

Markiewicz, Malgorzata

Working Paper

Quasi-fiscal operations of central banks in transition economies

BOFIT Discussion Papers, No. 2/2001

Provided in Cooperation with:

Bank of Finland, Helsinki

Suggested Citation: Markiewicz, Malgorzata (2001) : Quasi-fiscal operations of central banks in transition economies, BOFIT Discussion Papers, No. 2/2001, ISBN 951-686-946-7, Bank of Finland, Institute for Economics in Transition (BOFIT), Helsinki,
<https://nbn-resolving.de/urn:nbn:fi:bof-201408072160>

This Version is available at:

<https://hdl.handle.net/10419/212483>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



BOFIT

Discussion Papers

2001 • No. 2

Malgorzata Markiewicz

Quasi-fiscal operations of central banks
in transition economies

Bank of Finland
Institute for Economies in Transition **BOFIT**

Bank of Finland Institute for Economies in Transition BOFIT

Economists

Mr Pekka Sutela, head

Russian economy and economic policy
Russia's international economic relations
Baltic economies

Mr Tuomas Komulainen, economist

Russian financial system
Currency crises

Mr Ilkka Korhonen, economist

Baltic economies
Russian financial system

Ms Seija Lainela, economist

Baltic economies
EU policy and Eastern relations
Russian economy and economic policy

Mr Juhani Laurila, senior adviser

Russian economy and economic policy
Baltic countries' external relations

Mr Jukka Pirttilä, research supervisor

Public economics
Transition economics

Mr Jouko Rautava, economist

Russian economy and economic policy

Mr Jian-Guang Shen, economist

Chinese and East Asian economies
Currency crises

Ms Laura Solanko, economist

Fiscal federalism
Russian regional issues

Ms Merja Tekoniemi, economist

Russian economy and economic policy

Information Services

Mr Timo Harell, senior clerk

Press monitoring

Ms Päivi Määttä, information specialist

Institute's library, information services

Ms Liisa Mannila, department secretary

Department coordinator, publication distribution

Ms Tiina Saajasto, research secretary

Statistical analysis, statistical data bases

Ms Liisa Sipola, research secretary

Information retrieval, Institute's library and publications

Publications

Russian and Baltic Economies –

The Week in Review

A two-page weekly review of the previous week's focal events in Russia and the Baltic states.

Russian Economy – The Month in Review

A four-page review with analysis of developments in Russia's economy, fiscal policy and financial markets.

Baltic Economies – The Quarter in Review

A four-page review with analysis of recent economic developments in Estonia, Latvia and Lithuania.

BOFIT Discussion Papers

A series devoted to transition issues. Contains academic studies on transition economics by BOFIT economists and guest researchers.

BOFIT Online

An electronic publishing series devoted to transition issues. The focus is on descriptive work on economic policy and economic developments in transition economies. Papers are either in English or Finnish.

Contact us

Bank of Finland Institute for Economies in Transition (BOFIT)

P.O. Box 160 FIN- 00101 Helsinki

Phone: +358 9 183 2268 Fax: +358 9 183 2294 Email: bofit@bof.fi (firstname.surname@bof.fi ! ä = a)

Web: www.bof.fi/bofit

BOFIT Discussion Papers

2001 • No. 2

Malgorzata Markiewicz

Quasi-fiscal operations of central
banks in transition economies

Bank of Finland
Institute for Economies in Transition, BOFIT

ISBN 951-686-946-7 (print)
ISSN 1456-4564 (print)

ISBN 951-686-947-5 (online)
ISSN 1456-5889 (online)

Suomen Pankin monistuskeskus
Helsinki 2001

Contents

Abstract	5
1 Introduction	6
2 Quasi-fiscal operations of central banks	8
3 Losses and net worth of central banks	14
4 Financial position of the central banks in transition	18
5 Estimating quasi-fiscal deficits	22
5.1 Government budget constraint	22
5.2 The central bank's profit and loss account	23
5.3 Consolidation	24
5.4 Results	27
6 Conclusions	30
Charts	32
References	33
Notes	37

All opinions expressed are those of the authors and do not necessarily reflect the views of the Bank of Finland.

Malgorzata Markiewicz *

Quasi-fiscal operations of central banks in transition economies

Abstract

This paper reviews issues associated with quasi-fiscal operations (QFO) of central banks in a sample of countries in Central and Eastern Europe and the former Soviet Union. The concern is the problem of transparency in fiscal and monetary accounts when the central bank undertakes quasi-fiscal operations and the government falls short of providing full coverage of fiscal operations. QFO can also jeopardize monetary policy designed to maintain price stability. A simple framework is developed to estimate the extent of QFO. In some cases, the magnitude of QFO is significant in indicating underestimation of fiscal deficit figures. We claim that the lack of transparency in fiscal accounts of transition countries warrants serious concern.

Keywords: Quasi-fiscal operations, transition economy and transparency

* Correspondence address: CASE – Center for Social and Economic Research, ul.Sienkiewicza 12, 00-010 Warsaw, Poland. E-mail: mmark@case.com.pl. The paper was written while the author was a visiting researcher at BOFIT in autumn 2000.

1 Introduction

Transition countries have ostensibly made significant progress in reducing public sector deficits, so in this paper we concern ourselves with the quality of these improvements. As transparency in the fiscal accounts is low and the quality of data is relatively poor, official fiscal data very likely do not fully describe the size of the public sector. We argue, therefore, that research on fiscal policy in transition countries should be extended to analysis of quasi-fiscal operations (QFO).

The motivation for this research originates in the debate on transparency issues. There has been an emerging consensus in favor of transparency with regard to QFO [Enoch, Stella, Khamis (1997), Enoch (1998), IMFb]. Such a need was also expressed in the *Declaration on Partnership for Sustainable Global Growth* by the Interim Committee which stated “it is essential to enhance the transparency of fiscal policy by persevering with efforts to reduce off-budget transactions and quasi-fiscal deficits” [IMFc, 1996]. The IMF has developed a *Manual on Fiscal Transparency* to provide more guidance on how to construct and conduct fiscal policies. IMF efforts to establish a General Data Dissemination System and Special Data Dissemination Standard are another step in this direction. Greater openness in procedures and in the dissemination of information will help reveal public sector performance and the scope of QFO undertaken by governments.

QFO should be identified and reported as memorandum items in fiscal statistics [IMFa, IMFb, Montanjee (1995)]. However, in transition countries this information is rarely collected and released to the public. As noted by Kopits and Craig (1998), economies in transition have a tradition of operating non-transparently. While there is an increasing move toward transparency, much remains to be done. The budgets of many transition countries remain very complex, which helps hide real balance (current and future). As noted by Alesina and Perotti (1999), politicians have little incentive to produce simple, transparent budgets. Kopits and Symansky (1998) propose introduction of fiscal policy rules as a remedy. They argue that appropriate rule-based fiscal policies could correct the deficit bias. However, a formal rule, by itself, may not guarantee fiscal discipline, as governments may shift fiscal operations off budget.

The increased interests in transparency issues expressed by international organizations have led to increased understanding of the relevance and con-

sequences of QFO. However, these interests are not reflected in policy research. We find only one attempt to pursue cross-country comparison and only a few papers on specific transition country experiences.¹ Indeed, the topic of QFO remains unrecognized in research on central bank independence.

Buiter (1997) interprets domestic credit expansion of the central bank over the general government deficit as evidence of quasi-fiscal deficit of the central bank (QFDCB). As transition proceeds, some of Buiter's assumptions seem excessive. Buiter's first assumption, for example, is that credit extended by the central bank to all sectors other than the general government represents QFO. Another assumption is that the general government deficit is at least as large as the credit from the central bank to government (for the purpose of calculations these two items are assumed to be equal). Yet another sets forth the proposition that the central bank does not issue a substantial amount of interest-bearing liabilities. Obviously, if the central bank uses monetary policy instruments actively (i.e. open market operations), the first and third assumptions are violated. Along with the diversification of financing sources for the budget deficit, credit from the central bank can become an option (which is why many countries today prohibit such lending to assure central bank independence). All these facts break the link between general government deficit and the central bank credit to government. Therefore, the credit to government differs from general government deficit figures, and the method applied would not lead to precise results.

