The Myth of Central Bank Independence

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Abstract

The Federal Reserve frequently emphasizes its independence from government, stresses the importance of independence as the foundation for accountability to the "dual mandate," and frequently invokes an "independence defense" when confronted with any proposed institutional redesign not acceptable to the Federal Reserve. Much of the academic community accepts the conventional wisdom that independent central banks generate better policy outcomes than less independent central banks, on the basis of an extensive body of econometric research that claims a significant inverse relationship between measures of independence and inflation. This paper argues that these views amount to more myth than reality. No serious observer of the Federal Reserve's performance can accept its claim that it is not influenced by politics. The conventional wisdom so widely accepted in the academic literature is based on a confused perception of independence that fails to distinguish between legal (de jure) and actual (de facto) independence. The statistical evidence is fundamentally flawed for a number of reasons, which this paper will discuss.

JEL codes: E50, E58, E65

Keywords: central bank independence, measures of central bank independence, Federal Reserve system, political economy of central bank policy, legal (de jure) versus actual (de facto) central bank independence, central bank independence versus central bank accountability.

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Introduction

The claim that independent or depoliticized central banks generate better price-stability outcomes than less independent central banks has now achieved the status of conventional wisdom (Lohmann 2006, 536). The conventional wisdom is widely accepted and has influenced the institutional redesign of existing central banks, granting greater de jure independence from government (e.g., the Bank of England in 1997, the Bank of Japan in 1998, and the Bank of Korea in 1998), and it has influenced the design of new central banks as de jure independent (e.g., the European Central Bank in 1998).

The conventional wisdom first emerged in the 1950s. The 1951 Treasury–Federal Reserve Accord was widely viewed as providing the foundation for successful monetary policy and macroeconomic stability in the 1950s (Hetzel 2013), and according to Romer and Romer (2002), the Federal Reserve developed a sophisticed macroeconomic model that provided the foundation for price stability. That is, the price stability of the 1950s was the policy outcome of the new "independent" Federal Reserve, which had been released from supporting the prices of government securities. The most significant support for the conventional wisdom, however, emerged in the 1980s and 1990s, when a large body of econometric research reported significant inverse correlations between measures of central bank independence and inflation. The measurement literature is widely accepted not only as evidence of the conventional wisdom in general (Conti-Brown 2016, 138n12), but also as evidence that the institutional redesign of central banks toward greater independence in the 1990s contributed to the decline of the high

inflation rates of the 1970s and 1980s to relative price stability by 2000, as illustrated in table 1 (Carlstrom and Fuerst 2009; Parkin 2013).

Table 1. Average Consumer Price Inflation Rates in Selected Countries

	1975–1985	1985–1995	1995–2000	2000–2002
World index*	**14.1**	**17.4**	**5.9**	**4.0**
Industrial economies*	**8.0**	**3.4**	**1.9**	**2.1**
United States	7.2	3.5	2.5	2.2
Euro area	7.3	3.4	1.7	2.5
Japan	4.7	1.4	0.3	−0.8
United Kingdom	10.6	4.5	2.5	2.2
Canada	8.1	3.3	1.7	2.4
Australia	5.0	5.2	1.9	3.7
New Zealand	13.4	5.7	1.4	2.7
Switzerland	3.3	2.8	0.7	0.8
Sweden	9.7	5.4	0.7	2.5
Developing economies*	**30.2**	**43.0**	**10.8**	**6.2**
Africa*	15.8	21.8	9.4	7.5
Asia*	8.5	8.7	5.1	2.7
China	3.1	11.7	1.8	0.1
Korea, Rep. of	12.0	5.8	4.0	3.4
Europe*	24.8	89.2	37.4	22.5
Russia (1991–)		155.5	32.6	17.0
Czech Republic (1989–)		18.5	6.7	3.3
Poland (1989–)		83.9	12.7	3.7
Turkey	44.0	65.1	73.7	49.6
Middle East*	16.7	16.3	7.9	4.2
Saudi Arabia*	4.2	1.0	−0.3	−0.5
Western Hemisphere*	62.4	143.7	12.9	6.8
Brazil (1980–)*	146.2	704.3	7.5	6.9
Mexico	39.6	41.2	19.1	5.7

Note: * indicates that data from 2002 were not available at the time of this writing.

