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XVIII. Central bank independence: searching for the philosophers' stone

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1. INTRODUCTION

Recently there has been worldwide interest in examining the scope for greater monetary policy autonomy for the central bank. At the EC-summit in Maastricht in December 1991 a Treaty on European Economic and Monetary Union (EMU) was agreed upon. According to this treaty, in the final stage of EMU – i.e. by 1997 or later – the European Central Bank is supposed to assume unlimited responsibility for monetary policy. Broadly speaking the accepted statute guarantees a central bank as independent from national and European political institutions as the Bundesbank. Furthermore, in the Pacific Basin Countries the same tendency can be discerned. Since the end of 1989 governor Mieno has strengthened the position of the Bank of Japan with respect to the Ministry of Finance, while New Zealand enacted legislation in February 1990 that increased the independence of its Reserve Bank. Finally, Czechoslovakia, Hungary and Poland have been considering proposals concerning central bank independence.¹

The theoretical rationale for central bank independence finds its origin in the ongoing 'Rules versus Discretion' debate. As Rogoff (1985) notes, dynamic inconsistency theories of inflation of the Barro-Gordon (1983) type, make it plausible that countries with independent central banks should have a lower sustainable rate of inflation. Unlike the well-developed theoretical literature, there are only a few studies that compare actual monetary regimes between a large number of countries.² The most comprehensive are those of Fair (1980), Bade and Parkin (1988), Alesina (1988, 1989), Alesina and Summers (1990) and Grilli, Masciandaro and Tabellini (1991). Focusing on the

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more recent studies, it is striking that their conclusions are less robust than the theoretical literature. This is because nearly all of them – e.g. the well-known inverse relationship between independence and the level of inflation found by Alesina (1988, 1989) – are stated in terms of correlations between indices of central bank independence and macro-variables (output, inflation). Therefore, these results are particularly sensitive to the numerical values of indices.³ The paper is organized as follows. In Section 2 we analyse the competence of central banks on the base of central bank laws within the context of monetary policymaking. Twelve industrial countries are examined: Australia, Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, the United Kingdom, the United States, Sweden and Switzerland. We describe the central bank laws of these countries focusing on three areas: (i) relationships between central banks and government in the formulation of monetary policy, (ii) procedures for appointing the board of the central banks, and (iii) formal responsibilities (objectives) of the central banks with respect to monetary policy. Finally, on the basis of the institutional information provided in Section 2, in Section 3 we construct a new index of central bank independence.

2. CENTRAL BANK LAWS

2.1. *Sweden*

Established in 1668, the Sveriges Riksbank is the oldest central bank in the world. Although this central bank is legally independent of the government, it is not so in practice. The legal base for the policymaking by the Riksbank is the Sveriges Riksbank Act ('Lag för Sveriges Riksbank') of 1934.⁴ The Act provides no specific objectives for the central bank, unlike in many other countries. In practice, monetary policy is a part of the economic policy of the government and fits into this '...to quite the same degree as where this obligation has been given a legal basis'.⁵ According to Article 1 of the Act, the Riksbank is directly subordinated to the Riksdag (parliament) and is formally independent of the government. Furthermore, Article 32 states the following: 'The Directors may not receive instructions with regard to the administration of the Riksbank from anyone except the Riksdag and its Banking Committee in cases in which that Committee is competent to give instructions on behalf of the Riksdag' In addition to this Act, the Riksdag has approved special regulations, such as the Credit Policy Instruments Act of 1974, in which '... a government authorization is required before the Riksbank may exercise its powers'.⁶ Thus, policymaking by the Riksbank is influenced considerably by the government through these special regulations, in particular by the Ministry of Finance and Economics.⁷ The Board of Directors ('Bankofullmäktige') of the Riksbank has eight members, of which seven are appointed by the

Riksdag for a period of three years.⁸ These Directors appoint a Governor, who plays only a representative role, for a period of five years and elect among themselves a Chairman on recommendation of the government.