This paper reviews conceptual issues associated with QFO of central banks. Our concern is with the problems that arise in interpreting fiscal data when central bank experiences losses or deterioration in its finances as a result of QFO. The main contributions are estimation of the extent of public sector and of QFO carried out by the central banks for a sample of Eastern Europe and former Soviet Union countries. First, we examine the extent of revealed losses and the structure of the balance sheet of the central banks. Next, we estimate the central banks' involvement in QFO with the budget constraint identity. We suggest that the share of public sector deficit in GDP has been higher than officially announced when an estimate of the borrowing requirement is included. Furthermore, it appears that in some cases the financial position of central banks may deteriorate beyond what is indicated in their profit and loss accounts. These results differ from Buiter (1997) and Budina et.al. (2000), mostly due to different assumptions and modifications

in methodology. These modifications have been done to increase the precision of estimation what we found extremely important in case when indirect method was put in place. Finally, we examine the correlation between QFO of central banks and general government deficits.

The paper is organized into six sections. First, we provide a brief definition and review of the QFO and give some comments on the interrelations of governments and central banks. Particular attention is paid to possible consequences of QFO on the financial position of central banks, banking sector stability, and macroeconomic policy. In section 3 we discuss the problem of central bank losses driven by QFO. Next, the financial position of the central banks is examined for the countries under investigation. Section 5 addresses issues in aggregation of fiscal and monetary balances. A proper measure of QFDCB is calculated and the results are discussed. Section 6 concludes.

2 Quasi-fiscal operations of central banks

As noted by Mackenzie and Stella (1996), central banks and other public financial and non-financial institutions can affect the overall public sector balance without affecting the budget deficit as conventionally measured. They refer to all activities that entail implicit or explicit taxation or subsidization, and fall outside the budget, as QFO.

Montanjes (1995) defines QFO as operations undertaken for public policy reasons by units outside the definition of the government. The most common concept of government is that of general government, which includes central, state, local and other lower-tier government institutions, as well as off-budget agencies such as social security funds and privatization funds. The general government concept does not include the central bank, state enterprise sector, and public financial institutions. Any of them might be involved in QFO. However, in this paper we will concentrate exclusively on the QFO of central banks.

One might expect that governments in transition countries have been tempted to shift outlays and receipts from conventionally measured general government to the central bank or to the public financial sector, mostly for “window dressing” purposes. Despite the deterioration of transparency of fiscal and monetary accounts, the official data indicate such fiscal adjustment.²

The fiscal activities and fiscal aspects of monetary operations of central banks in transition countries have generally been ignored. Yet, by focusing on general government and neglecting central bank QFO, a distorted picture of fiscal policy emerges. Some governments even require their central banks to undertake certain fiscal activities. Clearly, analysis of the extent of central bank QFO deserves attention, but attempts to advance understanding of the role of central bank QFO faces several difficulties. According to Fry (1993), central bank QFO are difficult to quantify, the central bank accounting conventions differ from those of government and the distinction between monetary and fiscal activities of the central bank is blurred.

This research uses monetary statistics to determine central bank QFO. The main categories of QFO are presented in Table 1.

Table 1. QFO of central banks

Operations related to the financial system

- ✓ Subsidized lending
- Administered lending rates
- Preferential rediscounting practices
- Poorly secured and sub-par loans
- Loan guarantees
- ✓ Under-remunerated reserve requirements
- ✓ Credit ceilings
- ✓ Rescue operations

Operations related to the exchange system

- ✓ Multiple exchange rates
- ✓ Import deposits
- ✓ Deposits on foreign asset purchases
- ✓ Exchange rate guarantees
- ✓ Subsidized exchangerisk insurance

All QFO change allocation of resources. The first group comprises redistributive operations related to the financial system. These imply distortions in the financial markets. We assume that subsidized lending is typically

extended at the request of the government or parliament. If the interest rate of such credit is lower than interest rate prevailing in the market, then the credit may be identified as central bank QFO. Extension of credit at a preferential interest rates is essentially a subsidy and typically directed at entities with higher credit-risk premia. In the long run, the cost of improvement of such entities' assets constitutes budget expenditure. The subsidy element may be also be included in the credit extended by the central bank to the government if the interest rate charged is below market, or when the central bank on-lends money to financial intermediaries with instructions to extend credit to the government. In any case, when the central bank is obliged to lend below market rates, this constitutes a fiscal subsidy. It may be assumed that subsidized lending is a substitute for banking sector reform and a failure to introduce hard budget constraints. In general, the central bank should not be used for channeling financial resources to priority sectors at below market prices. If there is no other solution temporarily, the bank may set aside reserves against potential losses and decrease transfers to the budget. Reserves are also necessary against contingent liabilities [Vaez-Zadeh, 1991].

Another area of interest is commercial bank reserves. Mackenzie and Stella (1996) comment that a fiscal element in the reserve ratio arises when the assets do not earn the market interest rate. Such policy has an allocative dimension, because resources are transferred from the commercial bank to the central bank. Beckerman (1997) criticizes the entire notion of remuneration of reserves, noting that such remuneration constitutes base money emission and amounts to the dubious practice of paying interest on base money. As concerns the quasi-fiscal element, our attention concentrates on cases where the interest rate charged differs from the market rate.

Credit ceilings also change the distribution of resources and are part of a system of financial repression that combines controls on international capital flows with restrictions on domestic interest rates. Financial restrictions encourage instruments from which the government can expropriate significant seigniorage. Further, financial restrictions enable more revenues to be raised without jeopardizing monetary stability [Fry, 1993]. Most of the measures employed in the process of financial repression have quasi-fiscal character i.e. imposition of foreign exchange controls, credit ceilings or selective reserve requirements. Many central banks have benefited from financial restrictions by collecting quasi-fiscal revenues from the banking systems.

Finally, we have the most visible and the expensive form QFO-rescue operations. These can take the form of an infusion of capital to a troubled

institution, of an assumption of non-performing loans, or of exchange rate guarantees. If these operations are undertaken by the central bank, it must be assumed they have a quasi-fiscal character [Mackenzie, Stella, 1996]. Bank rescue operations are also often linked to implicit deposit insurance schemes. To ensure transparency of public sector accounts, bank rescue operations should be financed directly from the budget or refunded *ex post* by the government to the central bank. In the long run the banking sector needs reforms.

Operations associated with the foreign exchange can be divided into two groups, resulting from multiple exchange rate system and resulting from the assumption of the exchange risk by the central bank (usually contingent liabilities). Multiple exchange rate (MER) practices were quite common at the beginning of transition [Bodart, 1996]. MER imposes distortions in the foreign exchange market and can be replaced by additional taxation. The net effect of a MER system may be an increase or decrease in central bank profits [Fry, 1993]. Exchange rate guarantees are often extended free of charge. The assumption of exchange rate risk by the central bank is equivalent to a subsidy granted to the domestic borrower. The risk premium is artificially decreased at the expense of the central bank. Moreover, the attractiveness of guarantees grows with the risk of devaluation of the domestic currency. In case of devaluation when a guaranteed payment is made, foreign assets fall by a larger amount than base money and the difference is the reduction in the net worth of the bank [Robinson et.al., 1988].

The scope of QFO undertaken by a central bank depends on its relations with the government. Typically, the central bank acts as the fiscal agent of government, and when financial markets are underdeveloped or central bank independence is low, the practice of extending credit to government is widely used. The IMF recommends charging market interest rates on such credits and transferring bank profits to the budget. However, country experiences differ in this regard. Direct lending to the government can take place through the use of overdrafts, by means of fixed-term loans and advances or through the purchase of government securities on the primary market [Mackenzie, Stella, 1996]. When central bank profits are fully transferred to the budget, even if the market interest rate is charged on credit to the government, the monetary consequences on price stability may be overlooked. This obliges the central bank to sterilize excessive monetary emissions caused by financing the government. Mackenzie and Stella suggest sterilization and open market operations, which have a monetary character, are QFO because the

losses they entail sooner or later will affect the budget. Central bank support of the government may take different forms. The central bank can influence the interest rate on credit to the government indirectly by allowing commercial banks to meet their reserve requirements with treasury securities. Thus, the demand for government securities is artificially overestimated, which causes a drop in their price. The central bank can also establish high reserve requirements with no interest charged. Here, the central bank lends money to government below market rates and banking resources are transferred to the budget. The practice of granting credits to the government at below market rates leads to a drop in central bank profits, which undermines central bank independence. Cottarelli (1993) emphasizes that the budget may benefit more from an increase in central bank credit to the government than it does from an increase in such credit to the banking sector. Central bank independence from government is advocated as a remedy against inflationary bias of government explained by revenue motive [Cukierman, 1992]. The development of financial markets also allows limiting direct deficit financing by the central bank.