Source: Cargill and Parker (2003, 36).

The measurement literature assigns a high independence index to the Federal Reserve; this measurement is consistent with the Federal Reserve's own view of its independence. For example, in the 1980s the Federal Reserve was ranked as the fifth most independent central bank out of 21 central banks in developed and developing countries (Cukierman, Webb, and Neyapti

1992, 380). It was also ranked as the third most independent central bank of 16 central banks in developed countries during the period from 1955 to 1988 (Carlstrom and Fuerst 2009, 183), on the basis of data presented in Alesina and Summers (1993).

The Federal Reserve frequently emphasizes the importance of its high-ranked independence for nonpolitical monetary policy outcomes from at least four perspectives. First, independence permits the Federal Reserve to pursue without political influence the "dual mandate" established between Congress and the Federal Reserve in 1977. In this regard, the Federal Reserve argues that it can make well-informed choices along the short-run Phillips curve held stable by "forward guidance," while at the same time it can achieve long-run price stability. This outcome depends on an independent Federal Reserve's conducting "enlightened discretion" (Binder 1998) or "constrained discretion" (Bernanke 2003), as described by two former officials of the Federal Reserve. Second, the Federal Reserve uses the "threat to independence" response to any institutional redesigns it finds objectionable (Yellen 2015). Third, the Federal Reserve argues that an independent central bank is more accountable for its policies (Fischer 2015). Fourth, the Federal Reserve argues that independence is necessary to carry out micro- and macroprudential policies (Fischer 2015).

This paper argues that the conventional wisdom about Federal Reserve independence needs to be reconsidered. First, the measurement literature is fundamentally flawed and misdirected because it focuses on de jure rather than de facto measures of independence. The basic problem is that the literature, whether in the form of a simple correlation between inflation and measures of independence or a multivariable regression that attempts to control for other influences on the inflation rate, is based on measures of independence that are subject to considerable measurement error. That is, any measurement based on the legal standing of the

central bank is unlikely to be an indicator of actual political independence for short periods of time, and it is even more unlikely for longer periods. The measures of central bank independence are too imprecise to represent a cardinal measure-of-independence variable that can be employed in a regression model (Cargill 2013). At best, the measures are useful only to indicate major shifts in the relationship between the central bank and the government, such as those that occurred in England (1997), Japan (1998), and the Republic of Korea (1998).

Second, although the Federal Reserve might have a degree of de jure independence, the Federal Reserve has been de facto or politically dependent on the government on more occasions than not. The de jure measures of independence provide a convenient smoke screen to cover what has been documented as the close relationship between the Federal Reserve and the government (e.g., Cargill and O'Driscoll 2013; Conti-Brown 2016; Ferrell 2010).

Third, in the context of political economy or public choice economics, the Federal Reserve has an incentive to emphasize independence to protect and enhance its power and influence. It is easy for the Federal Reserve to invoke the "threat to independence" defense to oppose objectionable redesign efforts because it can always point to the measurment literature's conclusion that an independent central bank generates better monetary policy outcmes. And like the smoke-screen effect used to cover up the close relationship with the government, the measurement literature makes it easier for the Federal Reserve to expand further into financial regulation and supervisory roles for which it is not specifically authorized.

The conventional wisdom and the measurement literature upon which much of it is based are more mythology than reality. The conventional wisdom seems reasonable at first glance, but a careful review of the supporting evidence suggest it would be better discarded. Then a new discussion could begin on how to render the central bank accountable for its designated

responsibilities and their outcomes. Institutional design in terms of de jure independence is neither necessary nor sufficient for accountability and monetary policy outcomes that contribute to noninflationary economic growth without misallocating resources.

