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Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence

THE DEGREE OF CENTRAL BANK INDEPENDENCE varies considerably across countries. Several authors including Bade and Parkin (1982), Alesina (1988, 1989), and Grilli, Masciandaro, and Tabellini (1991) found that more independent central banks are associated with lower levels of inflation. This note investigates whether one can find a correlation between central bank independence and the level and variability of real economic variables such as growth, unemployment, and real interest rates. Our conclusion is that while central bank independence promotes price stability, it has no measurable impact on real economic performance.

1. THEORY

As Rogoff (1985) notes, dynamic inconsistency theories of inflation of the type developed in Kydland and Prescott (1977) and Barro and Gordon (1983) make it plausible that more independent central banks will reduce the rate of inflation. Delegating monetary policy to an agent whose preferences are more inflation averse than are society's preferences serves as a commitment device that permits sustaining a lower rate of inflation than would otherwise be possible. Alesina and Grilli (1992) develop this argument by showing that the "median voter" would want to appoint a

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central banker more inflation averse than himself. However, the "median voter" wants to be "time inconsistent" and recall the central banker, who, *ex post*, is being too conservative on the inflation front.

Insulating monetary policy from the political process avoids this problem and helps enforce the low inflation equilibrium. Without some degree of political independence, it would be impossible to appoint a central banker more inflation averse than a majority of the voters, which is a socially desirable goal.

What about the effect of central bank independence on real variables? Maintaining the presumption that monetary policy has real effects, plausible arguments point in varying directions. Central bank independence might improve real economic performance for several reasons. First, an independent central bank that is free from political pressure may behave more predictably, promoting economic stability and reducing risk premia in real interest rates. More specifically, an independent central bank may serve to insulate the economy from political business cycles either by preventing preelection manipulation of monetary policy as in the models of Nordhaus (1975), and Rogoff and Sibert (1988) or by reducing partisan shocks to policy following elections as in the models of Hibbs (1987) and Alesina (1988, 1989). For a more extensive theoretical and empirical discussion of the politics of monetary policy and of political business cycles see Willett (1988).¹

Second, to the extent that high inflation has adverse effects on economic performance either by creating distortions, encouraging rent seeking activity, or by raising risk premia, one would expect central bank independence to improve economic performance. If, as is often suggested (for example, Romer and Romer (1989)) most U.S. recessions result from the Federal Reserve cracking down on inflation after it has been allowed to increase too much, one might expect that more consistently inflation-averse policy would be associated with less variable economic performance.

On the other hand, traditional arguments for monetary policies that are politically responsive stress that politically sensitive central bankers are likely to be more concerned than independent bankers with increasing output and reducing unemployment and real interest rates. If monetary policy can achieve these objectives one might expect independent central banks to achieve lower rates of inflation at the price of inferior real economic performance. Rogoff (1985) provides a formal model of this trade-off; in his model more inflation-averse central bankers engage in less discretionary stabilization economic policy and therefore tolerate more cyclical variability in economic activity.

The impact of central bank independence on economic performance is ultimately an empirical question. We therefore turn to the data.

2. MEASURING CENTRAL BANK INDEPENDENCE

The central difficulty in examining the question of central bank independence is measuring the independence of the central bank in different countries, a task at-

¹This volume, in addition to political business cycles models, considers "bureaucratic" models of central banks, in which the latter are viewed as bureaucratic bodies whose goal is to maximize their influence.

tempted by several authors. Bade and Parkin (1982) construct a (1–4) scale of central bank independence for twelve countries based on the “political independence” of the central bank. Using the same criteria as Bade and Parkin, Alesina (1988) adds four more countries. Political independence is taken to depend on the institutional relationship between the central bank and the executive, the procedure to nominate and dismiss the head of the central bank, the role of government officials on the central bank board, and the frequency of contacts between the executive and the bank. We rely upon the amended version of the Bade and Parkin scale provided in Alesina (1988).

