				
Poland			7.16%	8.48%
average	**5.23%**	**4.22%**	**7.01%**	**7.79%**

Sources: Reichsbank (1925), League of Nations Statistical Yearbooks 1930/31 and 1938/39, Flandreau&Zumer (2004), Dimitrova&Ivanov (2014), Hinic et al. (2014), Lazaretou (2014) and Stoenescu et al. (2014).

Notes: [1]Data confined to 1880-1913. [2]Data confined to 1893-1912. [3]Data confined to 1880-1891. [4]Data confined to 1895-1913. [5]Data confined to 1881-1913.

Table 3
Total mintage of Bulgaria and Romania according to metal, 1867 – 1913
In Domestic currency (= French franc)

	Bulgaria (1881-1913)		Romania (1867-1901)	
Gold	5,000,000	6.0%	7,725,800	7.8%
Silver	59,699,268	71.3%	82,700,000	83.2%
of which ag(900/1000)	*23,699,240*	*28.3%*	*47,700,000*	*48.0%*
of which ag(835/1000)	*36,000,028*	*43.0%*	*35,000,000*	*35.2%*
Copper alloy	19,091,094	22.8%	8,945,000	9.0%
Sum	83,790,362		99,370,800	

Sources: Bulgarian National Bank (2009) for Bulgaria and Romanian Statistical Yearbook (various issues) for Romania.

Table 4
Composition of monetary base: Western Europe versus South-East Europe, 1885

	England	France	Germany	Romania	Bulgar.	Greece[1]	Serbia
I. Monetary base (in thousand French franc)							
Gold							
Gold coinage at bank of note issue	907,920 (24.6%)	1,157,000 (13.0%)	864,198 (21.4%)	2,000 (1.1%)	482 (2.2%)	4,348 (3.2%)	1,209 (7.7%)
Gold coinage in circulation	1,891,500 (51.3%)	3,300,000 (37.0%)	1,395,061 (34.6%)	13,000 (7.4%)	[2]	20,000 (14.9%)	[2]
Silver							
Silver coinage at bank of note issue	0	1,086,000 (12.2%)	555,556 (13.8%)	32,000 (18.2%)	1,016 (4.7%)	0	38,4 (0.2%)
Silver coinage in circulation	0	2,400,000 (26.9%)	548,148 (13.6%)	15,000 (8.5%)	8,676 (39.8%)	5,000 (3.7%)	962 (6.1%)
Divisionary silver coinage	544,752 (14.8%)	250,000 (2.8%)	55,556 (1.4%)	30,000 (17.0%)	10,000 (45.9%)	11,000 (8.2%)	9,500 (60.3%)
Other							
Copper	40,352 (1.1%)	60,000 (0.7%)	174,074 (4.3%)	6,000 (3.4%)	2,100 (9.6%)	4,500 (3.4%)	1,800 (11.4%)
Uncovered bank notes	302,640 (8.2%)	675,000 (7.6%)	444,444 (11.0%)	78,000 (44.3%)	0	88,963 (66.5%)	2,253 (14.3%)
Sum	3,687,164	8,928,000	4,037,037	176,000	21,792	133,811	15,762
II. Monetary base per capita (in French franc)							
Mon. base per capita	102.4	234.9	89.7	32.0	7.1	51.4	8.1
Population (million)	36	38	45	5.5	3.1	2.1	1.9

Sources: Haupt (1886), complemented for Bulgaria by Bulgarian National Bank (2009) and Dimitrova&Ivanov (2014), for Serbia by Gnjatovic (2006) and Hinic et al. (2014) and for Greece by private correspondance with Sofia Lazaretou.

Notes: [1]Greek data refer to December 1886. [2]Any values can only be approximate estimates, cf. discussion in the main text.

Table 5
Seigniorage as percentage of GDP in selected European countries, 1861-1939

	Italy	Bulgaria	Greece	Romania	Serbia/ Yugosla	SEE-average
full period[1]	1.61%	1.15%	1.42%	0.40%	0.96%	0.98%
pre-1914	0.63%	0.53%	1.02%	0.14%	0.58%	0.57%
1914-1918	13.2%	3.90%	0.56%	2.03%	3.67%	2.54%
1919-1939	1.22%	0.86%	2.66%	0.59%	1.07%	1.30%
peacetime only	0.79%	0.66%	1.48%	0.28%	0.75%	0.79%

Sources: Fratianni&Spinelli (1997: 43) for Italy. For all other countries own calculations based on sources as described in the appendix.