2.2. United Kingdom

The Bank of England, established in 1694, was nationalized by the Bank of England Act of 1946.⁹ This Act provides only information on the appointment of the Court of Directors and the right to give instructions to the Bank of England. According to Article 4 (1): 'The Treasury may from time to time give such directions to the Bank as, after consultation with the Governor of the Bank, they think necessary in the public interest.' At the introduction of the Act it was stressed that this right to give directions was not meant to lead to '...any day-to-day interference by the Government or the Treasury with the ordinary work of the Bank'.¹⁰ It was the Banking Act of 1979 (revised in 1987) that formulated the responsibilities of the central bank. The primary task of the Bank of England is the (prudential) supervision of the banking system. 'Other activities of the Bank governed by statute include its note-issuing powers, its management of the Exchange Equalisation Account on behalf of the Treasury, and its duties as banker to the Government and as Government's agent in managing the National Debt.'¹¹ Monetary policy is regarded as a component of economic policy and therefore conducted by the government with the central bank as its major adviser. The Bank of England is managed by the Court of Directors, which is made up of the Governor, the Deputy Governor and sixteen Directors.¹² All members are appointed by the Crown on the recommendation of the Prime Minister. The term of office for the Governor and the Deputy Governor is fixed at five years and for the Directors at four years. Four of these Directors are full-time Executive Directors, the other twelve being part-time External Directors who are drawn from various sectors of society. The Governor is chairman of the Court of Directors, heads the day-to-day operations of the Bank and plays the most important role in formulating advice or proposals to the government.

2.3. France

Established in 1803, the Banque de France was nationalized under the Law of December 2, 1945, which '...had been decided and passed in the perspective of a greater subordination of the Banque de France to the State, ...'.¹³ After discussions between its Governor and the Minister of Finance regarding central bank independence,¹⁴ as a compromise the Statutes of the Banque de France ('Les Statuts de la Banque de France') of January 3, 1973 were

introduced. These Statutes define in rather general terms the policy goals of the central bank and its relationship with the government.¹⁵ According to Article 1 of the Statutes: 'The Banque de France is the institution which, in the framework of the economic and financial policy of the nation, receives from the State the general mission of watching over the currency and credit.' Thus, the government determines the economic and financial policy to which the monetary policy has been subordinated. Further, Article 4 states that '...It contributes to the preparation and participates in the implementation of the monetary policy that has been decided by the Government and with the assistance, within the framework of its competence, of the Conseil National du Crdit...'. Although the central bank is legally always subject to directions from the government, its Governor implements in consultation with the Minister of Finance the monetary policy in practice.¹⁶ The Banque de France is headed by the Governor, who is supported by two Deputy Governors. Both the Governor and the Deputy Governors are appointed by the President of the Republic after consultation with the Cabinet for an indefinite period, in practice 5–7 years, which makes their position rather vulnerable.¹⁷

2.4. The Netherlands

The Nederlandsche Bank was established in 1814 and nationalized in 1948. The statutory task of the Dutch central bank regarding monetary policy is embedded in the Bank Act ('Bankwet') of 1948.¹⁸ Article 9 (1) of this Act states that 'The Bank shall have as its duty to regulate the value of the Dutch currency in such a way as will be most conducive to the nation's prosperity and welfare, and in doing so seek to keep the value as stable as possible'. Further, Article 9 (3) of the Act reads: 'It shall supervise the credit system in pursuance of the Act on the Supervision of the Credit System.' The latter Act gives the Bank the power to set out rules to be followed by credit institutions in their lending. Thereby, the policy goal of the Nederlandsche Bank is to stabilize the internal and external value of the currency, i.e. the price level and exchange rate, but not as a sole and independent objective.¹⁹ The Bank Act also provides for a procedure if a conflict should arise between the government and the Bank with respect to monetary policy. According to Article 26 (1) of this Act: 'In cases that Our minister (of Finance) may consider it necessary for the purpose of coordinating monetary and financial policy of the Government and the policy of the Bank, he may give, after consultation with the Bank Council, the necessary directions to the Governing Board to attain that objective.' Although the Minister of Finance legally has the right to give directions to the central bank, the application of this right is always considered by both authorities as an ultimate remedy ('ultimum remedium') because of the very complicated procedure to solve the conflict. The Minister

of Finance has never exercised the right to give directions until now. He and the Governing Board of the Bank are compelled to reach agreement with each other and, thus, the independence of the Bank is sufficiently guaranteed by Article 26.²⁰ The Nederlandsche Bank is managed by the Governing Board ('Directie') being composed of the President, the Secretary and presently three Executive Directors.²¹ They are nominated by a joint meeting of the Governing Board and Supervisory Board ('Raad van Commissarissen') and appointed by the Crown on the proposal of the Cabinet for a fixed period of seven years. In practice, these nominations were always accepted by the Crown.

