

Reconsidering central bank independence

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Abstract

In this paper, we survey the case for central bank independence (CBI). We conclude that CBI is neither necessary nor sufficient for monetary stability. CBI is just one potentially useful monetary policy design instrument among several, and CBI should not be treated as an exogenous variable. Instead, the question that should be addressed is why societies decide to make their central banks independent? The reasons why CBI is chosen are related to legal, political, and economic systems. A number of empirical studies find correlations between CBI and low inflation rates. Endogeneity of CBI suggests, however, that the correlation has no implications for causality.

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1. Introduction

Central bank independence (CBI) has become one of the central concepts in monetary theory and policy. The virtue attributed to CBI is that it contributes to attaining the objective of long-term price stability. The idea has also found confirmation in the fact that more and more countries in the OECD and beyond have made their central banks

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independent. The culmination of this trend is the European Central Bank (ECB) that, according to its statutes, is the most independent central bank of all.

In this paper, we survey and re-evaluate the case for CBI. Compared to other surveys (see Eijffinger and de Haan, 1996; Berger et al., 2001a), which confirm the conventional wisdom, we focus on a selection of critical papers. Our conclusion is that CBI is neither necessary nor sufficient for monetary or price stability. CBI is not necessary for achieving price stability, because CBI is just one means among several that can be employed for fulfilling this objective. CBI is at the same time not sufficient for price stability, and should not be treated as exogenous, because of the question why central banks are made independent. It follows that it is wrong to regard CBI as a cause of low inflation rates.

We begin by reviewing the theoretical foundations of central bank independence. First, we summarize the models used to make the case for CBI. Then we point to serious theoretical problems with the standard argument that CBI is the optimal choice of a monetary policy design instrument. Although these problems are stated in the literature, the typical conclusion is that CBI is the best workable way to achieve low rates of inflation (see, for example, Berger et al., 2001a). We do not find this general conclusion to be justified by empirical analysis.

Second, we consider alternative monetary policy design instruments that can achieve low inflation rates. We focus on fixed exchange rate and currency board arrangements, inflation targets, and central bank contracts, which have equally or more favorable theoretical properties than CBI and have been successfully implemented. At the same time, every approach comes with at least one disadvantage, and no design instrument is optimal under all conditions.

Third, in a number of empirical studies, researchers found CBI to be correlated with low inflation rates. A typical policy conclusion based on this finding is that the creation of an independent central bank will bring about price stability. We argue that this conclusion is not warranted because of the endogeneity of CBI. Even if we measure the right thing and if there is strong evidence for a relationship between CBI and inflation, there is no reason to expect that this finding will be policy robust. In other words, this correlation does not indicate causality. Instead, at least two decisions determine the choice of CBI by a society. There needs to be a decision on whether price stability is a major economic policy objective. If this decision is made in the affirmative, a question follows about the appropriate choice of a monetary policy design instrument. The “true” cause underlying the empirical relationship between CBI and low inflation rates is accordingly the social choice in favor of a stability-oriented monetary system.

Based on these considerations, we set out theories and empirical evidence regarding the decision to make price stability an aim of economic policy. The two main explanations are (1) the idea of an “inflation culture” in societies that opt for a stable monetary regime or (2) that interest groups are able to influence the government regarding monetary policy.

Then we proceed to show under which conditions societies will choose CBI as opposed to alternative monetary policy design instruments. Here we consider three determinants: a society’s legal, political, and economic systems.

The conclusion summarizes the main arguments and suggests directions for further research.

2. The theoretical case for central bank independence

2.1. Theoretical background

The seminal article for the literature on central bank independence is by Barro and Gordon (1983), which builds upon work by Kydland and Prescott (1977), who introduced the concept of time-inconsistent behavior. Barro and Gordon start with the idea that the monetary authority is a social welfare maximizer with complete control over the rate of inflation and with objectives defined over employment (or output) and inflation. Deviations of employment and inflation from their target values enter the loss function quadratically. Nominal wage contracts are fixed over a certain time period, which implies that inflation reduces real wages and increases output and employment. This creates an incentive to surprise wage setters by raising the rate of inflation above the expected rate, which determines nominal wage demands.² Based upon rational expectations, wage setters foresee this incentive and incorporate the expected rate of inflation into their nominal wage demands. Under the assumption that the objective function of the monetary authority is publicly known, the expected inflation rate will reflect the equality between marginal gains and costs from inflation, and the actual rate of inflation will be equal to the expected rate. There is no monetary surprise and no employment gain, but a positive rate of inflation.³ Promises not to inflate are not credible because the welfare maximizing government has an incentive to renege on this promise once wage contracts have been signed.

To avoid positive rates of inflation that have no benefits, a mechanism is sought to commit the monetary authority to a noninflationary monetary policy. The mechanism suggested by Rogoff (1985) is to appoint someone whose preferences are known to diverge from those of the welfare maximizing authority. If someone who puts more relative weight on avoiding inflation than unemployment were to set monetary policy, the rate of inflation would be lower, since marginal costs and benefits from inflation are different for that person. This intriguing solution of appointing a “conservative” central banker, as Rogoff called these preferences, reduces the inflation bias.

However, as Rogoff also pointed out, this solution is not costless in a world with stochastic shocks, because in such a world there is a stabilizing role for monetary policy. With a conservative central banker, stabilization policy would be relatively weak. Hence, lower average inflation comes at the potential price of higher output variability. Another aspect pointed out by Rogoff (1985) is that conservatism is only a second-best solution to the inflation bias problem. The first-best would be to eliminate existing rigidities in labor and product markets.⁴

² Blinder (1998) voices serious doubts concerning the assumption that central bankers have an incentive to use monetary policy in such a way.

