Legal and Actual Central Bank Independence: A Case Study of Bank Indonesia

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ABSTRACT

Indicators of central bank independence (CBI) based on the interpretation central bank laws in place may not capture the actual independence of the central bank. This paper develops an indicator of actual independence of the Bank Indonesia (BI), the central bank of Indonesia, for the period 1953-2008 and compares it with a new legal CBI indicator based on Cukierman (1992). The indicator of actual independence captures institutional and economic factors that affect CBI. We find that before 1999, legal and actual independence of BI diverged substantially. After a new central bank law was enacted, the legal independence of BI increased and converged to actual independence.

Key words: Legal independence; Actual independence; Financial independence; Bank Indonesia

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INTRODUCTION

During the last two decades, many countries changed their central bank laws to grant their monetary authorities greater independence. Also the central bank of Indonesia (Bank Indonesia, BI) became more independent in 1999. It is widely believed that without sufficient independence, central banks will give in to pressure from politicians who may be motivated by short-run electoral considerations or may value short-run economic expansions highly while discounting the longer-run inflationary consequences of expansionary policies (Walsh, 2005).[1] If the ability of politicians to distort monetary policy results in excessive inflation, countries with an independent central bank should experience lower rates of inflation.[2]

This paper assesses the independence of Bank Indonesia by constructing and comparing two measures of independence: a legal independence indicator and an actual independence indicator. Our main finding is that the actual independence of Bank Indonesia diverged from legal independence before the bank became legally independent in 1999. During this period, the actual independence of Bank Indonesia was higher than its legal independence. After the central bank law was changed in 1999, legal independence increased significantly and converged to actual independence.

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[1] One theory underlying this view is the time inconsistency approach to monetary policy-making. The basic message of this theory is that government suffers from an inflationary bias and that, as a result, inflation is sub-optimal. Rogoff (1985) has shown that when monetary policy is delegated to an independent and 'conservative' central banker, this inflationary bias will be reduced. Conservative means that the central banker is more averse to inflation than the government, in the sense that (s)he places a greater weight on price stability than the government does.

[2] Indeed, empirical research focusing on the relationship between central bank independence (CBI) and inflation, suggests that average inflation is negatively related to measures of CBI (see Eijffinger and De Haan, 1996; Berger *et al*. 2001; and Crow and Meade, 2007 for summaries).

Most empirical studies on central bank independence (CBI) use either an indicator based on central bank laws in place, or an indicator based on the so-called turnover rate of central bank governors. The most widely employed legal CBI index is from Cukierman (1992) and Cukierman *et al*. (1992)[3], although alternative measures have been developed (see Arnone *et al*. 2006 for an extensive comparison of the various CBI indicators). A serious drawback of CBI indicators based on the central bank laws in place is that the interpretation of these laws is subjective because many central bank laws are incomplete and leave room for different interpretations (Berger *et al*., 2001). In addition, legal independence measures tend to be static and cannot capture institutional and economic factors that affect the actual independence of the central bank. Legal measures of CBI may therefore not reflect the true relationship between the central bank and the government. Especially in countries where the rule of law is less strongly embedded in the political culture, there can be wide gaps between the formal, legal institutional arrangements and their practical impact (Walsh, 2005).

Cukierman (1992) and Cukierman *et al.* (1992) argue that the actual average term in office of the central bank governor may therefore be a better proxy for CBI than measures based on central bank laws. The turnover rate of central bank governors (TOR) is based on the presumption that, at least above some threshold, a higher turnover of central bank governors indicates a lower level of independence. However, a low TOR does not necessarily imply that the central bank is independent. It could reflect the presence of a subservient governor who tends to stay in office longer. Furthermore, also the TOR may not fully capture the institutional and economic changes, which affect central bank

[3] The only difference between the indicators of Cukierman (1992) and Cukierman *et al*. (1992) is the procedure employed to aggregate the various dimensions of CBI into one measure.

independence in practice. Cukierman (2007) therefore constructed an index of actual CBI by considering various economic and institutional aspects, such as financial market development, the size of government deficits, the type of exchange rate regime, and the function of the central bank as a development bank.

We extend both the legal CBI index constructed by Cukierman (1992) and the actual CBI index introduced by Cukierman (2007) in order to assess the independence of Bank Indonesia. First, in constructing the legal index we will add financial independence to the Cukierman legal index. Financial independence is defined as the ability of the central bank to attain its objective(s) efficiently without financial assistance from the government (Stella, 2005). In practice, financial independence is represented by a strong income position that provides the central bank with necessary means to obtain its objective(s) (see Cukierman, 2008; Jacome and Vazquez, 2008). The strength of central bank financial position is rarely discussed since theoretically central banks are assumed to have unlimited costless ability to meet their obligations, for instance by creating money. However, the assumption is not realistic as central banks can not both obtain its target and create money at the same time (see Stella, 2005). Therefore, considering financial independence becomes relevant in measuring central bank independence. Second, in measuring the actual independence of Bank Indonesia, we consider institutional and economic aspects that possibly affect each item of the legal CBI index of Cukierman (1992) and examine the implementation of the central bank law. By confronting both CBI measures, we are able to compare the legal and actual independence of Bank Indonesia, since its creation in 1953 until 2008.

This paper is organized as follows. Section 2 explains the methodology applied to construct the legal and the actual CBI indicators. Section 3 constructs the legal index of Cukierman (1992) for Bank Indonesia and compares it with legal indexes of other studies. This section also compares the legal independence of Bank Indonesia and central banks in other developing countries. Section 4 presents the extended legal index for Bank Indonesia, while section 5 constructs the actual CBI index for Bank Indonesia. Section 6 compares the legal and actual CBI index for Bank Indonesia. The final section offers the conclusions.

METHODOLOGY

In order to assess the degree of CBI of Bank Indonesia, we construct indicators of legal and actual independence. Our legal index for Bank Indonesia is based on Cukierman's (1992) indicators. However, due to differences in interpretation of the various central bank laws in place our index differs from that of Cukierman. To minimize subjectivity and to check our interpretation of the laws in place, we interviewed staff of Bank Indonesia.[4] Moreover, we compared our index with those of other studies that employ Cukierman's (1992) methodology, like Polillo and Guillén (2005). In addition, in constructing the legal index for Bank Indonesia financial independence is included. As legal CBI indexes tend to be static and cannot capture the institutional and economic factors that affect the actual independence of a central bank, we construct an index of actual independence for Bank Indonesia following a similar approach as Cukierman (2007).

[4] The interviews were held in March 2009 in Bank Indonesia, Jakarta, Indonesia. We discussed the score of each component of our legal index with Bank Indonesia's legal department.

The extended Cukierman index of legal CBI

The index of Cukierman (1992) includes 16 components - each coded on scale of 0 (lowest level of independence) to 1 (highest level of independence) - covering 4 main aspects of CBI: independence of the chief executive officer (CEO), independence in policy formulation, preference for low inflation, and absence of forced lending to the government. As outlined before, we add financial independence to the Cukierman legal index. Theoretically, central banks are assumed to have unlimited costless ability to meet their obligation, for instance by creating money. However, at the same time, in practice central banks should sacrifice their target of inflation.[5] Moreover, when central banks experienced losses, they need recapitalization from the government to conduct monetary policy. It will reduce the independence of central banks from government or political interventions. Therefore, considering financial independence becomes relevant in measuring central bank independence. We consider three components of financial independence: determination of the central bank's budget, decision-making on the allocation of central bank profits, and the responsibility of the central bank to bear its losses.

A central bank that has authority to determine its budget and profit allocation is considered to be financially independent and assigned the highest score (1). On the other hand, if government or parliament intervene, for instance because they have to approve the budget and profit allocation, the central bank is not financially independent and assigned the lowest score (0). With respect to losses, the highest score is given to central

[5] Central Bank of Argentina, central bank of Jamaica, and central bank of Uruguay are the examples of central banks which were experiencing losses with poor economic performances (see Stella, 2005).

banks that are responsible for their own losses without any assistance from the government. The lowest score is assigned to central banks requiring government's assistance to recapitalize.

Since we add three components of financial independence to the Cukierman (1992) index, the total number of components is 19. Our overall index is the total score on these items divided by the total number of items. This implies that the weight of financial independence is 0.16 (3 items covering financial independence divided by 19). The weights of the other four main aspects of legal CBI are: independence of the CEO: 0.21; independence in policy formulation: 0.16; preference for low inflation: 0.05; and absence of forced lending to the government: 0.42. Appendix A provides a detailed comparison of the extended legal index and the Cukierman (1992) index.

