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ORIGINAL PAPER

Independent central banks as a component of the separation of powers

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Abstract Citizens are strongly interested not to suffer from the damages wrought by inflation. With the development of inconvertible fiat paper money and the creation of the monopoly of central banks to issue unlimited amounts of banknotes the restrictions formerly existing because of the convertibility of notes into gold or silver at a fixed parity have been removed. As a consequence a constitutional or legal limitation of the supply of money became necessary to check the inflationary bias of politicians became necessary. This could be reached by introducing the independence of central banks from political and governmental influence as a fourth pillar of the separation of powers. The paper also discusses under which conditions monetary stability and independence of central banks can develop and under which it is threatened.

Keywords Monetary institutions · Separation of powers · Inflation

JEL Classification E5 · E63 · K10 · N1 · P16

1 Introduction

The separation of powers is besides federalism and direct democracy one of the bulwarks against the concentration of power and thus its misuse by government against the freedom and interests of the population. As James Madison expressed it in *The Federalist No.47:*

> The accumulation of all powers, legislative, executive and judiciary, in the same hands, whether of one, a few, or many, and whether hereditary, self-appointed, or elective, may justly be pronounced the very definition of tyranny. (The Federalist, p. 313)

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Long-term price stability is one of the most important concerns of the population. As will be shown below, this stability has for centuries been assisted by the fact that the coins used for payment were minted from precious metals like gold or silver. After the invention and introduction of banknotes stability was maintained by a legally guaranteed obligation to exchange the notes at the demand of holders any time at a fixed parity into gold or silver. This situation ended when this convertibility was abolished and a monopoly to issue banknotes granted by governments to central banks. Since then these banks are technically able to produce as many notes as they or the governments controlling them wanted. Given the bias of politicians in favor of inflation demonstrated below, only an independence of central banks from the political system seems to be adequate to limit inflation in the long run. This means that the independence of central banks should constitute an important fourth pillar in the separation of powers, a postulate until now neglected in the literature. Therefore the independence from national administrations by international treaty (as for the European Central Bank, ECB), the constitution (in Switzerland), or law (in the USA), establishing them as a fourth pillar of the separation of powers is important for relative price stability, given the inconvertibility of paper money and the absence of budget constraints for central banks.

Independent Central Banks are a relatively new component of the separation of powers. As legally independent institutions within nation states they mostly emerged after the 2nd World War. But Montague Norman, governor of the Bank of England since 1920, asked for the independence of central banks from governments already in a manifesto which he circulated in 1921 among interested parties. And it is remarkable that the independence of the central banks of Austria, Germany, Hungary and Poland was already established between 1922 and 1924 as one of the measures taken to end hyperinflation in these countries. On the other hand, in all these cases independence was later removed by authoritarian regimes in the wake of the Great Depression and because of war preparations. This early reversal poses the question whether a separation of powers is at all possible in authoritarian regimes. We will return to this problem later when discussing reasons for the weakening or abolishment of the independence of central banks.

But before doing so it has first to be examined, when, why and under which conditions central banks emerged. Secondly it has to be discussed what is meant by the independence of them. Third, as shown above, it has to be asked under which conditions the independence of central banks became an economic and a political issue and led to its formal legal introduction. This development towards independent central banks is the more surprising since it can be shown that rulers, politicians and governments have historically always been inclined to enjoy a free hand in monopolizing and manipulating money and currency. Finally, it will be examined under which conditions the independence of central banks is threatened, mitigated or abolished.

Central banks have first emerged—like the Swedish Riksbank (founded 1668), the Bank of England (founded 1696) and the Prussian State Bank—to help governments financially, especially to finance wars by granting credit, usually in exchange for being provided with some kind of (perhaps local) monopoly to issue banknotes or other privileges. But these banks unexpectedly and slowly developed

into bankers' banks because they were soon commanding the bulk of the nation's specie reserves, had the ability to provide extra cash and to discount commercial bills. This leading position motivated them in several countries during the nineteenth century to develop policies guaranteeing the convertibility of banknotes into gold and to become lenders of last resort for other banks, especially in cases of financial crises. Thus it is not surprising that following their examples more and more central banks were founded and obtained the monopoly of issuing banknotes. Thus the Deutsche Reichsbank was created in the aftermath of the crash of 1873, and the US Federal Reserve System came into being as a consequence of the discussion following the panic of 1907.