2.5. Belgium

Established in 1850, the National Bank of Belgium ('Nationale Bank van België') is owned half by the state and half by the public. The legal base for the functioning of the Belgian central bank are the Organic Law ('Organieke Wet') and the Statutes of 1939, which provide no specific objectives for the Bank.²² Article 29 of the Organic Law states the following: 'The Minister of Finance shall have the right to supervise all the operations of the Bank. He may object to the execution of any measure which would be contrary to the Law, the Statutes or the interests of the State.' Therefore, the National Bank of Belgium cannot be considered as formally independent of the government. The Bank is forbidden to pursue targets conflicting with the general objectives of the government. Nevertheless, the relationship between the central bank and government was changed, in favour of more independence, by the reform of the money market and monetary policy instruments which started on January, 29, 1991. As a consequence of this reform, the responsibility of the central bank for monetary policy was more clearly defined and its relationship with the financial markets improved.²³ The Board of Directors ('Bestuurscomité') of the National Bank of Belgium is made up of the Governor and three to six Directors of which one acts as Deputy Governor. The Governor and Directors are appointed by the Crown for a fixed period of five and six years respectively. The Board of Directors is chaired by the Governor and collectively responsible for the management of the Bank and the formulation of monetary policy. It may change the discount rate and the rate for advances in a case of emergency, but must report to the Council of Regency ('Regentenraad').

2.6. Germany

The legal predecessors of the Deutsche Bundesbank were the Reichsbank, established in 1876, and the Bank deutscher Länder, founded together with

the introduction of the Deutsche Mark by the currency reform of 1948. The Deutsche Bundesbank was established by the Deutsche Bundesbank Act ('Gesetz über die Deutsche Bundesbank') of 1957.²⁴ Its main policy goals are provided for in Article 3 of this Act: 'The Deutsche Bundesbank shall regulate the amount of money in circulation and of credit supplied to the economy, using the monetary powers conferred on it by this Act, with the aim of safeguarding the currency, and shall arrange for the handling by banks of domestic and external payments.' Article 3 clearly reflects the special responsibility of the central bank for maintaining the internal and external value of the currency, i.e. price level and exchange rate.²⁵ The relationship between the Bundesbank and the federal government is embedded in Article 12 of the Act reading: 'Without prejudice to the performance of its functions, the Deutsche Bundesbank shall be required to support the general economic policy of the Federal Government. In exercising the powers conferred on it by this Act it shall be independent of instructions from the Federal Government.' Thus, Article 12 guarantees the independence of the central bank regarding monetary policymaking. The Central Bank Council ('Zentralbankrat') of the Deutsche Bundesbank is made up of the Directorate ('Direktorium') and the Presidents of the Landeszentralbanken (main offices). The Council determines monetary policy under the chairmanship of the President or Deputy President of the Bundesbank and meets every two weeks. The Directorate, consisting of the President, Deputy President and at most six (now five) other members, implements the decisions taken by the Central Bank Council. The, at most, eight members of the Directorate are appointed by the President of the Federal Republic on the nomination of the Federal Government, while the nine Presidents of the Landeszentralbanken are appointed by him on the nomination of the Bundesrat based on a proposal by the Government of the Land concerned, all after consultation of the Central Bank Council. Both the members of the Directorate and the Presidents of the Landeszentralbanken have a maximum term of office of eight years which is usually fully utilized. During this term they cannot be removed from office on political grounds.

2.7. Japan

Established in 1882, the Bank of Japan was reorganized by the Bank of Japan Law of 1942.²⁶ According to Article 1 of this Law: 'The Bank of Japan has for its object the regulation of the currency, the control and facilitation of credit and finance, and the maintenance and fostering of the credit system, pursuant to the national policy, in order that the general economic activities of the nation might adequately be enhanced.' The latter part of Article 1 may be taken to mean '... to foster the stable development of the Japanese economy'.²⁷ Thus, the main objectives of the Bank are to stabilize the value