³ An unexpectedly low rate of inflation would create unemployment and thus not be pursued in a one-period model. If the central bank aims to build up a reputation for being tough, this might change. If, however, unemployment is persistent, the incentive to build reputation is reduced (see Grüner, 1996).

⁴ As Posen (1998) points out, there might be circularity between rigidities and conservatism of the central bank. If a central bank is very conservative, it might cause nominal wage rigidities to increase, making disinflation much more costly than otherwise. See Gros and Hefeker (in press) for an example with endogenous distortions.

Despite this strong theoretical argument, the empirical importance of time inconsistency as a source of an inflation bias has never been empirically scrutinized, and one may have doubts that it is indeed a major concern (McCallum, 1995). This interpretation is fostered by recent theoretical work within the context of dynamic general equilibrium macroeconomic models, which indicates that time inconsistency effects play only a limited role within a wide range of parameter values (Albanesi et al., 2001). However, within our framework, the specific reasons for inflationary tendencies do not matter, and we do not enter into a detailed discussion of this issue.

2.2. Independence, conservatism, and political influence

The Rogoff solution has become the major justification for CBI.⁵ Implicit in this argument is the equivalence of independence and conservatism.⁶ CBI does not imply conservatism, however, and the two concepts should be carefully separated.

There are a number of serious problems with making the two concepts equivalent. For instance, the negative empirical relationship between CBI and inflation typically breaks down in a sample of third-world countries (see Cukierman, 1992). In the case of transition economies, Hillman (1999) observes that “the empirical evidence indicates that CBI is not sufficient for policy discipline” (p. 74). A striking example is the central bank of Belarus, which possessed a high degree of independence. After inflation increased dramatically, the president of the central bank was jailed by the finance minister, whose policies were to a large extent responsible for the loss of price stability. Hillman draws the conclusion that it matters a lot how CBI is actually applied, which he sees as a question of political culture (see also Forder, 1996).

Loungani and Sheets (1997), however, come to the conclusion that CBI has a beneficial effect on inflation in Eastern Europe. They find for a single point in time (1993) that in a cross-section of 12 transition countries, CBI is negatively correlated with inflation.⁷ The major drawback of their study is that it does not take an average of inflation rates over time into account.

Cukierman et al. (2000) report that during the early phase of transformation, CBI is not related to price stability. However, after countries have achieved a sufficient level of economic liberalization, and conditional on a number of other influences, such as price controls and wars, CBI appears to be negatively correlated with inflation.

The negative relationship between inflation and CBI reported in the literature is based on a *statistical* correlation, and we should not expect it to hold for every case. But,

⁵ When speaking of independence, we generally refer to goal independence. This is the ability of the central bank to choose its own monetary policy objective. For instance, the Bundesbank and the ECB are goal-independent. Although they are required to pursue price stability, they can define what they understand as price stability. This is distinguished from instrument independence, which describes the central bank's freedom of choosing the desired monetary policy instruments.

⁶ Rogoff (1985, p. 1177) wrote: “Society can make itself better off by selecting an agent to head the independent central bank who is known to place greater weight on inflation stabilization (relative to unemployment stabilization) than is embodied in the social loss function.”

⁷ One should note that the result depends on the CBI index used.

arguably, some cases are more important than others, and it is possible to find examples for important cases that question the relation between CBI and low rates of inflation even among OECD countries. An interesting example is Japan, where inflation rates are low, and the central bank is strongly influenced by the Ministry of Finance. Regarding the US, the Fed appears to exhibit a higher degree of factual than legal independence. A similar result is suggested by [Maxfield \(1997\)](#), who studies developing countries and concludes that there is significant difference between independence according to some index and de facto independence. What is important, she concludes, is how governments treat and implement independence, thus confirming that indices do not tell us all we need to know.

The difference between de jure and de facto independence raises an issue stressed by [Blinder \(1998\)](#), who argues that high credibility is one of the most important conditions for a successful monetary policy, and that the success of specific central banks, such as the Bundesbank, is often linked to their reputation.⁸ It should also be stressed that simply granting independence will not necessarily yield immediate credibility. Countries that have a long history of very expansive and loose monetary policy might not be able to convince the public or markets of a change in its monetary strategy by simply changing the legal status of the central bank. This argument is supported by evidence gathered by [Blinder \(1999\)](#), who surveyed central bankers around the world and concluded that monetary history appears to be the most important ingredient of a credible monetary policy.

A change in monetary policy may precede CBI, and a low inflation record may have been already established before formal independence is introduced. A good example is France, where the break in the inflation series occurred sometime in the mid-1980s, while the law on CBI was passed in 1993 in the run-up to EMU. [Muscatelli et al. \(2000\)](#) show empirically that the breakpoint in monetary policy in a number of countries that have formally adopted inflation targeting pre-dates the institutional change. Therefore, a change in the effective exchange rate regime, or the introduction of an existing currency, might be more credible and effective than CBI in changing the public's expectation of future monetary policy.

One further standard argument for creating legally independent central banks is to avoid political business cycles by governments trying to improve their reelection chances. It might be argued that the simplest solution to this problem is to delegate monetary policy away from the government. If governments are not able to set monetary policy, neither are they able to pursue political business cycles using this instrument. In fact, it seems that there is no systematic monetary policy-induced political business cycle in OECD countries (see [Drazen, 2001](#)).

As [Vaubel \(1997a\)](#), however, points out, delegating monetary policy need not be a solution to the political business cycle (see also [Sieg, 1997](#)). Vaubel argues that independent CB councils could be politically “captured” by the government and made to choose a monetary policy that corresponds closely to the government's interests.

⁸ [Forder \(2001\)](#) puts forward a number of critical points regarding the usefulness of the concepts credibility and reputation in the discussion of monetary policy.