More recently Grilli, Masciandaro, and Tabellini (1991) construct a related measure of central bank independence that reflects both “political independence” and “economic independence.” Political independence is defined essentially as in Bade and Parkin (1982), as the ability of the central bank to select its policy objectives without influence from the government. This measure is based on factors such as whether or not its governor and the board are appointed by the government, the length of their appointments, whether government representatives sit on the board of the bank, whether government approval for monetary policy decisions is required and whether the “price stability” objective is explicitly and prominently part of the central bank statute. “Economic independence” is defined as the ability to use instruments of monetary policy without restrictions. The most common constraint imposed upon the conduct of monetary policy is the extent to which the central bank is required to finance government deficit. This index of economic independence essentially measures how easy it is for the government to finance its deficits by direct access to credit from the central bank.²

Table 1 highlights the two indices and our averaging procedure: both indices are defined as *increasing* in the amount of *independence*, and are broadly consistent with each other.³ In our empirical work which follows, we use the average of the two indices, which is reported in the last column of Table 1. Very similar results are obtained when either scale is used individually.⁴

It should be emphasized that the rankings summarized above reflect central banks’ laws and constitutions. Such laws are subject to change, although quite infrequently. The rankings described above are relevant for the sample period studied here, 1955–88. Very recently, the degree of central bank independence has been increased in a few countries. These changes are, however, too recent to be relevant for our sample.⁵

²For more details on the construction of this index, the reader is referred to Grilli, Masciandaro, and Tabellini (1991).

³Broadly speaking, the difference between the two indices arises mostly from the fact that Grilli, Masciandaro, and Tabellini (1991) place more weight than Bade and Parkin (1982) on rules concerning monetary financing of government deficits.

⁴The index by Grilli, Masciandaro, and Tabellini is not available for the three Scandinavian countries (Finland, Norway, and Sweden). For two of these countries we relied on the Bade and Parkin index.

⁵This is the case, for instance, in Canada, Italy, and New Zealand. Changes in central bank laws might be endogenous, in the sense that governments may respond with institutional reforms to periods of high inflation. See Cukierman, Webb, and Neyapti (1991) for a discussion of this issue in a large sample of countries.

TABLE 1
INDEX OF CENTRAL BANK INDEPENDENCE

Country	BP ¹	GMT ²	Conversion from GMT to BP ³	Average GMT, BP ⁴
Australia	1	9	3	2
Belgium	2	7	2	2
Canada	2	11	3	2.5
Denmark	2	8	3	2.5
France	2	7	2	2
Germany	4	13	4	4
Italy	1.5	5	2	1.75
Japan	3	6	2	2.5
Netherlands	2	10	3	2.5
Norway	2	NA	NA	2
New Zealand	1	3	1	1
Spain	1	5	2	1.5
Sweden	2	NA	NA	2
Switzerland	4	12	4	4
United Kingdom	2	6	2	2
United States	3	12	4	3.5

1. This is the index originally proposed by Bade and Parkin (1982) and extended by Alesina (1988).

2. Sum of the indexes of economic and political independence computed by Grilli, Masciandaro, and Tabellini (1991).

3. Conversion from the GMT scale to a (1) to (4) scale comparable with the BP scale. The conversion is as follows:

GMT index (<i>i</i>)	conversion
<i>i</i> > 11	4
7 < <i>i</i> ≤ 11	3
4 < <i>i</i> ≤ 7	2
<i>i</i> ≤ 4	1

4. Average of columns (1) and (3).

3. CENTRAL BANK INDEPENDENCE AND MACROECONOMIC PERFORMANCE

Our empirical procedure is extremely simple. We plot various measures of economic performance covering the entire 1955–1988 period against measures of central bank independence. Using the data in the Appendix (Tables A1 and A2) we have verified that similar results obtain for the post-oil shock 1973–1988 period. Figure 1a verifies what previous work has highlighted—a near perfect negative correlation between inflation and central bank independence. Given the well-documented correlation between the level and variability of inflation, it is not surprising that Figure 1b reveals a strong negative relationship between inflation variability and central bank independence.