The Path to the Conventional Wisdom

Central banks, when first established in England and Europe in the 18th and 19th centuries, generally were not intended to be independent of government. Just the opposite is true: they were frequently established to finance government spending at below-market rates in exchange for a grant of monopolyin issuing banknotes (Goodhart 1991; Smith 1936). As such, central banks were early manifestations of crony capitalism based on a mutually beneficial exchange of economic benefits motivated by the government's need to finance spending and the profit-maximizing objective of the central bank.

The inherent conflict between government spending and central banks, the relationship between central banks and prices, and the institutional design of the central bank to manage the nation's money supply were first discussed in a broad-ranging debate over the Bank of England in the first part of the 19th century. This debate was known as the Bullionist and Currency-Banking controversies. The Bullionist Controversy started in the 1790s as tensions grew between England and France, and it ended in 1815 with the defeat of France at Waterloo. The Currency-Banking Controversy started after the Napoleonic Wars ended, and it lasted until the passage of the 1844 Bank Charter Act, which established the Bank of England as the nation's central bank—an operational design that continued until World War I.

The Bank of England was established as a private bank in 1694 and came to influence central banking institutions throughout much of the world until the Federal Reserve took over

that role in the 20th century.[1] The Bank of England possessed a monopoly on banknotes in and around London but competed with other private banks outside of London. In exchange for the monopoly, the Bank of England stood ready to provide favorable government financing by purchasing government bonds. Banknotes issued by the Bank of England, however, were required to be convertible into specie. As the likelihood of war between England and France grew and fears of a French invasion increased, convertibility was suspended in 1797 to prevent widespread conversion of banknotes into specie. The suspension remained in effect until 1821. During this period, a debate arose over the causes of inflation and the depreciation of the pound.

Economist David Ricardo first came to fame with his contribution to the debate in 1810. Representing the Bullionist perspective, Ricardo argued that because of the suspension of convertibility, the Bank of England caused inflation and depreciation of the pound by over-issuing banknotes to purchase government securities. The Bank of England and the non-Bullionist group argued that convertibility was not the issue. Inflation and the depreciation of the pound were the outcomes of a change in the terms of trade between England and other countries as a result of the war.

Ricardo and the Bullionists won the argument. The Bank of England over-issued banknotes to purchase government bonds, which it was able to do because of the suspension of convertibility; the overissuance of banknotes generated higher prices; and the higher prices depreciated the pound. Ricardo recommended a return to convertibility to prevent further conflicts and to ensure price stability. After convertibility was reinstated in 1821, the discussion shifted to the Currency-Banking Controversy.

[1]The Bank of England is the second-oldest central bank. Sweden's *Riksbank* was established in 1664; however, it is the Bank of England and the debates about its institutional design that influenced monetary policy for much of the 19th century.

Supporters of the Currency perspective argued that the Bank of England should control the supply of banknotes but that the supply should be restrained by some degree of convertibility into gold to avoid an overissuance of banknotes that would lead to inflation. Supporters of the Banking perspective argued that such an arrangement was too inflexible to ensure that the nation's money supply met the needs of trade. Instead of maintaining convertibility and concentrating power to manage the nation's money supply in the Bank of England, private banks, operating according to the real bills doctrine, should be able to limit the domestic money supply to support the production process and to maintain price stability. Adherence to the real bills doctrine at the private bank level required loans to be collateralized by goods in process and real production to achieve a match between money and the needs of trade without inflation or deflation.