Governments may make political decisions when appointing central bankers, who will then support the party's economic policy. Vaubel provides evidence that the German Bundesbank in several cases engineered an active monetary policy to help the ruling party and, in other cases, set a tighter monetary policy than necessary to decrease the chances that this government is re-elected. Thus, CBs that are formally independent can be influenced politically via the appointment procedure.⁹ Berger and Woitek (1997) use time series modeling to investigate the validity of Vaubel's claim in the context of political business cycles. If CB councils were captured, then they would support economic growth by loosening monetary policy. They find evidence for such behavior neither in the time series data nor in an analysis of the Bundesbank minutes (see also Vaubel's, 1997b reply). Leertouwer and Maier (2001) analyze the question whether central banks create political business cycles using OECD data. They do not find evidence suggesting that the short-term interest rate is used to generate such a cycle.

One problem with these empirical studies is that it is difficult to distinguish political influences from other factors such as the conduct of monetary policy in the face of uncertainty generated by upcoming elections. In the case of Germany, Berger and Woitek (2001) argue that the Bundesbank reacted to pre-election money demand shifts in a way that could be mistaken for creating a political business cycle. Another problem is the identifying assumption that output or employment is always valued more highly than low inflation by the population. Empirically, a number of survey results indicate that, at least in certain periods, avoiding inflation is seen as more important than avoiding unemployment (see Fischer and Huizinga, 1982; Rose, 1998; Hayo, 1999b). Thus, at certain times, political support for the government may be provided by raising interest rate instead of lowering it, and empirical studies need to control for these circumstances to generate convincing conclusions.

Whatever the evidence in these particular cases, the general point should be taken into account that, since most central bank boards have terms of office going beyond that of the government, nothing rules out an independent central bank pursuing a political agenda that may or may not coincide with that of any particular party in power. Thus, once again, legal CBI may turn out to be a rather poor instrument for measuring monetary policy independence, and actual independence depends on the behavior of governments in the appointment procedure and the behavior of independent central bankers after they have been appointed.

A further point is that almost all models assume the degree of conservativeness is observable, something that is not the case in practice. If indeed it is assumed that maximizing social welfare is the policy objective, then it might easily happen that a central banker is appointed who does not find the optimal trade-off between inflation and unemployment for society. Appointing someone who is "too" conservative would produce excessive output and employment losses at a rate of inflation that might be sub-optimally low.

⁹ Waller (2000) shows formally that political appointments are less likely in a repeated game setting but cannot be ruled out.

Related is the complex issue of central bank accountability (see Briault et al., 1996; Muscatelli, 1998). This issue has received attention in the context of the role of the ECB and EMU, often referred to as the “democratic deficit” of the ECB (Kenen, 1995). This is a complicated issue, for which justice cannot be done here.¹⁰ If it is not possible to observe a central banker’s characteristics, then society (or its government) should have the means to overrule or correct actions taken by the central bank. However, this is not possible with a truly independent central bank. It could also be viewed as undemocratic for a society to put itself into the hands of bureaucrats who may or may not have the “right” preferences.¹¹

Finally, it might also be the case that independence of the central bank and conservativeness of the central bank’s preferences are not complements, as the discussion along the lines of Rogoff suggests, but rather substitutes. Eijffinger and Hoerberichts (1998) show that, if actual monetary policy is negotiated between the government and the central bank, any desired inflation outcome can be achieved by either making the central bank more conservative or by giving it more decision power.

2.3. *Credibility and removal of independence*

Another argument that sheds doubt on the general applicability of independence is the question of how credible independence really is. As McCallum (1995) has argued, just granting central bank independence does not solve the credibility problem but only shifts it to another level. As long as governments can more or less easily revoke the status of independence, not much is gained in terms of credibility of monetary policy. One can even argue that the incentive to remove independence increases with the gain in credibility due to CBI (see Forder, 2001).

In an early contribution, Lohmann (1992) argued that governments may want to be able to override independent CBs in case of particularly large negative shocks to the economy. This restricts the independence of the conservative CB to situations where shocks are relatively small. At the same time, the incentive of the government depends on the costs it incurs when overriding the independent CB. However, in equilibrium, the government will never actually override, as the CB will react in accord with the interests of the government when there are large output shocks. In this framework, although CBs are independent, they nevertheless take a government’s preferences into account. The empirical implication of this model is that, although two CBs are similar in terms of their statutes, they may differ dramatically in practice depending on the costs governments incur when overriding CBs. Lohmann assumes that the costs of overriding CB decisions depend on the political institutions in society, or alternatively, the policy is decided by a heterogeneous

¹⁰ For a general discussion of transparency and central bank communication, see Blinder et al. (2001). An interesting applied example of this discussion is the exchange between Buiter (1999) and Issing (1999) concerning the way the ECB should communicate with the public. Buiter favors maximum openness in the process leading to monetary policy decisions, while Issing believes that in the end the public will primarily look at outcomes in their assessment of the success of monetary policy. De Haan and Eijffinger (2000) comment on this exchange.

¹¹ Moreover, it is possible that the preferences of society change (see Lippi, 2000; Lindner, 2000).

institution that has to overcome a number of procedural rules to change CB decisions.¹² CBI as measured by legal indices thus has to be adjusted for the costs incurred by policymakers in overriding decisions, and is therefore endogenous to the political and social framework.¹³

Germany provides a good example. Berger (1997) describes how the German chancellor Adenauer threatened to change the central bank law in 1956 when the Bundesbank would not yield to his monetary preferences. In the end, he refrained from putting his threat into effect for fear of losing public support. Hence, at least part of the credibility of CBI is related to the strength of the government's incentive to revoke independence and the costs of doing so.