A new index measuring actual independence

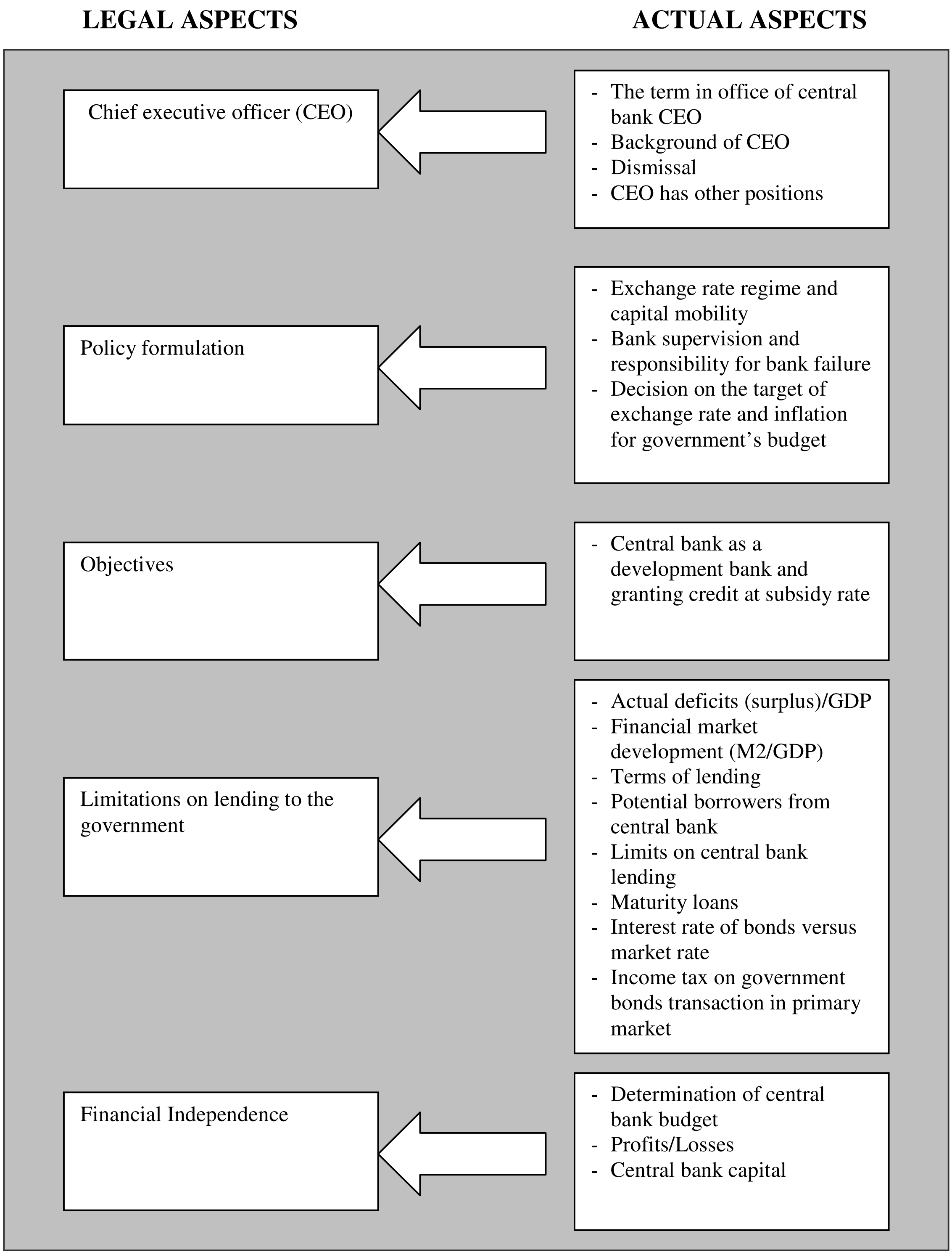
We extend Cukierman's (2007) approach to come up with an index of actual CBI by considering institutional and economic aspects that possibly affect each item of the legal CBI index of Cukierman (1992). Furthermore, we examine the implementation of central bank law in practice. Figure 1 show the information used to construct the actual index. The index also consists of 19 components covering the same five dimensions of CBI as the legal index discussed in the previous section.

The first dimension, independence of the CEO, is affected by the tenure of the CEO, the background of the CEO, the frequency of and grounds for dismissal, and other positions of the CEO. The item on the tenure of the CEO examines whether central bank governor turnover overlaps with executive change. It is closely related to the political vulnerability of central banks introduced by Cukierman and Webb (1995). When the central bank governor is replaced within 1 month after the change of the executive, the central bank is not independent from political intervention. Regarding the background of CEO, we consider five possibilities: independent expert (highest score), central bank staff, central bank/government staff, government staff, and politician (lowest score). If the CEO keeps his position until the end of his legal term in office, the central bank is considered independent from political pressure. If the central bank governor is replaced frequently without clear reasons, the central bank is not independent. In between, we consider other reasons for dismissal (running from a high to a low score): resignation; poor performance; crime and corruption; reasons related to policy; and political participation. If the CEO of the central bank holds other positions, this may affect the independence of the central bank. For instance, if the CEO also has a position in government he will not be independent from political interests.

The second aspect of CBI is policy formulation. In practice, independence in formulating monetary policy is affected by institutional arrangements such as exchange rate regimes and capital mobility; bank supervision and the role as lender of last resort. Under a fixed exchange rate regime and perfect capital mobility, the central bank tries to maintain the exchange rate constant and minimize the difference between the domestic and foreign interest rates. In such a situation the central bank will be shielded from political pressure, as any deviation from the objective to keep the exchange rate fixed will be highly visible. In contrast, under a flexible exchange rate and perfect capital mobility, both the exchange rate and the interest rate are fully determined by the markets and this provides politicians with the opportunity to intervene in monetary policymaking.

Moreover, independence in formulating monetary policy is affected if the central bank is responsible for banking supervision and has a role as lender of last resort (see Cukierman, 2007). A central bank, which is responsible for banking supervision, faces a trade-off in the short run between attaining financial market stability and price stability (see Noia and Giorgio, 1999; Goodhart and Schoenmaker, 1995). For instance, a high interest rate policy needed to maintain price stability will hurt the banking sector and increases the probability of bank failures. As lender of last resort, the central bank may need to inject liquidity at the risk of sacrificing price stability. Therefore, a central bank with responsibility for banking supervision and with a role as lender of last resort is not independent in formulating monetary policy. The final variable that may affect CBI is the role of the central bank in deciding on the assumptions underlying the government budget plans. If the central bank has no role to play, it is arguably not independent in formulating its monetary targets.

FIGURE 1 Legal and Actual Aspects of Central Bank Independence



The third dimension of CBI is the objective of monetary policy. In practice, CBI can be affected if the central bank functions as a development bank, as it will be more concerned with stimulating economic growth and employment than with maintaining price stability. Therefore, in constructing our actual CBI index, we assign the lowest score to a central bank that is heavily involved in granting subsidized credits to the private sector.

The next aspect of CBI refers to limitations on lending to the government. In practice, the likelihood that a central bank will provide credit to the government will depend on the magnitude of fiscal deficits and the degree of financial development (see Cukierman, 2007). The higher fiscal deficits are, the greater will be the likelihood that the central bank provides loans to the government. If financial markets are not well developed, the economy's capacity to absorb government securities is limited. As pointed out by Sargent and Wallace (1981), the government may force the central bank to finance deficits if this maximum has been reached. Therefore, central bank lending to the government will be high if financial markets are less developed. We use the ratio of M2/GDP as an indicator of financial market development. The numerical scores for financial development are based on the quartile distribution of M2/GDP for all countries.[6] The final variable that we take up under this heading is taxes levied on government bonds transaction in primary market. If the government levies taxes on government bonds transaction in primary market, it will decrease the incentive of the central bank to buy governments securities in the primary market. This issue arose in Indonesia when the

[6] Data come from the World Bank's World Development Indicators (WDI) data set.

Ministry of Finance levied income taxes on government bond transactions in the primary market of Bank Indonesia.[7]

Finally, we turn to financial independence. As suggested by Stella (2005), in order to be financially independent, a central bank requires a strong financial position. If a central bank does not have a strong financial position, it will be restricted to conduct monetary policies that will create losses but are needed to attain monetary objectives, such as open market operations and sterilization of foreign currency inflows (see Dalton and Dziobek, 2005). To measure financial independence, we consider the actual responsibility for decisions regarding the central bank budget and the distribution of central bank profits. The final variable related to financial independence in practice is the difference between actual and required capital. If the central bank's capital is higher than required, the central bank is financially independent to conduct monetary policy. On the other hand, when the central bank's capital is lower than required and it needs assistance from the government to improve its capital, the central bank is not financially independent. Appendix B provides the detailed components of the actual index in comparison with the legal index.

[7] This policy had been conducted for two years (from 2006 until 2008). The income taxes on government bond transactions were only directed to Bank Indonesia. In 2008, a new tax law was enacted that implied that Bank Indonesia should not pay this tax anymore. The main reason for this change was to give incentives to Bank Indonesia to buy government bonds in the primary market.

LEGAL INDEPENDENCE OF BANK INDONESIA

Cukierman (1992) index

The legal index is constructed based on the interpretation of the central bank laws in place in Indonesia. Four central bank laws have been enacted between 1953, when Bank Indonesia was created, to the present time. The Act 11/1953 was created to nationalize the Javanese Bank, the former central bank before Indonesia became independent. The Act 11/1953 has been revised twice in order to relax the maximum amount of credit that Bank Indonesia could provide to the government. Due to those revisions the legal CBI index of Bank Indonesia decreased. Under President Soeharto, a new law (Act 13/1968) was introduced. This law has been in place for around 30 years. In 1999, Bank Indonesia was mandated as an independent institution by the new Act 23/1999. Because parliament wanted to curtail the independence of Bank Indonesia, the law was revised in 2004. Appendix C provides further details underlying the score for each component of the index under the various laws in place.

Legal independence of Bank Indonesia under Act 11/1953 (0.39) was higher than under Act 13/1968 (0.22). The new act reduced the independence of Bank Indonesia especially due to the relaxation of the provisions concerning credit to the government. Under Act 13/1968, there is no limit to provide credit to the government. Moreover, Bank Indonesia received a function as development bank. Table 1 shows the scores for the Cukierman (1992) index for legal independence of Bank Indonesia for the various laws in place.

Under Act 23/1999, the legal independence of Bank Indonesia increased significantly from 0.22 to 0.73. All components of the legal CBI index increased, except for the item on the interest rate on loans to the government on which the law did not provide details. Based on the new law, Bank Indonesia was strictly prohibited to provide credit to the government and the private sector. In addition, Bank Indonesia became more independent as the central bank governor is appointed by parliament and not by the government, while maintaining price stability became the only objective of Bank Indonesia (see Alamsyah et al., 2001). However, as parliament considered Bank Indonesia as too independent, Act 23/1999 was replaced by Act 3/2004. Consequently, the legal independence of Bank Indonesia decreased to 0.63. Under Act 3/2004, Bank Indonesia is allowed to buy short-term government bonds in the primary market. This implies that Bank Indonesia can provide credit to the government.