Houerou and Sierra (1993) argue that subsidized lending to the government from the central bank is not a quasi-fiscal operation, but rather a standard way for the central bank to transfer seigniorage and inflation tax revenue. However, it is important to increase transparency by allowing the government to service its central bank debt at market rates and make sure seigniorage revenue or other revenues are explicitly transferred to the government. We argue here that subsidized credit to the government and other forms of support to the budget have a quasi-fiscal dimension, i.e. they are redistributive operations that fall outside the budget. However, if one argues that profits transferred to the budget ensures that QFO will be reflected in budgetary accounts, two problems arise.

First, not all QFO affect the profit and loss account of the central bank. There are some operations that are reflected only in the balance sheet, for example, as credit to commercial banks or the private sector financed through monetary emission. In this case, under the condition of stable money demand, QFO of the central bank are reflected in inflation.

Second, if the consequences of the QFO are reflected only in profit and loss account (i.e. in the case of subsidized credit) two aspects must be examined: the share of bank's profits transferred to the budget and financial consequences of the central bank operations [*Manual on Fiscal Transparency*,

Robinson et.al., 1988]. If QFO are reflected in profit and loss account without any delay and full amount of profits is transferred to the budget, we may assume that QFO are reflected in the budgetary accounts. Of course, there is typically a lag between the time when QFO occur and impact the central bank's profit and loss account and the time of transferring the central bank profit to the central government. The lag is even longer in the case of contingent liabilities. Hence, usually some portion of central bank profits are retained as central bank reserves. Without transparency rules in place, the central bank may manipulate these profits at the expense of reserve funds. With a 100-percent rate of transfer of profits to the central government, the deficit figure is calculated properly, but revenues and expenditures are undervalued. Moreover, the information on costs of QFO is missing [Robinson, et.al., 1988].

The practice of transferring profit to the budget (or at least a part of them) is quite common. However, the method for dealing with central bank losses is different. These are usually covered by a reduction in bank reserve funds or financed with money issue. If the central bank makes losses (e.g. as a result of QFO or sterilization), they should be compensated by the budget, and thus increase fiscal deficit [Robinson, et.al., 1988].

Finally, inflation may be a major source of distortion in the computation of QFO influencing nominal amounts [Teijeiro (1989), Rocha and Saldanha (1992)]. Fry (1993) indicates that under inflationary conditions, part of the central bank's profit constitute revenue from the inflation tax. The inflation component of interest earned by the central bank on its holdings of private sector claims must be subtracted from the conventional profit transfer and treated as a financing item.

QFO attract our attention because of their consequences.³ They involve transfers, subsidies, and taxes not usually included in the general government budget, and thus imply misallocation of resources. Their allocative effects can be highly distortionary. Through their impact on the interest rate, QFO introduce price distortions into the financial markets and may result in a crowding-out effect. QFO involve excessive risk-taking for the central bank, increase the probability of negative cash-flow from these central banks' opertary management and control [Leone, 1993]. A central bank burdened with fiscal activities can hardly aspire to independence from government. QFO can also make the government indebted to the central bank in a way that decreases the quality of central bank assets. If credit to the government is the

main component of assets, then credibility of backing reserve money depends on the credibility of government [Beckerman, 2000]. QFO can also decrease the credibility of macroeconomic policies and the impact of monetary instruments. Changes in the balance sheet structure leaves little room for sterilization. The macroeconomic effect may appear before maturity in the case of contingent liabilities.

QFO are also likely to jeopardize monetary policies designed to maintain price stability [Fry, 1993]. This happens if the seigniorage level that otherwise assures stable prices is insufficient to cover the cost of QFO. Then the central bank makes losses. Vaez-Zadeh (1991) argues that central bank losses are usually a substitute for larger fiscal deficits and that their impact is the same as monetization of budgetary deficits. If central bank losses are not met by government budget appropriations, they must eventually lead to an expansion in central bank money and abandonment of monetary policy goal of price stability [Fry, 1993]. QFO may also lead to depletion of foreign currency reserves. Bank assistance operations may influence the stability of banking sector by leading to moral hazard behavior among other banks expecting support at the cost of government resources [Daniel, et.al, 1997].

Most of the literature stresses the negative consequences of QFO, but there can be benefits. One may argue, for example, that QFO conducted by the central bank allows delay in fiscal adjustment, which could earn additional time for reforms. During early transition, for example, QFO may be useful if the tax system is a mess.⁴

3 Losses and net worth of central banks

Following Vaez-Zadeh (1991), Teijeiro (1989) and Leone (1993), we argue that a central bank carrying out traditional monetary policy functions in a stable macroeconomic environment will make profits, for example, from seigniorage on currency issues. However, the macroeconomic environment in transition economies is usually unstable and the central bank is often forced to increase revenues, fiscal activities reduce central bank profits or even produce losses.⁵ Thus, central bank losses occur when the bank takes on functions outside its normal role, e.g. subsidized lending to priority sectors or rescue operations. Fry (1993) indicates that serious central bank losses may arise when timing of domestic currency receipts has been divorced from the timing of foreign currency payments. The lack of financial discipline, sterili-

zation operations or bad management may also lead to losses, but permanent losses usually represent hidden fiscal deficits and reflect QFO.

On the liability side of the balance sheet, the main item sets reserve money, which does not entail interest rate obligations. Commercial bank reserves are supposed to earn market interest, but this is often not the case. We treat such under-remunerated reserves as evidence of QFO. On the asset side, we expect all items to earn market interest. Thus, the net interest income is expected to be positive. The main expenses comprise cost of money production and the operating costs, which cover the existence of the central bank.⁶ A loss will occur when the interest rate charged by the central bank on its loans is not high enough to cover printing and administrative costs of currency issue [Vaez-Zadeh, 1991]. The common reason behind this is a subsidy included in interest charged on assets.

The ability of the central bank to influence the return on its assets is crucial to avert losses. Fry (1993) notes that central bank profitability depends on the extent to which the bank exploits its monopoly over reserve money. A balance sheet situation that causes losses when prices are stable may produce a profit at some positive inflation rate. However, as pointed by Vaez-Zadeh (1991), the central bank's ability to vary reserve money to prevent losses could be constrained by its monetary policy objectives.

In summary, we can assume central banks do not make losses under normal conditions and permanent losses indicate the existence of QFO. We have seen such losses reach huge proportions in several Latin American countries in the 1980s. They created problems in implementation of IMF programs because of large movements in other items net in the balance sheet of central banks [Leone, 1993]. In some of these countries, central bank losses were larger than the consolidated budget deficit and comprised a substantial part of the reserve money [Beckerman, 1995, Rodriguez, 1994, Marshall et.al., 1994].

Accumulated losses are reflected in negative net worth of the balance sheet. It is commonly argued that a central bank can have a persistently negative net worth (Stella (1997), central bank may operate well without capital, but large negative net worth may compromise bank's independence and interfere with its monetary policy goals.

From a macroeconomic point of view, central bank losses are a problem if they endanger attainment of monetary targets. Moreover, as noted in previous section, losses caused by QFO can have distortionary effects. Losses can

be financed through creation of additional losses or through inflation. As losses represent an injection of liquidity, the central bank may have to sterilize their impact in order to achieve its money growth objectives [Vaez-Zadeh, 1991]. This vicious circle of rising losses and rising remunerated liabilities is accompanied by increases in interest rates in each round. Hence, losses of the central bank can erode the ability to conduct monetary management efficiently and lead to inconsistent use of monetary policy instruments. Vaez-Zadeh stresses that the higher the ratio of non-earning assets, the stronger the incentive for the central bank to generate a surprise burst of inflation to finance its losses.

At this point we might ask if it is appropriate to aggregate the financial results of the central bank and general government. Unfortunately, there are some important shortcomings to this approach. For example, the central bank may hide its losses with a drop in reserves and in the short run QFO may cause deterioration of the balance sheet structure and only with some lag be reflected in profit and loss account. Due to accounting convention, both measures bring different information. The budget deficit reflects the financing requirements, while the profit and loss account measures economic activity. Transfer of bank profits to the budget establishes non-tax revenue. However, for the central bank this is not expenditure, but a profit redistribution item. Hence, capital expenditure is considered as budget outlays, while depreciation of fixed capital is excluded. On the other hand, the central bank's profit and loss account includes amortization of fixed assets and excludes new gross investments [Teijeiro, 1989].