Cukierman (1994) puts forward a related argument. He points out that economic and political variables influence the degree of legal independence granted to central banks. He describes an incumbent party facing a trade-off between flexibility of monetary policy, used according to its interests, and credibility, which results in a lower inflation premium on its debt. Not surprisingly, he concludes that CBI should be higher when there is greater political uncertainty, larger government debt, and a stronger preference for low unemployment.

Jensen (1997), in a deterministic intertemporal game theoretic framework with exogenous costs of replacing the (conservative) central banker, similarly finds “the more important such costs are, the better are economic outcomes in absence of pre-commitment in comparison with the case without delegation” (pp. 918–919). At the same time, monetary policy delegation cannot remove dynamic inconsistency as long as such costs are not infinite, for the reason that the government will always have a remaining incentive to implement surprise inflation after the private sector has fixed labor market contracts. The desirable goal for society should be an optimal solution to the dynamic monetary policy game, and Jensen shows that reappointment costs in the case of delegation can make it more difficult to reach such a solution.

On the empirical side, De Haan and van't Hag (1995) test, among other things, two hypotheses relating to an inflationary bias from the choice of flexibility of monetary policy versus credibility for the incumbent government. They look at the relation between CBI as a dependent variable and proxies for the inflationary bias as regressors. They also investigate whether governments that are planning to incur higher debt are attempting to increase their credibility to reduce the interest rate premium resulting from the Fisher effect. Using data for 19 countries, they do not find evidence supporting either of the two hypotheses. Cukierman and Webb (1995) reach a similar conclusion. It is therefore unclear how much weight these theoretical considerations have for practical central banking.

¹² Giordani and Spagnolo (2001) analyze theoretically how political institutions influence the ease of changing CB laws. Some institutions generate sufficient inertia to undermine McCallum's argument.

¹³ The theoretical argument may be stronger than its practical implications. In most cases, independence is granted via a central bank law that could, maybe with simple or qualified majority, be revoked and changed. Given that such a process would take some time, the likelihood of generating a “monetary surprise” is small. Nevertheless, such considerations have prompted some observers to demand constitutional status for CBI.

3. Central bank independence is not a necessary condition for price stability

3.1. Fixed exchange rates, currency boards, and monetary union

Central bank independence can be compared with alternative means of bringing about low and stable rates of inflation. One of these alternative means, which has received much attention in transition, emerging and developing countries, is the choice of a fixed exchange rate as a monetary policy strategy.¹⁴

By delegating monetary policy to a proven inflation fighter, such as the US Federal Reserve Bank or the German Bundesbank, countries import the credibility of this particular central bank. This is basically the same as appointing a conservative central banker in the way Rogoff suggested, because an independent monetary policy is not compatible with a fixed exchange rate at full capital mobility.¹⁵

Such a monetary strategy is also subject to the arguments above about a sudden change in the monetary regime undermining credibility. There are many examples, in Europe and elsewhere, where countries have given up their fixed exchange rates overnight, either willingly or because they were forced to do so by speculators. It has been even suggested that “simple” pegs are no longer operative, because they can be brought down too easily by speculation (Eichengreen, 1994). Credible exchange based monetary policy must then take the form of a full monetary union or as a currency board. The trend towards currency boards and full dollarization (or eurozation) demonstrates that many governments prefer such an exchange rate arrangement to an independent central bank.¹⁶

3.2. Inflation contracts, targets, and rules

While the idea of fixing the exchange rate is quite old, there are new concepts in the academic discussion of monetary policy that are viable alternatives to CBI. One problem with the Rogoff solution of appointing a conservative central banker may be higher variability of output and employment, as the conservative central banker would stabilize shocks less than a “liberal” central banker.

¹⁴ Of course, the use of fixed exchange rates is not restricted to this group of countries. The EMS peg of many countries to the Deutschmark was interpreted as an attempt to import the Bundesbank’s monetary credibility (Giavazzi and Pagano, 1988; Giavazzi and Giovannini, 1989). The EMU can be seen in the same light. Grüner and Hefeker (1995) critically discuss the merit of this argument.

¹⁵ Notice that, as far as we know, there is not a single central bank in the world that decides on the exchange rate regime. It is always the prerogative of the government to enter into such international arrangements. This was criticized in the run-up to the EMU (Neumann, 1991), but even the role model of independence, the Bundesbank, did not possess this authority. Kenen (1995) and Eichengreen and Wyplosz (1993) stressed the importance of the so-called Emminger letter, in which the Bundesbank obtained a guarantee from the Adenauer government that no exchange rate arrangement would ever be made that jeopardized internal monetary stability (Emminger, 1986). Whether this was a legally binding “contract” is questionable.

¹⁶ One possible reason is the successful lobbying of interest groups, who hope to benefit from a fixed exchange rate (Hefeker, 1997).

This need not be the case, as [Walsh \(1995a\)](#) and [Persson and Tabellini \(1993\)](#) have argued. Instead of appointing someone with different preferences than society, one could influence the incentives of the monetary policy maker. The inflation bias could be corrected by imposing a contract on the central banker that would force him or her to pay a pecuniary penalty if monetary policy is used against unemployment over and above its use for price stabilization. Then monetary policy could still fully account for economic shocks but the systematic inflation component would disappear.

In reality, it would be rather difficult to write such a central bank contract, as [Obstfeld and Rogoff \(1996\)](#) have pointed out. The contract would require full information about the preferences of the central banker if it is to allow correction for the marginal incentive to create surprise inflation. It would also be difficult to define those shocks that are within the scope of stabilization policy. Hence, even such a detailed contract might not suffice to avoid arguments about whether a specific degree of monetary expansion is still covered by the central bank's area of competence or not.