TABLE 1 Legal Independence Index of Bank Indonesia, 1953 -2008[a]

No	Description of variable	The Act 11/1953	The Act 11/1955	The Act 84/1958	The Act 13/1968	The Act 23/1999	The Act 3/2004
1	**Chief executive officer (CEO)**	**0.31**	**0.31**	**0.31**	**0.36**	**0.71**	**0.71**
	Term in office	0.50	0.50	0.50	0.50	0.50	0.50
	Who appoints CEO	0.25	0.25	0.25	0.25	0.50	0.50
	Dismissal	0.00	0.00	0.00	0.17	0.83	0.83
	May CEO hold other offices in government?	0.50	0.50	0.50	0.50	1.00	1.00
2	**Policy formulation**	**0.27**	**0.27**	**0.27**	**0.27**	**0.75**	**0.75**
	Who formulates monetary policy?	0.67	0.67	0.67	0.67	1.00	1.00
	Who has final word in resolution of conflict?	0.20	0.20	0.20	0.20	1.00	1.00
	Role in the government's budgetary process	0.00	0.00	0.00	0.00	0.00	0.00
3	**Objectives**	**0.40**	**0.40**	**0.40**	**0.40**	**0.60**	**0.60**
4	**Limitation on lending to the government**	**0.46**	**0.50**	**0.46**	**0.09**	**0.81**	**0.57**
	Advances (limitation on non-securitized lending)	0.67	0.67	0.67	0.00	1.00	1.00
	Securitized lending	0.00	0.00	0.00	0.00	1.00	0.67
	Terms of lending (maturity, interest, amount)	0.67	0.67	0.67	0.33	1.00	0.33
	Potential borrowers from the bank	1.00	1.00	1.00	0.00	0.00	0.00
	Limits on central bank lending defined in	0.33	1.00	0.33	0.00	1.00	0.00
	Maturity of loans	0.00	0.00	0.00	0.00	0.00	0.67
	Interest rates on loans must be	0.25	0.25	0.25	0.50	0.25	0.75
	Prohibition from buying/selling government securities in the primary market	0.00	0.00	0.00	0.00	1.00	0.00
Average Index		**0.39**	**0.41**	**0.39**	**0.22**	**0.75**	**0.63**

[a] The legal independence index is constructed by interpreting the laws regarding Bank Indonesia in place in Indonesia

Source: The Act 11/ 1953; the Act 11/1955; the Act 84/1958; the Act 13/1968; the Act 23/1999; the Act 3/2004

Our index compared with other similar legal CBI indicators

This section compares our legal index of Bank Indonesia based on Cukierman (1992) with similar indicators as suggested by Cukierman et al. (1992), Polillo and Guillén (2005), and Ahsan et al. (2008). Polillo and Guillén (2005) employed the Cukierman (1992) method in constructing their legal index of CBI for several countries. Ahsan et al. (2008) used a different method, but some components of his index are comparable to the components of the Cukierman (1992) index. We use the time periods as suggested by Cukierman (1992), i.e., 1950-59; 1960-71; 1972-79; and 1980-89. In addition, we use the periods 1990-98, 1999-2003, and 2004-now. Table 2 shows a detailed comparison of our legal index of Bank Indonesia with those of the other studies.

It becomes clear that our legal index differs from the Cukierman et al. (1992) index. During the period of 1950-59, our legal index is higher. Some components, such as the final word in resolution of conflict; objectives; advance; and term of lending are assigned a higher score than in Cukierman et al. (1992). For instance, the Act 11/1953 explicitly stated that in case there is disagreement between the government and the governor of Bank Indonesia on policy decision, government has a final word subject to possible protest by central bank governor. It implies that the governor of Bank Indonesia still has the right to propose his opinion in formulating monetary policy. Hence, we assigned a score of 0.2 for this sub-component rather than zero as in Cukierman et al. (1992). Moreover, for the component "objective", Cukierman et al. (1992) assigned a score of 0, which means that price stability is not considered as an objective for monetary policy. However, we assigned a score 0.4 for this component as under Act 11/1953 Bank Indonesia is responsible for price stability and credit development.

In addition, there is strange coding in the Cukierman index for the period 1960-1971 during which there were two laws in place: the Act 84/1958 (revision of the Act 11/1953) for the period 1960-1967 and the Act 13/1968 for the period 1968-1971. According to Cukierman's method, whenever a change of law occurred twice within a decade, the classification was done in line with the legislation that was in effect during at least half of that decade. It means that during the period 1960-1971, the coding is based on Act 84/1958. As mentioned above, Act 84/1958 is just a revision of Act 11/1955; the only change being the limit of lending. However, the Cukierman score for the component "objective" the in period 1960-1971 increased from 0 in 1950-1959 to 0.4. This does not make much sense since there was no revision regarding this component in Act 84/1958.

The legal independence of Bank Indonesia significantly increased when the new Act 23/1999 was enacted. Our legal index during period 1999-2003 is 0.75. The index constructed by Polillo and Guillén (2005) is even higher (0.8). Unfortunately, we cannot make a detailed comparison for all components because Polillo and Guillén (2005) do not provide detailed information. In 2004, Act 23/1999 was replaced by Act 3/2004, which decreased independence due to a lower score for the component "limitation on lending". Our scoring for the most recent law can be compared with some components that Ahsan et al. (2008) also included in his index. For dismissal, he assigned a score 0.5 while we gave a score of 0.83. Under Act 3/2004, the Governor of Bank Indonesia shall not be discharged during his term in office, unless he resigns or if there is evidence, which proves that he has committed a crime, or is permanently prevented from serving his office. In our opinion, these provisions are not related to policy, hence, the score for dismissal is 0.83. The score for the component "objective" is also different from Ahsan's. For this component, we assign a score of 0.6 since the Act states that the objective of the central bank is not only price stability but also financial stability.

TABLE 2 Our Legal Index Compared with Other Legal CBI Indicators for Bank Indonesia[a]

No	Description of variable	Our Index 1950-1959	Cukier-man's Index 1950-1959	Our Index 1960-1971	Cukier-man's Index 1960-1971	Our Index 1972-1979	Cukier-man's Index 1972-1979	Our Index 1980-1998	Cukier-man's Index 1980-1998	Our Index 1999-2003	Polillo& Guillen Index 1999-2003	Our Index 2004-2009	Ahsan Index 2004-2009
1	**Chief executive officer (CEO)**												
	Term of office	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50		0.50	0.50
	Who appoints CEO	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.50		0.50	0.50
	Dismissal	0.00	0.00	0.00	0.00	0.17	0.00	0.17	0.00	0.83		0.83	0.50
	May CEO hold other offices in government?	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	1.00		1.00	1.00
2	**Policy formulation**												
	Who formulates monetary policy?	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	1.00		1.00	1.00
	Who has final word in resolution of conflict?	0.20	0.00	0.20	0.00	0.20	0.20	0.20	0.20	1.00		1.00	1.00
	Role in the government's budgetary process	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	
3	**Objectives**	0.40	0.00	0.40	0.40	0.40	0.40	0.40	0.40	0.60		0.60	0.80
4	**Limitation on lending to the government**												
	Advances (limitation on non-securitized lending)	0.67	0.33	0.67	0.33	0.00	0.00	0.00	0.00	1.00		1.00	
	Securitized lending	0.00	0.33	0.00	0.33	0.00	0.00	0.00	0.00	1.00		0.67	
	Terms of lending (maturity, interest, amount)	0.67	0.00	0.67	0.00	0.33	0.33	0.33	0.33	1.00		0.33	
	Potential borrowers from the bank	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00		0.00	
	Limits on central bank lending defined in	0.33	0.33	0.33	0.33	0.00	0.33	0.00	0.33	1.00		0.00	
	Maturity of loans	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.33	0.00		0.67	
	Interest rates on loans must be	0.25	0.25	0.25	0.25	0.50	0.25	0.50	0.25	0.25		0.75	
	Prohibition from buying/selling government securities in the primary market	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00		0.00	
	Average Index	**0.39**	**0.24**	**0.39**	**0.30**	**0.22**	**0.27**	**0.22**	**0.27**	**0.75**	**0.80**	**0.63**	

[a] A blank cell indicates the data is not available for that year

Source: Cukierman et al. (1992); Polillo and Guillén (2005); Ahsan et al. (2008)

Bank Indonesia compared to central banks in other developing countries

Table 3 shows the legal independence of various central banks in developing countries. In the first three decades, most central banks received a low score on the Cukierman index of legal independence (below 0.5). During 1972-1989, Bank Indonesia is less independent compared to most central banks in other developing countries, although the index of central banks in some countries (like Brazil, Morocco, Nepal, Pakistan, and Panama) is even lower. In the 1990s, various countries (like Argentina, Chile, Mexico, Peru and Venezuela) amended their central bank laws thereby increasing legal independence. After the new Act 23/1999 was introduced, the legal CBI index of Bank Indonesia increased significantly to 0.75, the second highest score. Only the central bank of Chile surpassed BI.

