Measuring Central Bank Independence in Selected Transition Countries

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1 Introduction

The main purpose of this paper is to measure the degree of central bank independence (CBI) in five Central and Eastern European transition economies striving for EU accession, namely the Czech Republic, Hungary, Poland, Slovakia and Slovenia (referred to as the CEEC-5 below).

The idea of measuring the degree of CBI in these countries was mainly motivated by an earlier paper, which reviewed central bank legislation in the CEEC-5 by applying the requirements of the Maastricht Treaty as a yardstick.[2]) While no measurement exercise of legal CBI was undertaken in 1997, for this paper it seemed interesting to apply CBI measurement models to the legislation currently in force in the CEEC-5, thus contributing to the ongoing discussion on CBI in these countries. I applied the two most widely used indices of CBI measurement to draw a comparative picture of the current state of central bank legislation in the CEEC-5 and to assess the progress achieved by individual countries during the transition period. Subsequently, I compared my results with those of other authors and earlier studies. Moreover, the paper will critically review the indices themselves as well as the process used to score their subitems, in particular against the background of the Maastricht Treaty requirements, which in practice constitute the driving force for any amendment of central bank laws in the CEEC-5. In order to complete the picture, I will measure the degree of actual CBI, thus updating my own calculations on the turnover rate of governors in the CEEC-5 (see Radzyner and Riesinger, 1997). While a quantification of CBI is often used as a starting point for assessing a possible relationship between the degree of CBI and inflation, this paper will not correlate computed measures of legal or actual CBI to inflation data of past years.

The remainder of this paper is structured as follows: Section 2 will deal with the measurement of CBI, starting with a survey of recent theoretical and, in particular, empirical literature. Subsequently, the degree of legal CBI will be measured by applying the two most widely used indices, the Cukierman and the Grilli-Masciandaro-Tabellini (GMT) indices. Moreover, the turnover rate of central bank governors will be used as a proxy to measure actual CBI. The section will close with an interpretation of computed results as well as a critical review of the indices on legal and actual CBI. Section 3 will summarize and conclude.

1 *Foreign Research Division, Oesterreichische Nationalbank.* *The paper was largely written during a research visit at the Bank of Finland Institute for Economies in Transition (BOFIT). Views expressed in this paper are the author's views and do not necessarily reflect the Oesterreichische Nationalbank's views. An earlier version of this paper with a somewhat broader focus appeared in the BOFIT Discussion Paper series.* *The author is grateful for the valuable comments received by Nils Björkstén, Economics Department, Bank of Finland, Jukka Pirttila, BOFIT, and Peter Backé, Foreign Research Division, Oesterreichische Nationalbank, as well as for legal advice by Thomas Wagner, Legal Division, Oesterreichische Nationalbank.*

2 *This ealier study was published under the author's previous name in 1997, jointly with Olga Radzyner. See Radzyner and Riesinger (now: Dvorsky).*

2 Measuring the Degree of Central Bank Independence

While only selected aspects of CBI in transition economies had been analyzed for a limited number of countries until 1997,[1]) an increasing number of authors seems to have published both theoretical and empirical work on this topic in the recent past. As a case in point, Wagner (1998) contributed to the theoretical discussion of CBI by broadly analyzing the preconditions of successful disinflation policy in transition economies. In particular, he covers institutional requirements – such as CBI – and the choice of nominal anchors. In a more recent publication, he argues that a high degree of legal CBI without the necessary degree of actual CBI may not only be ineffective, but even counterproductive. According to Wagner, a merely formally independent central bank, which de facto is still in a weak position, risks being blamed for unsuccessful disinflation policies by the government. In the long run, this "institutional cheating" may undermine the credibility of the monetary authority (see Wagner, 1999).

Furthermore, a considerable amount of empirical literature on CBI in transition countries has been published in the recent past. Loungani and Sheets, for instance, construct an index of legal CBI by combining elements of the GMT index and the Debelle and Fischer methodology. They measure the degree of CBI in twelve transition countries (including the Czech Republic, Poland and Hungary) and correlate it with the inflation data of 1993. The results seem to confirm the negative correlation between CBI and inflation for this set of countries (see Loungani and Sheets, 1997). Maliszewski (1997) examines the degree of legal CBI in 16 transition economies, including the CEEC-5. He applies and somewhat modifies the GMT index to measure legal CBI and finds a negative correlation between CBI and inflation. A very recent paper by Maliszewski examines a set of 20 transition economies and measures legal CBI by applying the above-mentioned modified GMT index (see Maliszewski, 2000). Moreover, a negative correlation between inflation and CBI is found also for this set of countries.[2]) Huterski et al. (1997) review the history of CBI in Poland and i.a. present calculations on the degree of legal CBI as of 1996 (i.e. before the adoption of the new central bank law) by the Cukierman index. Pospisil (1997) briefly analyzes the role of CBI in the disinflation process of the Czech Republic. Äimä (1998) measures the degree of legal CBI in the Baltic countries using the Cukierman and the GMT indices and finds no truly significant variations of legal CBI between these three countries. Moreover, the turnover rates of governors are calculated. A major effort of measuring legal CBI in 26 transition economies (including the CEEC-5) was undertaken by Cukierman et al. (1998). Their set of 26 transition countries comprises the CEEC-5, though recent amendments of Hungarian[3]) and Polish legislation are not yet taken into account (see Cukierman et al., 1998). Lybek (1999) constructs an index

1 *For an overview of literature on CBI in transition economies until 1997, see Radzyner and Riesinger (1997).*

2 *The present paper was written entirely before the publication of Maliszewski's study.*

3 *The most recent amendment of the Act on the National Bank of Hungary of 1991 went into force on January 1, 1997, and contains a number of changes i.a. on the appointment procedures of the members of the Bank's highest decision-making body as well as on incompatibility regulations.*

to measure legal CBI in the 15 successor states of the former Soviet Union and calculates turnover rates of governors to measure actual CBI. Interestingly, a significant correlation between legal CBI and inflation can be found, whereas the degree of actual CBI (expressed as the turnover rate of governors) proves to be irrelevant (see Lybek, 1999).

2.1 Measuring Legal Independence

As mentioned earlier, the Cukierman and the GMT indices will be applied to measure legal CBI. Despite admitted weaknesses which have been debated in recent literature,[1]) these indices will be used to allow for comparison of results with findings of other authors dealing with different countries and/ or earlier central bank legislation. In particular, calculations on the Baltic central bank legislation (see Äimä, 1998) as well as earlier results on some of the CEEC-5 seem to be interesting cases of reference in this respect (see Siklos,[2]) 1994, and Cukierman et al., 1998).