of the currency and to maintain orderly credit conditions. Regarding the relationship between the central bank and government, Article 43 states that: 'The competent Minister (of Finance) may, if deemed particularly necessary for the attainment of the object of the Bank of Japan, order the Bank to undertake any necessary business, or order alterations in the By-Laws as well as other necessary actions.' Although the Minister, formally, has the right to give instructions, in practice this right has never been used as a result of the regular, informal contacts between Bank management and government. The Bank of Japan derives its influence mainly from guiding the financial markets (market leverage), and as these markets have expanded, the independence of the central bank has continued to grow. The highest policymaking body of the Bank of Japan is the Policy Board, consisting of the Governor, two representatives from the Ministry of Finance and Economic Planning Agency (without voting right) and four other members. The Governor and the other members of the Policy Board are appointed by the Cabinet for a period of five and four years respectively. Since 1969, the Governor has been chosen alternately from Bank officials and former Ministry of Finance officials.

The Governor conducts the operations of the Bank according to the directions of the Policy Board and heads the Executive Board, which further includes two Deputy Governors (formerly one), at least three Executive Directors and two Executive Auditors (now six and four respectively), and a number of Counsellors. The Deputy Governors are appointed by the Cabinet for five years, and the other members of the Executive Board by the Minister of Finance on recommendation of the Governor for two to four years. Despite the fact that the Policy Board is, from a legal point of view, the most important policymaking body, the major responsibility for formulating monetary policy resides with the Executive Board.²⁸

2.8. *Italy*

The Banca d'Italia, established in 1893, is owned partially, through public financial institutions, by the State. The legal base for its functioning is the Statutes ('Statuto della Banca d'Italia') of 1936, which provide no specific objectives for the central bank.²⁹ The relationship between the Banca d'Italia and the government is embedded in Article 20 of the Statutes stating that the Board of Directors ('Comitato') is responsible only for the general management of the central bank and not for monetary policymaking. Furthermore, Article 25 reads: 'He (the Governor) shall make proposals to the Minister of the Treasury concerning change in the discount rates and in the interest rate on advances.' The Governor prepares monetary policy and the Minister of the Treasury has to approve it formally.³⁰ The Statutes of 1936 were amended in 1947 by providing the Banca d'Italia with supervision of the financial sys-

tem and by the foundation of the Interministerial Committee for Credit and Savings ('Comitato Interministeriale per il Credito e il Risparmio' or CICR). According to Article 1 of the Decree of 1947, the CICR, '... whose duty it shall be to supervise, at the highest level, the safeguarding of savings, the carrying on of credit activities, and exchange matters', will give directives to the central bank for its operations. The CICR is made up of the most important ministers and the Governor, and chaired by the Minister of the Treasury. In general, this committee determines the goals of monetary policy with the Banca d'Italia in an advisory role.³¹ The Governor, having a personal responsibility for the implementation of monetary policy, is appointed by the Board of Directors of the Banca d'Italia, for an indefinite term of office. The Board of Directors consists of thirteen Directors, elected by the General Meeting of Shareholders at the thirteen regional offices of the central bank for a fixed period of three years, the Governor with a casting vote and a representative of the Ministry of the Treasury as an observer without voting right. Although the appointment of Governor and Directors seems to be independent of the government, Article 19 of the Statutes of 1936 states that: 'Appointments and dismissals must be approved by decree of the President of the Republic on the proposal of the President of the Council of Ministers in agreement with the Minister of the Treasury, the Council of Ministers having been heard.'

2.9. Switzerland

Established in 1905, the Swiss National Bank ('Schweizerische Nationalbank') has enjoyed a high degree of independence from the government, reflecting the deep-rooted distrust of the Swiss public of centralized approaches to policymaking.³² The main policy goals of the Swiss central bank are provided for in Article 2 (1) of the Federal Law on the Swiss National Bank ('Bundesgesetz über die Schweizerische Nationalbank') of 1953: 'The principal task of the National Bank shall be to regulate the country's monetary circulation, facilitate payments transactions, and implement a credit and monetary policy serving the general interests of the country. It shall advise the Federal authorities in monetary matters.'³³ The central bank interprets this Article as a mandate to achieve and to maintain a stable price level, which view is shared by the federal government and largely accepted by the public. The relationship between the Swiss National Bank and the federal government ('Bundesrat') is one of legal and administrative separation. The National Bank Law does not contain any provision giving the government influence on monetary policymaking. In case of important policy decisions, both authorities should consult each other, but mutual consent is not required.³⁴ The Bank Committee ('Bankausschuss') is the principal policymaking body of the Swiss National Bank and has the right to participate in the setting of the