For the calculation of the central bank losses, the cash flow and capital approach may be applied. [Teijeiro, 1989, Vaez-Zadeh, 1991]. Leone (1993) extends this classification using an accrual measure. It is assumed that benchmark is when cash flow losses are reflected in a profit and loss account and capital losses are reflected in a reserve (net worth) account. Such solution would allow consolidating financial result of the central bank with budget balance. In practice, the central bank may substantially influence the reported ment of accrued interest. Practices associated with the valuation of foreign assets and liabilities are the source of distortions in the true financial position of the central bank [Leone, 1993]. This is particularly serious in countries with negative net foreign assets positions. Negative net worth may suggest that capital losses exist and will be reflected in the future when the liabilities are due. Teijero (1989) stresses that capital losses are usually not

reported in the balance sheet until they are realized and stated in the profit and loss account. The monetary authorities may temporarily manipulate the interest rate, the growth of the monetary base or valuation of assets in order to lower their losses. Symptoms of such behavior include a distorted interest rate structure, inflation and depletion of foreign exchange reserves. All these point to the need for transparent central bank accounts.

A good illustration comes from Argentina. Beckerman (1995) argues that the main engine of the 1989 hyperinflation in Argentina was the central bank's quasi-fiscal deficit. The profit and loss account was misleading and did not deteriorate. The reason for this was that an important part of the assets were loans to the state-owned Housing Bank, which was insolvent. Nevertheless, huge paper profits that were never paid were generated by the accrued interest on these loans.

It is widely assumed that cash measures influence inflation in the short run while net worth has an impact on long-run inflation performance. Of course, negative net worth may immediately influence inflation, even if is not reflected in cash profit (loss) measure, when people perceive a future increase in the rate of money creation and reduce their money demand [Leone, 1993]. It should be also stressed that none of these measures accounts for possible cost of contingent liabilities.

The indirect result of cash losses is monetary expansion. The central bank may delay this effect by receiving new credit or delay in payments of liabilities [Leone, 1993]. These actions lead to the deterioration of the financial position of central banks. Sooner or later the central bank losses influence money creation or cause a loss of foreign reserves. As noted by Leone (1993), the limitations of monetary policy in the presence of central bank with weak financial position and significant cash-flow losses become evident when monetary sterilization is required to ensure monetary and exchange rate stability.

4 Financial position of the central banks in transition

Some of the central banks in transition countries only began to issue annual reports with profit and loss accounts in the mid-1990s. Their figures may reflect different accounting conventions and regulations concerning profits and reserves, and thus are not fully comparable. The main purpose of including them here is to examine if any losses were revealed to the public. As shown in Table 2, recorded losses are rare (Estonia, Czech Republic, Russia, and Slovenia). No central bank reported significant permanent losses.

Moreover, central banks are less than eager to explain their losses. This lack of information makes it impossible to explain, for example, the losses in Estonia in 1992 and in the Czech Republic in 1996 and 1998. One might suppose that in the Czech Republic in 1996 the massive sterilization of capital inflow was responsible for CNB losses. The sources of losses in 1998 recorded by the national bank of Slovenia were foreign exchange operations and negative investment income. Although, the central bank does not reveal details on how these losses were generated, one might suppose that it was also sterilization of capital inflow.

In 1994, the central bank of Estonia recorded losses mainly due to creation of provisions for bad and doubtful debts. In accordance with a decision of parliament and its central bank council, provisions were charged against pre-monetary reform loans, loans to liquidated banks and other claims. In 1999, the central bank of Estonia recorded losses mainly due to a drop in net foreign interest income and creation of provisions for bad and doubtful loans. The deterioration of the euro's exchange rate against the dollar and yen boosted interest rates in Europe, which eventually led to drop in net foreign interest income due to valuation differences arising on holdings of securities. As a consequence, at the end of 1999, the market price for foreign securities was lower than their cost. Provisions were also made to reduce the investment in Optiva Pank to a prudent estimate of its realizable value. In November 1998, the central bank acquired shares in Optiva Pank as part of bank support and restructuring expenses. The 1998 financial statements include these securities at historic cost.

The negative financial results of the central bank of Russia reported in 1998 are the consequence of the crisis, but also reflect the interrelations between the bank and government. The government suspended payments on the principal and interest on the debt due to the Central Bank of Russia (CBR).

Moreover, the CBR had to provide foreign exchange for servicing Russia's foreign public debt. The measures to stabilize the banking sector were also undertaken by the central bank. The balance sheet structure deteriorated and the bank suffered losses. The share of credit to government and treasury securities in assets did not change much during 1998 (about 45%). What changed was the liquidity of these assets.

Table 2. Central bank profits and losses (% of GDP).

	1992	1993	1994	1995	1996	1997	1998	1999
Armenia	....	....	1.9	2.4	2.0	1.7	....	....
Belarus	....	....	....	....	....	....	0.2	1.1
Bulgaria	1.1	4.2	5.5	2.1	7.6	5.1	0.4	0.8
Czech R.	....	....	0.1	0.1	-0.6	0.6	-2.8	1.8
Estonia	-1.2	0.4	-0.6	0.2	0.4	0.7	0.7	-0.1
Hungary	0.3	0.4	1.0	0.1	0.04	0.1	0.2	....
Kyrgyzstan	....	....	....	....	....	....	0.3	0.7
Latvia	0.2	0.5	0.2	0.3	0.2	0.2	0.2	0.0
Lithuania	....	....	....	0.1	0.2	0.1	0.3	0.2
Moldova	....	....	3.4	3.7	....	2.0	....	2.8
Poland	0.8	1.2	1.3	0.9	0.2	0.2	0.1	0.4
Romania	1.0	1.6	2.0	1.1	0.4	0.4	0.003	....
Russia	....	3.8	1.9	0.2	0.4	0.1	-0.001	0.00003
Slovakia	....	1.8	2.0	0.7	0.6	0.2	0.5	....
Slovenia	....	0.1	0.1	0.3	0.4	0.5	-0.1	1.1
Ukraine	....	....	....	0.3	0.4	....	....	....

Ellipsis"..." indicates a lack of statistical data

Source: Annual Reports of the national banks

Central banks have been involved in QFO in numerous transition countries, but rarely do they record losses. As was mentioned before, permanent losses usually represent a hidden fiscal deficit. The occasional losses may be caused by the lack of financial discipline, sterilization operations or bad management not necessarily connected with central bank QFO. With few exceptions (mostly due to accounting conventions), the level of profits does not differ from the average measure in developed countries. One should keep in mind that the central bank could use different monetary policy instruments, along with creative accounting practices, for the sole purpose of reducing losses. Hence, the picture of financial results of the central bank may be blurred and the information on cost of QFO is hidden.

To evaluate the financial position of a central bank, we look at the capital results reflected in the balance sheet. The best indicator would be a change in net worth measure. Net worth includes the period's net cash-flow and accrued income and expenses, the central bank's capital gains (losses) occurring as a consequence of changes in the market prices of its assets and liabilities and valuation adjustments resulting from changes in exchange rates of currencies included in its holdings of foreign assets and in outstanding foreign liabilities [Leone, 1993].

As the approximation of net worth, the measure of "other items net" or OIN will be applied. OIN is the difference between the bank's assets and liabilities and is shown on the liabilities side of the balance sheet. OIN includes the revaluation account, net worth, original capital, reserves and physical assets. It is expressed as a percentage of reserve money to provide a comparison between countries on fragility of balance sheet structure.⁷ Some banks experienced deterioration of the financial position calculated on the accrual basis. The Romanian case seems to be the worst [see Table 3]. Negative OIN means that liabilities of the bank are higher than assets and expressed in percent of reserve money give some information of threat in case all liabilities are called. Thus, it shows the fragility of the central bank financial position. The results are not consistent with the declared losses as more banks are endangered by the possibility of future losses implied by the deterioration of their current financial position.

Table 3. Other items net (OIN) of central banks (as a percentage of reserve money)

	1993	1994	1995	1996	1997	1998	1999
Armenia	-30.0	-4.8	0.6	4.8	21.3	51.0	42.9
Azerbaijan	-1.8	4.5	13.6	7.0	8.8	9.6	20.2
Belarus	....	53.7	19.9	25.6	27.6	59.4	18.6
Bulgaria	2.9	-1.6	-2.3	61.3	59.1	47.5	37.4
Czech R.	-4.4	-4.2	1.3	3.9	9.8	-0.8	4.5
Estonia	32.2	20.3	12.9	14.7	15.6	18.9	15.7
Georgia	....	....	2.5	5.9	15.6	-31.3	9.3
Hungary	-0.3	0.6	11.3	-1.9	-1.3	4.5	-4.8
Kazakhstan	97.6	140.2	65.4	56.5	35.2	64.2	87.3
Kyrgyzstan	....	....	15.0	-2.7	15.2	24.7	28.2
Latvia	11.0	0.5	4.1	1.7	5.5	9.4	3.8
Lithuania	21.3	0.8	-8.3	-9.0	-10.6	-7.4	-7.5
Moldova	-4.0	12.7	19.2	21.9	24.4	21.6	22.6
Poland	63.5	63.7	53.1	60.7	71.8	65.7	89.6
Romania	-20.7	-17.5	-15.1	-14.3	-26.7	-21.9	-4.4
Russia	76.8	73.9	39.9	31.0	23.3	68.2	54.2
Slovakia	20.5	41.9	27.3	33.6	22.2	25.9	18.8
Slovenia	57.1	31.4	31.6	36.7	41.4	33.3	46.0
Ukraine	-15.2	23.9	17.5	22.3	14.1	8.8	-4.6

Source: IFS IMF data. Author's calculations.