To measure legal independence, I have analyzed national legislation, i.e. the legislation presently in force in the CEEC-5, although new laws or amendments are currently being prepared by Slovakia and Slovenia and an amendment is currently being debated in the Czech Republic to meet the Maastricht requirements.[3])

2.1.1 The Cukierman Index

Although the Cukierman index has already been applied to some of the central bank laws in force in the CEEC-5, own calculations seem to be justified for two reasons. First, the assignment of scores for different subitems of the index will be explained in detail for each country and compared with respective requirements of the Maastricht Treaty, which in practice constitute the driving force for changes in legislation in the CEEC-5. In particular, wherever national legislation does not clearly fit into any of Cukierman's categories, I have applied the rationale of the Maastricht Treaty. Second, as a consequence of this approach, I had to recalculate scores for the countries whose legislation was measured by previous studies to ensure equal treatment of the CEEC-5 in this exercise. This pertains to the central bank legislation of the Czech Republic, Slovakia and Slovenia. The recently changed central bank laws of Hungary and Poland have not yet been measured.

1 *As a case in point, Mangano compares calculations based on the GMT and the Cukierman indices and reveals that authors diverge considerably in their assessment of CBI, mainly due to subjectivity in their interpretation of laws. See Mangano (1998).*

2 *Siklos (1994) did some pioneering work and constructed an index of legal CBI (similar to the Cukierman index) for the Czech Republic, Hungary, Poland and Slovakia.*

3 *The amendment on the National Bank of Slovakia Act is currently being prepared and will possibly be presented at the beginning of next year. The new law on the Bank of Slovenia was approved by the government in July 2000 and is scheduled for parliamentary debate in fall 2000. The draft amendment contains a prohibition of any fiscal financing by the central bank, new regulations on the potential dismissal of members of the highest decision-making body as well as incompatibility clauses. Moreover, it will strengthen the central bank's financial independence and contain provisions on the bank's reporting requirements towards parliament. The amendment of the Act on the Czech National Bank, initially meant to improve compliance with Maastricht Treaty requirements, has provoked a heated parliamentary debate. See section 2.2 of this paper.*

The Cukierman index comprises 16 subitems for assessing the degree of legal CBI which are grouped into the following four sets of items:[1]) 1. variables on the status of the chief executive officer (code: CEO), namely his term of office, appointment and dismissal procedures and incompatibility clauses; 2. the policy formulation variables (code: PF), comprising regulations on the competence to formulate monetary policy, the central bank's potential participation in the budget process as well as regulations on potential conflicts between the central bank and the government; 3. the legislated central bank objectives (code: OBJ); and 4. regulations concerning limitations of lending (code: LL). Each of the 16 subitems is assigned a score between 0 (smallest level of independence) and 1 (highest level of independence), where the "fine tuning" for each subscore depends on the number of legal alternatives proposed by Cukierman. The overall index for each country is obtained in two different ways, either by calculating an unweighted mean ("LVAU") or by computing a weighted index ("LVAW").

Table 1

Legal CBI in the CEEC-5 Measured by the Cukierman Index

	Czech Republic	Hungary	Poland	Slovakia	Slovenia
1. Chief executive officer (CEO)					
too	0.75	0.75	0.75	0.75	0.75
app	0.50	0.25	0.50	0.25	0.50
diss	0.83	0.83	0.83	0.83	1.0
off	1.0	0.50	1.0	1.0	0
2. Policy formulation (PF)					
monpol	1.0	1.0	1.0	1.0	1.0
conf	1.0	1.0	1.0	1.0	1.0
adv	0.0	1.0	1.0	0.0	0.0
3. Central bank objectives (OBJ)					
obj	0.6	0.6	0.8	0.6	0.6
4. Limitations on lending (LL)					
lla	n. a.	0.66	1.0	n. a.	0.66
lls	0.66	1.0	1.0	0.66	n. a.
ldec	1.0	0.66	n. a.	1.0	0.66
lwidth	0.66	1.0	n. a.	0.66	0.66
ltype	0.33	0.33	n. a.	0.33	0.33
lmat	1.0	1.0	n. a.	1.0	0.66
lint	0.25	0.75	n. a.	0.25	0.25
lprm	0	1.0	n. a.	0	0
Index 1 (LVAU, unweighted)	**0.6907**	**0.7841**	**0.9140**	**0.6818**	**0.6004**
Index 2 (LVAW, weighted)	**0.7000**	**0.7485**	**0.8987**	**0.6853**	**0.6044**
Siklos 1994	0.56	0.39	0.46	0.33	n. a.
Cukierman et al. 1998 (LVAW)	0.69	0.67	0.46	0.62	0.6

For definitions and codes, see Cukierman (1992), table 19.1, pp. 373–376.

I will comment in detail on the rationale of assigning scores on individual subitems to the CEEC-5 below (see table 1). The first component of the Cukierman index, assessing the terms of office of the chief executive officer (code: *too)* yields the second best score for all CEEC-5. All CEEC-5 have stipulated six-year terms for their central bank governors, the ideal case being perceived as a minimum term of eight years by Cukierman. Similarly, the Statute of the ECB requires that the term of office for the top officials of the ECB (members of the Executive Board) is set at eight years, with no

1 *For the detailed codes and definitions, see Cukierman (1992), table 19.1, pp. 373–376 or Cukierman et al. (1992), table 1, pp. 358–359.*

reappointment possible (see Article 11.2, Statute of the European System of Central Banks and of the European Central Bank, 1992). However, a major difference is that the Statute's requirement applies to *all* members of the ECB Executive Board (not only to the chief executive officer). Moreover, the minimum term of office for governors of national central banks (NCBs) is established as five years, but of course their term may be longer (see Article 14.2 of the Statute, 1992).

The assignment of scores to the CEEC-5 on the appointment procedures of the central bank governor (code: *app)* inevitably involves a considerable degree of subjectivity resulting from the interpretation of laws, because the relevant provisions in the CEEC-5 laws do not clearly fit into the categorization offered by Cukierman. According to Cukierman, appointment solely by the central bank board or by a council composed of members from executive and legislative branches as well as from the central bank board would yield the highest scores (1.0 and 0.75, respectively). Appointment solely by the legislative branch (Congress, king) comes third, scoring 0.5, followed by appointment through the council of ministers (0.25) or by individual government members (0.0). None of these options can be found in the CEEC-5 central bank legislation. Consulting the Maastricht Treaty on this issue, analogies can hardly be drawn for assessing national legislation either.[1]) Therefore, the following approach was taken: If the central bank governor is appointed by the president of state (Czech Republic), a score of 0.5 was assigned, if this has to be preceded by a proposal or recommendation from a member of the government (Hungary and Slovakia), the score was reduced to 0.25. For Poland and Slovenia, where the central bank governor is appointed by parliament on proposal of the president of state, the score was set at 0.5. The reasoning behind this approach is that the presidents of state typically are not directly involved in economic policy and are generally elected for a longer term than governments. Furthermore, appointment by parliament seems to be preferable to government appointment because the opposition parties have to be included in the discussion. Once governments come into play, even if they only have the right to propose or recommend a candidate, there are – as recent experience in Hungary has shown – numerous possibilities to delay or complicate the appointment of central bank officials. I will come back to this in more detail in section 2.2 of the paper.