Notes: [1]Full period is as follows: Italy: 1862-1937; Bulgaria: 1881-1939; Greece: 1861-1939; Serbia/Yugoslavia: 1873-1939; Romania: 1867-1939.

Table 6
Seigniorage as percentage of total government revenue in South-East Europe, 1861-1939

	seigniorage vs. capital markets	Bulgaria	Greece	Romania	Serbia/ Yugoslavia	average
Early independence	seigniorage	9.7% (1881-1887)	8.0% (1861-1878)	5.5% (1867-1874)	8.2% (1873-1880)	7.9%
Opening up to capital markets	both	3.0% (1888-1903)	8.2% (1879-1897)	3.0% (1875-1889)	3.0% (1881-1895)	4.3%
financial supervision / gold standard	capital markets	-0.8% (1904-1911)	-1.1% (1898-1911)	-0.2% (1890-1911)	0.0% (1896-1911)	-0.5%
war period[1]	seigniorage	24.0% (1912-1918)	17.8% (1912-1922)	57.3% (1912-1918)		33.0%
Post-war stabilisation	seigniorage	40.9% (1919-1923)	7.6% (1923-1926)	16.3% (1919-1926)		21.6%
financial supervision / gold standard	capital markets	-7.0% (1924-1930)	-1.4% (1927-1931)	-6.4% (1927-1930)	-3.4% (1925-1931)	-4.6%
post gold standard	seigniorage	7.9% (1931-1939)	0.9% (1932-1939)	3.0% (1931-1939)	1.9% (1932-1939)	3.4%

Sources: Own calculations based on sources as described in the appendix.

Notes: [1]The war period encompasses in all cases the Balkan Wars 1912/13 and World War I. The Greek war period is extended by four years due to the Greco-Turkish war (1919-1922).

Table 7
Capital imports into South-East Europe, 1875-1939
(in million pre-1914 French franc)

	Bulgaria	Greece	Romania	Serbia/ Yugoslavia	total
Early independence	0 (1881-1887)	0 (1861-1878)	0 (1867-1874)	0 (1873-1880)	0.0
Opening up to capital markets	172.8 (1888-1903)	670.0 (1879-1897)	693.8 (1875-1889)	345.1 (1881-1895)	1881.7
financial supervision / gold standard	351.0 (1904-1911)	186.3 (1898-1911)	882.9 (1890-1911)	376.5 (1896-1911)	1796.7
war period[2]	0 (1912-1918)	335.0 (1912-1922)	70.0 (1912-1918)	250.0 (1912-1918)	655.0
Post-war stabilisation	0 (1919-1923)	259.0 (1923-1926)	217.6 (1919-1926)	155.4 (1919-1924)	632.0
financial supervision / gold standard	196.8 (1924-1930)	352.2 (1927-1931)	549.1 (1927-1930)	471.4 (1925-1931)	1569.5
post gold standard	0 (1931-1939)	0 (1932-1939)	0 (1931-1939)	0 (1932-1939)	0.0
full period[1]	720.6	1802.5	2413.4	1598.4	6534.9

Sources: Pre-1918: International bond issues as listed in Dimitrova&Ivanonv (2014) for Bulgaria, Lazaretou (2014) for Greece, Stoenescu et al. (2014) for Romania and Hinic et al. (2014) for Serbia. 1919-1932: League of Nations (1944). 1933-1939: League of Nations Statistical Yearbook (various issues).

Notes: [1]Full period is as follows: Bulgaria: 1881-1939; Greece: 1861-1939; Serbia-Yugoslavia: 1873-1939; Romania: 1867-1939. [2]The war period encompasses in all cases the Balkan Wars 1912/13 and World War I. In the Greek case, the period is extended another four years due to the Greco-Turkish war (1919-1922).