Figures 2a and 2b investigate the relationship between central bank independence and either the level or variability of economic growth. None emerges. Switzerland, which has an extremely independent central bank, shows much slower and variable growth than the average country in the sample, while Germany and Netherlands which also have relatively independent central banks have relatively good economic performance. On the other hand, countries with relatively dependent central banks such as Spain and New Zealand have relatively variable economic growth whereas France with a relatively dependent central bank has enjoyed steady growth.⁶ Analogous

⁶These results are consistent with similar findings obtained independently by Grilli, Masciandaro, and Tabellini (1991), who use a different sample and methodology.

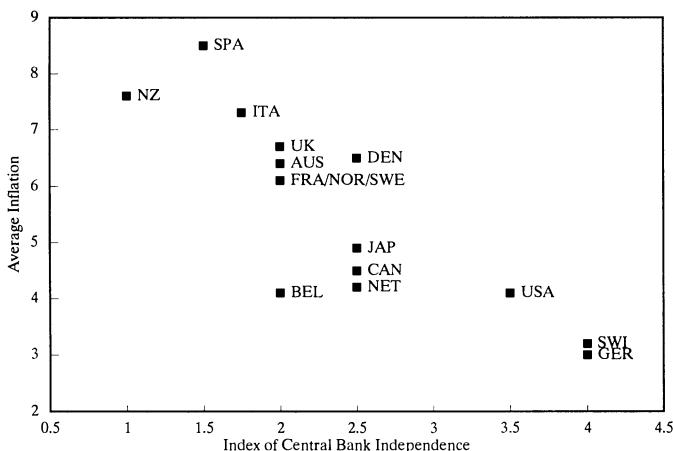


FIG. 1a. Average Inflation

gous results are obtained if one uses growth of GNP per capita, as shown in Figures 3a and 3b.

Figures 4a and 4b repeat the analysis for unemployment. Despite the fact noted by Summers and Wadhwani (1989) that the correlation between unemployment performance and real GNP growth performance is low, the unemployment measures also do not appear to be closely related to the measures of central bank independence.

Figures 5a and 5b examine the relationship between central bank independence and real interest rates. No clear relation can be found between independence and average ex post real interest rates. Nor does a comparison of central bank independence with the ex ante real interest rate measures (not shown) constructed by Barro