TABLE 3 Legal Independence of Bank Indonesia and Various Other Central Banks in Developing Countries

Countries	**Based on Cukierman's Index**				**Based on Polillo & Guillén Index**	
	1950-1959	**1960-1971**	**1972-1979**	**1980-1989**	**1990-1998**	**1999-2000**
Argentina			0.40	0.40	0.74	0.74
Bolivia	0.30	0.30	0.30	0.30	0.30	0.63
Botswana			0.33	0.33	0.33	0.45
Brazil		0.21	0.21	0.21	0.21	0.21
Chile	0.26	0.26	0.46	0.46	0.77	0.77
China	0.29	0.29	0.29	0.29	0.29	0.29
Colombia		0.27	0.27	0.27	0.44	0.44
Costa Rica		0.47	0.47	0.47	0.47	0.61
Egypt	0.52	0.52	0.49	0.49	0.55	0.55
Ethiopia			0.40	0.40	0.44	0.44
Honduras	0.43	0.43	0.43	0.43	0.43	0.55
India	0.25	0.34	0.34	0.34	0.34	0.34
Indonesia[a]	**0.39**	**0.39**	**0.24**	**0.24**	**0.24**	**0.75**
Kenya		0.44	0.44	0.44	0.44	0.50
Malaysia		0.36	0.36	0.36	0.36	0.36
Mexico	0.25	0.34	0.34	0.34	0.56	0.56
Morocco		0.14	0.14	0.14	0.14	0.14
Nepal	0.18	0.18	0.18	0.18	0.18	0.18
Nigeria		0.37	0.37	0.37	0.37	0.37

Pakistan	0.21	0.21	0.21	0.21	0.21	0.21
Panama	0.24	0.24	0.22	0.22	0.22	0.22
Peru		0.43	0.43	0.43	0.74	0.74
Philippines	0.43	0.43	0.43	0.43	0.48	0.48
South Africa	0.25	0.25	0.25	0.25	0.25	0.48
Thailand	0.27	0.27	0.27	0.27		
Uruguay	0.22	0.22	0.24	0.24	0.24	0.54
Venezuela	0.28	0.28	0.43	0.43	0.63	0.63

[a]The legal index for Indonesia is based on our index in table 2

Sources: Cukierman et al. (1992); Polillo and Guillén (2005)

THE EXTENDED LEGAL INDEX FOR BANK INDONESIA

We extend the Cukierman (1992) legal index by including financial independence proxied by responsibilities for (decisions on) the central bank's budget, the allocation of the central bank's profit, and the central bank's losses. Table 4 presents the extended legal index. Appendix A provides details for each component of the index. In this section we motivate our scores for financial independence.

Under the Act 11/1953 and the Act 13/1968, the central bank budget is proposed by the board of governors of Bank Indonesia and should be approved by the government. It implies that decisions on the central bank budget are taken by the central bank and the executive. Hence, we assign a score of 0.5 for the first component of financial independence. The score increased to the highest score 1, since Act 23/1999 stipulates that the central bank's budget is formulated by the central bank's governor without approval from the executive or legislative. After the Act 23/1999 was revised, the score for this component decreased as the new Act requires the legislative's approval of the operational budget. As a result, we assigned a score of 0.5.

The second component of financial independence refers to the allocation of the central bank's profits. Under Act 11/1953, it is up to BI to decide on the allocation of its profits and we therefore assigned the highest score. Under Act 13/1968, the allocation of the central bank's profit is decided upon by the central bank and the government. Consequently, the score for this component decreased to 0.5. However, according to Act 23/1999 and Act 3/2004, profits of BI should be transferred to the central bank's reserves until the solvency requirement is fulfilled. The rest of the profits should be transferred to the government. Thus, we assigned the highest score for this component.

The final component of financial independence is responsibility for the central bank's losses. If the law foresees that the government finances or recapitalizes the central bank when it experiences losses, the central bank will not be financially independent from political intervention. Under Act 11/1953 and Act 13/1968, BI was responsible for its losses by using its own reserves without any assistance from the government, so that we assigned the highest score. In contrast, Act 23/1999 and Act 3/2004 foresee that if central bank capital is lower than required, the government should recapitalize the bank by issuing bonds. If capital is higher than required, the central bank is responsible for its losses by using its reserves. Hence, we assigned a score of 0.5 for this component.

Including financial independence into the Cukierman's (1992) legal index components affects the overall legal index of Bank Indonesia. As we can see that the extended legal index of Bank Indonesia in table 4 is higher than the legal index of Bank Indonesia in table 1.

TABLE 4 The Extended Legal Independence Index for Bank Indonesia

No	Description of variable	Act No 11/1953	Act No 11/1955	Act No 84/1958	Act No 13/1968	Act No 23/1999	Act No 3/2004
1	**Chief executive officer (CEO)**	**0.31**	**0.31**	**0.31**	**0.36**	**0.71**	**0.71**
	Term of office	0.50	0.50	0.50	0.50	0.50	0.50
	Who appoints CEO	0.25	0.25	0.25	0.25	0.50	0.50
	Dismissal	0.00	0.00	0.00	0.17	0.83	0.83
	May CEO hold other offices in government?	0.50	0.50	0.50	0.50	1.00	1.00
2	**Policy formulation**	**0.27**	**0.27**	**0.27**	**0.27**	**0.75**	**0.75**
	Who formulates monetary policy?	0.67	0.67	0.67	0.67	1.00	1.00
	Who has final word in resolution of conflict?	0.20	0.20	0.20	0.20	1.00	1.00
	Role in the government's budgetary process	0.00	0.00	0.00	0.00	0.00	0.00
3	**Objectives**	**0.40**	**0.40**	**0.40**	**0.40**	**0.60**	**0.60**
4	**Limitation on lending to the government**	**0.46**	**0.50**	**0.46**	**0.09**	**0.81**	**0.57**
	Advances (limitation on non-securitized lending)	0.67	0.67	0.67	0.00	1.00	1.00
	Securitized lending	0.00	0.00	0.00	0.00	0.00	0.67
	Terms of lending (maturity, interest, amount)	0.67	0.67	0.67	0.33	1.00	0.33
	Potential borrowers from the bank	1.00	0.67	1.00	0.00	0.00	0.00
	Limits on central bank lending defined in	0.33	0.33	0.33	0.00	1.00	0.00
	Maturity of loans	0.00	0.00	0.00	0.00	0.00	0.67
	Interest rates on loans must be	0.25	0.25	0.25	0.50	0.25	0.75
	Central bank prohibited from buying or selling Government securities in the primary market?	0.00	0.00	0.00	0.00	1.00	0.00
5	**Financial Autonomy**	**0.83**	**0.83**	**0.83**	**0.67**	**0.83**	**0.67**
	Determination of the central bank's budget	0.50	0.50	0.50	0.50	1.00	0.50
	Determination of the allocation of bank profits	1.00	1.00	1.00	0.50	1.00	1.00
	Who is responsible for central bank losses	1.00	1.00	1.00	1.00	0.50	0.50
Average		**0.46**	**0.47**	**0.46**	**0.28**	**0.77**	**0.65**

[a] The extended legal independence index is constructed by adding additional aspect of independence, the so-called financial autonomy

Sources: The Act 11/ 1953; the Act 11/1955; the Act 84/1958; the Act 13/1968; the Act 23/1999; the Act 3/2004

THE ACTUAL INDEPENDENCE OF BANK INDONESIA

This section presents an indicator of the actual independence of Bank Indonesia. Details are presented in Table 5. It becomes clear that actual independence of BI varies over time. The lowest level of actual independence occurred during the period 1959-1965. During this period, three components of the index of actual independence (term in office of the CEO, objectives, and limitation on lending) received a low score compared to other periods.

Between 1959 and 1965, the turnover of most central bank governors overlapped (within 0-1 month) with a change of the executive. In addition, there were three dismissals of the governor during this period. Two of those dismissals (Soetikno Slamet in 1960 and Soemarno in 1963) were without a clear reason. In addition, Jusuf Muda Dalam, the fifth governor of Bank Indonesia, had a background as a politician. Therefore, the score for the component "background of the governor" is very low in this period. Furthermore, Bank Indonesia played an important role as a development bank providing (subsidized) credits to the private sector. Finally, large fiscal deficits (exceeding 6 % of GDP) and a low level of financial development (M2/GDP was less than 7%) further reduced the actual independence of Bank Indonesia.

In contrast, the average score for policy formulation components in the period 1959-1965 was relatively high. The change from a flexible to a fixed exchange rate system and the delegation of banking supervision from Bank Indonesia to a new ministry increased the actual independence in policy formulation (see Rahardjo, 1995).[8] In 1963, government relaxed the regulation requiring exporters to report all of their foreign exchange revenues to Bank Indonesia, thereby reducing the control on capital flows.

[8] A multiple exchange rate system was adopted in 1957 and the Governor of Bank Indonesia became member of the cabinet. In addition, banking supervision responsibility was delegated to a new ministry, the so-called the Ministry of Banking and Private Sectors Regulation (see also Bank Indonesia, 2005 and Bank Indonesia, 2006)

TABLE 5 Actual Independence Index of Bank Indonesia, 1953-2008[a]

No	Description of variable	1953-1958	1959-1965	1966-1982	1983-1998	1999-2003	2004-2008
1	**Chief executive officer (CEO)**	**0.77**	**0.56**	**0.68**	**0.62**	**0.91**	**0.79**
	Tenure of CEO	0.92	0.50	0.35	0.00	1.00	1.00
	Background of CEO	0.29	0.18	0.51	0.52	0.65	0.25
	Dismissal	0.86	0.69	0.95	0.96	1.00	0.90
	CEO holds other offices	1.00	0.86	0.88	1.00	1.00	1.00
2	**Policy formulation**	**0.14**	**0.38**	**0.25**	**0.20**	**0.50**	**0.25**
	Exchange rate regime and capital mobility	0.56	0.67	1.00	0.81	0.00	0.00
	Banking supervision and funding for bank failure	0.00	0.43	0.00	0.00	0.50	0.50
	Decision on inflation and exchange rate target	0.00	0.00	0.00	0.00	1.00	0.00
3	**Objective: Function as a development bank& credit subsidy**	**0.00**	**0.00**	**0.00**	**0.52**	**1.00**	**1.00**
4	**Limitation on lending to the government**	**0.44**	**0.33**	**0.39**	**0.56**	**0.60**	**0.56**
	Actual deficits(surplus)/GDP	0.61	0.28	0.55	0.71	0.74	0.67
	Financial market development	0.00	0.00	0.19	0.61	0.80	0.75
	Terms of lending (maturity, interest, amount)	0.67	0.67	0.37	0.33	0.00	0.00
	Potential borrowers from the bank	0.50	0.50	0.06	0.03	0.50	0.50
	Limits on central bank lending defined in	0.50	0.50	0.06	0.03	0.50	0.50
	Maturity of loans	0.33	0.33	0.65	0.67	0.67	0.67
	Interest rates on loans	0.50	0.50	0.50	0.50	0.75	0.75
	Tax on primary market transaction	0.00	0.00	0.00	1.00	1.00	0.80
5	**Financial Independence**	**0.83**	**0.83**	**0.83**	**0.83**	**1.00**	**0.77**
	Determination of central bank's budgets	0.50	0.50	0.50	0.50	1.00	0.50
	Profits/Losses	1.00	1.00	1.00	1.00	1.00	0.80
	The actual capital of central bank	1.00	1.00	1.00	1.00	1.00	1.00
	Actual independence of Bank Indonesia	**0.54**	**0.47**	**0.51**	**0.60**	**0.78**	**0.66**

[a] The actual index is constructed based on the indicators of the actual independence in appendix B

Sources: Bank Indonesia (2005); Bank Indonesia (2006); Bank Indonesia (1953-2008); International Financial Statistics (IFS); World Development Indicators (WDI); Rahardjo (1995)

The index of actual independence of Bank Indonesia increased during consecutive periods until 2003. During the period 1966-1982, known as the period of stabilization and rehabilitation, the components “background of the CEO” and “dismissal” contributed significantly to the increase of actual independence. The governor during this period (Rachmat Saleh) was from Bank Indonesia. Moreover, all governors were in office until the end of their legal term in office, while the improvement of the public finances and the fast financial development increased the independence of Bank Indonesia in practice.