It is interesting to note that only the Slovene legislation gains a maximum score on the possible dismissal of the central bank governor (code: *diss)* according to Cukierman's methodology, because the law does not contain any provision for his potential dismissal. Consequently, the other four countries, whose legislation is considerably closer to the Maastricht requirements in this respect by limiting dismissal to nonpolicy reasons, are rated only at the second best score. However, the national legislation of these four countries still contains a variety of provisions on potential reasons for dismissal (see Radzyner and Riesinger, 1997, table 3), whereas the Maastricht Treaty

1 *According to the Statute, ECB top officials are appointed "by common accord of the governments of Member States...on recommendation from the Council after it has consulted the European Parliament and the Governing Council." See Article 11.2 of the Statute.*

restricts these reasons to two predefined cases: first, the conditions for the performance of their duties are no longer fulfilled or, second, officials are guilty of serious misconduct (Article 11.4. and Article 14.2. of the Statute, respectively).

Assessing the incompatibility clauses according to Cukierman's methodology (code: *off)* proves to be problematic for the Hungarian legislation. As such regulations are in place but do not explicitly prohibit the CEO to hold any other office in government, a score of 0.5 was assigned. While the Maastricht Treaty itself does not explicitly stipulate any incompatibility clauses for members of decision-making bodies, the Statute contains a provision requiring that the members of the ECB Executive Board be full-time central bankers; any other occupation is prohibited "unless exemption is exceptionally granted by the Governing Council" (see Article 11.1 of the Statute). Moreover, the EMI derived the general principle that "... membership of a decision-making body involved in the performance of ESCB-related tasks is incompatible with the exercise of other functions which might create a conflict of interest." (see EMI, 1996).

Following Cukierman's indexing system, the judgment of the central bank's authority to formulate monetary policy (code: *monpol)* does not take into account the legal provisions on the design of exchange rate policy in the CEEC-5. This could, however, somewhat change the picture, as the central bank laws of Hungary and Poland assign a rather important role to the governments in this area (for Hungary, see Radzyner and Riesinger, 1997). The new Polish legislation stipulates that "the NBP shall carry out the foreign exchange policy established by the Council of Ministers in consultation with the Council" (see Article 24 of The Act on the National Bank of Poland, 1997).

It is worth noting that the issue of policy coordination with the government (code: *adv)* only allows for one of two scores, depending on whether the central bank is actively involved in the preparation of the government's budget or not. As the CEEC-5 legislation contains a variety of provisions regulating policy coordination mechanisms between the central bank and the government (see Radzyner and Riesinger, 1997, table 1), a more detailed scale of scores would possibly produce a more balanced picture of the policy coordination status of the central banks. In general, it has to be emphasized that the participation of government members in meetings of the central bank's highest decision-making body even if only in an advisory capacity (with no right to vote) – as stipulated in a number of the CEEC-5 laws – may be debatable in the context of Maastricht Treaty requirements.

According to Cukierman, the maximum score on the statutory objectives of central banks (code: *obj)* may only be assigned if price stability is mentioned as the only goal and, in addition to that, the final say of the central bank in case of conflict with the government is explicitly mentioned in the law. Consequently, Poland, whose legislation clearly stipulates price stability as the only goal and therefore can be seen as being in line with Maastricht requirements, merely records the second best score. As to the other four countries, the wording of their laws does not unambiguously reflect the objective of price stability; therefore, they were all assigned scores of 0.6.

The issue of potential conflict resolution, however, seems to be included twice in the Cukierman index, as it also figures under the code *conf.*

Turning to the limitations on central bank lending to the government, the Polish legislation is the only one in the CEEC-5 that prohibits any fiscal financing. The Polish Constitution, which was endorsed by referendum in 1997, stipulates this.[1]) The remaining four countries still permit direct central bank credit, albeit under strictly limited circumstances, be it in the form of advances (code: *lla,* Hungary and Slovenia) or purchases of government securities (code: *lls,* Czech Republic and Slovakia). Consequently, Poland is the only country that is assigned the maximum score of 1.0 for the subitems *lla* and *lls;* scores on the other subitems asking for detailed regulations on possible central bank lending to the government are by definition not available (n.a.) in the case of Poland. The Maastricht Treaty requires an absolute prohibition of any direct central bank lending to the public sector (see Article 101.1 of the EC Treaty, ex-Article 104.1), so this corresponds to the Cukierman index requirement for a maximum score.

As to the circle of potential borrowers (code: *lwidth),* only the Hungarian legislation clearly limits this circle to the central government alone, thus qualifying Hungary for the maximum score (see Section 19.1 of Act LX of 1991 on the National Bank of Hungary). The Czech, Slovak and Slovene laws are less clear, as they mention the Czech, Slovak and Slovene Republics as the potential beneficiaries of central bank lending;[2]) therefore, scores of 0.66 were assigned to these countries.

It is worth noting that the Cukierman scores on the type of limits on direct central bank credit to the government (code: *ltype)* produce identical results for the Czech Republic, Hungary and Slovakia, because the central bank laws of these countries all define these limits as a percentage of government revenues. The score, however, does not fully reflect existing differences in legislation. While the Czech and Slovak laws refer to previous year's budget revenues – a figure which typically may no longer be changed when central bank credit is negotiated – the Hungarian and the Slovene legislation refer to the current year's (planned) budget figures.[3]) For Slovenia, the score was also set at 0.33, although the definition of the maximum amount of direct central bank credit to the government did not clearly fit any of Cukierman's categories.[4])

Reviewing CEEC-5 central bank legislation on the maximum maturity of central bank credit to the government (code: *lmat),* regulations in most cases seem to be even stricter than Cukierman's maximum score would require,

1 *The Act on Public Finances adopted in November 1998 implemented the constitutional prohibition. No separate regulation of this issue can be found in the central bank law. See The Act on the National Bank of Poland (1997).*

2 *See Article 30.2 of the Act on the Czech National Bank, Section 25.2 of The National Bank of Slovakia Act, and Article 61 of The Law on the Bank of Slovenia, respectively.*

3 *See Article 30.2 of the Act on the Czech National Bank, Article 19 of Act LX of 1991 on the National Bank of Hungary, Section 25.2 of The National Bank of Slovakia Act and Article 61 of The Law on the Bank of Slovenia, respectively.*

4 *According to the Slovene legislation, these limits are defined as 5% of the annual budget and as 20% of the anticipated budget deficit (see Article 61 of The Law on the Bank of Slovenia).*

with three months in the Czech Republic and Slovakia and 15 days in Hungary, as opposed to Cukierman's maximum requirement of six months.