The Bullionist and Currency-Banking debates both influenced the institutional design of the Bank of England by the Bank Charter Act of 1844. The act established the Bank of England as an official central bank, with a complete monopoly over the issuance of banknotes tied to gold. The Bank was permitted to issue banknotes backed by government securities rather than a gold reserve, up to a certain amount; after that point was reached, new issues of banknotes had to be backed by a 100 percent gold reserve. The 1844 act thus provided a rules-based approach to monetary policy founded on the gold standard, in that the Bank of England had independent control over the money supply up to a point but ultimately was constrained by the gold standard. The real bills doctrine also became a prudential rule—at the private bank level, to ensure against an overissuance of money, and at the central bank level, to ensure that increases in high-powered money provided through the discount window were collateralized by goods in process of production.

Together, the gold standard and the real bills doctrine established a rules-based approach to the money supply to achieve price stability without the reliance on central bank discretion that

exists in a fiat-based system. In terms of the gold standard, excessive growth of the money supply would generate inflation, cause an outflow of gold, and correct the excessive monetary growth. Likewise, insufficient monetary growth would generate slower rates of inflation or deflation, cause an inflow of gold, and correct the insufficient monetary growth.

The resolution of the inherent conflict between the central bank and the government in the Bank Charter Act was not to establish an independent central bank with discretionary control over monetary policy, but rather to impose a convertibility rule on the Bank of England's monetary operations to insure against excessive or insufficient monetary growth. Along with this rule, the real bills doctrine became an important prudential rule for private banks designed to limit money expansion only to meet the needs of trade. The real bills doctrine also became a rule used by the central bank in creating high-powered money through the discount window. However, the gold standard was the binding rule designed to limit monetary growth to the needs of trade and to prevent the central bank from discretionary control over the money supply.

This perspective is emphasized by Blaug's (1968, 202) discussion of the Currency and Banking views in his *Economic Theory in Retrospect*: "It is clear that at bottom neither school recognized the necessity for discretionary management of the currency . . . Neither side recognized the essential functions of a central bank, a fact which gives the entire controversy a somewhat dated appearance." That is, both the gold standard and the real bills doctrine emphasized rules rather than discretion of the independent central bank to determine the nation's money supply.

The environment for central banking changed in the first part of the 20th century with (1) the end of the gold standard at the start of World War I in August 1914, (2) the less-than-successful efforts to reestablish the gold standard after World War I, (3) the Great Depression of

the 1930s, and (4) the Keynesian perspective that emerged during and after the Great Depression. In the Keynesian world, central banks had the right and responsibility to manage the nation's money supply to achieve economic stabilitzation, and they should not be tied to rules. Even though much of the world remained on some type of gold standard until the collapse of the fixed exchange rate system in 1973, the connection between gold and the nation's money supply waned significantly, and the money supply became increasingly fiat determined. Meltzer, for example, noted in his history of the Federal Reserve System (2003 and 2009) that the gold reserve requirement for banknotes issued by the Federal Reserve was never a serious constraint on Federal Reserve policy before 1973. The shift toward a fiat money-supply system disconnected from the gold standard and the real bills doctrine permitted greater central bank independence—not just from government, but from any rules-based system—to conduct policy.

In this new environment, the potential conflict between the central bank and the government reemerged as an important issue, but the resolution of the conflict in the 20th century was much different than that in the 19th century. In the 19th century, the conflict was resolved by imposing a rule and limiting a central bank's independent discretionary power to determine the nation's money supply. This rule was further supported by a prudential rule to limit bank lending to goods in process of production. In the 20th century, the conflict was resolved by central bank institutional designs that emphasized de jure or legal independence and allowed central banks to conduct monetary policy with discretionary authority.

This shift in perspective and the emergence of the conventional wisdom were first influenced by the 1951 Treasury–Federal Reserve Accord (e.g., Romer and Romer 2002) and, more important, by the measurement literature of the 1980s and 1990s. Cargill and O'Driscoll (2013) address what is arguably the misunderstood role of the Accord in the evolution of the

conventional wisdom; however, this essay focuses on the more important measurement literature. The measurement literature in general is more important than the widely accepted interpretation of the Accord because it provides apparently overwhelming empirical evidence of an inverse relationship between institutional independence and inflation.