Though early central banks often enjoyed some independence from governments and were even organized as private stock companies, they never enjoyed independence in the modern sense before the breakdown of the gold standard during World War I and the Great Depression. For to maintain price-stability before these events independence was not necessary, since price stability was secured by convertibility of banknotes and checking accounts at a fixed parity into gold which by its natural scarcity limited the money supply. It follows that the emergence of independent central banks as a pillar in the separation of powers required as one of its preconditions the abolishment of convertibility.

Still, there are other preconditions for the emergence of central bank independence. First, there must be present a bias towards inflation in the political system, a question which will be discussed later. Second, the empirical evidence must show that independent central banks lead to greater price stability than dependent ones. Third, a fundamental problem arises because it is not obvious, why and under which conditions inflation minded politicians are prepared and able to introduce independence. Finally, another important question is whether central bank independence can be maintained indefinitely or whether circumstances can arise leading to its weakening or abolishment.

In the present paper I propose to discuss all these questions. But I will only take up in passing how independence can and should be defined and whether independent central banks have a better record in securing price stability. Both questions have been discussed extensively, and sufficient empirical evidence for the truth of the latter hypothesis has been provided to convince most monetary economists (Cukierman et al. 1992; Eijffinger and de Haan 1996).

The following analysis of the introduction of independent central banks will, however, have to be imbedded into a broader historical analysis examining under which conditions it has been possible to introduce stable monetary regimes able to guarantee price stability. The same approach will be taken when analyzing the historical conditions in which stable monetary regimes have been eroded or even been abolished.

The proposed approach discussing the independence of central banks as one of the pillars of a separation of powers provides, moreover, an example for answering the question, under which conditions, given the inherent tendencies of political systems to extend the powers of leading politicians, the introduction of good constitutions with separation of powers is possible and whether it can be maintained under unfavorable circumstances.

2 The dependence of price stability on the kind of existing monetary regime

The independence of central banks as a part of the separation of powers has been developed with the main end to safeguard the stability of money against devaluation or inflation. Historically this aim has been best served by the existence of metallic currencies with full intrinsic silver or gold value of coins, as shown in Table 1. Another example is provided by the introduction in the thirteenth century of the guilder (fiorino d'oro) and the ducat as new gold coins by Florence and Venice, respectively, that is of coins which remained stable for about three centuries. As will be shown below this does, however, not mean that monetary systems based on precious metals are not threatened by political incursions. As is well-known, even such currencies have often suffered from debasement, that is the lowering of the content of precious metals in coins, the reduction of their weight or the increase of their nominal value. We will return to these problems later in the paper.

But even after the invention of bank or government paper notes (defined at that time as money surrogates), the legal rule enforcing convertibility of these notes at a fixed parity into silver or gold proved for long periods a sufficient safeguard for the stable value of money. This was for instance the case during the period of the gold standard (Fig. 1), which arose "naturally" first in Great Britain by the working of Gresham's Law around 1700. Other countries joined this system in the nineteenth century by government decisions, usually by giving up silver standards.. As can be seen, during the rule of the gold and silver standards until the outbreak of World War I or after the restoration of gold standard during the Great Depression of the 1930 s no upward trend of the price level, but only long-term swings can be observed. But after the demise of the convertibility of banknotes into gold at a fixed parity and thus the introduction on a discretionary paper money standard the price level rises dramatically even in the respective developed countries. These consequences of the abolishment of the gold standard in favor of inconvertible fiat paper money demonstrate clearly why constitutional or legal rules establishing the independence of central banks were required to safeguard price stability given this new monetary regime. For the experiences since this time demonstrate again clearly the inflationary bias of rulers, politicians and states. That the independence of central banks limits this bias is confirmed for recent decades by the evidence presented in Fig. 2 and in Table 2. Until 1971–1974 the system of Bretton Woods prevailed, with fixed exchange rates to and a convertibility of the dollar into gold at

Table 1 Weights of Athenian and Corinthian silver coins in grams

Athens						
Year	575–525	525–500	525–500	460–450	393–300	167–166
Didrachm	8.429					
Tetradrachm		16.949	16.94	17.14	17.19	16.89
Corinth						
Year	570–550	515–500	525–500	460	430	320
Stater	8.55	8.61	8.66	8.67	8.59	8.61