Whereas the Czech, Slovak and Slovene central bank laws lack any stipulation on the level of interest rates to be applied and are therefore scored at 0.25 (code: *lint),* Hungary is assigned a score of 0.75, with central bank law prescribing the prime rate to be applied as a basis for central bank lending to the government (see Section 19.5 of Act LX of 1991 on the National Bank of Hungary).

Only the Hungarian central bank law contains an explicit prohibition of lending in the primary market[1]) (code: *lprm),* whereas Slovene legislation lacks a provision in this area. As mentioned above, the Czech and Slovak laws allow for purchases of securities directly from the government (see code *lls).* Consequently, identical scores assigned to the Czech Republic, Slovakia and Slovenia again do not fully reflect differences between national legislations.

2.1.2 The Grilli-Masciandaro-Tabellini (GMT) Index

In order to compare computed results obtained by applying the Cukierman methodology, measurements of legal CBI according to the GMT index are presented in table 2. For this exercise, I partly draw on results computed by Maliszewski. Scores on Hungary and Poland are updated in correspondence with the recently changed central bank legislation. Moreover, a few changes to Maliszewski's scores on the Czech Republic and Slovakia due to differences in interpreting the central bank law are marked in the table (see Maliszewski, 1997).

The GMT index is composed of two subindices, defined as political and economic independence of the central bank (see Grilli et al., 1991). The concept of political independence comprises nine subitems covering appointment procedures for the members of the central bank's highest decision-making body, the relationship between this body and the government, and the formal responsibilities assigned to the central bank. The economic independence of the central bank is composed of seven subitems, which include the issue of central bank financing of the budget as well as the nature of monetary instruments. Every subitem is scored using a binary system under which an asterisk is either assigned or not assigned. The overall index of legal CBI is obtained by a simple addition of unweighted scores on political and economic independence.

A few remarks on measuring the GMT index following Maliszewski's methodology appear to be in order: The assignment of asterisks for the appointment procedure of the central bank governor crucially depends on the interpretation of Maliszewski's item G1. According to Maliszewski, one asterisk is assigned if the governor is not appointed by the government (which is the case in all CEEC-5) and an additional asterisk is assigned if the governor is not appointed by parliament only. Consequently, Poland and Slovenia, where the governor is appointed by parliament on proposal of the president of state are assigned two asterisks. In my interpretation, the appointment of the governor of Slovakia's central bank also qualifies for

1 *See Section 19.3 of Act LX of 1991 on the National Bank of Hungary.*

Table 2

Legal CBI in the CEEC-5 Measured by the GMT Index for Transition Economies

	Czech Republic	Hungary	Poland	Slovakia	Slovenia
Political independence					
Governor					
G1 governor not appointed by the government (*) and not appointed by parliament only (**)	**	*	**	*1)	**
G2 governor appointed for more than five years	*	*	*	*	*
Board					
B3 no board member appointed by the government	*	*	*		*
B4 board appointed for more than five years	*		*	2)	*
B5 provisions for governor's dismissal nonpolitical only	*	*	*	*	
Relationship with government					
R6 no mandatory government representative on the board	*	*	*	*	*
R7 government/parliamentary approval of monetary policy is not required	*	*	*	*	*
Constitution					
C8 statutory responsibility to pursue monetary policy	*	*	*	*	*
C9 presence of legal provision supporting the Bank in conflicts with the government					
Index P. I.	**9**	**7**	**9**	**6**	**8**
Economic independence					
Direct credit to the government					
D1 direct credit facility is not automatic	*	*	*	*	*
D2 direct credit facility is at the market interest rate (or at the basic CB rate)	3)	*	*	3)	
D3 direct credit facility is temporary	*	*	*	*	*
D4 direct credit facility is of limited amount	*	*	*	*	*
D5 the bank does not participate in the primary market for public debt		*	*		
Monetary instruments					
M6 the discount rate is set by the central bank	*	*	*	*	*
M7 supervision of commercial banks is not entrusted to the central bank (**) or not entrusted to the central bank alone (*)		**	*	*	
Index E. I.	**4**	**8**	**7**	**5**	**4**
Overall Index O. I.	**13**	**15**	**16**	**11**	**12**
O. I. Maliszewski (1997)	**14**	**9**	**12**	**12**	**12**

Source: Maliszewski (1997), tables 1 and 2, pp. 22–23. Results on Hungary and Poland have been updated based on the new central bank legislation.
1) Maliszewski assigns no asterisks to Slovakia on item G1.
2) In contrast to Maliszewski, no asterisk is assigned to Slovakia on item B4.
3) In contrast to Maliszewski, no asterisk is assigned to the Czech Republic and Slovakia on item D2.

two asterisks, because under the central bank law, the governor "is appointed by the president of state on recommendation of the government with the consent of parliament" (see section 7.2 of The National Bank of Slovakia Act). Furthermore, under item B4, Maliszewski demands that all members of the central bank's highest decision-making body be appointed for more than five years. In my understanding, this requirement is not fulfilled by the Slovak central bank law, which stipulates a four-year term for three members of the Bank Board (see section 7.4 of The National Bank of Slovakia Act). Interestingly, Slovenia scores least under item B5, the reasons for dismissal of the central bank governor, because it is the only central bank law which does not contain any relevant provisions. The same fact yielded the maximum score among the CEEC-5 when the Cukierman methodology was applied (see above).

Turning to the index assessing the economic independence of the central bank, it is worth noting that items D1 to D5 all carry asterisks for Poland,

where central bank lending to the government is completely prohibited. A logical interpretation of the codes would require an entry such as "not available," but this change of procedure would entail a different methodology for aggregating the seven subitems (to solve this problem, calculating a weighted average could be considered). Moreover, my interpretation of the Czech and the Slovak central bank laws on item D2 deviates from that of Maliszewski, who finds that central bank lending is stipulated to be done at market interest rates (or at the central bank base rate). To my understanding, neither of the two laws contains a regulation on the level of interest rates to by applied to central bank credits to the government. Therefore, no asterisks are assigned to the Czech Republic and Slovakia on item D2.