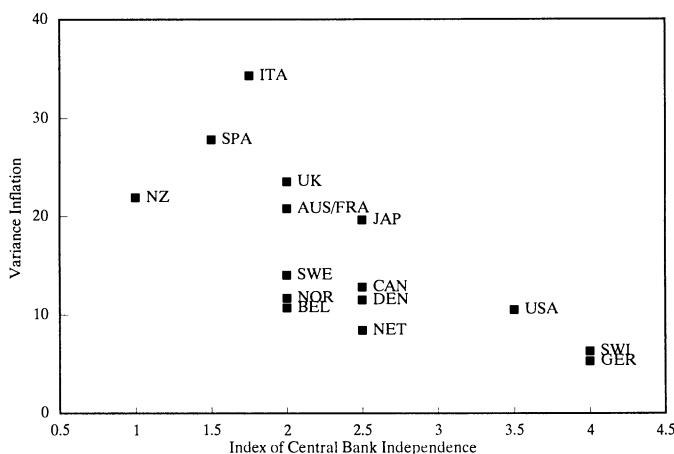


FIG. 1b. Variance Inflation

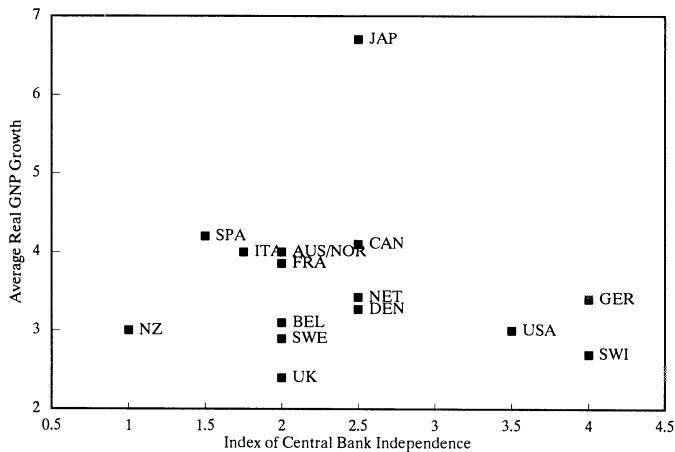


FIG. 2a. Average Real GNP Growth

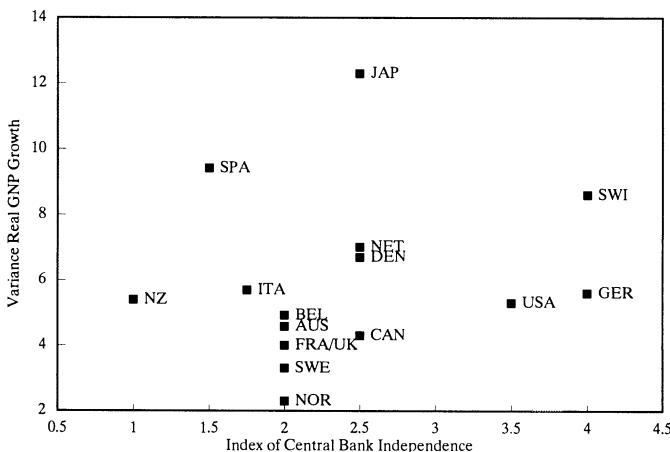


FIG. 2b. Variance Real GNP Growth

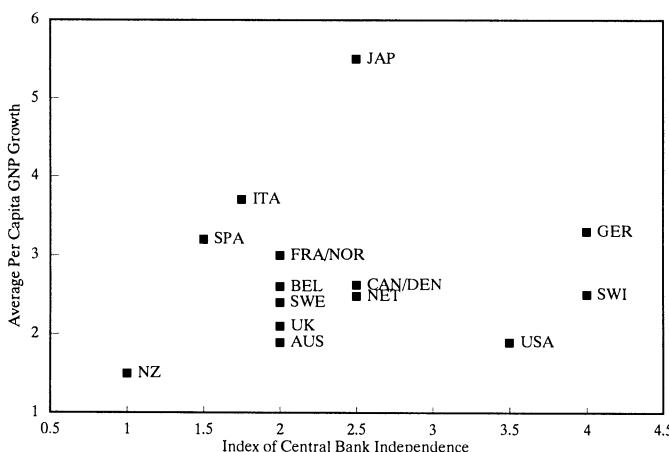


FIG. 3a. Average Per Capital GNP Growth

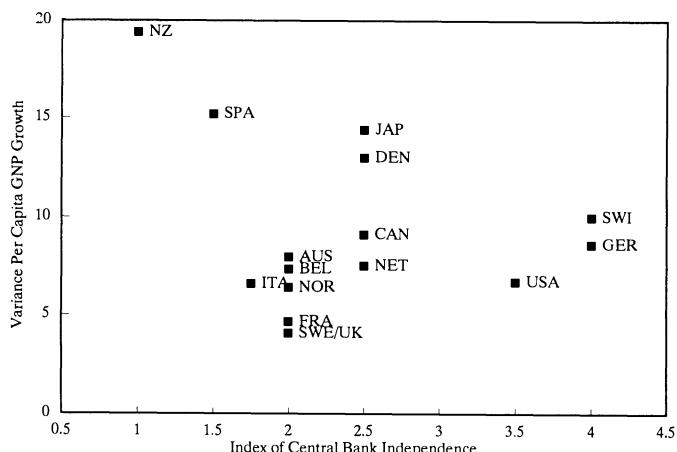


FIG. 3b. Variance Per Capital GNP Growth

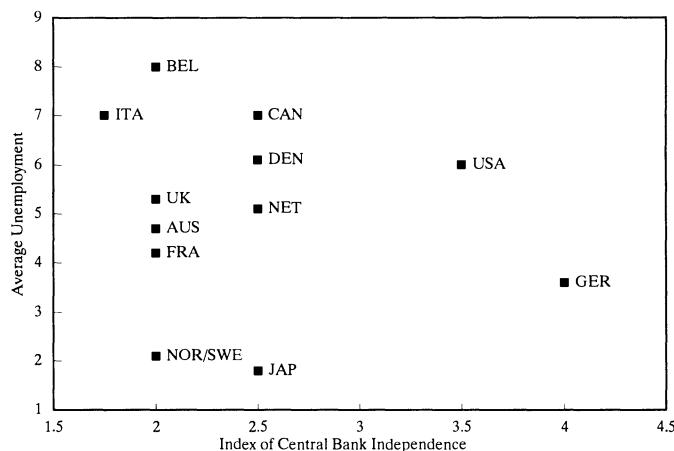


FIG. 4a. Average Unemployment

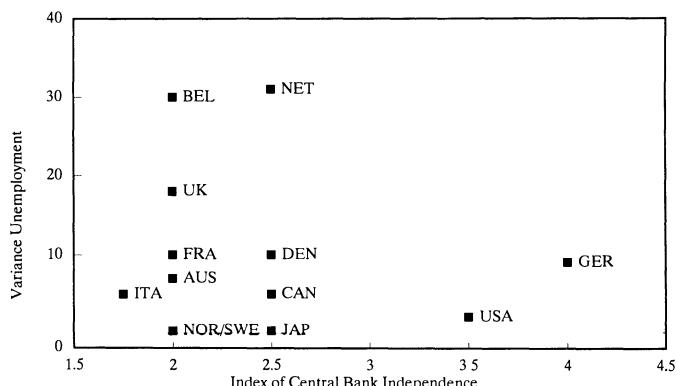


FIG. 4b. Variance Unemployment

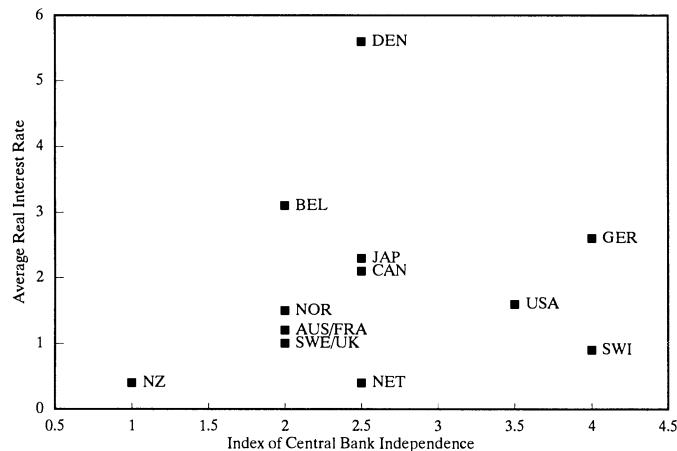


FIG. 5a. Average Real Interest Rate

and Sala-i-Martin (1990) reveal any pattern. While expansionary monetary policy may influence real rates in the short run, it does not appear that systematically expansionary monetary policy (at least of the type politically dependent central banks provide) operates to reduce average real rates over a longer period. On the other hand, as one would expect given our findings about inflation variability, there is a clear negative relationship between central bank independence and the variability of ex post real interest rates.