A more practical solution is assigning an inflation target to the central bank. This solution, which was adopted at one time or other by the UK, New Zealand, Sweden, Switzerland, Australia, Israel, and Canada, is often found in connection with a nominally independent central bank, and can be understood as the opposite of (goal) independence.¹⁷ Here the government either assigns a target to the central bank for the inflation rate, say 2%, over the short to medium run, or the government and the central bank “negotiate” a target. A central bank that fails to meet the target has to justify its failure, and in some cases, the governor of the central bank loses his job as a penalty. In this way, a low and stable rate of inflation is sought by holding the central bank, like in the contract solution, responsible for too high a rate of inflation. The New Zealand example indicates that there is a large degree of discretion involved in the interpretation of violation of such a contract. The governor of the Central Bank of New Zealand was not removed from office for missing the target.

We would also at least like to mention the old Monetarist case for fully constraining CBs by a constitutional monetary policy rule. Here CB discretion is reduced to the choice of instruments to achieve the goals formulated precisely in the monetary policy rule. For instance, a rule might be based on a specific narrow money supply growth value of, say, 4.5%. An example of this line of reasoning is presented by [Hetzel \(1997\)](#), who discusses the introduction of such a monetary policy rule in a democratic framework.

The important point is that the monetary credibility problem and the inflation bias can be overcome without CBI. At least theoretically, it might be possible to achieve a better trade-off between credibility and the ability to stabilize exogenous shocks ([Svensson, 1997](#)) by adopting an inflation target. Thus, in principle, the inflation bias problem can be solved without compromising the central bank's ability to stabilize.

¹⁷ For a thorough discussion of countries' experiences, see [Bernanke et al. \(1999\)](#). See [Walsh \(1995b\)](#) on the case of New Zealand as an application of an optimal contract.

4. Central bank independence is not a sufficient condition for price stability

4.1. Central bank independence is an endogenous variable

Many studies found CBI and low inflation rates to be correlated (Alesina, 1988; Cukierman, 1992; Grilli et al., 1991). In conjunction with the theoretical CBI literature, the conclusion drawn from these results is that CBI causes low inflation rates. We do not think this inference is valid.

Regarding the measurement of CBI, we agree with Forder (1996, 1998a), who raises a number of methodological concerns (see also Mangano, 1998). Forder points out that legal and factual CBI may differ, and thus measuring legal CBI and finding a correlation with inflation rates may not tell us a lot about the influence of factual CBI. There are also studies indicating that the relationship is not robust with regard to control variables and the choice of countries (Cukierman, 1992; Posen, 1995; Campillo and Miron, 1997; Forder, 1998b).

The question of causality cannot, however, be solved by these studies, as running a single-equation regression imposes the causality relationship from the outset. In our view, there exists a two-stage problem in understanding the existence of CBI. In the first stage, societies decide on their policy priorities. One of the questions is whether price stability should be regarded as an important policy objective. The literature provides two explanations. The first emphasizes that societies differ with regard to inflation aversion; that is, they have different “inflation cultures”. Consequently, the nature of the inflation culture, directly or indirectly, determines the choice of the monetary policy objective. The second approach focuses on the political decision process and looks at the interests of economic actors and their ability to influence monetary policy objectives. Here the financial sector is viewed as having an interest in avoiding high inflation rates.

A society that has decided to pursue price stability in the second stage faces a decision about the monetary policy arrangements appropriate for the objective. One of the alternatives is CBI. When will societies choose CBI? The literature points to the characteristics of a country’s legal, political, and economic systems. In the rest of this section, we consider in more detail this two-stage framework.

4.2. National inflation cultures

A first approach to answering the question why countries differ in their inflation histories is related to the idea that societies differ in the importance assigned to pursuing monetary policy directed towards low inflation.¹⁸ A simple view, called the “preference-instrument view” in Hayo (1998), argues that societies, for whatever reason, have different preferences for inflation rates, and that this is reflected in monetary institutions and the conduct of monetary policy. Here causality runs from a society’s preferences to the establishment of specific monetary institutions, such as central bank laws granting independence. The degree of CBI is not responsible for different inflation records of

¹⁸ Attempts to track and measure the existence of such preferences are made in Bofinger et al. (1998).

countries, but rather the pre-existing *inflation culture* determines whether independent CBs will be set up.

This view presumes preferences for inflation are fixed over time, but it is not obvious why this should be so. Realism suggests that the actual performance of the CB influences people's attitudes towards price stability. If an independent CB does not bring about price stability, people's trust in this organization will be undermined and its ability to take a tough monetary stance against conflicting interests can be severely compromised. On the other hand, if people believe that the CB handles monetary policy competently, they will support it in a power struggle against, for instance, the government (see [Berger and de Haan, 1999](#) for a case study of the Bundesbank and the German government). One might call this the "historical-feedback interpretation".

A major problem with this approach is that the path dependence of such an explanation makes a test very difficult. Using the Eurobarometer survey data on European Union countries, [Hayo \(1998\)](#) showed that the correlation of a proxy for a country's inflation aversion is at least as high as that of CBI and inflation.¹⁹ Moreover, both CBI and an inflation aversion proxy were positively correlated. This finding supports the idea that inflation preferences matter, although it does not help very much in discriminating between a preference-instrument and historical-feedback view.

The study by [Hayo \(1998\)](#) takes a macro-level approach, and cannot tell us much about which actors within a society may be particularly interested in price stability. [Van Lelyveld \(1999a\)](#) focuses on a cross-section of countries at one particular point in time (see also [Prast, 1996](#)). He uses Eurobarometer 5 from 1976 to analyze two hypotheses: First, higher income leads to more inflation aversion relative to unemployment. Second, having a more left-wing political opinion implies less concern for inflation. He finds very little support for the importance of income, while there is more evidence that a stronger preference for income inequality is associated with less inflation aversion. An update of this analysis using a survey from 1997 (Eurobarometer 48) confirms these general results, although individual models turn out to be rather unstable ([van Lelyveld, 1999b](#)).