Bank's official lending rates.³⁵ Representing the various parts (cantons) of the country, this Bank Committee is made up of the Chairman and the Deputy Chairman of the Bank Council ('Bankrat') and eight other members, who are appointed by the Bank Council for a fixed period of four years. Its Chairman, Deputy Chairman and twenty-three other members are appointed by the federal government and the remaining fifteen members are elected by the General Meeting of Shareholders also for a period of four years. Thus, only one-fifth of the Bank Committee and five-eighths of the Bank Council are directly appointed by the federal government. Finally, the highest managing and executive authority is the Directorate ('Direktorium') of the Bank, which is composed of three members chosen by the federal government, on recommendation of the Bank Council, for a fixed term of six years. The government also appoints among these three members a President and a Vice-President, although there is a collective responsibility.

2.10. Australia

The Commonwealth Bank of Australia was established in 1911, initially as a trading bank. Steps toward the acquisition of central banking powers were taken in the 1920s, especially in 1924. Again, during the Great Depression of the 1930s, it began to acquire further central banking responsibilities (e.g. for the exchange rate) and, under emergency powers in World War II, established *inter alia* exchange control and a wide range of credit controls. These were continued under the Banking Act 1945.³⁶ Then in 1959, central banking functions were separated from trading bank operations and a new Reserve Bank of Australia was established. The functions of its Board are set out in Article 10 (2) of the Reserve Bank Act of 1959³⁷: 'It is the duty of the Board, within the limits of its powers, to ensure that the monetary and banking policy of the Bank is directed to the greatest advantage of the people of Australia and that the powers of the Bank under this Act, the Banking Act 1959 and the regulations under that Act are exercised in such a manner as, in the opinion of the Board, will best contribute to the stability of the currency of Australia, the maintenance of full employment in Australia and the economic prosperity and welfare of the people in Australia.' Thus, the threefold policy goal of the Reserve Bank also includes the fostering of economic activity and employment. The Bank is completely subordinated to the Secretary of the Treasury, being the final competent authority with respect to monetary policy. In case of differences of opinion between the central bank and the Treasury, Article 11 (2) states that '... the Treasurer and the Board shall endeavour to reach agreement'. Furthermore, according to Article 50 (1) of the Banking Act of 1959 the Reserve Bank's setting of rates on discounts and advances needs to be approved by the Treasury. So,

the central bank is more or less an agent of the government. The Reserve Bank Board, responsible for implementing monetary policy, consists of the Governor, the Deputy Governor, the Secretary to the Treasury as an ex officio member and seven other members. The government official on the Board has a voting right. The Governor and Deputy Governor are appointed by the Governor-General (the executive branch of the federal government) for a term of office not exceeding seven years. The seven other members comprise at most two members who are officers of the Bank or Public Service, holding office '...during the pleasure of the Governor-General',³⁸ and at least five members selected by the Governor-General for a fixed period of five years. The Governor is chairman of the Board and has a casting vote.

2.11. *United States*

Established in 1913, the Federal Reserve System is a federal government authority comprising the twelve Federal Reserve Banks and formerly (until 1935) the Federal Reserve Board as its main policymaking body. The legal base for its functioning was embedded in the Federal Reserve Act of 1913.³⁹ By the Banking Act of 1933 the Federal Reserve Board was granted more autonomy *vis-à-vis* the Federal Reserve Banks and the Federal Open Market Committee (FOMC) was created to make policy recommendations to the Board for conducting open market operations.⁴⁰ Further, the Banking Act of 1935 replaced the Federal Reserve Board by the Board of Governors and strengthened its position by removing the Secretary of the Treasury and the Treasurer from the Board. The goals of the central bank regarding monetary policy were clearly formulated in section 2A of the 1977 amendment to the Act by stating that: 'The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote the goals of maximum employment, stable prices, and moderate long-term interest rates.' So, the Federal Reserve should aim both at price stability and at economic activity and employment. Furthermore, the Humphrey-Hawkins Act of 1978 was directed at improving the coordination of economic and monetary policy between the federal government, Congress (parliament) and Federal Reserve by reporting requirements for the central bank to Senate and House of Representatives at semi-annual hearings on the Board's and FOMC's objectives and plans with respect to the growth of monetary and credit aggregates.⁴¹ In practice, the Federal Reserve and the government have a shared responsibility for monetary policymaking. The Board of Governors of the Federal Reserve System, acting as its highest policymaking body, is composed of seven members. These seven Governors are appointed by the President of the United States for