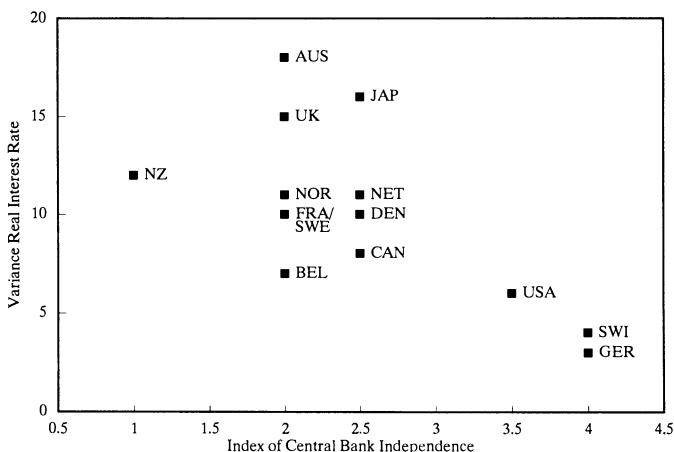


FIG. 5b. Variance Real Interest Rate

4. CONCLUSIONS

These results suggest that the monetary discipline associated with central bank independence reduces the level and variability of inflation but does not have either large benefits or costs in terms of real macroeconomic performance. This observation represents at least a fragment of evidence in support of theories emphasizing the neutrality of money.

Our findings also 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. Advocates of rule-based policies typically stress that they avoid dynamic consistency inflation. 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. While it is possible that rule-based performance would be superior to discretionary performance on stabilization grounds, Summers (1988) notes a number of reasons why this is unlikely including unforeseen events and the possibility of an economy getting trapped in the neighborhood of a suboptimal equilibrium around which stabilization would be undesirable.⁷

The results here are not conclusive in the sense that we have looked at the data only in a very straightforward way; more detailed analysis of the relation between central bank independence and real performance is warranted. For example, it might be useful to use central bank independence as an instrument in studying the effects of intercountry differences in monetary policy, or to include additional control variables of the type considered in Summers and Wadwhani (1989) in assessing the impact of central bank independence on economic performance.

Furthermore, the degree of central bank independence is only one of several institutional factors, exchange rate arrangements, and exogenous shocks that influence economic performance in different countries.⁸ Our results here do, however, create some presumption that the inflation benefits of central bank independence are likely to outweigh any output costs.

Finally, the degree of central bank independence may be an endogenous variable. For instance, the historical experience of a hyperinflation in Germany may have raised the German public aversion to inflation and its propensity to have an independent central bank committed to price stability. Within the sample period considered in this study, it is a reasonable assumption to hold central bank laws as constant and exogenous. A more "historical" analysis concerned with the long-term evolution of institutional arrangements should tackle issues related to the joint endogeneity between economic outcomes and institutions.

⁷For further discussion of various institutional rules and reforms with specific reference to the Federal Reserve see the last chapter in Willett (1988).

⁸For discussions of various other politico-institutional determinants of inflation in different countries see, for instance, Black (1982), several contributions in Willett (1988), Grilli, Masciandaro, and Tabellini (1991), Cukierman, Edwards, and Tabellini (1992).