The next period, 1983-1998, during which the government liberalized policies, various components of the index of actual independence (notably objectives and limitation on lending to government) increased significantly. The maximum on interest rate was abolished. The real interest rate was positive in this period. Moreover, in 1990 Bank Indonesia restricted its credits to the private sector, while fiscal deficits were reduced and financial markets developed further, triggered by the deregulation policies conducted by the government in the 1980s. The deregulation in the banking sector aimed to attract both domestic and foreign investors and to mobilize domestic savings for financing economic development.

The actual independence of Bank Indonesia reached the highest level during 1999-2003, when the central bank was legally mandated as an independent institution. All the components of the index of actual independence increased during this period. The component "policy formulation" increased significantly as Bank Indonesia introduced an inflation targeting policy in 1999. In addition, even though Bank Indonesia remained responsible for banking supervision, the costs of the banking crisis burdened the government's budget. For instance, in the banking crisis in 1998 liquidity support was provided by the government rather than Bank Indonesia. Moreover, in 2004, the Deposit Insurance Agency (DIA) was officially established to guarantee private savings in the banking sector (see Siregar and James, 2006).[9] Due to those institutional changes, Bank Indonesia faces less of a trade off between attaining inflation stability and maintaining financial stability in the short run. Concerning financial independence, Bank Indonesia

[9] DIA is an independent institution, which was established with a paid-up capital of Rp 4 trillion. The new deposit insurance scheme covers deposits of up to only Rp 5 billion by March 2006. The ceiling was reduced to Rp 2 billion in September 2006, and finally be reduced to Rp 100 million by March 2007 (see Siregar and James, 2006)

could determine its budget solely without any interventions from government or parliament.

However, actual independence of Bank Indonesia decreased during 2004-2008 because of several factors. During this period, both governors (Burhanuddin Abdullah and Boediono) had a background as a former minister of economy. In addition, the dismissal of governor Burhanuddin Abdullah due to corruption reduced the actual independence of BI. Related to policy formulation, government decided on the inflation and exchange rate assumptions underlying the government budget plans. Moreover, the elimination of the tax on the primary government bond market transactions of BI increased the attractiveness for the central bank to buy government bonds in the primary market. Finally, since 2004 BI could no longer determine its budget solely as approval by the legislative was required.

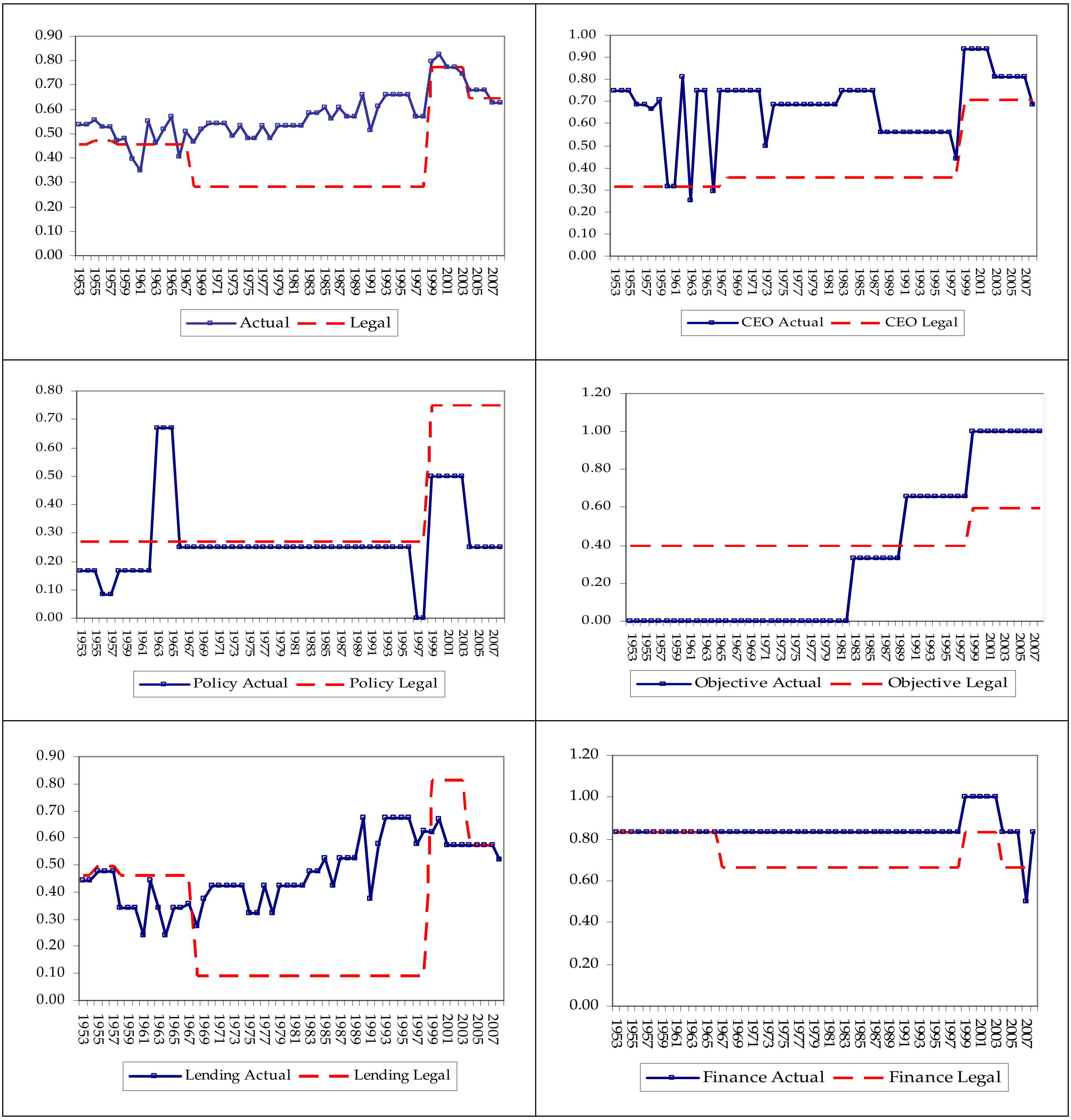
LEGAL VERSUS ACTUAL INDEPENDENCE OF BANK INDONESIA

Figure 2 shows that the actual and legal independence of Bank Indonesia diverged notably during the period 1968-1998. Under Act 13/1968, the legal independence dropped while actual independence increased. In fact, the index of actual independence was significantly higher than the legal index in this period. Several factors, like the improvement of the government's fiscal position and the development of financial markets, decreased the pressure on Bank Indonesia to provide credit to the government, be it directly or indirectly. Also other factors, like the background of governors (mostly coming from Bank Indonesia) and the absence of dismissals, contributed to the divergence of the actual index from the legal index. Interestingly, these developments occurred under the authoritarian Soeharto regime. After 1999, when the central bank was mandated as an independent institution, the legal index increased significantly and converged to the actual index.

Looking at each group of components, prior to 1999 the actual independence of the CEO is generally higher than the legal index would suggest. Only in 1963, the actual index of CEO is significantly lower than the legal index of CEO because the governor of Bank Indonesia at that time, Jusuf Muda Dalam, belongs to one a political party. Moreover, the actual index of CEO during the period 1953-1967 was volatile because the central bank governor turnover rate was very high. Due to the introduction of a flexible exchange rate regime in 1998, the actual independence of Bank Indonesia in formulating monetary policy dropped to the lowest level. After Bank Indonesia was prohibited to provide credits to the private sector in 1999, the actual index of objectives is higher than the legal index. In addition, the legal index of lending limits tended to converge to the actual index after Bank Indonesia was mandated as independent institution. The actual index of financial independence decreased significantly in 2007, because Bank Indonesia experienced losses.[10]

[10] Based on the annual reports of Bank Indonesia, 1953-2008.

FIGURE 2 Legal Versus Actual Independence of Bank Indonesia



Sources: Authors' calculation in this paper

CONCLUSIONS

Indicators of CBI based the interpretation of the central bank law in place may be unreliable in measuring the independence of the central bank in practice. Moreover, legal independence measures tend to be static and cannot capture institutional and economic factors that affect the actual independence of the central bank. Therefore, this paper not only develops legal indicators of the independence of Bank Indonesia (BI) for the period 1953-2008 by extending the legal CBI constructed by Cukierman (1992), but also introduces an index for the actual independence of BI, extending the approach suggested by Cukierman (2007).

In constructing the legal index we add financial independence of central bank to the index of Cukierman (1992). Financial independence is defined as the ability of the central bank to attain its objective(s) efficiently without financial assistance from the government. To measure actual independence, we consider institutional and economic factors that affect the independence of Bank Indonesia, such as the exchange rate regime and capital mobility; central bank as development bank; fiscal deficits; and the degree of financial market development. We also consider other factors that may affect actual independence, like the background of the governors and the reasons for their dismissal.