Source Jenkins and Küthmann (1972)

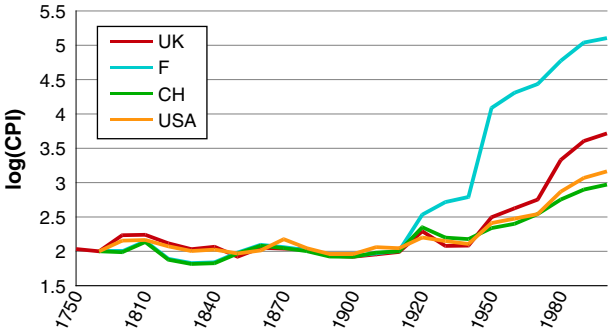

Fig. 1 Development of prices 1750–1998

a fixed parity for monetary authorities. But since the US Treasury and the Federal Reserve System mostly neglected the consequences of gold convertibility, the rates of inflation were internationally determined by the monetary policies of the latter, except for some devaluations and revaluations of the exchange rates of several currencies with the dollar. The devaluations were taken by the UK, France and Italy which had dependent central banks, whereas the revaluations occurred in Germany and Switzerland which enjoyed independent central banks (compare first line of Table 2). But on the whole the average rates of inflation were more similar than later for the countries depicted in Fig. 2 until the breakdown of the Bretton Woods System in 1974. Since then Germany, Switzerland and the UK followed policies of flexible exchange rates which made them independent in their monetary policies. France and Italy for some years intermittently fixed their exchange rates to the German mark, but because of their more expansive monetary policies they usually had to leave this so-called snake or later the European Monetary System and returned to flexible exchange rates. Whereas Germany, Switzerland and the USA had independent central banks, this was not the case for Italy, France and the UK, where the central banks were controlled by the Ministers of Finance or the Treasuries. As a consequence the rates of inflation diverged widely among these six countries from 1970 to 1985, as can be seen in the Figure and in Table 2. They amounted to an annual average of 4.69% for Germany, 4.75 for Switzerland, 7.03 for the USA, 8.57 for France, 11.82 for the UK and 13.94 for Italy. This shows clearly the better inflation performance of the countries with independent central banks. These different developments went on in later years (Table 2), but from 1983 France maintained its exchange rate at a fixed level to the DM (Bernholz 1999, pp. 762–765), and in 1998 the European Currency Area was created. And even the UK established some weak form of independence for the Bank of England in the 1990s.

We have still to discuss what is meant by the independence of central banks or the degree of it. “Central bank independence refers to the freedom of monetary policymakers from direct political or governmental influence in the conduct of policy” (Walsh 2008). Independence is secured if

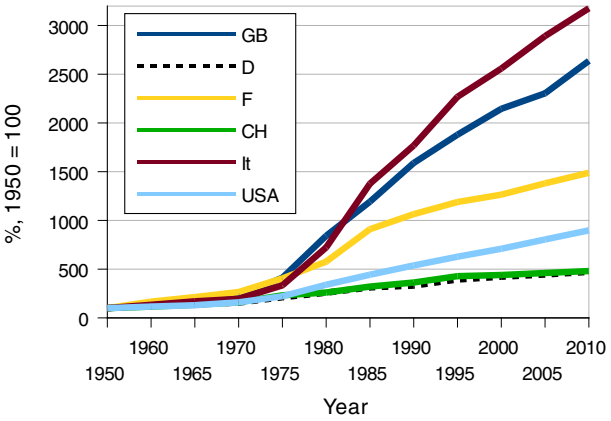

Fig. 2 Development of consumer prices in several countries 1950–2010

Table 2 Average annual rates of inflation

Period	UK	Germany	France	Switzerland	Italy	USA
1950–1975	5.82	3.05	5.75	3.42	4.93	3.23
1970–1985	11.82	4.69	8.57	4.75	13.94	7.03
1985–2000	3.99	2.01	2.21	2.13	4.22	3.18
2000–2010	2.09	1.14	1.65	0.89	2.19	2.39