APPENDIX: TABLE A1
CENTRAL BANK INDEPENDENCE AND ECONOMIC PERFORMANCE

Country	Average Index of Central Bank Independence	Average Inflation 1955–88	Variance Inflation 1955–88	Average Real GNP Growth 1955–87	Variance Real GNP Growth 1955–87	Average Per Capita Real GNP Growth 1955–87	Variance Per Capita Real GNP Growth 1955–87	Average Unemployment Rate 1958–88	Variance Unemployment Rate 1958–88	Average Real Interest Rate 1957–88	Variance Real Interest Rate 1957–88
Spain	1.5	8.5	27.8	4.2	9.4	3.2	15.2	n/a	n/a	n/a	n/a
New Zealand	1	7.6	21.9	3.0	5.4	1.5	19.4	n/a	0.4	12.0	
Australia	2.0	6.4	20.8	4.0	4.6	1.9	7.9	4.7	7.0	1.1	18.0
Italy	1.75	7.3	34.3	4.0	5.7	3.7	6.6	7.0	5.0	n/a	n/a
United Kingdom	2	6.7	23.5	2.4	4.0	2.1	4.4	5.3	18.0	1.0	15.0
France	2	6.1	20.9	3.9	4.0	3.0	4.6	4.2	10.0	1.1	10.0
Denmark	2.5	6.5	11.5	3.3	6.7	2.6	13.0	6.1	10.0	5.6	10.0
Belgium	2	4.1	10.8	3.1	4.9	2.6	7.7	8.0	30.0	3.1	7.0
Norway	2	6.1	11.7	4.0	2.3	3.0	6.4	2.1	0.3	1.5	11.0
Sweden	2	6.1	14.0	2.9	3.3	2.4	4.3	2.1	0.3	1.0	10.0
Canada	2.5	4.5	12.8	4.1	4.3	2.6	9.1	7.0	5.0	2.1	8.0
Netherlands	2.5	4.2	8.4	3.4	7.0	2.5	7.5	5.1	31.0	0.4	11.0
Japan	2.5	4.9	19.6	6.7	12.3	5.5	14.4	1.8	0.3	2.3	16.0
United States	3.5	4.1	10.5	3.0	5.3	1.9	6.7	6.0	2.0	1.6	6.0
Germany	4	3.0	5.5	3.4	5.6	3.3	8.6	3.6	9.0	2.6	3.0
Switzerland	4	3.2	6.1	2.7	8.6	2.5	10.0	n/a	n/a	0.9	4.0

Sources: IMF, Summers and Heston, and OECD.

APPENDIX: TABLE A2

CENTRAL BANK INDEPENDENCE AND ECONOMIC PERFORMANCE IN THE POST-OIL SHOCK PERIOD

Country	Average Index of Central Bank Independence	Average Inflation 1973–88	Variance Inflation 1973–88	Average Real GNP Growth 1973–87	Variance Real GNP Growth 1973–87	Average Per Capita Real GNP Growth 1973–87	Variance Per Capita Real GNP Growth 1973–87	Average Unemployment Rate 1973–88	Variance Unemployment Rate 1973–88	Average Real Interest 1973–88	Variance Real Interest 1973–88
Spain	1.5	12.4	22.1	2.0	2.1	1.2	8.9	n/a	n/a	n/a	n/a
New Zealand	1	12.2	10.5	4.5	0.7	21.7	n/a	n/a	−.3	21.0	21.0
Australia	2.0	9.5	7.3	2.8	3.2	1.4	7.2	6.6	3.0	1.6	n/a
Italy	1.75	12.5	29.6	2.4	4.9	2.9	7.7	8.4	4.0	4.0	n/a
United Kingdom	2	6.7	23.5	1.6	4.1	2.0	7.8	8.8	15.0	0.9	27.0
France	2	8.2	12.6	2.1	1.3	1.5	4.1	7.0	6.0	2.1	10.0
Denmark	2.5	8.6	11.0	1.9	5.2	1.1	11.5	7.5	4.0	6.5	10.0
Belgium	2	6.0	11.9	1.7	3.8	1.5	10.1	12.8	20.0	3.6	12.0
Norway	2	8.2	5.6	3.9	3.3	3.0	6.3	2.2	0.3	2.4	14.0
Sweden	2	8.3	7.6	1.8	2.1	1.5	5.6	2.3	0.3	1.7	17.0
Canada	2.5	7.2	7.9	3.3	4.7	2.8	11.6	8.7	3.0	2.9	11.0
Netherlands	2.5	4.3	10.5	1.7	3.2	1.1	3.6	9.7	26.0	2.1	10.0
Japan	2.5	4.5	17.1	3.7	2.8	2.6	8.5	2.3	0.2	2.4	7.0
United States	3.5	6.4	11.1	2.4	6.5	1.6	9.8	7.2	1.0	2.1	11.0
Germany	4	3.4	4.0	1.8	3.3	1.8	6.9	6.2	6.0	3.0	3.0
Switzerland	4	3.1	4.3	1.0	8.1	1.4	11.0	n/a	1.6	3.0	3.0

Sources: See Table A1.

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