Comparing the results with the findings of Maliszewski, differences can be explained as follows: For Hungary and Poland, the overall index of legal CBI shows a substantial increase, which is connected with the recent changes in central bank legislation. Differences of indices for the Czech Republic and Slovakia are considerably smaller and are due to differences in the interpretation of laws by the authors. For Slovenia, the assessment applying the GMT index is identical to that performed by Maliszewski.

2.2 Measuring Actual Independence – The Turnover Rate of Governors

As pointed out in Radzyner and Riesinger (1997), the implementation of central bank law in practice plays an equally important role when assessing the degree of CBI. The concept of actual CBI comprises a number of different aspects, such as the turnover rate of governors, the personalities of central bank governors, the practice of overriding the central bank by budget laws or the design of policy coordination mechanisms in practice. As the present paper focuses primarily on measuring the degree of CBI, I will restrict the analysis of actual CBI to the turnover rate of governors, which was introduced by Cukierman in 1992 and proved to be a reasonably good proxy to measure actual CBI in particular for less developed countries (for more details on further aspects of actual CBI, see Radzyner and Riesinger, 1997). The turnover rate of governors is defined as the average term of office of central bank governors in different countries and is calculated by dividing the number of governors within a given period of time by the length of this reference period (expressed in years or fractions of years).

In this paper, the turnover rate of governors in the CEEC-5 will be calculated, thus updating the calculations undertaken in 1997 (see Radzyner and Riesinger, 1997, table 4, p. 77). At the outset, let me make a few methodological remarks. As the reference period, the date of promulgation of the respective central bank law was chosen as a starting point in 1997. In order to ensure continuity and a minimum length of the observation period, I retained this approach, although Poland has adopted a new central bank law in the meantime. Therefore, the criterion for the starting point chosen will be reformulated as being the date of promulgation of the *first Western-type* central bank law. "Acting" central bank governors – typically vice governors who serve as governors for an interim period without being formally appointed to this position – will not be counted in the total number of governors. This approach is relevant for the scores of the Czech Republic and

Poland. Moreover, governors who have been reappointed to their offices to serve a second term will only be counted once. This is relevant for the results on the Czech Republic, Poland and Slovenia.

Table 3

Turnover Rate of Governors in the CEEC-5[1])

	Governors	Period of reference	Turnover rate of governors	Results of 1997[2])
Czech Republic	**Josef Tošovský,** Feb. 17, 1993, to Dec. 17, 1997,[3]) reappointed on July 20, 1998, for another six years	Dec. 1992 to Aug. 2000	0.13	0.23
Hungary	**Péter Ákos Bod,** Dec. 9, 1991, to Dec. 14, 1994 **György Surányi,** since March 1, 1995	Dec. 1991 to Aug. 2000	0.23	0.38
Poland	**Zdzisław Pakuła,** July 13, 1988, to Sep. 11, 1989 **Władysław Baka,** Sep. 21, 1989, to Jan. 24, 1991 **Grzegorz Wójtowicz,** Jan. 25, 1991, to Aug. 9, 1991 **Hanna Gronkiewicz-Waltz,[4])** since March 5, 1992, reappointed on Feb. 19, 1998, for another six years	Feb. 1989 to Aug. 2000	0.35	0.49
Slovakia	**Vladimír Masár,** Aug. 1, 1993,[5]) to July 30, 1999 **Marián Jusko,** since July 30, 1999	Nov. 1992 to Aug. 2000	0.26	0.23
Slovenia	**France Arhar,** since June 25, 1991, reappointed on April 1, 1995, for another six years	June 1991 to Aug. 2000	0.11	0.17

1) The turnover rate is calculated as the number of governors divided by the length (in years or fractions of years) of the reference period.
2) See Radzyner and Riesinger (1997).
*3) In the interim period: Vice Governor **Pavel Kysilka,** December 18,1997, to July 19, 1998.*
*4) In the interim period: Deputy Governor **Andrzej Topinski,** October 8, 1991, to April 3, 1992.*
*5) Before: Vice Governor **Marián Tkác,** January 1, 1993, to July 29, 1993.*

Looking at the results shown in table 3, all CEEC-5, with the exception of Slovakia, have improved their turnover rate as compared to the calculations performed in 1997. The explanation for this is that the observation period is three years longer, combined with the fact that almost no changes took place in the top positions of the central banks from 1997 to the cutoff date of calculations (i.e. August 31, 2000). However, as the reference periods are still very short, the calculated results have to be interpreted with caution. To draw a comparative picture of the degree of actual CBI in the CEEC-5, it is worth taking a closer look at the actual political developments motivating changes in the central banks' decision-making bodies as well as recent debates on the independent status of the central bank in some of the CEEC-5.

An annex to this paper contains a detailed review of recent political discussions revolving around the personalities of top central bank officials in the CEEC-5. This review clearly shows that calculated turnover rates do not truly reflect the state of actual CBI in these countries. Moreover, evidence from Hungary and Slovakia, where the government has a say in the appointment procedures of the central bank governor according to the laws,[1]) seems to suggest that governments actively use this possibility to exert political pressure on the central bank or at least to politically influence the choice of candidates.

1 *In Hungary, the central bank governor is appointed by the state president on proposal of the prime minister. According to the Slovak legislation, the state president appoints the central bank governor on recommendation of the government, with the consent of parliament. See above.*

Another interesting indicator of the degree of actual CBI which seems to have gained relevance in some of the CEEC-5 recently is the way in which political debates preceding possible or necessary changes in the central bank law unfold and their intensity. One case in point is Slovakia, where the parliament started to discuss a controversial draft amendment to the central bank law which had been put forward by the Mečiar government in early 1998. The government proposal would have included an increase in the number of central bank governing board members from eight to ten, with five members to be named by the government. Moreover, the draft proposed would have given parliament the right to approve the central bank's budget, and, even more importantly, it would have increased central bank participation in the short-term covering of the state budget deficit (see Reuters, May 18, 1998). The draft, however, was withdrawn from the parliament's agenda a few months before the elections and was not taken up again after the political change in Slovakia in September 1998.

A more recent example of a political debate on central bank law is the Czech Republic, where a draft amendment to the central bank law has been debated by parliament since the beginning of 2000. While the initial draft had aimed at adapting the present legislation to the Maastricht Treaty requirements, a number of modifications potentially threatening the independent status of the central bank were put forward by the opposition parties during the parliamentary debate. In July 2000, the amendment was passed by the lower house of the Czech parliament.[1]) At the time of the editorial close (September 30, 2000) it was pending approval by the upper house. Although the final outcome of this conflict remains to be seen, it can be said that this debate on the legal status of the central bank definitely did not help to strengthen the public's awareness of the relevance of CBI in practice.