A somewhat different approach to explaining the relative inflation aversion of societies is used by [De Jong \(in press\)](#). Here the idea is that nations differ in cultural attributes. Certain cultural characteristics, such as the extent to which an unequal distribution of power is accepted and the degree of uncertainty avoidance, contribute to explaining why some countries experience low inflation and others do not. The theoretical argument is supported by country-level empirical data based on cultural constructs derived by [Hofstede \(1980\)](#). It appears that effects of cultural values on inflation take on a more direct route without affecting CBI. In particular, the indicator for uncertainty avoidance is the most important of the cultural variables in the explanation of inflation. Regarding CBI as a dependent variable, she finds that an unequal distribution of power is the most important cultural concept.²⁰ Within our framework, we would argue that this reflects the choice by some countries of other means than CBI to achieve low inflation rates. However,

¹⁹ [Collins and Giavazzi \(1993\)](#) empirically estimated attitudes towards inflation and unemployment using consumer expectations derived from surveys based on a loss function.

²⁰ One should note, though, that the empirical analysis suffers from small sample sizes and non-robust estimates.

the question of how cultural variables actually affect CBI and inflation remains largely unresolved.

4.3. *Political interest groups*

One of the first contributions to take the idea of CBI endogeneity seriously is by [Posen \(1993\)](#). He viewed economic policy as reflecting the actions of interest groups attempting to influence policy, with monetary policy in particular affected by the lobbying of the financial sector, which was assumed to be highly inflation averse.

There are several reasons why commercial banks might fear inflation and thus prefer conservative monetary policy. As banks usually borrow short and lend long, they are vulnerable to changes in the spread of interest rates. Moreover, inflation leads sooner or later to anti-inflationary policy. Banks then come under pressure, as higher real interest rates can lead to problems in recovering loans. Hence, banks might be fearful of inflation, and disinflation in its wake.

Although [Maier et al. \(in press\)](#) do not make this argument, their finding that the Bundesbank's monetary policy was influenced by financial sector pressure can be interpreted as supporting Posen's theory. They present empirical evidence that the financial sector affected monetary policy in Germany. Since Germany had one of the lowest inflation rates in the world over their sample period, one cannot reject Posen's claim of an inflation-averse financial sector influencing monetary policy, at least not in this instance. Further, [Boyd et al. \(2001\)](#) show that inflation has a negative impact on financial sector performance. An inflation rate of 15% appears to be a threshold: Financial sectors in countries with an inflation rate higher than 15% experience significantly inferior performance compared to those in lower inflation countries.

Introducing CBI may make it easier for the financial sector interest groups to lobby the CB itself without going through the usual checks and balances of the political system. Further, flows of staff members between the CB and private banks increase the ease with which the financial sector can make its interests heard by the monetary authorities, and vice versa. The complementarity of interests can result in the financial sector and central bankers forming a coalition to support each others demands, with the result that inflation is kept low.

In this framework, it is not CBI that causes monetary policy to seek low inflation. Rather, central bankers reflect the interest of a specific group, namely the private financial sector, which is ultimately the source of the preference for low inflation. The stronger is the financial sector in its ability to lobby for low inflation, the more weight will be given to price stability by the monetary authority.

There are a number of problems with Posen's approach. First, it is not obvious that very low inflation rates are always in the interest of the financial sector. For instance, an increase in nominal interest rates as a result of higher inflation may mask a larger lending-borrowing spread by banks. Second, the empirical evidence that the financial sector is inherently inflation averse is not compelling. Although [Posen \(1995\)](#) presents supportive evidence, other studies find less or no support ([De Haan and van't Hag, 1995](#); [Campillo and Miron, 1997](#); [Temple, 1998](#)). This need not be seen as a serious blow to Posen's theory, though, since the construction of the index for financial opposition to inflation

involves a number of strong assumptions, and thus may not bear much resemblance to the theoretical concept. Finally, if it truly were the influence of the financial sector that determines CBI, we should observe fluctuations in inflation rates over time corresponding to financial sector lobbying. Casual evidence does not suggest a close correspondence, but this is an issue deserving more attention.

Granted that some societies may care a lot about inflation, what makes them choose CBI and not one of the other alternatives? We now consider this question.

4.4. The legal system, the political system, and central bank independence

We start our discussion by returning to McCallum's (1995) point that delegation cannot solve a dynamic inconsistency problem, but rather relocates the problem to a different level. The crucial issue then is the question why delegation should be more credible than leaving monetary policy in the hands of the government? As argued above, credibility might be improved if changing delegation decisions is costly. A constitutional arrangement can serve as insurance against short-run deviations from the longer-run interests of society (see Elster, 2000). Hence, it may be useful to look at legislation, jurisdiction, and the political system in more detail. There is theoretical and empirical evidence that aspects of institutional characteristics correlate with inflation rates.

Moser (1999) presents a model where two conditions make delegation credible. First, two decision-making bodies share the legislation and veto powers over one another. Second, the two legislative bodies differ with regard to their inflation-output preferences. Moser's hypothesis is that countries fulfilling these conditions will have more independent central banks. In the empirical analysis, he distinguishes between three groups of countries: those with strong checks and balances in their legislation, those with weak checks and balances, and those with no checks and balances. He finds countries with strong checks and balances have more independent CBs compared to those with weak or no checks and balances. The countries in the last group have the most dependent CBs. In a second step, he regresses group dummies for checks and balances plus these dummies interacted with CBI on average inflation rates. The outcome of this regression is less straightforward. In particular, the shift term of the country group with no checks and balances is smaller than that of the other groups. This implies that countries with dependent CBs do not necessarily have higher inflation rates. In our framework, this can be interpreted as evidence that some countries have found other means to achieve low inflation rates. It is worth pointing out that the proxy used by Moser to measure the legislative framework is limited in scope, and he might miss distinctive features of the legal framework of some countries.