The Statistical Foundation of the Conventional Wisdom

The measurement literature was initiated by Bade and Parkin[2] (1978, 1982, 1988); was extended by Cukierman (1992) and Cukierman, Webb, and Neyapti (1992); and, since the early 1990s, has evolved into a substantial body of literature claiming that there exists a statistically significant inverse relationship between inflation and central bank independence. Interestingly, the 1982 paper by Bade and Parkin is probably the most cited paper because it provides the framework for constructing indices of central bank independence; yet the paper has never been published, nor is the original version even available (Parkin, pers. comm.). The only available version of the 1982 paper is a revised version dated 1988.[3]

The basic methodology of the measurement literature consists of three steps. The first step is to calculate an index of central bank independence. The index is based on the de jure relationship between the central bank and the government as defined by the central bank's enabling legislation (such as the Federal Reserve Act or the Bank of Japan Law). The index is based on a list of characteristics that influence the relationship of the central bank to government. Weights and values are assigned, indicating the degree of de jure independence for a specific

[2] Bade and Parkin (1982) developed an independence ranking of 12 central banks (on a scale of 1 to 4) based on their respective charters with independence-influencing attributes divided into Policy Type and Financial Type, summarized in matrix form.

[3] The revised version is available at http://economics.uwo.ca/people/faculty/parkin.html.

characteristic, and in some cases, information provided by the central bank is incorporated. Bade and Parkin (1978 and 1982) were the first to construct measures of independence, but Cukierman, Webb, and Neyapti (1992) are noted for the most extensive set of measures of independence, covering four decades for 72 developed and developing countries.

Virtually all the measures of independence are based on the bank's legal relationship to the government and, as such, remain constant over time unless there is a significant change in the legal standing of the central bank. In the past half century or more, there have not been many significant changes in enabling legislation; hence, the indices in the measurement literature are constant over long periods of time. Alesina and Summers (1993) construct 16 indices that are constant from 1955 to 1988, which in turn are based on other indices that are likewise constant. Cukierman, Webb, and Neyapti (1992, 384–394) represent one of the few attempts to construct time-varying indices, but these indices change little over the four decades covered in their study.

The second step of the basic methodology is to regress the inflation rate in each country over long periods of time against the legal or de jure independence index with and without control variables. The control variables represent economic, financial, and political factors that might influence the inflation rate in addition to the measure of central bank independence. Klomp and de Haan (2010) cite a total of 59 studies that have established a statistical relationship between the inflation rate and a number of indices constructed by various researchers of central bank independence with and without control variables.

The third step of the basic methodology is to draw policy implications from the statistical results for the institutional design of central banks. It is difficult to overstate the importance of the measurement literature as the foundation for the conventional wisdom. Conti-Brown's recent study of Federal Reserve independence (2016, 139n12), especially in combination with a review

of Conti-Brown's book by Hassett (2016), sums up the acceptance of the measurement literature precisely: "The academic literature is clear: Central banks that are independent do a much better job in the long run at controlling inflation" (Hassett 2016).

Three contributions to the measurement literature illustrate the empirical foundation of the conventional wisdom. First, Alesina and Summers (1993) combined two measures of independence (Bade and Parkin 1982; Grilli, Masciandaro, and Tabellini 1991) for the central banks of 16 industrialized economies during the period from 1955 to 1988. Alesina and Summers found "a near perfect negative correlation between inflation and central bank independence" (154) and drew two policy implications from the empirical results:

> Our findings have implications for the ongoing debate over the optimal rules governing monetary policy. Most obviously they suggest the economic performance merits of central bank independence. More subtly, they raise questions about the benefits of rule-based monetary policies. . . . The findings here suggest that it is possible for nations to achieve these benefits without setting a monetary rule by insulating the central bank from political control. (Alesina and Summers 1993, 159)

Carlstrom and Fuerst (2009) extended the Alesina and Summers study and reported regression results finding that the statistical relationship between central bank independence and inflation had remained stable during the entire period from 1955 to 2000. Carlstrom and Fuerst further showed that 63 percent of the decline in the average inflation rate from the 1955–1988 period to the 1988–2000 period was attributed to increased central bank independence.