Table 8
Money growth accounting for Bulgaria, Greece, Romania and Serbia/Yugoslavia

		Growth of monetary aggregates (in per cent)				
		Total money growth	Monetary base treasury component	Monetary base rest comp.	Combined comp.	Money multiplier
Bulgaria						
Early independence	1881-1887	35.1	39.2	0.8	-0.1	-4.9
Opening up to capital markets	1888-1903	11.1	6.7	1.4	0.2	2.8
Financial supervision I	1904-1911	10.0	-2.2	8.7	1.9	1.6
War period	1912-1918	30.6	20.3	16.4	1.0	-7.0
Post-war stabilisation	1919-1923	17.8	20.5	-12.7	3.6	6.4
Interwar gold standard	1924-1930	7.2	-23.1	11.1	12.7	6.5
Post gold standard	1931-1939	5.0	8.2	-5.0	2.0	-0.2
Full period	1882-1939	14.9	8.3	3.1	2.6	0.9
Periods 1-2-4-5-7 („domestic")		17.1	15.4	0.8	1.1	-0.1
Periods 3-6 („foreign")		8.7	-12.0	9.8	7.0	3.9
Greece						
Early independence	1861-1878	9.5	6.8	2.6	1.1	-0.9
Opening up to capital markets	1879-1897	5.3	2.9	-1.9	2.7	1.5
Financial supervision I	1898-1911	5.0	-0.7	0.7	0.0	5.0
War period	1912-1922	24.6	17.8	8.2	2.5	-3.9
Post-war stabilisation	1923-1926	12.5	2.1	6.2	2.6	1.6
Interwar gold standard	1927-1931	13.2	-3.2	-0.6	0.1	16.9
Post gold standard	1932-1939	5.6	1.7	7.7	0.0	-3.8
Full period	1861-1939	9.8	4.7	2.5	1.4	1.2
Periods 1-2-4-5-7 („domestic")		10.6	6.6	3.1	1.8	-0.9
Periods 3-6 („foreign")		7.1	-1.4	0.4	0.0	8.1
Romania						
Opening up to capital markets	1882-1889	2.4	1.7	1.1	0.0	-0.4
Pre-1914 gold standard	1890-1911	5.3	-0.2	5.0	0.0	0.6
War period	1912-1918	21.6	10.6	23.2	-2.8	-9.3
Post-war stabilisation	1919-1926	25.5	10.9	8.7	-0.4	6.4
Interwar gold standard	1927-1930	8.5	-12.2	8.8	3.0	8.9
Post gold standard	1931-1939	1.8	2.6	8.4	-0.1	-9.1
Full period	1882-1939	9.5	2.5	8.0	-0.2	-0.9
Periods 1-2-4-5-7 („domestic")		12.1	6.2	9.8	-0.8	-3.1
Periods 3-6 („foreign")		5.8	-2.0	5.5	0.5	1.8

Serbia / Yugoslavia						
Opening up to capital markets	1884-1895	31.3	13.4	23.4	-5.6	n.a.
Financial supervision I	1896-1911	6.8	-0.5	7.0	0.4	n.a.
War period	1912-1918	29.5	16.1	16.9	-3.5	n.a.
Post-war stabilisation	1919-1924	40.2	33.1	6.6	0.5	n.a.
Interwar gold standard	1925-1930	-1.1	-1.2	0.1	0.0	n.a.
Post gold standard	1931-1939	7.6	-2.6	9.0	1.2	n.a.
Full period	1884-1939	17.5	7.6	11.1	-1.2	n.a.
Periods 1-2-4-5-7 („domestic")		25.3	12.8	14.6	-2.1	n.a.
Periods 3-6 („foreign")		4.7	-0.7	5.1	0.3	n.a.

Source: Own calculations based on sources as described in the appendix.