a fixed period of fourteen years, with approval by the Senate. After a full term of office the Governors may not be reappointed. The President appoints two members of the Board of Governors as Chairman and Vice-Chairman for a fixed period of four years.⁴² Political influence on the appointment of the Board is minimized by the long term of office, exceeding more than three administrations, and the impossibility of dismissal on political grounds. Furthermore, the formulation of global monetary targets is carried out by the FOMC. The FOMC is made up of the Board of Governors and five of the twelve Presidents of the Federal Reserve Banks. The President of the Federal Reserve Bank of New York, conducting open market operations and exchange market interventions on behalf of the System, is an *ex officio* member of the FOMC. The other four members are elected for a period of one year on a rotating basis.

2.12. *Canada*

The Bank of Canada, established only in 1935, had its functioning originally based on the Bank of Canada Act of 1934.⁴³ In 1967 the relationship between the Bank of Canada and the federal government was changed by the introduction of the Bank of Canada Act of 1967.⁴⁴ This was caused by a major conflict between the Governor and the Minister of Finance on the implementation of monetary policy. The Governor, wanting to conduct a restrictive policy, was forced to resign. The new Act of 1967 gave the Minister of Finance the right to promulgate instructions to the Bank and, therefore, the ultimate authority for monetary policy. Article 14 (1) states that: 'The Minister and the Governor shall consult regularly on monetary policy and on its relation to general economic policy.' Furthermore, Article 14 (2) continues: 'If, notwithstanding the consultations provided for in Subsection (1) there should emerge a difference of opinion between the Minister and the Bank concerning the monetary policy to be followed, the Minister may, after consultation with the Governor in Council (executive branch of government), give to the Governor a written direction concerning monetary policy, in specified terms, and the Bank shall comply with such directive.' Although the Minister of Finance has, up to now, never used his right to give instructions, this possibility has severely affected the independence of the central bank since 1967. The highest policymaking body of the Bank of Canada is its Board of Directors, consisting of the Governor, Deputy Governor, twelve Directors and the Deputy Minister of Finance as an *ex officio* member without voting power.⁴⁵ Both the Governor and the Deputy Governor are appointed by the Directors, with the approval of the Governor in Council, for a fixed period of seven years. The Minister of Finance appoints the twelve Directors, with the consent of the Governor in Council, for a period of three years. Moreover, the Bank has

an Executive Committee, composed of the Governor, Deputy Governor, two Directors and the Deputy Minister of Finance, who is mainly responsible for the implementation of monetary policy.

3. TOWARDS A NEW INDEX OF POLICY INDEPENDENCE

3.1. *A new index of policy independence*

Following Grilli, Masciandaro and Tabellini (1991) (GMT), we identify policy independence with the capacity of the central banks to choose the final goals of monetary policy.⁴⁶ Like them, we assume that this capacity is primarily determined by the following features:

- i. the procedures for appointing the board of the central bank,
- ii. the relationship between central banks and government in the formulation of monetary policy, and
- iii. formal responsibilities (policy goals) of the central bank with respect to monetary policy.

On the basis of features (i)–(iii) we construct our own index, the Eijffinger-Schaling (ES) index of policy independence. The degree of policy independence is determined using three criteria:

1. Is the bank the sole final policy authority (b), is this authority not entrusted to the central bank alone (b/g), or is it entrusted completely to the government (g)?
2. Is there no government official (with or without voting power) on the bank board?
3. Are more than half of the board appointments made independent of the government?⁴⁷

Now we can distinguish $3 \times 2 \times 2 = 12$ potential policy types. This is summarized in Table 1.