The picture seems fuzzy. While only some of central banks show cash losses, the financial stance on accrual basis looks worse. Unfortunately, there is no way to tell what part of these losses is driven by fiscal operations. In most cases, losses from granting loans at below market interest rates are not reflected in the profit and loss account, as they might have led to decrease of accrual profits. Losses incurred in bailout operations may be reflected as overvaluation of assets rather than a reduction of operational profits. Contingent liabilities may remain off-balance-sheet.

5 Estimating quasi-fiscal deficits

In this section the framework proposed by Anand and Wijnbergen (1988), (1989) and developed by Budina (1997), Budina and Wijnbergen (2000) will be employed and developed. It allows assessment of QFO carried out by the central banks for the sample of Central and Eastern Europe and former Soviet Union (FSU) countries. The sample is limited by the availability of data as we have excluded countries that do not present statistics of monetary authorities in IFS format.

To fulfill this task, we amalgamate government budget constraint and profit and loss account of the central bank. The nominal augmented fiscal deficits are calculated, hopefully providing data that can be used in future research on fiscal policy for the purposes of estimating the impact of fiscal policy on other key variables in the economy. The main task is to test what was the range of QFO undertaken by the central banks in transition countries. If we find QFO are persistent, it becomes necessary to augment the deficit measure with the central bank deficit in order to include all operations undertaken for public policy reasons by units outside the conventional definition of government.

5.1 Government budget constraint

The analysis starts from government budget constraint taking the following form:

$$\begin{aligned} D + iB_{-1} + iDC_{-1}^g - iDEP_{-1}^g + ((1 + \hat{E})(1 + i^*) - 1)B_{-1}^* E_{-1} \\ = \Delta B + \Delta(B^*E) + \Delta DC^g - \Delta DEP^g \end{aligned} \quad (1)$$

where:

D – primary deficit, i – nominal interest rate, B – domestic public debt, DC^g – credit to government, DEP^g – government deposits at the central bank, B^* – foreign debt, E – nominal exchange rate. The asterisk * denotes variables in foreign currency, Δ indicates the absolute change in the expression that follows and $\hat{}$ denotes a percentage change in variable.

On the left-hand side are the funding requirements: the general government primary deficit, interest paid on domestic public debt, interest paid on domestic credit extended by the central bank to the government minus interest on government deposits at the central bank plus interest on foreign

debt expressed in terms of domestic currency. On the right-hand side are the financing sources: domestic and foreign debt issue and net credit to government extended by the central bank.

High exchange rate variability is a common feature of transition countries. Devaluation of domestic currency complicates a fiscal situation, where a significant part of the public debt is denominated in foreign currencies. Therefore, the growth in public sector borrowing requirements may be attributed to devaluation, all other variables held constant. In order to capture the impact of the exchange rate on domestic value of foreign debt, changes in the value of government foreign liabilities are broken down into quantity, valuation and cross-term product.

$$\Delta(B^*E) = E_{-1} \Delta B^* + B^*_{-1} \Delta E + \Delta B^* \Delta E \quad (1a)$$

On the right-hand side the first term represents the change in stock of foreign debt, the second exchange rate changes and the third term is a cross product. Combining the above equations gives us the government budget constraint in the following form:

$$\begin{aligned} D + iB_{-1} + iDC^g_{-1} - iDEP^g_{-1} + (1 + \hat{E}) i^* B^*_{-1} E_{-1} \\ = \Delta B + (\Delta B^*)E_{-1} + \Delta B^* \Delta E + \Delta DC^g - \Delta DEP^g \end{aligned} \quad (2)$$

Note that the valuation effect on foreign debt caused by changes in nominal exchange rate has been canceled out. Thus, in further analysis we neglect the situation where growth in budget borrowing requirements is caused by devaluation of domestic currency.

5.2 The central bank's profit and loss account

From the balance sheet of the central bank we get the following identity:

$$\Delta NW + \Delta M = \Delta DC^g - \Delta DEP^g + \Delta C^p + \Delta(NFA^* E) \quad (3)$$

where M – monetary base, C^p – credit to the non-governmental sector (commercial banks and private sector), NFA – net foreign assets, NW – net worth. following way:

Then, from the profit and loss account, the profits may be defined in the following way

$$\Delta NW = iDC_{-1}^g - iDEP_{-1}^g + iC_{-1}^p + ((1+i^*)(1+\hat{E})-1) NFA_{-1}^* E_{-1} \quad (4)$$

Combining balance sheet and profit and loss account of the central bank [(3) and (4)], we obtain an identity describing the central bank's financial account:

$$\begin{aligned} & iDC_{-1}^g - iDEP_{-1}^g + iC_{-1}^p + ((1+i^*)(1+\hat{E})-1) NFA_{-1}^* E_{-1} \\ & = \Delta DC^g - \Delta DEP^g + \Delta(NFA^* E) - \Delta M + \Delta C^p \end{aligned} \quad (5)$$

The equation (1a) is employed to cancel out the exchange rate effect and we receive:

$$\begin{aligned} & iDC_{-1}^g - iDEP_{-1}^g + iC_{-1}^p + (1+\hat{E})i^* NFA_{-1}^* E_{-1} \\ & = \Delta DC^g - \Delta DEP^g + E_{-1}\Delta NFA^* + \Delta E\Delta NFA^* - \Delta M + \Delta C^p \end{aligned} \quad (6)$$

Equation (6) provides a link between financial statements of the central bank: profit and loss account and balance sheet. Thus, connects financial requirements with changes in the structure of balance sheet. The changes in net foreign assets caused by variability of the nominal exchange rate have been netted out. Therefore, in further analysis we neglect the situation when increase in net liabilities of the central bank is caused by devaluation of the domestic currency.

5.3 Consolidation

To obtain the total public sector budget constraint, we combine general government with central bank accounts [(2) and (6)] and get:

$$\begin{aligned} & D+iB_{-1} - iC_{-1}^p + (1+\hat{E}) i^* (B_{-1}^* - NFA_{-1}^*) E_{-1} \\ & = \Delta B + E_{-1}(\Delta B^* - \Delta NFA^*) + \Delta E(\Delta B^* - \Delta NFA^*) + \Delta M - \Delta C^p \end{aligned} \quad (7)$$

As a result, central bank credit to the government and government deposits at the central bank have been netted out as they represent claims of one pub-

lic entity on another. In addition, we switch to a net concept of foreign debt calculated as foreign debt minus net foreign assets of the central bank. One should keep in mind that employing equation (1a) we excluded the effect of devaluation on the growth of public sector borrowing requirements. Therefore, all changes in net foreign debt of aggregated public sector caused by exchange rate volatility are omitted.

The right-hand side of the equation (7) may be simplified to derive:

$$\begin{aligned} D + iB_{-1} - iC^p_{-1} + (1 + \hat{E}) i^* (B^*_{-1} - NFA^*_{-1}) E_{-1} \\ = \Delta B + E(\Delta B^* - \Delta NFA^*) + \Delta M - \Delta C^p \end{aligned} \quad (8)$$

Total public sector budget constraint includes the general government deficit and the financial result of the central bank. The amalgamated public sector deficit can be financed with domestic or foreign debt of government, monetary financing or increase in liabilities (in foreign currencies or in domestic currency for non-governmental entities) of the central bank.

Following the methodology applied by Budina and Wijnbergen (2000), an increase in the total public sector borrowing requirement above the general government balance would indicate a quasi-fiscal deficit of the central bank. The figure reported as quasi-fiscal deficit of the central bank could be obtained residually. A quasi-fiscal deficit emerges if the financial obligations of the central bank create additional demand for resources covered with the growth of domestic or foreign liabilities of the central bank or the with money issue. In practice, this means that the general government deficit figure is deducted from aggregated borrowing requirement of the public sector.