Moser's results are not very robust, as he finds no supporting evidence using the CBI indicator of Eijffinger and van Keulen (1995). He states that this is not surprising as this index includes changes in CB law in preparation for entering EMU. His defense is "...independent of their political system, member countries of the European Union are forced by the Treaty of the European Community to install independent central banks" (p. 1584, FN 12). This is not a convincing argument because member countries entered into EMU by their free will, so if there were no political commitment (as in the case of the UK and Denmark), they would not have joined. Survey data reveal that in each EU member

country, except the UK, Denmark and Germany, a majority of people favored entering EMU (Hayo, 1999a). This can be interpreted as another indicator that checks and balances are only part of the story. In particular, if there exists a consensus in society on this issue, it is unlikely the two legislative bodies will differ to an extent that has a notable effect on the set-up of the CB. In other words, if there is agreement to delegate monetary policy to an institution with a higher degree of independence than any national central bank, this can be seen as a sign of political consensus rather than disagreement, which contradicts Moser's argument.

A related study by Farvaque (in press) makes the point that characteristics of political systems may help us to understand why countries have implemented CBI and other countries have not. Countries with a bicameral system may not have much need to delegate monetary policy and may thus have less independent CBs. This result somewhat contradicts Moser's empirical findings, as Farvaque uses a similar proxy variable. An argument to consolidate both results would be to point out that the presence of two chambers does not in itself guarantee strong checks and balances. Countries with more federal systems also exhibit a high degree of CBI. An indicator for the geographical proximity of politicians to voters (constituencies to km² of country) shows that the further away politicians are, the higher is CBI. The longer governments stay in power (average duration to longest duration in percent), the higher is also CBI. However, this does not imply the interpretation of CBI as a pre-commitment device in the above sense. In this hypothesis, we would rather expect that societies showing greater short-term volatility will bind themselves via formal institutional arrangements.

Keefer and Stasavage (2000) put forward a similar argument with respect to checks and balances. Within a theoretical model, they show that checks and balances are likely to reduce expected inflation and that delegation of monetary policy to a central bank will only have the desired effect if checks and balances are a characteristic of the country's political system. Moreover, checks and balances should matter most when there is a high level of polarization between veto players. In their empirical analysis, they show that inflation can be lower in the presence of checks and balances, but the existence of checks and balances makes little difference in situations of low levels of polarization and low levels of CBI. In other words, the usefulness of checks and balances is conditional on the state of the other variables.

Bagheri and Habibi (1998) analyze the relationship between CBI and political liberty and instability. They find both political liberty and stability are positively linked to CBI, that is, countries that allow more political freedom and are characterized by less regime and political party instability show higher degrees of CBI. They conjecture that CBI changes when countries move from nondemocratic to democratic political systems.

Given our interpretation of the relationship between CBI and social choice, this implies that CBI is directly dependent on the nature of the political system in a country. Moreover, the change in the level of CBI over time is clearly linked to political change.

The empirical analysis has, however, a number of weaknesses. There are almost no control variables in the models, while, at the same time, Bagheri and Habibi introduce a country group dummy for Austria, Germany, and Switzerland claiming the "...index of legal central bank for these three countries was much higher than others and introduction of this dummy variable significantly increased the quality of regressions" (p. 197). This sounds very much like data mining and does not enhance trust in the stability of the results.

Voigt (2000) argues that there is an interaction between the independence of the judiciary and that of the CB. A culture of rule of law may very much strengthen the position of an independent CB. If there were an undermining of CB *de jure* independence by the government, people would oppose such behavior, thereby supporting CBI. Thus, a culture of rule of law may be a substitute for a stability-oriented inflation culture. However, a prerequisite for this argument is that CBI already exists, and this again raises the question of why it came about in the first place.

To summarize this section, the literature has isolated specific characteristics of the legal and political system that help to explain the introduction of CBI, but there remain a number of unsolved issues. The next section looks at a specific characteristic of the economic system, the organization of the labor market, as a means of explaining the creation of CBI in some countries but not others.

4.5. *Labor market institutions*

Rogoff's analysis was based on the US experience, where there are many weak labor unions. Hence, labor is considered as being atomistic, and no account is taken of strategic interaction between labor and central banks. If labor is not atomistic but organized, as is the case in many European countries, one should expect labor unions to internalize to a certain degree the negative effects of high wages on employment and inflation (Calmfors and Driffill, 1988).

The same idea suggests that labor unions will discipline their wage demands if they too have an interest in low rates of inflation. If this is the case, a large union will show wage discipline to an extent that reflects its interest in avoiding high inflation. Guzzo and Velasco (1999) have pointed out that an ultraliberal (i.e. nonconservative) central banker will bring low rates of inflation, because labor unions themselves will discipline their wage demands, thus ensuring high employment and making an over-expansive monetary policy no longer necessary. This line of reasoning turns the "conservativeness argument" on its head (see also Skott, 1997).²¹

This theory has to be qualified if labor unions are not monopolistic, as Cukierman and Lippi (1999) have argued. Lippi (1999, 2002) has further qualified the case for a liberal central bank by showing, in the intermediate case of several large labor unions, that the effect of inflation on the relative real wage set by a trade union can result in a so-called competition effect. Given the other unions' nominal wage demands, a particular union will demand higher nominal wages, which will lead to a lower level of labor demand in the economy from the perspective of the individual union. The moderating effect of this mechanism will be larger, the more conservative is the central bank, because in this case, a nominal wage translates into a higher real wage, thus disciplining the union.²²

²¹ If there are many labor unions, or if the central bank is able to commit to its monetary policy, the underlying game structure is changed. If instead of the Stackelberg approach a Nash approach is chosen, labor unions do not discipline their wage demands and, therefore, a conservative central bank would be more appropriate (see Jerger, 2002).