We find that before 1999 (during the Soeharto era), the legal and actual independence of BI diverged substantially. The actual independence of Bank Indonesia is much higher than its legal independence during that period. A good background of the governors, no dismissal, the improvement of fiscal deficits, the development of financial market, and the deregulation of economy are amongst the factors increasing the actual independence of Bank Indonesia. After Bank Indonesia was mandated as a legally independent institution by a new central bank law, the legal independence of BI increased and converged to the actual independence. All aspects of legal CBI increased significantly, especially the independence in monetary formulation and the absence of forced lending to the government.

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Appendix A The Legal Index of Cukierman (1992) and The Extended Legal Index

Cukierman Index				The Extended Index			
Variable number	**Description of variable**	**Weight**	**Numerical coding**	**Variable number**	**Description of variable**	**Weight**	**Numerical coding**
1	**Chief executive officer (CEO)**	**0.2**		1	**Chief executive officer (CEO)**	**0.21**	
	Term of office	**0.25**			**Term of office**	**0.25**	
	Over 8 years		1		Over 8 years		1
	6 to 8 years		0.75		6 to 8 years		0.75
	5 years		0.5		5 years		0.5
	4 years		0.25		4 years		0.25
	Under 4 years or at the discretion of appointer		0		Under 4 years or at the discretion of appointer		0
	Who appoints CEO	**0.25**			**Who appoints CEO**	**0.25**	
	Board of central bank		1		Board of central bank		1
	A council of the central bank board, executive branch, and legislative branch		0.75		A council of the central bank board, executive branch, and legislative branch		0.75
	Legislature		0.5		Legislature		0.5
	Executive collectively (e.g. council of ministers)		0.25		Executive collectively (e.g. council of ministers)		0.25
	One or two members of the executive branch		0		One or two members of the executive branch		0
	Dismissal	**0.25**			**Dismissal**	**0.25**	
	No provision for dismissal		1		No provision for dismissal		1
	Only for reasons not related to policy		0.83		Only for reasons not related to policy		0.83
	At the discretion of central bank board		0.67		At the discretion of central bank board		0.67
	At legislature's discretion		0.5		At legislature's discretion		0.5
	Unconditional dismissal possible by legislature		0.33		Unconditional dismissal possible by legislature		0.33
	At executive's discretion		0.17		At executive's discretion		0.17
	Unconditional dismissal possible by executive		0		Unconditional dismissal possible by executive		0
	May CEO hold other offices in government?	**0.25**			**May CEO hold other offices in government?**	**0.25**	
	No		1		No		1
	Only with permission of the executive branch		0.5		Only with permission of the executive branch		0.5
	No rule against CEO holding another office		0		No rule against CEO holding another office		0

2	**Policy formulation**	**0.15**			2	**Policy formulation**	**0.16**	
	Who formulates monetary policy	**0.25**				**Who formulates monetary policy**	**0.25**	
	Bank alone		1			Bank alone		1
	Bank participates, but has little influence		0.67			Bank participates, but has little influence		0.67
	Bank only advises government		0.33			Bank only advises government		0.33
	Bank has no say		0			Bank has no say		0
	Who has final word in resolution of conflict?	**0.5**				**Who has final word in resolution of conflict?**	**0.5**	
	The bank, on issues clearly defined in the law as its objectives		1			The bank, on issues clearly defined in the law as its objectives		1
	Government, only policy issues not clearly defined as the bank's goals or in case of conflict within bank		0.8			Government, only policy issues not clearly defined as the bank's goals or in case of conflict within bank		0.8
	A council of the central bank, executive branch, and legislative branch		0.6			A council of the central bank, executive branch, and legislative branch		0.6
	The legislature, on policy issues		0.4			The legislature, on policy issues		0.4
	The executive branch on policy issues, subject to due process and possible protest by the bank		0.2			The executive branch on policy issues, subject to due process and possible protest by the bank		0.2
	The executive branch has unconditional priority		0			The executive branch has unconditional priority		0
	Role in the government's budgetary process	**0.25**				**Role in the government's budgetary process**	**0.25**	
	Central bank active		1			Central bank active		1
	Central bank has no influence		0			Central bank has no influence		0
3	**Objectives**	**0.15**			3	**Objectives**	**0.05**	
	Price stability is the major or only objective in the charter, and the central bank has the final word in case of conflict with other government objectives		1			Price stability is the major or only objective in the charter, and the central bank has the final word in case of conflict with other government Objectives		1
	Price stability is the only objective		0.8			Price stability is the only objective		0.8
	Price stability is one goal, with other compatible objectives, such as a stable banking system		0.6			Price stability is one goal, with other compatible objectives, such as a stable banking system		0.6
	Price stability is one goal, with potentially conflicting objectives, such as full employment		0.4			Price stability is one goal, with potentially conflicting objectives, such as full employment		0.4
	No objectives stated in the bank charter		0.2			No objectives stated in the bank charter		0.2
			0			Stated objectives do not include price stability		0

4	**Limitation on lending to the government**	**0.50**		4	**Limitation on lending to the government**	**0.42**	
	Advances (limitation on non-securitized lending)	**0.3**			**Advances (limitation on non-securitized lending)**	**0.3**	
	No advances permitted		1		No advances permitted		1
	Advances permitted, but with strict limit (e.g., up to 15 % of government revenue)		0.67		Advances permitted, but with strict limit (e.g., up to 15 % of government revenue)		0.67
	Advances permitted, and the limits are loose (e.g., over 15 % of government revenue)		0.33		Advances permitted, and the limits are loose (e.g., over 15 % of government revenue)		0.33
	No legal limits on lending		0		No legal limits on lending		0
	Securitized lending	**0.2**			**Securitized lending**	**0.2**	
	Not permitted		1		Not permitted		1
	Permitted, but with strict limit (e.g., up to 15 % of government revenue)		0.67		Permitted, but with strict limit (e.g., up to 15 % of government revenue)		0.67
	Permitted, and the limits are loose (e.g., over 15 % of government revenue)		0.33		Permitted, and the limits are loose (e.g., over 15 % of government revenue)		0.33
	No legal limits on lending		0		No legal limits on lending		0
	Terms of lending (maturity, interest, amount)	**0.2**			**Terms of lending (maturity, interest, amount)**	**0.2**	
	Controlled by the bank		1		Controlled by the bank		1
	Specified by the bank charter		0.67		Specified by the bank charter		0.67
	Agreed between the central bank and executive		0.33		Agreed between the central bank and executive		0.33
	Decided by the executive branch alone		0		Decided by the executive branch alone		0
	Potential borrowers from the bank	**0.1**			**Potential borrowers from the bank**	**0.1**	
	Only the central government		1		Only the central government		1
	All levels of government (state as well as central)		0.67		All levels of government (state as well as central)		0.67
	Those mentioned above and public enterprises		0.33		Those mentioned above and public enterprises		0.33
	Public and private sector		0		Public and private sector		0
	Limits on central bank lending defined in	**0.05**			**Limits on central bank lending defined in**	**0.05**	
	Currency amounts		1		Currency amounts		1
	Shares of central bank demand liabilities or capital		0.67		Shares of central bank demand liabilities or capital		0.67
	Shares of government revenue		0.33		Shares of government revenue		0.33
	Share of government expenditures		0		Share of government expenditures		0
	Maturity of loans	**0.05**			**Maturity of loans**	**0.05**	
	Within 6 months		1		Within 6 months		1
	Within 1 year		0.67		Within 1 year		0.67

	More than 1 year		0.33
	No mention of maturity in the law		0
	Interest rates on loans must be	**0.05**	
	Above minimum rates		1
	At market rates		0.75
	Below maximum rates		0.5
	Interest rate is not mentioned		0.25
	No interest on government borrowing from the central bank		0
	Central bank prohibited from buying or selling	**0.05**	
	Government securities in the primary market?		
	Yes		1
	No		0

	More than 1 year		0.33
	No mention of maturity in the law		0
	Interest rates on loans must be	**0.05**	
	Above minimum rates		1
	At market rates		0.75
	Below maximum rates		0.5
	Interest rate is not mentioned		0.25
	No interest on government borrowing from the central bank		0
	Central bank prohibited from buying or selling	**0.05**	
	Government securities in the primary market?		
	Yes		1
	No		0
5	**Financial Independence**	**0.16**	
	Determination of the central bank's budget	0.33	
	Mostly central bank		1
	Mixture of bank and executive or legislative branches		0.5
	Mostly executive or legislative branches		0
	Determination of the allocation of bank profits	0.33	
	Mostly by bank or fixed by law		1
	Mixture of bank and executive or legislative branches		0.5
	Mostly executive or legislative branches		0
	Who is responsible for central bank losses	0.33	
	Central Bank is fully responsible		1
	At certain capital limit, government should capitalize the central bank		0.5
	Government		0

Appendix B The Index of Legal Independence vs. The Index of Actual Independence

Legal Index				Actual Index			
Variable number	**Description of variable**	**Weight**	**Numerical coding**	**Variable number**	**Description of variable**	**Weight**	**Numerical coding**
1	**Chief executive officer (CEO)**	**0.21**		**1**	**Chief executive officer (CEO)**	**0.21**	
	Term of office	**0.25**			**Overlap with Government's change**	**0.25**	
	Over 8 years		1		10 months or more		1
	6 to 8 years		0.75		7-9 months		0.75
	5 years		0.5		4-6 months		0.5
	4 years		0.25		2-3 months		0.25
	Under 4 years or at the discretion of appointer		0		0-1 month		0
	Who appoints CEO	**0.25**			**Background of CEO**	**0.25**	
	Board of central bank		1		Independent expert		1
	A council of the central bank board, executive branch, and legislative branch		0.75		Central bank staff		0.75
					Mix between ex- government and central bank staff		0.5
	Legislature		0.5		Government staff		0.25
	Executive collectively (e.g. council of ministers)		0.25		Politician		0
	One or two members of the executive branch		0				
	Dismissal	**0.25**			**Dismissal**	**0.25**	
	No provision for dismissal		1		No dismissal		1
	Only for reasons not related to policy		0.83		Resignation and permanently prevented		0.83
	At the discretion of central bank board		0.67		Poor performance (for instance inflation target is not attained)		0.67
	At legislature's discretion		0.5		Crime and corruption		0.5
	Unconditional dismissal possible by legislature		0.33		Related to policy causing central bank loss		0.33
	At executive's discretion		0.17		Political participation		0.17
	Unconditional dismissal possible by executive		0		Without a clear reason		0
	May CEO hold other offices in government?	**0.25**			**CEO holds other office?**	**0.25**	