There are some significant shortcomings in this analysis when applied to the available data. A properly measured budget deficit should equal the change in net indebtedness of the public sector. However, in the sample under consideration, general government borrowing requirements often grew faster than general government deficit. This means that equation (1) might not be fulfilled for all the periods. The difference may result from e.g. growth in public debt due to accumulation of budgetary arrears, guarantees and other public contingent liabilities, assumption to the budget of bad debts of public enterprises and banks, accumulation of interest due to delay in repayment, restructuring of debt, growth in debt of public institutions, which are not included in calculation of general government deficit. Some of these reasons indicate quasi-fiscal operations of public institutions other than the central bank.

Furthermore, the change in NW is not singled out in the balance sheet. The only available item is OIN, which includes NW. However, changes in OIN differ from changes in NW mostly due to significant volatility of valuation adjustment, which is the most significant component of OIN.

If the public debt stock grew faster than the general government deficit, this method would lead to overestimation of the quasi-fiscal deficit of the central bank (QFDCB). Therefore we differentiate between financing requirements of the central bank and government and modify right-hand side of equation (8) as follows:

$$\Delta B + E(\Delta B^* - \Delta NFA^*) + \Delta M - \Delta C^p = [\Delta B + E(\Delta B^*) + \Delta DC^g - \Delta DEP^g] - [\Delta DC^g - \Delta DEP^g + E(\Delta NFA^*) - \Delta M + \Delta C^p] \quad (9)$$

On the right-hand side of equation (9), we get borrowing requirements of the general government and borrowing requirements of the central bank. In order to derive the measure of QFDCB we will use the expression from equation (9) namely:

$$[\Delta DC^g - \Delta DEP^g + E(\Delta NFA^*) - \Delta M + \Delta C^p] = \Delta OIN_a \quad (10)$$

One should keep in mind that in the process of aggregation of balances we excluded the impact of exchange rate changes on NFA. Therefore, the adjusted measure of ΔOIN_a does not include accumulated exchange rate differences (valuation adjustments are the most significant component of OIN). What is left is the change in NW and e.g. deferred interest payments or accrued interest on previously extended credits to economy, where repayment is not likely. On the grounds of arguments listed in earlier sections devoted to theoretical background, we expect that ΔOIN_a is a better measure of financial stance of the central bank if QFO are undertaken and not all the consequences are revealed to the public in profit and loss account. It allows taking into account QFO even if the central bank only suffers lower profitability. It allows consideration of growth in the central bank's liabilities caused by making the central bank pay government liabilities out of its reserves. Hence, our measure of QFDCB sees through the creative accounting practices of central bank authorities that delay payments to hide losses in the current year. According to international accounting standards, profit and loss

account should include excess of negative differences over positive differences in securities revaluation. If country practices differ in this respect, the proposed measure of QFDCB will provide with information.

5.4 Results

Due to the availability of data, the QF deficit measure was calculated only for seventeen countries from the sample. In all cases but Romania, the results confirm the existence of QFO undertaken by the central banks (see Table 4). This means that in all cases, the public sector size was underestimated and the fiscal deficit indicator was misleading. Actual figures are higher, in some cases the QF deficit of the central bank is as high as the official figure for the general government balance. The method applied considers the situation when the central bank is burdened with debts of other entities leading to the increase of bank's liabilities and deterioration of its financial position. The growth of public debt at a rate exceeding the general government balance might indicate underestimation of the public deficit figure. Thus, the public sector share may be much higher. However, these would come from different sources than QFDCB.

In interpreting the results, we follow Beckerman's (1997) definition of QF deficits of the central bank as decapitalization flows. Central bank flow decapitalization may be included in overall public deficit measures. We do not go into the precision of the QFDCB figures here, since we used an indirect estimation.⁸ The importance of conclusions here concern the sign rather than the magnitude of figures.

QFO brought losses to central banks in only a few cases. More often they led to deterioration of the central bank's financial position. QFO of central banks are widespread and persistent. As shown in Table 4, the quasi-fiscal deficits of central banks (QFDCB) are substantial and sometimes comparable to the general government balance. Therefore, public sector share, as indicated in official statistics, is underestimated and the official fiscal data give a misleading indication of the extent of fiscal activities in the economy. Hence, the proper aggregation of balances should net out mutual obligations and clear exchange rate effect, as it was done for the purpose of this paper. In order to derive aggregated public sector deficit the 'net' QFDCB can be added to general government deficit.

Table 4. Budget deficits (BD) and quasi-fiscal deficits of central banks (QFDCB) as a percentage of GDP (positive figures indicate deficit)

	1994	1995	1996	1997	1998	1999	
Armenia	1.2	0.2	0.1	0.8	1.4	....	<i>QFDCB</i>
	10.5	11.0	9.3	5.9	5.2	....	<i>BD</i>
Belarus	5.3	0.3	0.7	0.8	2.5	....	<i>QFDCB</i>
	1.8	2.7	1.9	1.6	0.9	....	<i>BD</i>
Bulgaria	-0.8	-0.4	-6.6	4.9	0.2	-3.1	<i>QFDCB</i>
	4.7	5.3	19.0	-2.1	-2.8	-1.5	<i>BD</i>
Czech R.	0.2	1.6	-0.1	-4.1	0.3	-3.1	<i>QFDCB</i>
	1.9	1.6	1.9	2.0	2.4	4.4	<i>BD</i>
Estonia	0.3	0.3	-0.4	-1.0	1.5	....	<i>QFDCB</i>
	-1.4	0.6	1.9	-2.2	0.3	....	<i>BD</i>
Hungary	2.8	8.3	2.0	3.0	1.1	....	<i>QFDCB</i>
	8.6	6.2	3.1	4.8	4.8	....	<i>BD</i>
Kazakhstan	4.2	-0.9	-0.5	-0.6	-0.2	....	<i>QFDCB</i>
	6.7	2.4	4.4	4.0	4.4	....	<i>BD</i>
Kyrgyzstan	....	....	0.1	1.9	2.1	1.7	<i>QFDCB</i>
	....	....	5.6	4.7	3.0	2.5	<i>BD</i>
Latvia	....	....	-0.5	-0.1	1.0	-0.9	<i>QFDCB</i>
	....	....	1.6	-0.7	-0.1	3.8	<i>BD</i>
Lithuania	-1.7	-0.9	-0.1	-0.3	0.1	....	<i>QFDCB</i>
	4.7	4.8	3.6	1.9	0.4	....	<i>BD</i>
Moldova	....	1.2	0.4	1.1	-5.8	1.9	<i>QFDCB</i>
	....	5.8	9.8	7.7	3.3	3.2	<i>BD</i>
Poland	0.6	0.8	-0.1	0.1	0.5	-0.9	<i>QFDCB</i>
	2.3	2.2	2.3	1.4	1.9	3.0	<i>BD</i>
Romania	-0.4	-0.5	-0.1	-1.2	-0.9	-0.3	<i>QFDCB</i>
	0.2	2.6	4.0	4.4	3.9	....	<i>BD</i>
Russia	-0.3	-0.1	-0.5	-0.2	0.9	2.1	<i>QFDCB</i>
	10.5	7.9	9.5	7.9	8.0	....	<i>BD</i>
Slovakia	6.4	10.9	2.8	3.0	-1.7	....	<i>QFDCB</i>
	1.3	0.2	1.9	4.4	5.8	....	<i>BD</i>
Slovenia	0.01	0.3	-0.8	-1.6	0.7	-1.4	<i>QFDCB</i>
	0.2	0.2	0.2	1.7	1.1	0.9	<i>BD</i>
Ukraine	3.6	0.1	0.6	-0.1	-0.1	1.7	<i>QFDCB</i>
	8.2	6.8	4.8	6.7	2.0	1.5	<i>BD</i>

Source: IFS IMF, IMF Staff Country Reports, Annual Reports of the central banks, OECD Economic Surveys. Author's calculations.

QFDCB, even in advanced transition countries, is common. However, the high level of QFDCB in Hungary might come from the fact that the national bank was responsible for servicing foreign public debt. In case of Romania, the method applied here gives surpluses in QFDCB for the period under investigation. The QFDCB calculations of Budina et.al. (2000) result in the following deficit numbers: 12.8%, 1.7% and 5.6% of GDP in 1992-1994. The number for 1994 differs significantly. Buiter (1997) calculated QFDCB for the period of 1991-1994, therefore only 1994 can be compared. In 1994, he recognized QFDCB for Bulgaria and Romania (we derived surpluses) and Ukraine (we report QFDCB, but twice as high as the Buiter figure for 1994). The lack of a common link among all these results comes from different methodology. Unlike Buiter, we do not assume all domestic credit expansion of the non-governmental sector as QFDCB. As concerns Budina et. al., we argue that public debt grew faster than was indicated by general government financing needs, and therefore we differentiate between government and the central bank borrowing requirements.