Klomp and de Haan (2010) provide perhaps the most extensive investigation to date of the statistical association between measures of central bank independence and inflation. They combined 59 empirical studies in a meta-regression analysis and concluded that there is a negative and significant relationship between inflation and central bank independence for Organisation for Economic Co-operation and Development (OECD) countries.

Thus, by the end of the 20th century, the widely accepted interpretation of the Treasury–Federal Reserve Accord and, more important, the measurement literature led to the conventional wisdom offered by Lohmann (2006) as part of her contribution to the *Oxford Handbook of Political Economy*. De jure independence is supported by central banks and international policy organizations such as the International Monetary Fund, the OECD, and the World Bank. It is accepted as a fact by many in the news media and has become a standard part of textbooks.

The empirical evidence appears to have settled the issue, but on closer inspection, the statistical foundation of the conventional wisdom is misdirected and fundamentally flawed. The evidence cannot be used to infer the type of policy implications suggested by Alesina and Summers (1993), and factors other than institutional design account for the reduced inflation rates in table 1.

Evaluation of the Evidence for the Conventional Wisdom

There are four problems with the empirical foundation of the conventional wisdom. First, de jure or legal independence does not reflect actual or de facto independence. Central banks are inherently political institutions established by governments. The high degree of legal independence assigned to the Federal Reserve overstates the actual independence of the Federal Reserve (e.g., Meltzer 2009, 2010; Cargill and O'Driscoll 2013; Conti-Brown 2016). That is, there is an equally convincing narrative against the conventional wisdom alleging that the Federal Reserve is highly politicized. Anyone who doubts the politicization of Federal Reserve policy need only read *Inside the Nixon Administration: The Secret Diary of Arthur Burns, 1969–1974* (Ferrell 2010).

Cargill, Hutchison, and Ito (2000) and Cargill and Dwyer (2015) make the same point for the Bank of Japan. Before the Bank of Japan received enhanced de jure independence in 1998, from 1973 to 1993 it was de facto far more independent than indicated by its de jure independence index. After 1998, the Bank of Japan's de facto independence was far less than its de jure independence.

Virtually all the measurement literature uses a de jure measure of independence. This writer is aware of two exceptions (Cukierman, Webb, and Neyapti 1992, 368; Fry et al. 2000, app. 2 and 3); however, these two attempts to measure de facto independence are based on information provided by central bank staff and monetary economists and are constrained to a short time period. The Cukierman, Webb, and Neyapti de facto index is based on a survey instrument expressed in the present; the specific date of the questionnaire is not provided but is "taken to refer to the 1980s." The short period, the list of rather diverse countries (23 developed and developing countries), and the lack of precision as to timing render the index unsuitable for regression analysis. The Fry et al. index covers a much larger number of central banks (114 versus 23), but the index is based on a Bank of England survey starting in September 1998 and lasting one year. Again, setting aside the potential bias from subjective responses to a survey instrument, the Fry et al. index is not suitable for statistical analysis over long periods because it refers to only a short period of time. There is no evidence provided in either study that the de facto measure for a short period is applicable for a long period of time.