		No		1			No other position		1
		Only with permission of the executive branch		0.5			Private sector position		0.5
		No rule against CEO holding another office		0			Government &Political Position		0
2	**Policy formulation**		**0.16**		**2**	**Policy formulation**		**0.16**	
		Who formulates monetary policy	0.25				Exchange rate regime & capital mobility	0.25	
		Bank alone		1			Fixed exchange rate, perfect capital mobility		1
		Bank participates, but has little influence		0.67			Fixed exchange rate, imperfect capital mobility		0.67
		Bank only advises government		0.33			Flexible exchange rate, imperfect capital mobility		0.33
		Bank has no say		0			Flexible exchange rate, perfect capital mobility		0
		Who has final word in resolution of conflict?	**0.5**				**Banking supervision and sources of funding for bank failure**	**0.5**	
		The bank, on issues clearly defined in the law as		1			Central bank not as banking supervision and not responsible for the cost of bank failure		1
		its objectives					Central bank as a bank supervision and government/independent institution is responsible for the cost of bank failure		0.5
		Government, only policy issues not clearly defined		0.8			Central bank as a bank supervision and responsible for the cost of bank failure		0
		as the bank's goals or in case of conflict							
		within bank							
		A council of the central bank, executive branch,		0.6					
		and legislative branch							
		The legislature, on policy issues		0.4					
		The executive branch on policy issues, subject to		0.2					
		due process and possible protest by the bank							
		The executive branch has unconditional priority		0					
		Role in the government's budgetary process	**0.25**				**Decision on the target of exchange rate and inflation for government's budget**	**0.25**	
		Central bank active		1			Independently by central bank		1
		Central bank has no influence		0			Jointly with government		0.5
							By government only		0
3	**Objectives**		**0.05**		**3**	**Objectives**		**0.05**	

	Price stability is the major or only objective in the charter, and the central bank has the final word in case of conflict with other government objectives		1
	Price stability is the only objective		0.8
	Price stability is one goal, with other compatible objectives, such as a stable banking system		0.6
	Price stability is one goal, with potentially conflicting objectives, such as full employment		0.4
	No objectives stated in the bank charter		0.2
	Stated objectives do not include price stability		0
4	**Limitation on lending to the government**	**0.42**	
	Advances (limitation on non-securitized lending)	**0.3**	
	No advances permitted		1
	Advances permitted, but with strict limit (e.g., up to 15 % of government revenue)		0.67
	Advances permitted, and the limits are loose (e.g., over 15 % of government revenue)		0.33
	No legal limits on lending		0
	Securitized lending	**0.2**	
	Not permitted		1
	Permitted, but with strict limit (e.g., up to 15 % of government revenue)		0.67
	Permitted, and the limits are loose (e.g., over 15 % of government revenue)		0.33
	No legal limits on lending		0
	Terms of lending (maturity, interest, amount)	**0.2**	
	Controlled by the bank		1
	Specified by the bank charter		0.67
	Agreed between the central bank and executive		0.33
	Decided by the executive branch alone		0

	Function as a development bank, granting credit at subsidy rates?		
	No		1
	To some extent		0.66
	Yes		0.33
	The central bank heavily involved in granting subsidized credits		0
4	**Limitation on lending to the government**	**0.5**	
	Actual deficits (surplus)/GDP	**0.3**	
	Surplus		1
	0<deficits=<3%		0.67
	3%<deficits=<6%		0.33
	Deficits>6%		0
	Financial market development (M2/GDP)	**0.2**	
	M2/GDP>52%		1
	52%>=M2/GDP>32%		0.75
	32%>=M2/GDP>20%		0.5
	20%>=M2/GDP>7%		0.25
	7%>=M2/GDP		0
	Terms of lending (maturity, interest, amount)	**0.2**	
	Controlled by the bank		1
	Follow the law		0.67
	Agreed between the central bank and executive		0.33
	Decided by the executive branch alone		0

	Potential borrowers from the bank	**0.1**			**Potential borrowers from the bank**	**0.1**	
	Only the central government		1		100% claim on government		1
	All levels of government (state as well as central)		0.67		Claim on government> claim on private (include bank)		0.5
	Those mentioned above and public enterprises		0.33		Claim on government < claim on private (include bank)		0
	Public and private sector		0				
	Limits on central bank lending defined in	**0.05**			**Limits on central bank lending defined in**	**0.05**	
	Currency amounts		1		Currency amounts		1
	Shares of central bank demand liabilities or capital		0.67		Shares of central bank demand liabilities or capital		0.67
	Shares of government revenue		0.33		Shares of government revenue		0.33
	Share of government expenditures		0		Share of government expenditures		0
	Maturity of loans	**0.05**			**Maturity of loans**	**0.05**	
	Within 6 months		1		Within 6 months		1
	Within 1 year		0.67		Within 1 year		0.67
	More than 1 year		0.33		More than 1 year		0.33
	No mention of maturity in the law		0		Longer period by extension		0
	Interest rates on loans must be	**0.05**			**Interest rate of loans vs market rate**	**0.05**	
	Above minimum rates		1		Interest on loans>market rate		1
	At market rates		0.75		Interest on loans=market rate		0.75
	Below maximum rates		0.5		Interest on loans<market rate		0.5
	Interest rate is not mentioned		0.25		Interest rate is not mentioned		0.25
	No interest on government borrowing from the central bank		0		No interest on government borrowing from the central bank		0
	Central bank prohibited from buying or selling	**0.05**			**Are there taxes for primary market transactions?**	**0.05**	
	Government securities in the primary market?				Yes		1
	Yes		1		No		0
	No		0				
5	**Financial Independence**	**0.16**		5	**Financial Independence**	**0.16**	
	Determination of the central bank's budget	**0.33**			**Determination of the central bank's budget**	**0.33**	
	Mostly central bank		1		Mostly central bank		1
	Mixture of bank and executive or legislative branches		0.5		Mixture of bank and executive or legislative branches		0.5
	Mostly executive or legislative branches		0		Mostly executive or legislative branches		0

Determination of the allocation of bank profits	**0.33**		**Profit/Loss**	**0.33**	
Mostly by bank or fixed by law		1	Profit		1
Mixture of bank and executive or legislative branches		0.5	Loss		0
Mostly executive or legislative branches		0			
Who is responsible for central bank losses	**0.33**		**How far the actual capital is deviated from the limit**	**0.33**	
Central Bank is fully responsible		1	Higher than limit		1
At certain capital limit, government should capitalize the central bank		0.5	Less than limit		0
Government		0			

Appendix C Details about The Score of Bank Indonesia's Legal Index

No	Description of variable	Act No 11/1953	Act No 11/1955	Act No 84/1958	Act No 13/1968	Act No 23/1999	Act No 3/2004
1	**Chief executive officer (CEO)**						
	1 a Term of office	**0.50**	**0.50**	**0.50**	**0.50**	**0.50**	**0.50**
	Term of office is 5 years Based on Act 13/1953 article 27(3): Governor and Directors shall be appointed by government on proposal of Ministry council (the so-called Dewan Moneter) for maximum 5 years. Based on Act 13/1968 article 15(3a): Governor and Directors shall be appointed by government on proposal of Ministry council (the so-called Dewan Moneter) for maximum 5 years, afterwards may be reappointed. Based on Act 23/1999 article 41(5): The member of the Board of Governors shall be appointed for 5 year term of office and may be reappointed for the same office at the maximum of one subsequent term of office. The Act 3/2004 article 41(5) is the same as the Act 23/1999 article 41(5)						
	2 b Who appoints CEO	**0.25**	**0.25**	**0.25**	**0.25**	**0.50**	**0.50**
	Based on the Act 23/1999 and the Act 3/2004 article 41(1): The Governor and the Senior Deputy Governor shall be nominated and appointed by the President upon the approval of Legislature. We interpret the final decision is on the hand of Legislature. Hence, the score is increased from 0.25 (based on Act 13/1953 and Act 13/1968) to 0.5 (based on Act 23/1999)						
	3 c Dismissal	**0.00**	**0.00**	**0.00**	**0.17**	**0.83**	**0.83**
	Based on the Act 13/1953 article 27(6): As a proposal of Dewan Moneter, governor can be dismissed by government. We assigned the lowest score since the law did not state clearly about the provision of dismissal. Based on the Act 13/1968 article 17(1,2): Governor can be dismissed before the period ends because of dead, activities causing losses, particular reason causing a bad performance, resignation. Hence, the score is increased because the law stated in detail about the provision for dismissal. Based on the Act 23/1999 article 48: Any member of the Board of Governors shall not be discharged during his/her term of office, unless it is conducted upon a resignation of such member, or upon any evidence which proves that such member have committed a crime, or permanently prevented from serving his/her office. We do not assign it the highest score 1 but 0.83 because the law still stated the provisions of dismissal, which are not related to policy.						
	4 d May CEO hold other offices in government?	**0.50**	**0.50**	**0.50**	**0.50**	**1.00**	**1.00**
	Based on the Act 13/1953 article 30 (2a): Governor is prohibited from having other positions unless with government's permission. It is given score, 0.5. Based on the Act 13/1968 article 18 (2,3): Governor is prohibited from having other position directly or indirectly unless with government's permission. It is also assigned score, 0.5. Based on the Act 23/1999 article 47(1): The member of the Board of Governors shall, individually or collectively, be prohibited from having any direct or indirect interests on any enterprises; holding any other position concurrently in other entities, except his/her tasks require him/her to hold such position; holding a position in the management of and or being a member of a political party. Owing to strictly prohibited from holding other positions, hence it is assigned the highest score.						
2	**Policy formulation**						
	1 a Who formulates monetary policy?	**0.67**	**0.67**	**0.67**	**0.67**	**1.00**	**1.00**
	Based on the Act 13/1953 article 24(3,4) and the Act 13/1968 article 9, 13: Dewan Moneter is responsible for formulating monetary policy. In case, there are conflicts in making decision, the government has a final word subject to possible protest by the governor. It can be interpreted that governor participates in policy formulation but has little influence. Hence, the score is 0.67 Based on the Act 23/ 1999 and the Act 3/2004 article 9(1): other parties shall not interfere with the implementation of the tasks of Bank Indonesia. It implies that policy formulation is on the hand of central bank alone						
	2 b Who has final word in resolution of conflict?	**0.20**	**0.20**	**0.20**	**0.20**	**1.00**	**1.00**
	For the Act 13/1953 and the Act 13/1968, the reasons are the same as point (a) above Based on the Act 23/ 1999 and the Act 3/2004 article 43(3): The decision making of the meeting of the Board of Governors shall be taken through a deliberation to reach an agreement. If such agreement cannot be reached, the Governor shall determine the final decision. Therefore, the highest score is assigned.						
	3 c Role in the government's budgetary process	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
	Both the Act 13/1953 and the Act 13/1968 stated that central bank is government's cashier. For that reason, central bank has no influence. Based on the Act 23/1999 and the Act 3/2004 article 54: Bank Indonesia shall provide an opinion and consideration to the Government concerning the State Budget and other policies related to the tasks and authority of Bank Indonesia. Yet, central bank has no influence.						
3	**Objectives**	**0.40**	**0.40**	**0.40**	**0.40**	**0.60**	**0.60**
	Based on the Act 13/1953 and the Act 13/1968 article 7: The main tasks of Bank Indonesia are to maintain a stability of inflation and to create employment. Both objectives are possibly conflicting. Consequently, we assign score, 0.4.						