The first four types do not exist. There is no instance of a central bank being itself in charge of monetary policy and also having a government official on its board; types (c) and (d) do not exist. Nor is there any instance of a central bank which, in spite of its not being in charge of monetary policy, makes some board appointments independently of the government; types (a) and (b) do not exist. From our examination of central bank laws in Section 2, it follows that this argument includes the ‘twin-authority’ central banks, i.e. the central banks which have some, but incomplete, policy authority (b/g). That is, there is no instance of a ‘twin-authority’ central bank that has a government official on its board (type e). Finally, there is no twin-authority bank which makes some board appointments independently of the government. Consequently potential types (f) and (g) do not exist either. So, only the bottom part of Table 1 is relevant for the ES index of policy independence. The overall

TABLE 1
Eijffinger-Schaling Policy Types

Bank is final policy authority	No government official on bank board	Some board appointments independent of government	Potential central bank type	Central bank type does exist	Policy type
1	2	3			
-(g)	—	*	(a)	no	—
-(g)	*	*	(b)	no	—
** (b)	—	*	(c)	no	—
** (b)	—	—	(d)	no	—
* (b/g)	—	—	(e)	no	—
* (b/g)	*	*	(f)	no	—
* (b/g)	—	*	(g)	no	—
-(g)	—	—	(h)	yes	1
-(g)	*	—	(i)	yes	2
* (b/g)	*	—	(j)	yes	3
** (b)	*	—	(k)	yes	4
** (b)	*	*	(l)	yes	5

degree of policy independence is determined by a combination of attributes ES 1–3. Contrary to Bade and Parkin (1988) (BP) and GMT, we do not weight each attribute equally. This becomes clear if we take a look at ES 1. If policymaking is exclusively entrusted to the central bank, a country gets two asterisks. If it is not exclusively entrusted to the central bank, it gets one asterisk. Finally, if the government is the sole authority in policymaking it gets no asterisks. Therefore, regarding our first criterion, the maximum number of asterisks is higher (two) than that with respect to criteria ES 2 and 3 (one). This means that criterion 1 has a weight of 2/4, twice the weight of the other criteria (1/4). Hence, our index is asymmetrical in the sense that attributes are not weighted equally. We will return to this issue later. Thus, the five remaining (existing) central bank types are ranked from 1 (least independent) to 5 (most independent) according to the number of asterisks. Our findings are summarized in Table 2. In order to facilitate comparison with the literature we include BP's results.

Like GMT, the ES index of policy independence is based on features i–iii. However, GMT separately assess features i and iii.⁴⁸ This has the consequence that GMT allow for a one for one trade-off between the capacity to pursue a monetary policy goal and the contents of such a goal. For instance, in their analysis a subservient central bank with provisions for monetary stability is as independent as an autonomous bank without these provisions. In the ES-

TABLE 2
Eijffinger-Schaling vs Bade-Parkin

Country	ES Policy type	BP Policy type	Difference ES-BP
(See note below)	(a)		
Australia	1	1	0
Belgium	3	2	+1
Canada	1	2	-1
France	2	2	0
Germany	5	4	+1
Italy	2	2	0
Japan	3	3	0
Netherlands	4	2	+2
Switzerland	5	4	+1
VK	2	2	0
US	3	3	0
Sweden	2	2	0

(a) (Number of asterisks in columns 1, 2 and 3 of Table 1) + 1.

index we want to avoid this trade-off phenomenon. Therefore feature i the final authority in policymaking is assessed in conjunction with feature iii the policy goals of monetary policy. That is, the extent to which a central bank is regarded as the sole policy authority (ES 1), also depends on the presence of statutory requirements concerning monetary stability. Hence, we think a double weight 2/4 vs 1/4) with respect to the first criterion seems to be justified. Finally, in forthcoming research (Eijffinger and Schaling, 1992b) we use the ES index of policy independence to test the theoretical implications of central bank independence in a single-stage (one shot) Phillips curve monetary policy game. In the latter paper we empirically investigate the relationship between the various indices of central bank independence (BP (1988), Alesina (1988, 1989), GMT (1991), ES) and the level of inflation (CPI) for the period 1972–1990 in the twelve countries. The estimation results show that the correlation between the ES index of policy independence and the level of inflation in these countries was closer (higher t-value) than for the other indices.