1. The central bank is legally independent. This is the case if the governor and the policy-making directorate or board is elected for a long period (e.g. for eight years) and cannot be dismissed except for criminal transgressions, and if the bank is not allowed to take any instructions and orders from the government (goal independence). In this sense the Bank of England is not fully independent since the Treasury is entitled to prescribe annual inflation targets. Moreover, no government officials have voting power on the governing board of the central bank. On the other hand this independence does not preclude that aims like "price stability" and "the general condition of the economy or unemployment as aims but subordinated to price stability" are stated in the laws guaranteeing the independence. In the USA besides price stability "maximum employment" is mentioned as a second target in its charter.
2. The central bank is financially independent, that is it can finance its expenses itself.
3. The central bank is independent in the application of its policy instruments (instrument independence) which are, however, sometimes circumscribed in its statutes.

Indexes measuring the degree of independence of central banks have been constructed, of which the most widely employed is due to Cukierman et al. (1992). For the purpose of this article it would be counterproductive to participate any

further in the extensive discussion about the independence of central banks and whether this has indeed led to lower inflation (but see Walsh 2008, Cukierman 1992). From the above it should be obvious that the independence of the Bundesbank and the Swiss National Bank has led to much lower inflation rates than those experienced in the countries with dependent central banks considered. And there is no doubt that these two central banks have been the most independent in the world after World War 2. On the other hand, even central bankers directing independent institutions are only human beings and thus not immune against psychological and especially political influences. This shows itself in the fact that even in countries with independent central banks there exists some long-term inflationary tendency (Fig. 2) quite in contrast to the gold standard (Fig. 1).

In Figs. 1 and 2 only the historical experiences of developed and relatively stable countries have been compared. The changes brought about by the introduction of uncovered fiat money were much more dramatic in less stable countries hit by wars, wrong economic policies or social unrests (Table 3). All of the thirty hyperinflations (with 50 % or more inflation per month) mentioned took place after the breakdown of the gold standard with only one exception, namely France during the Great Inflation of the 1790s, which, however, was also only made possible by the introduction of a fiat paper money, the assignats.

It follows from our analysis that the most important differences between a monetary regime based on precious metals and one based on fiat paper money are of a technical and a legal nature. Given the fact that the amount of precious metals cannot be increased at will there exist always binding budget constraints for the

Table 3 Hyperinflations in the twentieth century

Country	Year(s)	Highest inflation per month	Country	Year(s)	Highest inflation per month
Austria	1921/1922	124.27	Hungary	1945/1946	1.29500E + 016
Argentina	1989/1990	196.6	Kyrgyzstan	1992	54.17[a]
Armenia	1993/1994	438.04	Moldova	1992	170.98[a]
Azerbaijan	1991/1994	118.09	Nicaragua	1986/1989	126.62
Belarus	1999	59.5[a]	Peru	1989	104.14
Bolivia	1984/1986	120.39	Poland	1921/1924	187.54
Brazil	1989/1990	84.32	Poland	1989/1990	77.33
Bulgaria	1997	242.7	Serbia	1992/1994	309000000
China	1947/1949	4208.73	Soviet Union	1922/1924	278.72
Congo	1991/1993	124.3	Taiwan	1945/1949	398.73
(Zaire)			Tajikistan	1995	78.1
Germany	1920/1923	29525.71	Turkmenistan	1993	62.5
Georgia	1993/1994	196.72	Ukraine	1991/1993	249
Greece	1942/1945	11288	Yugoslavia	1990	58.82
Hungary	1923/1924	82.18	Zimbabwe	2008[b]	79.6×10^{12}

[a] Geometric average of quarter. Serbia with Montengro: New Yugoslav Republic

[b] Estimate Prog. Steven Hanke

monetary authorities. This is no longer the case for fiat paper money. If the central bank enjoys a note issuing monopoly it can technically create as many of the same banknotes as it or the politically responsible people want. And a debasement of a currency based on fixed amounts of precious metals always implies fraud, whereas this is not the case if more of the same banknotes are issued. Moreover, debasement is technically limited whereas this is not the case for banknote creation. It is thus not surprising that the limits set to the first monetary regime by the scarcity of precious metals has already been early observed by the Muslim medieval scholar Ibn Khaldun, who saw this fact as part of a monetary constitution ordained by God:

> There is another aspect to alchemy proving its impossibility. It concerns the result of alchemy. This is as follows. It was God's wise plan that gold and silver, being rare, should be the standard of value by which the profits and capital accumulation of human beings are measured. (Now,) if it were possible to obtain (gold and silver) artificially, God's wise plan would be foiled. Gold and silver would exist in such large quantities that it would be no use to acquire them.
> Khaldun (1958, vol. 3, 277).