2.3 Interpretation of the Computed Results and Critical Remarks on the Indices Applied

In the first part of this section, I would like to comment on the results obtained for the CEEC-5 by applying the two indices for legal CBI. Moreover, the results will be compared with those of other authors. Furthermore, some strengths and weaknesses of these indices with regard to the particular set of five countries and their goal to become EU members will be briefly discussed. In the second part of this section, I will interpret the measured turnover rate of governors and assess the usefulness of this index.

2.3.1 The Indices for Legal CBI

Comparing the results on legal CBI in the CEEC-5 calculated by applying the Cukierman index, the following picture emerges: Poland records by far the highest score, followed by Hungary. Results on the Czech and Slovak legis-

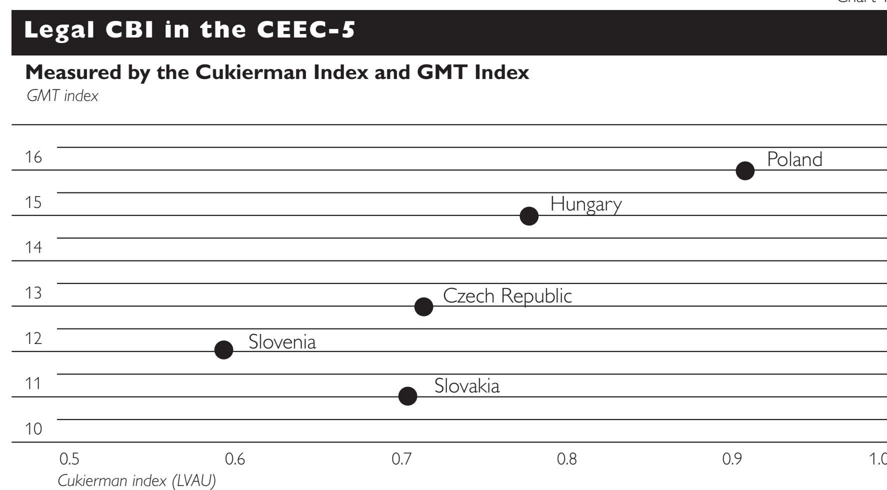
1 *Criticism was voiced i.a. by the ECB in an unofficial statement made available to the CTK (the Czech news agency) on July 28, 2000, as well as by the European Commission's delegation in the Czech Republic (see CTK, July 27, 2000). The problematic issues include, in particular, the CNB's obligation to consult the exchange rate regime and the inflation target with the government. Moreover, it was criticized that the "operational" budget of the CNB will be subject to parliamentary approval.*

lation seem to be rather close to each other, while Slovenia appears last in this ranking (see table 1). The rankings are identical for both indices, the unweighted (LVAU) and the weighted (LVAW) index, though scores seem to converge slightly when the weighted index is applied. Calculations according to the GMT index largely seem to confirm obtained results, the main difference being the assessment of Slovakia, which falls behind Slovenia when the GMT methodology is used. To review the degree of compliance with Maastricht Treaty requirements, it is interesting to look at the European Commission's assessment published in the 1999 progress reports. According to the Commission, Poland is the only country whose central bank legislation needs only "some technical amendments" in order to fully comply with the body of EU law. Not surprisingly, the Commission's main criticism concerns the issue of central bank financing to the government, which is still permitted, though to a limited degree, in the remaining four countries. Moreover, the Commission identifies weaknesses in the area of personal independence for Slovakia's and Slovenia's central bank laws (see European Commission, 1999 a–e, chapters 3.3, respectively). To sum it up, the European Commission's assessment largely corresponds to the findings derived from the measurement exercise of legal CBI.

Chart 1

Legal CBI in the CEEC-5

Measured by the Cukierman Index and GMT Index



At first glance, a comparison of the computed results of legal CBI in the CEEC-5 with that in the Baltic states using the Cukierman index suggests that the degree of CBI in the CEEC-5 is substantially higher than that observed in the Baltics (see Äimä, 1998). Differences in results, however, mainly seem to originate from the particular aggregation methodology introduced by Äimä in order to account for the nonrelevance of several subitems for currency board arrangements.[1]) Results computed following the GMT index render a picture similar to the one described above, putting the three Baltic countries clearly behind the CEEC-5, with only Latvia reaching the

1 *Only one index calculated by Äimä can be drawn upon for comparison (referred to as "index 1" in the paper); the results are as follows: 0.64 (Latvia), 0.61 (Lithuania) and 0.55 (Estonia). The second index ("index 2") obviously leaves out a subset of four variables. See Äimä (1998).*

same level as Slovakia. Upon closer inspection, the Baltics' scores for the subindex on political independence are similarly high as those for the CEEC-5. Again, differences in the calculated results stem from the fact that those items of the index on economic independence dealing with limits to central bank lending to the government are considered not to be relevant for the countries that have adopted currency boards, and are consequently not taken into account in the aggregated score.[1])

Looking back at measurements of legal CBI undertaken for earlier central bank legislation in some of the CEEC-5, the findings of Siklos (1994) provide an interesting reference. As mentioned before, Siklos applied the Cukierman methodology to measure CBI in the Czech Republic, Hungary, Poland and Slovakia. A comparison of his results with the calculations in this paper clearly reveals that all four countries have substantially increased their degree of legal CBI according to the Cukierman index. The results, however, may not be fully comparable, as Siklos left out a number of components of Cukierman's subitem "limitations of lending" (code: LL). A comparison with the results presented by Cukierman et al. in 1998 confirms that the adoption of new central bank laws in Hungary and Poland definitely increased their degree of CBI, so that both countries are assigned higher scores in this paper as compared to the results of Cukierman et al. (who measured legislation as of 1991 for these two countries, see Cukierman et al., 1998). The difference in the score on Slovakia is obviously due to subjectivity in the interpretation of the law. This can be explained mainly by the particular approach taken in this paper, as the rationale of Maastricht requirements was taken into account whenever more than one interpretation for individual subitems of the Cukierman index was possible (for details, see section 2.2 of this paper). Moreover, differences between the computed results stemming from the subjectivity of interpretation once more seem to justify own calculations designed to ensure equal treatment in a cross-country comparison.