Table 9
Granger causality test between x_t (budget deficit) and y_t (seigniorage)
$$H_0: \beta_1 = \beta_2 = \ldots = \beta_l = 0$$
A. $y_t = \alpha_0 + \alpha_1 y_{t-1} + \ldots + \alpha_l y_{t-l} + \beta_1 x_{t-1} + \ldots + \beta_l x_{t-l} + \varepsilon_t$
B. $x_t = \alpha_0 + \alpha_1 x_{t-1} + \ldots + \alpha_l x_{t-l} + \beta_1 y_{t-1} + \ldots + \beta_l y_{t-l} + u_t$

Bulgaria (1881-1939)

Full period N = 59		periods 1-2-4-5-7 ("domestic regime") N = 44		periods 3-6 ("foreign regime") N = 15	
p-value H_{0-A}	p-value H_{0-B}	p-value H_{0-A}	p-value H_{0-B}	p-value H_{0-A}	p-value H_{0-B}
12.9%	19.1%	9.5%	36.1%	37.1%	22.9%

Greece (1861-1939)

Full period N = 79		periods 1-2-4-5-7 ("domestic regime") N = 60		periods 3-6 ("foreign regime") N = 19	
p-value H_{0-A}	p-value H_{0-B}	p-value H_{0-A}	p-value H_{0-B}	p-value H_{0-A}	p-value H_{0-B}
0.0%	69.1%	0.0%	28.7%	67.0%	74.6%

Romania (1870-1913, 1922-1938)

Full period N = 61		periods 1-2-4-5-7 ("domestic regime") N = 33		periods 3-6 (gold standard & "foreign regime"), N = 28	
p-value H_{0-A}	p-value H_{0-B}	p-value H_{0-A}	p-value H_{0-B}	p-value H_{0-A}	p-value H_{0-B}
24.8%	42.9%	8.9%	68.9%	53.5%	94.4%

Serbia/Yugoslavia (1884-1912, 1925-1939)

Full period N = 44		periods 1-2-4-5-7 ("domestic regime") N = 21		periods 3-6 ("foreign regime") N = 23	
p-value H_{0-A}	p-value H_{0-B}	p-value H_{0-A}	p-value H_{0-B}	p-value H_{0-A}	p-value H_{0-B}
1.8%	78.7%	6.7%	76.5%	27.6%	36.0%

Sources: Own calculations based on sources as described in the appendix.

Figure 1
Exchange-rate stabilisation in South-East Europe, 1895 - 1912
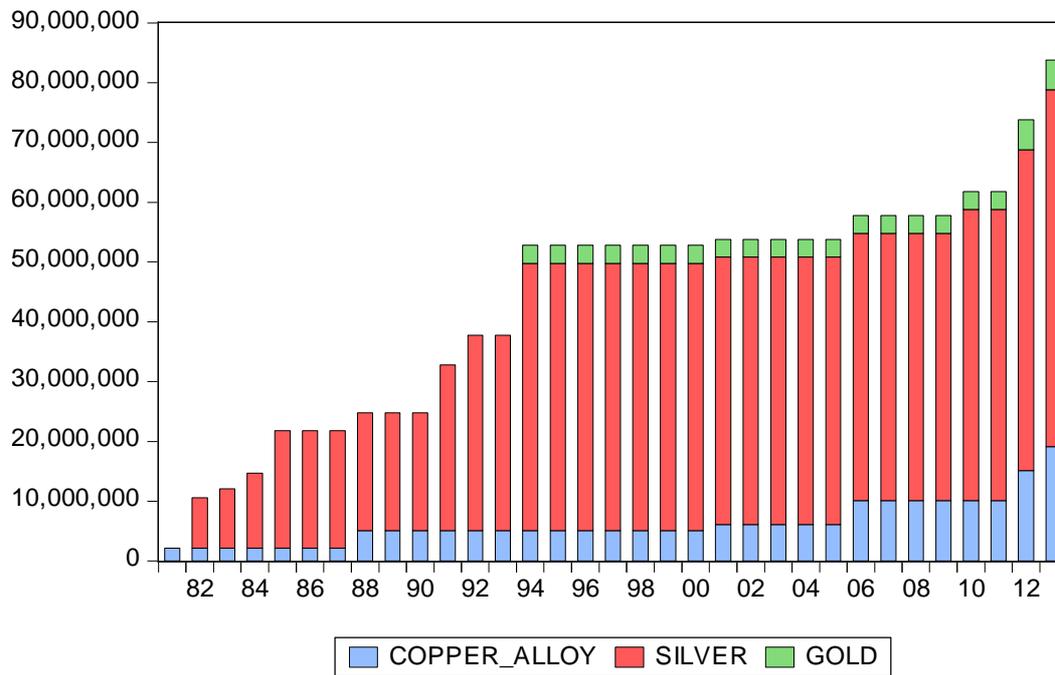**Deviation from mint parity (1.00 = mint parity)**