With the introduction of paper money and checking or giro accounts not covered by 100 % reserves this situation changed fundamentally, as frankly admitted by Mervyn King, former President of the Bank of England:

> It is this structure, in which risky long-term assets are funded by short-term deposits, that makes banks so hazardous. Yet many treat loans to banks as if they were risk-less. In isolation this would be akin to a belief in alchemy – risk-free deposits can never be supported by long-term risky investments in isolation. To work, financial alchemy requires the implicit support of the tax payer (p.9).
> And eliminating fractional reserve banking explicitly recognizes that the pretense that risk-free deposits can be supported by risky assets is alchemy (p.17).
> But changes in expectations [about the future] can create havoc with the banking systems because it relies so heavily on transforming short-term debt into long-term risky assets. For a society to base its financial system on alchemy is a poor advertisement for its rationality.
> (King 2010)

Following these remarks the listener may well ask himself whether the financing of government deficits by central banks creating base money out of nothing is not even worse than alchemy.

From the relationships discussed it seems obvious that in a fiat paper money regime the freedom and rights of citizens have to be protected by a fourth pillar of the separation of powers limiting the possibilities of politicians and governments to create money at their discretion. But if this is true, some important problems arise:

First, under which conditions is it possible to introduce stable monetary systems given the inflationary bias of politicians and governments? And second, since constitutional and legal safeguards in this respect are probably less safely secured

than the independence of the judiciary and the role of parliament, under which circumstances is the independence of this pillar and thus monetary stability threatened? These are the questions which will be analyzed in the following sections.

3 The introduction of sound money

We have shown that politicians and governments are characterized by an inflationary bias. This bias can be easily explained for democracies. Even if they have the best intentions politicians have to be elected or to be reelected, and they are faced by interest groups and voters who are only well-informed about their most immediate concerns, namely their income and wages, the security of their employment, and the costs of their major expenditures, especially for renting. Given this situation politicians can win votes by planning their expenditures accordingly: First by furthering special interests by concentrating expenditures on them and spreading the implied burdens on the population. Second, they have to care for a high level of employment, for low rents by rent-controls and by promising sufficient public support for health care and old age pensions. But in time all these promised expenditures would lead to increased taxes felt by the population. To escape this danger for their popularity politicians prefer to increase government debt. But unfortunately there exist also limits beyond which capital markets are afraid that they might lose their investments. As a consequence governments finally turn to the central bank for help in financing their deficits. This is usually the first step towards inflation. Moreover, politicians may exert pressure on central banks to be more expansive to help them to fight unemployment.

Now, given the inflationary bias of politicians and governments, how can there ever be any chance to introduce and maintain sound monetary constitutions? In a paper presented about 30 years ago (Bernholz 1987), I defined, based on historical evidence, four categories of conditions under which lost monetary stability can be restored:

1. After a very high inflation or hyperinflation (ten most successful cases, Bernholz 2003, p. 167);
2. Restoration of a sound monetary constitution at the old (gold or silver) parity following periods of war, during which convertibility has been abolished, if the price level has not increased too much compared to that of the main trading partners (nine cases, Bernholz 1987, p. 90);
3. The introduction or reintroduction of a sound monetary constitution at a lower parity following moderate inflations (seven cases, Bernholz 1987, p. 92 f.);
4. The introduction of stable monetary systems occasioned by the examples of better institutions in other countries.

   To these four categories I would now like to add a fifth:
5. Historical accidents (Gresham's Law).