Second, many of the studies in the measurement literature (e.g., Alpana and Honig 2010) combine the de jure measure of independence with other repressors as control variables to account for other influences on the inflation rate and, in some cases, to include variables such as the turnover rate of central bank staff to indirectly incorporate de facto influences. This approach

is problematic at best. The inherent measurement error in the de jure independence variable cannot be resolved by adding control variables. The inherent measurement error owing to the difference between legal and actual independence is complicated by the fact that some studies incorrectly interpret the legal independence of the Bank of Japan (e.g., Bade and Parkin 1982; Alesina and Summers 1993; Carlstrom 2009). There is no documentation that supports these studies' high legal independence ranking of the Bank of Japan before 1998. Reasonable arguments can also be made against the high de jure independence measure assigned to the Federal Reserve.

Third, a few researchers have noted that Japan does not fit into the conventional wisdom because although the Bank of Japan is one of the most de jure–dependent central banks in the world, it generated better price stability outcomes than the Federal Reserve (considered one of the higher-ranked de jure–independent central banks in the world over the same time period). Lohmann (1997) attempts to resolves the "Japan problem" by emphasizing the commitment to price stability by Japan's political and bureaucratic institutions. Lohmann further suggests that because these institutions started to change in the 1990s, legal independence became more important for the Bank of Japan in order to maintain price stability. Lohmann's paper and others making similar arguments played an important role in the revision of the Bank of Japan Law in 1997 that, in part, enhanced the legal independence of the Bank of Japan.

These issues are also discussed in Cargill, Hutchison, and Ito (2000) and Cargill and Sakamoto (2008). The problem, however, is that the very recognition of the "third variable" determining monetary policy outcomes independent of institutional design demonstrates the lack of information contained in any de jure measure of independence. In fact, Cargill (2013) shows that a dummy shift variable provides as much information as the estimated indices of independence.

The Japan problem is a serious contradiction to the conventional wisdom and cannot be resolved econometrically by adding variables that are difficult, if not impossible, to measure. To illustrate how serious the Japan problem is, consider the results of regressing the average inflation rate for 16 countries against their de jure measures of central bank independence from 1955 to 1988. The data from Alesina and Summers (1993) as presented in Carlstrom and Fuerst (2009, 183) is utilized with a correction for the high ranking of the Bank of Japan to estimate the following regression:

$$\text{Inflation} = 8.510 - 0.052\text{Index}, \; R2 = 0.51$$

The regression results are consistent with the conventional wisdom in that there is a statistically significant inverse relationship between inflation and independence with a high degree of statistical confidence; however, the regression provides a poor projection of inflation outcomes in Japan and the United States. Using actual inflation rates from 1961 to 1997 (before the Bank of Japan received enhanced legal independence), the average projected US inflation rate is 4.0 percent, but the actual inflation rate is 4.7 percent. In contrast, according to the regression, the average Japanese inflation rate should be 7.2 percent, but the actual inflation rate is 4.7 percent.

Fourth, the Japan problem illustrates the fundamental difficulty of relying on legal measures of independence. Cargill and Dwyer (2015) suggest that two sets of conditions determine de facto independence and price stability, and they have nothing to do with de jure independence: (1) the social priority assigned to price stability and (2) the political contestation among heterogeneously interested parties intermediated by domestic political institutions. The social priority of price stability can originate from economic factors, noneconomic factors, or a combination of the two.

The noneconomic factors are more complex than is the social priority assigned to price stability, and they make it difficult to establish empirical relationships between independence and price stability. Hayo (1998, 241), among others, argues that some countries have a strong "anti-inflation" culture that becomes manifest in a national consensus privileging price stability above other social objectives. Alternatively, De Jong (2002) argues that culture, as measured by national attitudes regarding uncertainty, inequality, and centralization of authority, influences the relative value placed on price stability versus inflation. Tognato (2012) recently offered case studies of the Bundesbank, the Federal Reserve, and the European Central Bank as evidence that central banks should be understood as part of a stability culture and linked to the symbolic center of a society.