Figure 2
Exchange-rate stabilisation in South-East Europe, 1921 - 1936
**Deviation from parity (1.00 = parity)**
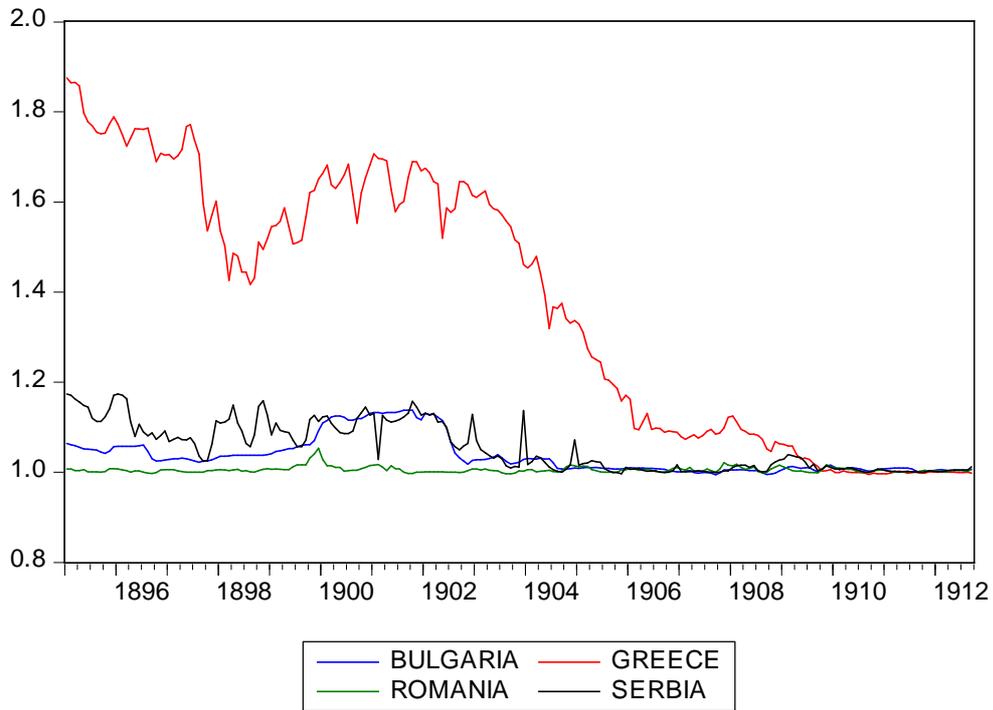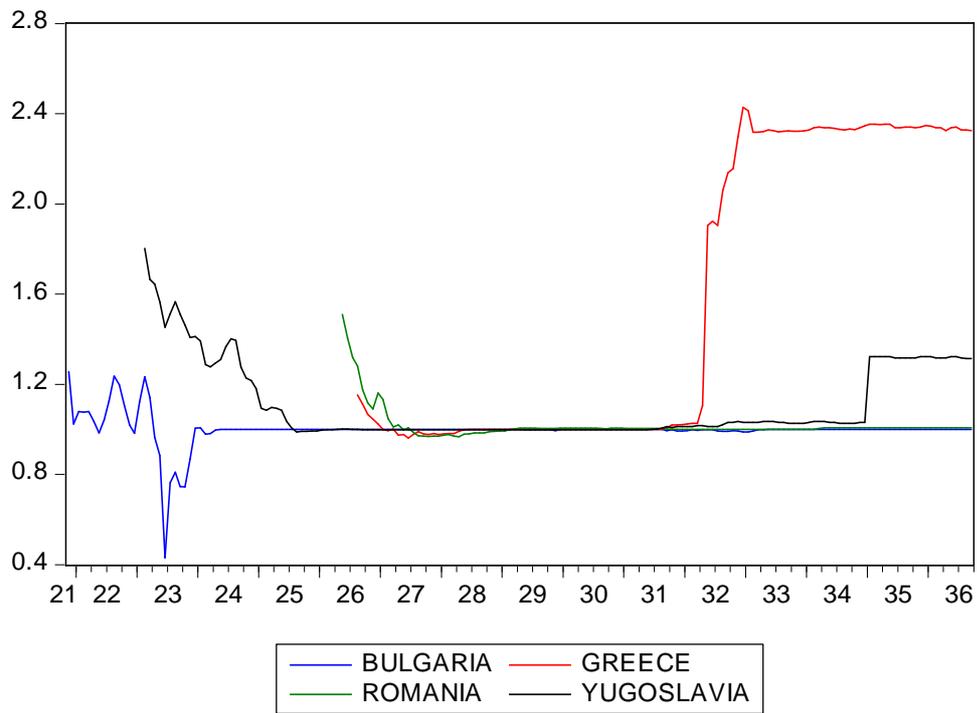
Sources: South-Eastern European Monetary and Economic Statistics from the 19th Century to World War II (2014).