Let me shortly sketch the reasons why these conditions have been favorable. During a very high inflation or hyperinflation the inflating money is substituted in

Table 4 Advanced inflations ending in total natural substitutions of bad by good money

Country	Period	Earlier currency reforms that failed[a]	Kind of good money	Source
Ming China	1375–1448		Silver bullion, copper coins (limited)	Bernholz (1997)
USA	1776–1781	March 1780: new dollar bills 1:20	Specie and state paper money	Phillipps (1972, 170 sq)
				Bezanson (1951, 325 sq)
France	1789–1797	February 1796: mandats terri-toriaux 1:30	Gold and silver specie	Thiers (1840)
Peru	1875–1887	September 1880:[b] incas 1:8	Silver coins	Garland (1908, 58 sq)
Mexico	1913–1917	June 1916: infalsificable currency 10:1	Gold and silver specie	Banyai (1976, 73 sq)
				Kemmerer (1940, 114–15)
Zimbabwe	2000–2008		US dollar and rand	Steve Hanke, e-mail, 2012

[a] By a currency reform is meant a real reform ending high inflation, not just a cutting off of zeros

[b] It is not clear whether a real currency reform was intended

spite of drastic penalties and fines by gold or silver coins, or nowadays by stable foreign money. As a consequence the base for the inflation tax is shrinking and the monetary authority of the government threatened. Ordinary revenues expressed in the inflating money are decreasing drastically. Thus the government has to stabilize its monetary system by a successful currency reform. Otherwise it will completely lose its monetary authority and finally even all its revenues. In fact, I can document seven cases in which the inflating money was fully driven out by stable money after currency reforms failed (Table 4). In these cases the government had to legalize the stable foreign money, like recently in Zimbabwe, to receive any further tax revenues. In this case high inflation led to the "natural" introduction of stable money. I could define these events as a different category, but forego this option, since high inflation has also been the cause of these developments.

Concerning the second category the population wants the return to normality after the end of the war, and the politicians follow this wide-spread feeling if the war-time inflation has not been too high as compared to the main trading partners.

If a higher but still moderate inflation has taken place during a war or because of other reasons which is felt by the population as a burden a return to stability is possible because of the following reasons. The inflation has led to currency substitution and thus to an under-valuation of the inflating currency furthering exports and decreasing imports. If the government, following the wishes of the population, begins to fight the inflation by lowering the growth rate of the money supply, this under-valuation tends to vanish and eventually to turn into an over-valuation. This, however, is hurting the export industries and the people employed by them. Thus resistance by the industries hit and the respective unions rises.

Consequently, finally a compromise is struck: A stable monetary regime (usually with a fixed exchange rate) is introduced but at an exchange rate which is still somewhat undervalued. Thus the forces favoring some inflation are harnessed for the purpose of the introduction of a stable monetary regime.

In the fourth case the citizens of countries with inflating currencies observe the better situation in stable countries. Thus the politicians may introduce a stable monetary constitution to win the votes of the population concerned about inflation. The pressure exerted by foreign creditors supported by their governments may also help to take this decision.

The last case is well documented by the emergence of the gold standard in England around 1700.

At that time the gold supply increased in such a way that its value tended to fall compared to silver. As a consequence of this and fixed nominal relations between the values of gold and silver coins Gresham's Law began to work. The Master of the Mint, Isaac Newton, warned the authorities because of this development and asked for a change of the official exchange rate between gold and silver coins. Finally Parliament decided to introduce such a change. But it turned out that the lowering of the official exchange rate of gold with silver was insufficient. So the gold drove out the silver and a pure gold standard resulted. This standard proved to be a stable monetary regime for more than two centuries.

4 Reasons for the maintenance of stable monetary regimes

In the course of monetary history sound monetary regimes were for the longest time characterized by metallic currencies. But they, too, were often threatened by the inflationary bias of rulers and politicians who misused the government monopoly for issuing coins by lowering the content of precious metals like gold or silver in coins of equal weight, by reducing the latter or by increasing the nominal value of them. As the Belgian Historian Pirenne (1951) stated, when looking at European Medieval times

> The progress of monetary circulation provided princes with the possibility to use it to their own advantage. Possessing the right to mint coins, they believed themselves to be authorized to use this in the interest of their treasury to the detriment of the public. The more money became indispensable for economic life, the more it was changed by those who had the right to strike it. … At the end of the twelfth century, the monetary disorder had reached a point that a reform imposed itself (pp. 258, 256).

A monetary constitution trying to prevent such debasements could either be based on rules forbidding and sanctioning them, or on the own interest of rulers to preserve stable values. England provides an interesting example for the former. In the late Middle Ages the Parliament agreed to allow an increase of taxes in exchange for a guarantee by the King to stop the manipulation of the currency.