The political contestation perspective argues that the relative priority given to price stability is, like all social objectives, determined by competition among interest groups mediated by political institutions and influenced by variables such as partisanship, patterns of union density, openness to trade, and political power of the financial sector (e.g., Franzese 1999; Posen 1995). The central implication, however, is that where the social preference for price stability is strong and unanimous, there is no need for Rogoff's (1985) "conservative" central banker, institutionalization of central bank independence, or even an "inflation target rule" because the government and the central bank would have the same policy preferences. The government might formulize the high ranking by appointing a conservative central banker, establishing a de jure independence central bank, or establishing an inflation target rule, but these institutional factors are redundant. The basic issue is whether the government will permit the central bank to pursue price stability above all else.

Despite the four problems outlined previously, as well as problems with the conventional wisdom raised by other researchers (e.g., Parkin 2013; Meltzer 2003, 2009; Fujiki 1996; Campillo and Miron 1997; Oatley 1999; Hayo and Hefeker 2007, 2010; Posen 1998), confidence in the conventional wisdom and its empirical foundation remains strong. The reasons for this are complex, but they may be attributed to two factors. First, the measurement literature emerged in an economics profession that was prone to solving complex misspecification problems by adding control variables, to downplaying outliers like the Bank of Japan, and to disregarding influences that are difficult or impossible to measure. Second, central banks have a vested interest in maintaining legal independence because it is a valued attribute in government institutional design, and they are prone to stressing the importance of independence at every opportunity to maintain and enhance independence. Central banks play a major role in setting the research agenda in monetary economics (White 2005).

Conclusion: Time to Dispense with the Concept of an Independent Central Bank

The concept of de jure or legal central bank independence is misleading and confusing, and it provides low predictive power to central bank policy outcomes. The concept of independence should be replaced with the concept of accountability. The case against the concept of legal independence is strong.

First, the concept of central bank independence is misleading because central banks are institutions established by governments that, in varying degrees, respond to competing interest groups with different preferences for inflation or price stability. No central bank is politically independent of the influences that determine a country's preference for inflation, irrespective of the central bank's legal relationship with the government. Governments can easily breach the

wall of legal independence simply by appointing new management, as was done recently in Japan by the Abe administration.

Second, the concept of central bank independence is confusing because it consists of two different elements: de jure independence and de facto independence. The first element is easy to measure but is not a realistic expression of the actual relationship between the central bank and the government. The second and far more relevant element is difficult, if not impossible, to measure, and for this reason, it is not emphasized in the economics literature; however, it is the essential element of the central bank's relationship with the government. To date, no consistent measure of de facto independence over a long period of time has been offered.

The inherent limitations of a de jure measure of independence combined with their role in the conventional wisdom are difficult to understand; however, the limitations are obvious and serious. Regarding the inherent problems of measuring political influence based on legal standing, a comment made almost a century ago by A. W. Flux[4] about the application of statistical technology to weak data is salient. Flux was commenting on the application of periodogram analysis (now referred to as spectral analysis) to wheat prices in England:

> There could hardly be, I think a greater admirer than myself of the mathematical methods of analysis applied to statistical material; but if we are going to apply so refined a method of analysis we want to know a good deal about, and to feel a considerable amount of reliance on, our data. It is useless trying to put a fine edge upon a piece of soft steel. If you want to make a useful razor, your must have a hard piece of steel before you start grinding. (Flux 1922, 465–66)

This observation applies to the de jure measures of independence. They are indeed "soft steel," unable to provide a variable suitable for statistical analysis, and hence any conclusions drawn from the measurement literature are problematic at best.

[4] Flux was a mathematician who played an important role in the development of productivity theory at the turn of the last century, especially with regard to the product exhaustion theory.

All things considered, the discussion of the proper role of central banks such as the Federal Reserve would be improved if the concept of independence and attempts to measure independence were replaced with the concept of accountability and the transparency needed to provide the central bank with a foundation to achieve those policy outcomes that it is capable of achieving. Independence permits the central bank to operate with discretion, and the record of monetary policy outcomes based on decision makers' discretion is not encouraging.

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