Based on the Act 23/1999 and the Act 3/2004 article 7, 8: The objective of Bank Indonesia is to maintain price stability. Moreover, Bank Indonesia also has a task to preserve financial stability by regulating and supervising banking sector. Thus, the score is increasing to 0.6.

4 **Limitation on lending to the government**

1 a Advances (limitation on non-securitized lending) 0.67 0.67 0.67 0.00 1.00 1.00

Based on the Act 13/1953 Article 19(1 and 2): Central Bank has to strengthen government's budget by providing advances. The limit is 30% of government revenue. We assign score 0.67 since central bank is permitted to give advances and the limit is strict.

Because of the necessities to finance a large budget deficit, in 1955, the maximum limit of credit to the government was revised by the Act 11/1955. This law stated that the maximum credit is up to the debt of government to Bank Indonesia reached 7.1 billion rupiah at the end of year 1955. The Act 11/1955 was revised again in 1958 by the Act 84/1958. Based on this law, the maximum credit to the government is 30 % of government revenue unless in the certain condition this limit is allowed maximum 50 % of government revenue. Even the maximum credit to the government increases, but the Act 11/1955 and its revisions stated a strict limitation on credits from bank Indonesia to the government. Therefore, the score given to this sub-component is 0.67.

The Act 13/1968 did not state the limit of credit to the government. In Article 35 (1) just mentioned that the credit to government is based the requirement of budget. It indicates that there is no constraint for central bank to give credit for government. Hence, we assign the lowest score.

Based on the Act 23/1999 and the Act 3/2004 Article 56(1): Bank Indonesia shall not provide any credit to the Government. As a result, we assigned the highest score.

2 b Securitized lending 0.00 0.00 0.00 0.00 1.00 0.67

Based on the Act 13/1953 Article 18(4) and the Act 13/1968 Article 36, Bank Indonesia was allowed to buy government bonds without limitation. Therefore, the lowest score is assigned.

Based on the Act 23/1999 Article 55(4): Bank Indonesia shall not purchase for itself the state debt securities. It implies central bank is independent.

Based on the Act 3/2004 Article 55(4): Bank Indonesia is prohibited from buying government securities on the primary market for its own account, except in the case of short-term government securities needed by Bank Indonesia for monetary control operations. It means that Bank Indonesia is permitted to buy government securities in primary market but with a strict limitation, which are only for the short-term government securities and for the emergency financing. Therefore, we assign score 0.67 for the securitized lending.

3 c Terms of lending (maturity, interest, amount) 0.67 0.67 0.67 0.33 1.00 0.33

Based on the Act 11/1953 Article 19: The lending to government at certain amount is not charged interest. Moreover, as mentioned above, amount of credit is limited 30% of government's revenue. Therefore, it implies that term of central bank's lending to government is specified by the law. The score for this sub-component is 0.67

Based on the Act 13/1968 Article 35(3): The interest rate on lending is 3% a year, but it can be negotiated by the government and Bank Indonesia. It means that the interest rate is stated by the law but still negotiable. Hence, the score of this sub-component decreases to 0.33

Based on the Act 23/1999 Article 56(1): Bank Indonesia shall not provide any credit to the Government. We interpret that term of lending is controlled by central bank. Hence, the score is 1.

Based on the Act 3/2004 Article 55(4): Bank Indonesia is allowed to buy a short term government securities in primary market. However, in Article 55(1) states that in the case Government intends to issue government securities, the Government shall hold prior consultations with Bank Indonesia. It implies that the term of lending is negotiable between central bank and government. Therefore, we assign score 0.33.

4 d Potential borrowers from the bank 1.00 1.00 1.00 0.00 0.00 0.00

Based on the Act 11/1953 Article 15(1): Central government is prohibited to provide credit to other parties. On the other hand, in Article 19 states that central bank should strengthen government's budget by giving advance on demand. It implies that the potential borrower of central bank is only the government.

Based on the Act 13/1968 Article 32(2): Bank Indonesia has a task as a development bank which provides a liquidity credit to public and private sectors. For this reason we assign score zero.

Based on the Act 23/1999 Article 11(1): Bank Indonesia may extend credit or financing based on Syariah Principle to a

Bank for a maximum period of 90 (ninety) days to overcome its short term financial difficulty (mismatch). The main problem is whether private and public sector mentioned in the questionnaire by Cukierman (1992) includes banking sector. We decided to include the banking sectors as a public and private sector category. Hence, the potential borrower based on this Act is public and private sector, which is given score zero. The same score also assigned for this sub-component based on the Law No. 3/2004.

5 e Limits on central bank lending defined in 0.33 1.00 0.33 0.00 1.00 0.00

As already mentioned above, based on the Act 11/1953, there is a maximum limit of central bank credit to the government in term of %age of government revenue. Therefore, we assign score 0.33.

However, the maximum amount of credit is revised by the Law No. 11/1955 in term of currency amount rather than percentage of government revenue. By this revision, this sub-component was given the highest score 1.

The score is back to 0.33 since the Law No. 84/1958 stated the limit of central bank credit in term of percentage of government revenue.

The Act 13/1968 did not state the limit on central bank's lending. Yet, it is mentioned that the lending is based on budget requirement.

At that time, we use balance budget system, hence we decided to assign the lowest score. The Act 23/1999 stated that central bank is not allowed to give credits to government. It implies that the limit is on currency with amount is zero. Therefore, we assign the highest score. The Act 3/2004 does not mention about the limit, therefore we assign score zero.								
6	**f**	**Maturity of loans**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.67**
For the sub-component maturity of loan, we assigned score zero for the Law No. 11/1953, the Law No. 13/1968, and the Law No. 23/1999 since these laws did not state the maturity of lending. However, because the Law No 3/2004 allowed Bank Indonesia to buy the short-run government securities, we interpret the maximum maturity of loans is 1 year. Hence, this sub-component was assigned score 0.67.								
7	**g**	**Interest rates on loans must be**	**0.25**	**0.25**	**0.25**	**0.50**	**0.25**	**0.75**
Based on the Act 11/1953 Article 19: The lending to government at certain amount (up to 50 million rupiahs) is not charged interest. It implies, the amount of credits higher than the limit will be charged interest, yet not mentioned. Hence, we give score 0.25 for this sub-component. Meanwhile, the Law No. 13/1968 mentioned that the interest on central bank loans is 3% per year but it can be changed by Dewan Moneter conditionally. It indicates that Dewan Moneter will charge interest rate lower than market rate. By this interpretation, we assign score 0.5 for this sub-component. The score of this sub-component decreases to 0.25, since the Law No. 23/1999 did not stated about interest rate of loans. Nevertheless, based on the newest Law No. 3/2004, Bank Indonesia is permitted to buy the short-run government securities in primary market. It can be interpreted that the interest rate should be paid by the government follows market interest rate. Therefore, the score of this component increases to 0.75.								
8	**h**	**Central bank prohibited from buying or selling Government securities in the primary market?**	**0.00**	**0.00**	**0.00**	**0.00**	**1.00**	**0.00**
Based on the Act 11/1953 Article 13(4): Central bank is allowed to buy and sell securities in primary market. Hence, the score is zero. Based on the Act 11/1968 Article 36(2): Central Bank can buy government's bonds. The score is also zero. Based on the Act 23/1999 Article 55(4): Central Bank shall not purchase for itself the state debt securities. Therefore, we assign score 1. Based on the Act 3/2004 Article 55(4): Central Bank may buy government securities on the primary market as part of the provision of the emergency financing facility. We assign the lowest score, zero.								
Average Index			**0.39**	**0.41**	**0.39**	**0.22**	**0.75**	**0.63**