However, the second reason has been more important in keeping metallic currencies stable during the course of history (Table 1). Thus we have to ask ourselves about the factors causing popular assemblies like in Athens and Corinth or

the rulers of Venice and Florence not to touch the value of their currencies for centuries. It seems that two factors were especially important: First the fact that the respective currencies were circulating internationally. As a consequence the small seignorage from minting the individual coins led to a government revenue greater than the possible gain from debasing the currency because of the great number of coins circulating. Second, it is interesting to note that many of the countries issuing stable money were small with a flourishing economy strongly dependent on a high percentage of exports and imports. In such small countries a debasement of the currency would have hindered or lowered international trade and thus led to a loss of wealth for influential merchants and the whole population.

5 The erosion and abolishment of stable monetary regimes

> Souverän ist, wer über den Ausnahmezustand entscheidet.
> Sovereign is he who decides on emergencies.
> Carl Schmitt 1993 [1922], p. 13)
> All persons are hereby required to deliver on or before May 1, 1933, to a Federal Reserve Bank or branch or agency thereof or to any member bank of the Federal Reserve System all gold coin, gold bullion, and gold
>
> Pronouncement by President Franklin D. Roosevelt on April 5, 1933:

After a long period of monetary stability it is difficult to erode or to abolish a stable regime because the population has accustomed itself to and enjoys stable prices. As a consequence a crisis, an emergency has to occur in most cases to enable politicians able and willing to remove or to weaken the stable monetary constitution. In Table 5 quite a number of such events are listed. The list is incomplete since it is about impossible to find all the other unknown similar events in history. One additional case is Peru suffering from the events around the Andean War (Table 4). These emergency events are similar to those which led to the debasement of currencies in former times, but the degree and way in which stability has been removed are quite different. When only coins or bars of precious metal were used as money the stability of the currency could only be eroded by debasement. Already with the introduction of paper money and of checking accounts still convertible into metallic money this situation changed fundamentally. For now, given a government monopoly for issuing paper notes, the limits presented by the scarcity of the underlying precious metal could easily be removed by a law or decree abolishing convertibility and declaring government banknotes to be the sole legal tender. But even when banknotes were still only issued by private banks, which was the case before central banks with monopoly power were established, the government could remove convertibility. This was done by the Peruvian government in favor of the private banks in exchange for a huge credit they had to lend it in the 1870 s. Similarly, already decades earlier the British government abolished convertibility of the notes of the Bank of England in exchange for credits granted to it by this institution in 1798.

It is interesting that the Hungarian economist Janos Kornai showed in the 1970s that one of the weaknesses of the so-called planned economies was that neither

businesses nor other organizations faced binding budget constraints. Today this is exactly the case for central banks lacking any requirement to redeem their banknotes at a fixed parity in terms of scarce real assets, like formerly gold, silver or even copper. Given this situation, it is not surprising that politicians under the pressure of self-inflicted deficits and debts are tempted to take control of central banks to further remove the binding budget constraints of the government.

These dangers have been clearly seen by leading economists like Wagner (1868, pp. 46–48) and Jevons (1900, pp. 229–223) in the ninetieth century during the heydays of the gold standard:

> Experience with paper until today proves at least that it is possible ….to give value to a paper money, which cannot be exchanged at any time [at a fixed parity] at will into another currency. ….The obstacle … for maintaining an equal purchasing power …is the impossibility to fulfill viable guarantees to prevent that paper money would ever be used for financial purposes to create artificial purchasing power for the issuing agency without labor out of nothing; and to secure that it would be increased only according to the true necessity of the economy. ….Men would first have to be capable of unlimited self-discipline to resist any temptation to increase money arbitrarily, even if their very existence, or that of the state, were at stake. … A somewhat greater

Table 5 Emergencies leading to an erosion of stable monetary regimes (incomplete)