Comparing requirements imposed by the Cukierman index to the Maastricht Treaty requirements, it is interesting to note that in some areas the Cukierman index seems to be stricter than the Treaty. A case in point is the subitem on legislated central bank objectives, where the maximum score may only be assigned if price stability is mentioned as the only goal and, in addition to that, if the final say of the central bank in conflicts with the government is explicitly mentioned in the law (see section 2.1.1 of this paper). On the other hand, in some areas, the Cukierman index is less strict than the Maastricht Treaty requirements, such as the issue of personal independence. Whereas the Treaty requires that regulations on appointment procedures, terms of office, reasons for potential dismissal and incompatibility clauses apply to *all* members of the highest decision-making body of the ECB (i.e. the Executive Board; see Article 11 of the Statute), the Cukierman index only examines the legal status of the chief executive officer. In this context it is interesting to note that for national legislation of Member States the Statute only contains explicit requirements concerning the legal status of the

1 *A similar problem was identified for Poland when calculating the GMT index, but it was dealt with in a different manner. See section 2.1 of this paper.*

national central bank's (NCB's) governor, while this was interpreted to pertain to all members also of NCBs in the 1998 Convergence Report (see EMI, 1998, p. 12). What does this mean for the scores of the CEEC-5 legislation? As these countries primarily aim at adjusting their laws to Maastricht standards, it can be seen as unlikely that they will record a maximum score according to the Cukierman methodology in the foreseeable future on the subitems where the Cukierman index is stricter than Maastricht standards. By analogy, for the subitems where the Cukierman index is somewhat less strict than Maastricht standards, the present CEEC-5 legislation may already qualify for a maximum score according to the Cukierman methodology, although the EU still sees a need for adaptation to Maastricht requirements. Another general remark relates to the fact that scores on individual items in some cases do not fully reflect the variety of different regulations in CEEC-5 legislation. This became particularly evident when the subitem on the type of limits on direct central bank credit (code: *ltype)* was analyzed (see section 2.1.1 of this paper). Moreover, some issues in the field of financial independence, such as procedures to approve the central bank's budget, are not covered by the Cukierman index at all. One subitem, namely that dealing with the potential dismissal of the central bank governor, even seems to reveal contradictory views. While the nonexistence of such a provision rendered the maximum score for Slovenia, this will have to be changed in order to fulfill Maastricht Treaty requirements.

The GMT index is less deeply structured than the Cukierman index, offering a choice of only two answers for each of the subitems. Consequently, the assignment of scores is a comparatively simple procedure involving the assignment of an asterisk or a blank. Similarly, the aggregation is done by simply adding up the number of asterisks assigned. Moreover, as pointed out earlier, the assignment of scores on the five subitems on direct credit to the government (code: D1 to D5) seems to include a slightly illogical element for countries where direct credit to the government is absolutely prohibited. A logical interpretation of the definitions would require the assignment of blanks for items D1 to D5, although this approach would at the same time reduce the outcome for the overall index (see section 2.1.2 on Poland).

To sum it up, apart from the above-mentioned methodological precautions, both indices rendered the expected results within the overall framework.

2.3.2 The Turnover Rate of Governors as a Proxy for Actual CBI

In general, it has to be emphasized that turnover rates calculated for the CEEC-5 have to be interpreted with great caution. Due to the relatively short observation period of a maximum of eleven years, the results are extremely sensitive to changes of both the numerator (the number of governors) and the denominator (the length of the observation period). The results are critically dependent on whether to include "acting governors" in the total number of governors of the country examined, and the length of the observation period varies with the definition of its starting date (see section 2.2 of this paper).

In this context it is interesting to note that Cukierman et al. defined an upper threshold for the turnover rate of 0.2 to 0.25 (corresponding to one governor every four to five years, which is equal to the electoral cycle in most countries), where any measure exceeding this threshold is considered large (see Cukierman et al., 1993). Looking at the results calculated for the CEEC-5, three of the five countries examined, namely Hungary, Poland and Slovakia, still show results close to the defined upper threshold turnover rate (see table 3). Cukierman argued elsewhere that an extremely low turnover rate may not reflect a high degree of CBI, but may in fact indicate that a governor is willing to do whatever the government asks him to do (see Cukierman et al., 1992). While this lower threshold has not yet been quantified in the literature, the Maastricht Treaty may implicitly contain an answer to this question, as it limits the maximum duration of office of members of the ECB Executive Board to eight years, with no reappointment possible (see Article 112 of the EC Treaty, ex-Article 109 a).[1]) This would correspond to a minimum turnover rate of 0.125 (one governor every eight years). In this sense, the calculated score for Slovenia would be below this lower threshold, with the Czech Republic being just slightly above.

To sum it up, as pointed out in the detailed country discussion, a closer look at the recent political debates on CBI as well as political influences on appointments of governors clearly shows that the results on the turnover rate of governors do not truly reflect the degree of actual CBI in the CEEC-5.

3 Summary and Conclusions

Reviewing the computed measures on the degree of legal CBI in the CEEC-5, it can be concluded that both methodologies applied largely yield the expected results, also when compared to the Maastricht Treaty requirements. While the overall degree of legal CBI is found to be comparatively high in all countries examined, the still existing possibility of central bank credit to the government can be identified as the main weakness in all countries but Poland; it substantially reduces the score of the other four countries, with Poland showing the best results for both measures of legal CBI. This largely confirms the findings of the previous study (see Radzyner and Riesinger, 1997).

Moreover, updated measures of the turnover rates of governors do not seem to fully reflect the degree of actual CBI in the CEEC-5. Recent political debates on changes of central bank legislation as well as discussions preceding the appointment of central bank top officials draw a picture that clearly differs from the calculated results on turnover rates.

A comparison of requirements imposed by the Cukierman index to the Maastricht Treaty requirements reveals that the Cukierman index seems to be stricter than the Treaty in some areas, and less strict in other areas. This has potential implications for the future measurement of legal CBI not only in the CEEC-5, but also in other EU accession countries, if the

1 *The minimum term of office for governors of NCBs is five years (see Article 14.2 of the Statute), which would correspond to a lower threshold of the turnover rate of 0.2. But of course their legislated term may be longer.*

Cukierman methodology is applied. As amendments to EU candidates' legislation will primarily aim at fulfilling the Maastricht Treaty requirements in the foreseeable future, this implies that they are unlikely to record maximum scores on those subitems where the Cukierman index is stricter and, by analogy, that present national legislation may already qualify for a maximum score according to the Cukierman methodology on other subitems, although the EU still sees a need for adaptation to Maastricht requirements.

Annex

Slovenia exhibits the lowest turnover rate of governors; Governor France Arhar was reappointed to a second term of office in 1995. However, in the wake of the government crisis early this year, rumors spread that France Arhar was offered a political position in the newly founded united conservative party. Meanwhile, Governor Arhar repeatedly reaffirmed his intention to remain central bank governor until the end of his second term of office (see Reuters, April 13 and August 3, 2000, respectively).