NOTES

1. For an interesting survey of central banking in emerging market-oriented economies see Federal Reserve Bank of Kansas City (1990).
2. Case studies are Eizenga (1987, 1990, 1991).
3. See Eijffinger and Schaling (1992a) for a comparison between the major indices of central bank independence as presented in Bade Parkin (1988), Alesina (1988, 1989) and Grilli,

- Masciandaro and Tabellini (1991).
4. See: Aufricht (1967), pp. 663–671. The last revision of this Act was made in 1988.
 5. From: Skanland (1984), p. 16.
 6. In: Sveriges Riksbank, Credit and Foreign Exchange, 1990.
 7. See: Fair (1979), p. 40.
 8. See: Sveriges Riksbank, Annual Report 1990, p. 5.
 9. See: Aufricht (1967), pp. 185–192.
 10. From: Eizenga (1991), p. 4.
 11. See: Cairncross (1988), p. 68.
 12. According to Article 2 (1) of the Bank of England Act of 1946.
 13. The Law of December 2, 1945 is given by: Aufricht (1967), pp. 199–210.
 14. See: Bouvier (1988), pp. 96–97.
 15. In: Banque de France, La Banque de France et la Monnaie, Paris, 1986, pp. 149–157.
 16. See: Eizenga (1990), pp. 2, 12.
 17. From: Skanland (1984), p. 13.
 18. This Act is given in: Wetten Binnenlands Geldwezen, Zwolle, 1979, pp. 5–27. See also: Eizenga (1983), p. 10.
 19. See Eizenga (1987), p. 12.
 20. From: Eizenga (1987), pp. 13–14.
 21. Article 22 of the Bank Act provides the possibility to appoint at most five Executive Directors. The Governing Board has a collective responsibility for the Bank's management.
 22. The Organic Law and Statutes are revised on January 2 and 23, 1991. See: *Belgisch Staatsblad*, January, 25 and 29, 1991.
 23. See: Hervorming van het monetair beleidsinstrumentarium, aspecten en documenten, Belgische Vereniging van Banken, No. 114 1991, p.25.
 24. See: *The Deutsche Bundesbank – Its monetary policy instruments and functions*, Deutsche Bundesbank Special Series, No. 7, 2nd edition, Frankfurt-am-Main, Oktober 1987, pp. 105–130.
 25. For an interpretation: Eizenga (1987), pp. 2–12.
 26. This Law was amended in 1949 to found the Policy Board, the highest policymaking body of the Bank. See: Aufricht (1961), pp. 423–448.
 27. An interpretation is given by: Suzuki (1987), pp. 305–312.
 28. The Policy Board formally adopts the decisions of the Executive Board. See: Cargill (1989), pp. 27–28.
 29. See: Aufricht (1967), pp. 421–440.
 30. Very recently, the Italian parliament approved a bill to give the central bank full authority regarding discount policy.
 31. See: Nardozzi (1988), p. 179.
 32. From: Rich (1989), p. 1.
 33. See: Aufricht (1967), pp. 705–724.
 34. See also: Skanland (1984), p. 22.
 35. According to Rich (1989), however, this right ‘...is not a significant as it may seem at first sight because these rates no longer constitute important policy instruments in Switzerland’ (p. 6).
 36. See Wilson (1952), pp. 33–99.
 37. The Reserve Bank Act of 1959 is given by: Aufricht (1961), pp. 53–71.
 38. According to Article 14 (3) of the Reserve Bank Act of 1959.
 39. See also: *Board of Governors, The Federal Reserve System; Purposes and Functions*, Washington, D.C., 1984. An interpretation can be found in: Cargill (1989), pp. 21–32.
 40. For the creation of the FOMC: Akhtar and Howe (1991), p. 364.

41. According to Eizenga (1983) '...this Act does not derogate from the independence of the FED with regard to its policies' (p. 6). He calls it 'independent within the government' (pp. 7–9).
42. From: Krooss and Samuelson (1969), pp. 2913–2914.
43. See: Aufrecht (1961), pp. 89–105.
44. In: *The Revised Statutes of Canada*, 1970, Vol. 1, Ottawa, 1970.
45. Notice that the government official in the Board of Governors of the Reserve Bank of Australia, on the contrary, has voting power.
46. GMT compare the monetary regimes of eighteen industrial countries during the post-war period (1950–1989) by focusing on political and economic independence of the central bank. According to GMT, political independence is the capacity to choose the final goals of monetary policy, such as inflation or the level of economic activity, while economic independence is the capacity to choose the instruments of monetary policy. See Eijffinger and Schaling (1992a), pp. 28–34.
47. Following BP this criterion is operationalized as: proportion of members *not* appointed directly or indirectly by the government ≥ 50 per cent.
48. For the argumentation behind this proposition see Eijffinger and Schaling (1992a), p. 38.

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