Country	Period	Cause	Kind of erosion
European countries	1790–1817	French revolution Napoleonic wars	Abolishment of silver or gold convertibility
Austria (-Hungary), and Russia	Several times in ninetieth century	Wars leading to over-indebtedness	Abolishment of silver convertibility
Italy	1866	War with Austria	Abolishment of silver and gold convertibility
Greece	1886	Government bankruptcy	Abolishment of gold convertibility
Argentina	1890	Government bankruptcy	Abolishment of gold convertibility
European	1914	World war I	Abolishment of countries gold convertibility
Most Countries	1931–1936	Great depression	Abolishment of gold convertibility
USA	1933	Great depression	Devaluation of dollar against gold, prohibition to own gold
UK, F, It	1958–1973	Deficits of Balance of payments, too expansive policies	Devaluations of pound, franc and lira in Bretton woods system
USA, World Wide,	1971–1973	Too expansive US monetary	End of Bretton and fiscal policies woods system with fixed exchange rates
Japan	Since about 1990	Financial and growth crisis	Erosion of independence of bank of Japan
USA, UK, Euro Area, Japan	Since 2008	Financial and government debt crises	Erosion of independence of central banks

> security against the abuse of the right to issue money might perhaps be provided by one or the other constitutional form. But this certainly does not amount to a big difference.
> Wagner (1868, pp. 46–48).

The solution to the problem stated by Wagner has been found by the creation of legally or even constitutionally independent central banks. And indeed, such safeguards have led, as we have seen, to lower rates of inflation for countries with independent central banks like Switzerland, Germany and the USA. As a consequence this independence was at least partly imitated by several countries since the 1980 s. Let me only mention the UK, Australia, Canada and the European Currency Union as examples. Other countries like Bulgaria, Estonia and Lithuania took even one step further and introduced Currency Boards. A currency board is only entitled to issue banknotes in the same amount as it receives foreign exchange reserves of a stable foreign currency at a legally fixed exchange rate, for instance especially the US dollar and the DM (now changed into the euro). But as recent developments since the outbreak of the financial and government debt crisis since 2008 show, the independence of several of these central banks is now threatened by the measures taken by the respective governments because of the emergency. This is, however, not a new experience as the examples given in Table 5 demonstrate which are not limited to independent central banks. Wagner's skeptical attitude expressed in the last sentence of the quote is certainly not without justification.

During the last crisis European politicians have not hesitated to declare an emergency with the purpose to violate article 125 of the Lisbon Teaty forbidding the bail-out by other members of member states of the currency union which had over-indebted themselves. And the European Central Bank (ECB) has bought and promised to buy bonds of over-indebted member states though the monetization of government debt is forbidden by article 123. Politicians like Chancellor Angela Merkel asserted that not only the euro but also the whole EU were endangered without these illegal measures and that no other alternative existed. This amounts to a more than doubtful statement, since an open bankruptcy of Greece in the very beginning, and later of Portugal and perhaps of some Irish and Spanish banks would probably have been a less expensive alternative.

And it is not only the independence of the ECB, but also that of the Bank of England and of the Fed which are threatened by the demands of governments supported by the central banks themselves. And in Japan the Bank of Japan has given in to the demands of the new Abe administration in January 2013 to become even more expansive and to buy additional government bonds in a situation in which already more than 50 % of government expenditures are financed by taking up credit.

6 Conclusions

It has been shown with the help of historical evidence, that politicians, rulers and governments are characterized by a bias in favor of inflation. This bias has led the more to detrimental inflations and their obnoxious negative consequences for the real economy the less the hands of politicians and rulers were bound against

misusing their influence on monetary regimes. With the development of paper money, checking accounts and electronic money these dangers have reached huge proportions as soon as convertibility into scarce real assets like gold or silver at a fixed parity has been abolished. However, during the last decades the development of a constitutional or legal independence of central banks creating a fourth pillar of the separation of powers has limited these dangers. But historical evidence demonstrates that this independence is threatened in cases of emergencies even more than formerly the convertibility of notes into gold or silver and the preservation of the full value of coins.

On the other hand, it has been shown that long periods of stable monetary regimes did occur, sometimes even lasting for centuries. A last historical example has been the gold standard. And finally, the granting of independence to central banks as a new pillar of the separation of powers has brought at least 50 years of relative monetary stability to some countries during the last century.

Given our results it should be an important task for monetary economists, public choice theorists and legal scholars to develop monetary regimes less liable to fall prey to inflation-biased pressures especially during emergencies. For capital market participants and governments one of the most important tasks amounts to preventing such emergencies by creating adequate codes of conduct and regulations, and by preventing major wars.

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