²² See also Soskice and Iversen (2000) and Coricelli et al. (2000). Lawler (2000), in addition, shows that in a stochastic environment central banks will not be ultra-liberal, because that would result in high inflation variance.

Berger et al. (2001b) have asked why labor unions should be inflation averse. While it makes sense to assume labor unions—like the rest of society—care about inflation (Cubitt, 1992; al-Nowaihi and Levine, 1994), this is nevertheless an ad hoc assumption. Berger et al. provide a micro-foundation for inflation aversion of monopolistic labor unions by distinguishing between outside options for the labor union (unemployment benefits) defined in nominal versus real terms. Only if the outside option of the union is in nominal terms can the case for a liberal central banker be made. In this case, a wage-induced price increase will leave non-employed labor union members worse off (as their real unemployment benefits are reduced), which moderates the union's wage demands. In the case of a real outside option, however, the union's wage setting behavior and monetary policy are no longer related. A government that values employment and stable prices is therefore better off fixing the level of unemployment benefits and social transfers in real terms and appointing a conservative central banker.

Nonetheless, when taking strategic behavior of labor market participants into account, the case for the conservative central bank is undermined under certain circumstances. Because of the sensitivity of these theoretical results to changes in the assumptions, the decision to implement CBI is conditional on actual labor market arrangements in a country.

5. Conclusion

In this paper, we evaluated the conventional view that CBI is a necessary and/or sufficient instrument for achieving low inflation. Our conclusion after reviewing the analytical arguments and empirical evidence is that this case is far from convincing. We focused on an alternative way of thinking about CBI that is both theoretically and empirically more plausible. The idea is that societies make two decisions about monetary policy. First, they decide on the importance attached to fighting inflation. The second decision concerns the best institutional arrangement for achieving the objective of price stability, given the political, legal, and economic framework. The first decision indicates that CBI is not a sufficient condition for price stability, as it is not the ultimate cause, but an instrument among many for achieving this objective. The second decision makes clear that CBI is not a necessary condition for price stability in general, although it may be the appropriate solution for some countries.

This two-stage decision model allows interpretation in a common framework of a wide variety of findings on monetary policy and CBI that have appeared in the literature. This is not possible within the conventional framework. The first part of the paper has considered theoretical arguments concerning the case for central bank independence. We propose that there are other solutions to the time-consistency problem, such as inflation targets, fixed exchange rates, and inflation contracts, and some may be preferable to independence and conservativeness, because they involve lower costs while at the same time achieving low rates of inflation. While it is usually impossible to write complete inflation contracts, inflation targets or exchange rate-based monetary policies are practical and have been chosen as alternatives to CBI. The alternatives are often combined with instrument independence of the central bank. However, what matters in the Rogoff argument is goal independence. CBI is therefore a relevant concept in practice but it is not the only choice.

Providing a clear list of conditions under which one or the other monetary policy solution is superior should rank high on a list of further research.

The second part of the paper has reviewed the literature on CBI endogeneity. In particular, we identified two reasons why societies choose to assign high priority to fighting inflation. First, cultural differences allow a classification of societies according to inflation aversion. Second, political interest groups may have an interest in keeping inflation low, and may be able to influence the political outcome.

Regarding the choice of CBI in comparison to other potential instruments, we have reviewed the literature that looks at political, legal, and economic aspects. For instance, higher costs of changing the legal status of central banks in terms of political difficulties can lead to adoption of CBI. Political freedom may be conducive to implementing CBI. If CBI has already been established, a “culture of law” may prevent changes to the central bank law. Finally, when labor markets are characterized by strong unions, appointing a conservative central banker as president of an independent central bank may not be the appropriate solution. On the other hand, Rogoff’s (1985) result can be resurrected when labor markets are atomistic or when the outside option for unions is defined in real terms.

Our two-stage framework for analyzing monetary policy arrangements has not related to informal arrangements. In a case study of France, Italy, and the UK, Cobham *et al.* (1999) emphasize the importance of informal CBI in the conduct of monetary policy. They show that changes in average inflation have not always been accompanied by changes in the degree of CBI and that changes in the formal degree of CBI did not always lead to the expected changes in inflation rates. Another point noted by several authors is that public support for the central bank needs to be sufficiently strong to make the implementation of (sometimes harsh) monetary policy measures successful (Posen, 1995; Bofinger *et al.*, 1998; Hayo, 1998). Within the limited scope of this paper, however, we do not do justice to these refinements.

There are several areas where further research appears to be useful. First, we believe there is more to be learned about the reasons for choosing anti-inflationary policy institutions by analyzing survey data. In particular, micro- and macro-level information can be combined in a panel data set to address a number of interesting questions. A first attempt in this direction is a study by Di Tella *et al.* (2001), who look at the trade-off between inflation and unemployment using a large cross-section of survey data and combine micro- and macro-series in a two-step process. Second, the empirical evidence for the interest group argument remains inconclusive. One could look at interest groups other than the financial sector.

More can be learned about why societies choose CBI and not one of the other possible instruments. The existing empirical results are relatively weak. Future empirical research should take the relevant characteristics of a country’s legal, political, and economic frameworks explicitly into account.

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