An important question is whether general government deficits correlate with QFDCB. If the correlation is positive, it would mean that high budgetary unbalances are associated with high QFDCB, indicating improper policy mix. If negative, it would mean that transfer of expenditures to the central bank weakens fiscal adjustment. Empirical data argue for the second view.

The relationship between BD and QFDCB is depicted in charts below. Although we add the regression trend line, the dispersion of data is high. An interesting pattern arises if the sample is divided into two groups: former Soviet Union countries (FSU) and Central and Eastern Europe countries (CEE). For the first group, the correlation between changes in general government budget deficit and QFDCB is positive. However, this may be misleading as most of the observations enters the IV quarter. It means that within this subgroup of countries fiscal adjustment was connected with growth in QFDCB. A different pattern is drawn by the Central and Eastern Europe countries where the observations accumulate in the II quarter. The results indicate that relaxation of fiscal policy was connected with drop in QFDCB. One may assume that the position of the central banks is stronger and that the monetary authorities introduced a proper policy mix that strengthened monetary policy in the face of growing fiscal imbalances.

The widespread existence of QFO may lay behind the weak relationship of fiscal balances and inflation performance, especially when disinflation does follow the drop in fiscal imbalances. Concerning the aggregated bal-

ances of government and the central bank, it should be noted that the current level of fiscal redistribution is probably unsustainable. The large public sector may inhibit development of the private sector and hamper economic growth. The level of central bank independence is found to be limited. Widespread QFO of central banks likely decreases their ability to conduct monetary policy.

The analysis of fiscal policy in any transition country has to include estimation of QFO. Otherwise, the analysis is incomplete and conclusions may not be valid.

6 Conclusions

The main purpose of this paper was to examine the financial position of the central banks in transition countries and estimate their involvement in quasi-fiscal operations (QFO). The main task was to aggregate general government deficit with the quasi-fiscal deficits of central banks (QFDCB) to determine the actual size of the public sector. It was proposed that evidence of QFO would be manifested e.g. by a fiscal contraction accompanied by a relaxation of monetary policy.

The paper includes a calculation of QFDCB for a broad sample of transition countries. These figures may be aggregated with general government deficit to obtain realistic public sector balances. First, we noted that national banks rarely reported losses in their profit and loss account. Second, we found that the structure of the balance sheet includes signs of a deteriorating financial position of the central bank calculated on an accrual basis. Third, we calculated QFDCB for individual countries. The results show that QFDCB are widespread and not connected solely with slow reformers. There is no clear pattern in the correlation between QFDCB and general government fiscal deficits.

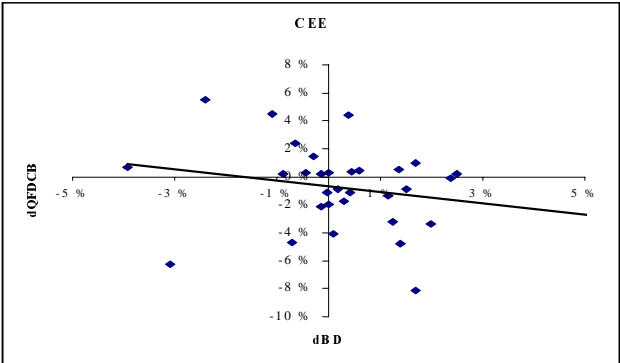
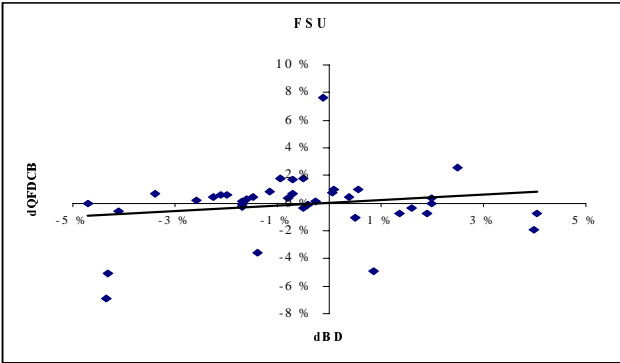
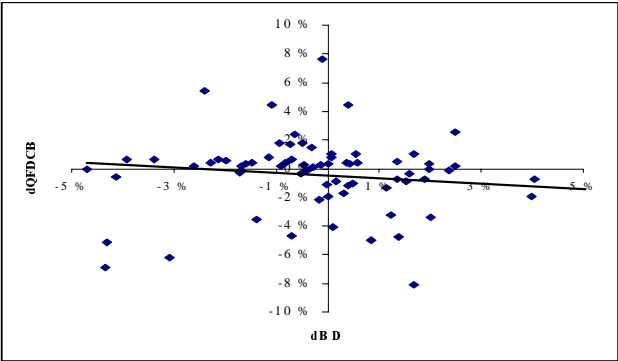
Recognition of the impact of QFO is important because of the consequences such operations bring. Thus, proper assessment of public sector size is a precondition for a proper interpretation of the public sector's role in the economy and its interactions with other macroeconomic variables. Properly conducted aggregation of balances may reduce the incentive for the central bank to occasionally use different monetary policy instruments, along with the creative accounting practices, for the sole purpose of reducing losses. A

proper aggregation of balances may also decrease of the risk of abuses of the central bank by government. Hence, the presence of QFO of the central bank indicates the status of the central bank and the degree of its independence. QFO distort relative prices in the economy, complicate monetary management and may jeopardize financial stability. This makes lack of transparency a serious concern. To promote transparency, QFO should be identified and reported as memorandum items in financial statistics. In this sample, Kazakhstan was the only country where quasi-fiscal deficit was reported by the IMF for 1994 and 1995.

The possible extension of this research may be investigation of interrelation between QFDCB and general government deficits. Generally, one needs to do more than measure QFDCB to understand its potential role in fiscal retrenchment. The estimation procedure should be completed with specific country analysis to identifying risks connected with QFDCB. Despite its apparent usefulness, there is strikingly little investigation concerning QFO of other public institutions.

Charts

Change in quasi-fiscal deficits of the central banks and general government deficit for the whole sample, for former Soviet Union (FSU) countries, and for Central and Easter Europe countries.



References

- Alesina A., Perotti R., 1999, *Budget deficits and budget institutions*, in: *Fiscal Institutions and Fiscal Performance*, ed. by Poterba J.M. von Hagen J., A NBER Conference Report, The University of Chicago Press
- Anand R., Wijnbergen S., 1988, *Inflation, external debt and financial sector reform: a quantitative approach to consistent fiscal policy with an application to Turkey*, NBER Working Paper Series no. 2731
- Anand R., Wijnbergen S., 1989, *Inflation and the financing of government expenditure: an introductory analysis with an application to Turkey*, The World Bank Economic Review, vol. 3, No.1: 17-38. *Annual Reports of the central banks*, issues for 1992-1999.
- Beckerman P., 1995, *Central Bank Distress and Hyperinflation in Argentina 1989-90*, Journal of Latin American Studies, Vol.27, Part 3 (Oct) pp. 663-682
- Beckerman P., 1997, *Central-bank decapitalization in developing economies*, World Development Vol.25, No.2, pp. 167-178
- Beckerman P., 2000, *How shall should an economy's fiscal deficit be? A monetary-programming approach*, World Bank Working Paper Series no. 2308
- Brixi Polackova H., 2000, *Contingent Government Liabilities: Fiscal Threat to the Czech Republic?*, Post-Soviet Geography and Economics, 41, No.1, pp.63-76
- Bodart V., 1996, *Multiple Exchange Rates, Fiscal Deficits and Inflation Dynamics*, IMF, Working Paper, WP/96/56
- Budina N., 1997, *Essays on Consistency of Fiscal and Monetary Policy in Eastern Europe*, Thesis Publishers, Amsterdam
- Budina N., Wijnbergen S., 2000, *Fiscal Deficits, Monetary Reform and Inflation Stabilization in Romania*, World Bank Working Paper Series no. 2298
- Buiter W.H., 1997, *Aspects of Fiscal Performance in some Transition Economies Under Fund-Supported Programs*, IMF, Working Paper WP/97/31

Cottarelli C., 1993, *Limiting Central Bank Credit to the Government. Theory and Practice*, IMF, Occasional Paper No. 110

Cukierman A., 1992, *Central Bank Strategy, Credibility, and Independence: Theory and Evidence*, Cambridge, Massachusetts: MIT Press

Cukrowski J., Janecki J., 1998, *Financing Budget Deficits by Seigniorage Revenues: the Case of Poland 1990-1997*, CASE, Studies and Analyses No. 155