Figure 3
Bulgarian mintage according to metal, 1881 – 1913
(nominal value in Bulgarian lev = French franc)

Sources: Own calculations based on Bulgarian National Bank (2009).

Figure 4
Romanian mintage according to metal, 1867 – 1901
(nominal value in Romanian leu = French franc)
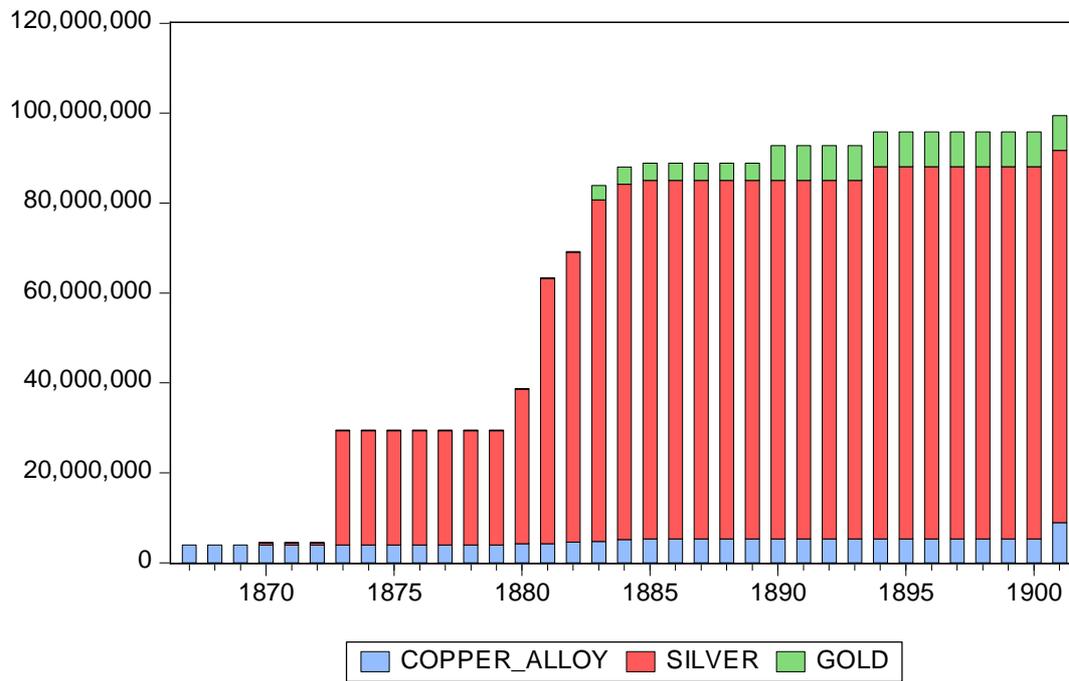
Sources: Own calculations based on Romanian Statistical Yearbook (various issues).

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