The turnover rate of governors for the Czech Republic is also comparatively low, ranking second among the CEEC-5. But taking a closer look at the recent history of the Czech National Bank's top management, a somewhat different picture emerges. In December 1997, Governor Josef Tošovský left the central bank to become prime minister for an interim period until early elections. Interestingly, he did not formally resign as a central bank governor, but was dismissed from his post by President Václav Havel because of incompatibility of a government position with his office according to the central bank law. As Tošovský declared his intention to return to his function when he took over his post as a prime minister, Vice Governor Pavel Kysilka was appointed acting governor only for this interim period. In fact, Tošovský was formally reappointed by President Havel in July 1998 for six years, a few weeks after the parliamentary elections had been held. Moreover, the turnover rate of governors calculated for the Czech Republic may change in the near future, as Mr. Tošovský officially submitted his candidacy for a position in the EBRD in June 2000.[1])

The calculated turnover rate for Hungary comes third among those of the CEEC-5, substantially lower than in 1997. This is due to the fact that no personnel changes have taken place since 1997, as Governor Surányi was still serving his six-year term. However, the relationship between the Hungarian government and the central bank (NBH) seemed to be marked by growing tension between Governor Surányi and the government. Following a dispute over losses made by an NBH subsidiary in Vienna in the first half of the 1990s, since September 1999 the government had refused to appoint any new vice governors to the central bank until a parliamentary committee closed the investigation of the causes. Meanwhile, the terms of two vice governors (Szapáry and Kovács, September and December 1999,

1 *However, a final decision had not been taken at the editorial close. See Reuters, various reports, June to September, 2000.*

respectively) have expired and successors have not yet been appointed, so that currently only one vice governor remains in office.[1])

It is interesting to note that Slovakia's calculated turnover rate is the only rate among the CEEC-5 that increased from 1997. This is merely due to the fact that central bank governor Vladimír Masár was not reappointed when his six-year term of office expired, but was replaced by his deputy, Marián Jusko.

As in 1997, Poland still records the highest rate of turnover of governors among the CEEC-5. This score, however, is solely due to the frequent changes of central bank governors in the period from 1989 to 1992, and does not reflect Poland's successful track record in terms of CBI since the appointment of Hanna Gronkiewicz-Waltz in March 1992. During her first term of office, a number of important regulations on CBI were included in the new Polish Constitution, thus providing the legal basis for the new central bank law which was adopted a few months after Governor Gronkiewicz-Waltz was reappointed.

Cutoff date: September 30, 2000.

References

Act LX of 1991 on the National Bank of Hungary. 1991. As amended by the Acts LXIX of 1991, LXX of 1992, IV of 1994 and CXX of 1996.

Act on the Czech National Bank dated December 17, 1992.

Äimä, Kustaa. 1998. Central Bank Independence in the Baltic Countries. Bank of Finland Review of Economies in Transition 4/98: 5–36.

Cukierman, Alex. 1992. Central Bank Strategy, Credibility, and Independence: Theory and Evidence. Cambridge: MIT Press: 371–455.

Cukierman, Alex, Geoffrey P. Miller and Bilin Neyapti. 1998. Central Bank Reform, Liberalization and Inflation in Transition Economies – An International Perspective. mimeo. Tel Aviv University, Israel.

Cukierman, Alex, Steven B. Webb and Bilin Neyapti. 1993. Measuring the Independence of Central Banks and its Effects on Policy Outcomes. In World Bank Economic Review 6: 353–398.

European Commission. 1999 a. Regular Report on the Czech Republic's Progress towards Accession (December).

– 1999 b. Regular Report on Hungary's Progress towards Accession (December).

– 1999 c. Regular Report on Poland's Progress towards Accession (December).

– 1999 d. Regular Report on Slovakia's Progress towards Accession (December).

– 1999 e. Regular Report on Slovenia's Progress towards Accession (December).

European Monetary Institute. 1996. Progress towards Convergence 1996. (November): 98–107.

– 1998. Convergence Report – Report required by Article 109 j of the Treaty establishing the European Community (March): 11–13.

1 *Although the NBH's supervisory board meanwhile reported to parliament that no irregularities by the current management could be found on examination of this issue, a decision on appointing new vice presidents had not yet been taken at the editorial close.*

Grilli, Vittorio, Donato Masciandaro and Guido Tabellini. 1991. Political and Monetary Institutions and Public Financial Policies in the Industrial Countries. In Economic Policy (October): 341–392.

Huterski, Robert, Richard Nicholls and Zenon Wisniewski. 1997. Central Bank Independence in Poland, Diskussionspapier Nr. 34, Universität der Bundeswehr Muenchen.

Internet homepages of the Bank of Slovenia (www.bsi.si), the Czech National Bank (www.cnb.cz), the National Bank of Hungary (www.mnb.hu), the National Bank of Poland (www.nbp.pl), the National Bank of Slovakia (www.nbs.sk).

Loungani, Prakash and Nathan Sheets. 1997. Central Bank Independence, Inflation and Growth in Transition Economies. In Journal of Money, Credit and Banking 29 (August): 381–399.

Lybek, Tonny. 1999. Central Bank Autonomy, Inflation and Output Performance in the Baltic States, Russia, and Other Countries of the Former Soviet Union, 1995–1997. IMF Working Paper WP/99/4 (January).

Maliszewski, Wojciech. 1997. Central Bank Independence in Transition Economies. In CASE Studies and Analyses 120 (December).

– 2000. Central Bank Independence in Transition Economies. In Economics of Transition (forthcoming).

Mangano, Gabriel. 1998. Measuring Central Bank Independence: A Tale of Subjectivity and of its Consequences. In Oxford Economic Papers, Special Issue on Central Bank Independence (July): 468–492.

Pospisil, Jiri. 1997. Inflation and the Independence of a Central Bank. Have we had any experience in the Czech Republic? In Eastern European Economics 35 (2) (March–April): 21–28.

Radzyner, Olga and Sandra Riesinger. 1997. Central Bank Independence in Transition: Legislation and Reality in Central and Eastern Europe. In Focus on Transition. Vienna: Oesterreichische Nationalbank (1) 57–84.

Reuters. Selected reports from the period 1997 to 2000.

Siklos, Pierre. 1994. Central Bank Independence in the Transitional Economies: A Preliminary Investigation of Hungary, Poland, the Czech and Slovak Republics. In The Developments and Reform of Financial Systems in Central and Eastern Europe: 71–98.

The Act on the National Bank of Poland of August 29, 1997.

The Law on the Bank of Slovenia dated June 25, 1991.

The National Bank of Slovakia Act dated November 18, 1992.

Treaty on European Union. 1992. Including Protocol on the Statute of the European System of Central Banks and of the European Central Bank, 1992, consolidated version.

Wagner, Helmut. 1998. Central Banking in Transition Countries. IMF Working Paper WP/98/126 (August).

– 1999. Central Bank Independence and the Lessons for Transition Economies from Developed and Developing Countries. In Comparative Economic Studies, XLI, 4 (winter 1999): 1–22.