Daniel J.A., Davis J.M., Wolfe A.M., 1997, *Fiscal Accounting of Bank Restructuring*, IMF Paper on Policy Analysis and Assessment PPAA/97/5

Enoch Ch., Stella P., Khamis M., 1997, *Transparency and ambiguity in central bank safety net operations*, IMF WP/97/138

Enoch Ch., *Transparency in central bank operations in the foreign exchange market*, 1998, IMF Paper on policy analysis and assessment, PPAA/98/2

Easterly W., 1999, *When is fiscal adjustment an illusion?*, Economic Policy, April, No. 28

Fry M.J., 1993, *The Fiscal Abuse of Central Banks*, IMF WP/93/58

Houerou P., Sierra H., 1993, *Estimating Quasi-fiscal deficits in a consistency framework. The case of Madagascar*, World Bank Policy Research Working Paper 1105

IMFa, 1986, *A Manual on Government Finance Statistics*

IMFb, *Manual on Fiscal Transparency*, www.imf.org

IMFc, *World Economic Outlook*, October 1996: A Survey by the Staff of the International Monetary Fund, World Economic and Financial Surveys, (Washington)

IMFd, *World Economic Outlook*, May 1996: A Survey by the Staff of the International Monetary Fund, World Economic and Financial Surveys, (Washington)

Kimbrough K., 1986, *The optimum quantity of money rule in the theory of public finance*, Journal of Monetary Economics, 18: 277-284

Kopits G., Craig J., 1998, *Transparency in government operations*, Occasional paper no. 158, IMF

Kopits G., Symansky S., 1998, *Fiscal policy rules*, Occasional paper no. 162, IMF. Leone A.M., 1993, *Institutional and Operational Aspects of the Central Bank Losses*, IMF Paper on policy analysis and assessment, PPAA/93/14

Mackenzie G.A., Stella P., 1996, *Quasi-fiscal operations of Public Financial Institutions*, IMF, Occasional Paper No. 142

Markiewicz M., 2000, *Концептуальные проблемы оценки перераспределительной деятельности государства и фискальной несбалансированности в период трансформации экономики, на примере Украины*, CASE, Studies and Analyses No. 213

Marshall J., Schmidt-Hebbel K., 1994, *Chile: Fiscal Adjustment and Successful Performance*, in: *Public Sector Deficits and Macroeconomic Performance*, edited by W. Easterly, C. A. Rodriguez, and K. Schmidt-Hebbel, Oxford University Press

Montanjes M., 1995, *Government Finance Statistics in the Countries of the Former Soviet Union: Compilation and Methodological Issues*, IMF WP/95/2

OECD Economic Surveys, 2000, *Czech Republic*

Phelps E., 1973, *Inflation in the Theory of Public Finance*, Swedish Journal of Economics 75: 67-82

PricewaterhouseCoopers, 2000, *National Bank of Ukraine, Agreed-upon procedures, Report of Findings for Publication Purposes*, www.imf.org

Roberto de Rozende Rocha, Saldanha Fernando, 1992, *Fiscal and quasi-fiscal deficits, nominal and real. Measurement and Policy Issues*, World Bank Working Paper Series no. 919

Robinson D.J., Stella P., 1988, *Amalgamating Central Bank and Fiscal Deficits w: Blejer M.I., Ke-Young Chu (red.), Measurement of Fiscal Impact. Methodological Issues*, IMF, Occasional Paper No. 59

Rodriguez C.A., 1994, *Argentina: Fiscal Disequilibria Leading to Hyperinflation*, in: *Public Sector Deficits and Macroeconomic Performance*, edited by W. Easterly, C. A. Rodriguez, and K. Schmidt-Hebbel, Oxford University press
Stella P., 1997, *Do Central banks need capital?*, IMF WP/97/83

Teijeiro M.O., 1989, *Central Bank Losses. Origins, conceptual issues and measurement problems*, World Bank Working Paper Series no. 293

Vaez-Zadeh R., 1991, *Implications and Remedies of Central Bank Losses*, in *The Evolving Role of Central Banks*, ed. By Downes P. and Vaez-Zadeh R., (Washington: IMF), pp. 69-92

Woodford M., 1990, *The optimum quantity of money*, in: B.F. Friedman and F.H. Hahn, eds., *Handbook of Monetary Economics*, Amsterdam: North Holland, 1067-1152

World Bank, 2000, *Global Development Finance, Country Tables*

Notes

¹ See Buiter (1997) for the cross-country comparison. In the context of specific countries, see Budina et.al. (2000) for the case of Romania, and Markiewicz (2000) and PricewaterhouseCoopers (2000) for the case of Ukraine, and OECD (2000) for comments on hidden public liabilities in the Czech Republic. Brixi (2000) presents evidence on contingent liabilities in the Czech Republic.

² Easterly (1999) argues that, under plausible conditions, a government forced to lower its conventional deficit will take offsetting actions to leave part of its net worth unchanged. The presented results indicate that 81% of a fiscal retrenchment is reversed the following year for a typical recipient of adjustment lending.

³ For an analysis of the consequences, see Brixi (2000), Buiter (1997), Fry (1993), Leone (1993), IMF_a, IMF_b, IMF_d, Mackenzie et.al. (1996), and Robinson et.al. (1988).

⁴ This explanation is based on Phelps (1973) argument, whereby, in order to lower any distorting tax, it is welfare-improving to increase the inflation tax. This approach is discussed in Woodford (1990) and Kimbrough (1986).

⁵ In the short run, the net effect of QFO may be positive, i.e. a MER system may generate profits.

⁶ The costs of central bank could be significant, e.g. in the period 1974-1987, 16.9% of the monetary seigniorage was used to cover the Bundesbank's operating costs [Cukrowski, Janecki, 1998].

⁷ Other items net (OIN) expressed as a percentage of GDP would indicate its share in relation to the size of economy. The situation of two countries with the same ratio of OIN in percent of GDP but with relatively different share in banks' liabilities is possible. In order to connect the OIN with size of central bank balances, we use the measure of OIN as a percentage of reserve money.

⁸ To precisely estimate the size of QFO, it would be necessary to break down the loss figure into quasi-fiscal and monetary components. However, a cross-country approach here is not possible. Therefore, we evaluate the scope of QFO indirectly assuming that change in OIN_a is a good proxy for change in NW due to QFO of the central bank.

BOFIT Discussion Papers

2000

- No 1* Victor Polterovich: Employment - wage decisions in the insider-owned firm
- No 2* Rupinder Singh: Bank regulation, compliance and enforcement
- No 3* Terri Ziacik: An assessment of the Estonian investment climate: Results of a survey of foreign investors and policy implications
- No 4* Vadims Sarajevs: Econometric analysis of currency substitution:
A case of Latvia
- No 5* Jukka Pirttilä: Fiscal policy and structural reforms in transition economies: An empirical analysis
- No 6* Martti Vihanto: Tax evasion in a transition from socialism to capitalism: The psychology of the social contract
- No 7* Iftekhar Hasan - Katherin Marton: Development and efficiency of the banking sector in a transitional economy: Hungarian experience
- No 8* Juhani Laurila - Rupinder Singh: Sequential reform strategy: The case of Azerbaijan
- No 9* Byung-Yeon Kim: Causes of repressed inflation in the Soviet consumer market: Retail price subsidies, the siphoning effect, and the budget deficit
- No 10* R.E. Ericson - B.W. Ickes: A model of Russia's "Virtual Economy"
- No 11* Tuomas Komulainen - Jukka Pirttilä: Fiscal explanations for inflation: Any evidence from transition economies?
- No 12* Vadims Sarajevs: Money shocks in a small open economy with dollarization, factor price rigidities, and nontradeables
- No 13* Sandra Dvorsky: Measuring Central Bank Independence in Selected Transition Countries and the Disinflation Process
- No 14* Laura Solanko - Merja Tekoniemi: A Tale of Two City-States; Novgorod and Pskov in the 1990s.

2001

- No 1* Igor Vetlov: Dollarization in Lithuania: An Econometric Approach
- No 2* Malgorzata Markiewicz: Quasi-fiscal operations of central banks in transition economies

BOFIT

Discussion Papers

ISBN 951-686-946-7 (print)

ISSN 1456-4564 (print)

ISBN 951-686-947-5(online)

ISSN 1456-5889 (online)

Editor-in-Chief **Jukka Pirttilä**

Bank of Finland

Institute for Economies inTransition BOFIT

P.O. Box 160

FIN-00101 Helsinki

Phone: +358 9 183 2268

Fax: +358 9 183 2294

bofit@bof.fi

www.bof.fi/bofit
