Citation for published version:
Korosteleva, J & Lawson, C 2009 'The Belarusian Case of Transition: Whither Financial Repression?' Bath Economics Research Working Papers, no. 4/09, Department of Economics, University of Bath, Bath, U. K.

Publication date:
2009

Document Version
Publisher's PDF, also known as Version of record

Link to publication

University of Bath

Alternative formats
If you require this document in an alternative format, please contact:
openaccess@bath.ac.uk

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy
If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Download date: 19. May. 2021

The Belarusian Case of Transition: Whither Financial Repression?

Julia Korosteleva and Colin Lawson

No. 4/09

BATH ECONOMICS RESEARCH PAPERS

Department of Economics and International Development

The Belarusian Case of Transition: Whither Financial Repression?

Julia Korosteleva[a] and Colin Lawson[b]

[a] Corresponding author; School of Slavonic & East European Studies, University College London, Gower Street., London, UK, WC1E 6BT.

[b]Department of Economics, University of Bath, Claverton Down, Bath, BA2 7AY.

Abstract

The present paper examines the financial development of Belarus, with special emphasis on 1996-2002, when the financial sector was restrained by pervasive government controls. Belarus is of particular interest, as, despite no economic restructuring, annual growth has averaged seven per cent since 1997. It has been argued that monetary stimulation of investment activity through interest rate ceilings, directed credit and preferential loans revived growth. This article investigates whether a repressive financial policy, adopted by the authorities in the late 1990s, led to financial deepening and increased the share of savings allocated to investment.

JEL classification: C12, C22, E42, E44, G21, G28, O16.

Keywords: financial repression, financial sector, financial depth.

Introduction

It is widely argued that liberalising the financial sector by abolishing interest rate ceilings, refraining from directed credit programmes and removing capital controls will lead to financial deepening, and as a consequence to economic growth (see, for example, Shaw, 1973 and Fry, 1995). In the late seventies and early eighties many developing countries embarked on economic liberalisation, including financial sectors. Later, the International Monetary Fund and World Bank advised transition economies to adopt financial liberalisation to ensure a successful transition to a market economy.

Financial Liberalisation Theory has ignited much controversy. In most less-developed and transition economies financial crises occurred at the start of a Financial Liberalisation (FL) policy (see, for example, McKinnon, 1993 and Weller, 2001). This suggests that FL had detrimental effects on economic development and argues for the gradual withdrawal of the state from economic activity, until the necessary institutions are established and the development process is mainly free from the influence of the rent-seeking groups or political lobbies.

The presence of information asymmetries in transition economies can lead to market inefficiency, and even failure. This particularly concerns financial markets that are, according to Stiglitz (1994), clearly distinct from other markets. The presence of information imperfections often triggers the problems of adverse selection and moral hazard that together inhibit market functioning. Stiglitz (1994: 39-42) also contends that government intervention and financial repression can generally improve the efficiency of capital allocation through lowering the cost of capital and providing directed credits to enterprises with high technological potential. Many economists disagree. In particular, Fry (1997:761) noted that ‘market failure does not necessarily imply government success.’ He also argued that lower interest rates will not necessarily lead to greater capital efficiency because with directed credits firms with lower return projects are more likely to get loans.

The question of government intervention versus free markets is of especial interest in the context of transition experience. The success of Hungary, the Czech Republic, Poland and the Baltic countries tempts many to recognise the triumph of the orthodox approach. At the same time some less successful episodes of FL in the majority of former Soviet Union republics raise the question of whether, given the

circumstances of those economies, FL could lead to financial deepening and economic prosperity.

The present paper analyses the effects of financial restraints on financial development and growth in Belarus. Section 1 introduces the theoretical framework which is drawn from the two main strands of the literature – the McKinnon and Shaw paradigm (1973), and the literature on market imperfections. Section 2 provides a detailed analysis of Belarusian financial policy-making 1990-2002, to see if its policies and controls constitute financial repression according to its classical definition. Section 3 evaluates the impact of financial restraints on financial deepening, and on the pattern of Belarusian growth in the late 1990s. Section 4 concludes.

1. Financial repression: theory and evidence

The term financial repression (FR) was first introduced by McKinnon (1973) and Shaw (1973). Following them, FR is a set of government policies and controls on the financial sector. These primarily involve interest rate ceilings; requirements for banks to hold government bonds or finance government budget deficits; directed credit schemes to support 'selective' industries; high reserve requirements; and administratively regulated foreign exchange rates; all of which restrain financial intermediaries' activities. FR policies are accompanied by capital controls to prevent both savers and borrowers accessing foreign markets. The distortions from financial repression, particularly interest rate ceilings, discourage saving, and in reducing the average productivity of capital through the replacement of high-yielding with low-return investments, reduces growth. Thus, raising interest rates to equilibrium levels and freeing foreign exchange rates, reducing reserve requirements, eliminating priority lending, or in general, introducing Financial Liberalization (FL), were regarded as the tenets of a growth-enhancing policy. The latter gave rise to the conventional transition approach, advocated by the IMF and the World Bank, for economies whose financial systems, inherited from a planned economy, were regarded as inefficient and restrictive.

A second strand of literature addresses market imperfections in transition economies. Information asymmetries and uncertainty rendered many of their emerging financial markets inefficient and unstable. Thus government intervention was proposed to address market failures. Furthermore, the optimal extent of financial

repression was advocated to raise growth through improving the efficiency of capital allocation (Stiglitz, 1994).

Financial repression has been widely studied in developing counties, which sometimes pursue strategies resulting in 'shallow finance' (Shaw, 1973).[1] Most researchers conclude that FR damages financial development and consequently growth. However, in their FR studies of India and South Korea, Dematriades and Luintel (1997, 2001) conclude that different degrees of repression as well as cross-country institutional differences can lead to contrasting results - causing financial disintermediation in India, but raising growth in South Korea.

High growth in Belarus coincided with the financial repression pursued from the late 1990s. Is Belarus another successful FR case like South Korea? Or is it a negative case like India? These questions are addressed in the following sections.

2. An Overview of financial development in Belarus: 1990-2002

There are three distinguishable periods:

• **1991-1993 - a 'Preserving the status quo' policy as a substitute for reform.** Neither the Belarusian authorities, represented by the remnants of the Communist elite, nor society was ready for a radical political and economic transformation. Voters were keen to preserve the status quo, including a single Rouble zone and an assured supply of oil and gas at subsidised internal Russian prices. This helped Belarus avoid the early transition decline in production that was typical of the region, but it did not prevent a recession in 1993-1994.

• **1994-1995 – Fragmentary market reforms.** These involved some liberalisation of the domestic financial market: positive real interest rates; the allocation of about 80 per cent of short-term loans through market credit auctions in the Interbank Exchange Stock; tightened monetary expansion; and reduced reserve requirements. These measures plus a fixed exchange rate (to anchor stabilisation policy) helped reduce inflation from 2,221 per cent in 1994 to 53 per cent in 1996, consequently restoring the credibility in the Belarusian rouble and providing the preconditions for an increase in the share of household deposits in total deposits (Korosteleva, 2004).

• **1996-2002 – Pervasive state control introduced to preserve the Belarusian economic model.** Fearing a collapse in his popularity because of declining living standards, President Alexander Lukashenko reversed the reforms in

1996--2002 and introduced elements of the repressed economy (ibid.). Thus administrative reallocation of resources and administrative interest rate control were supposed to keep state-owned enterprises afloat and boost output through stimulating aggregate demand. Timely wage payments, bans on layoffs and periodic increases in nominal wages were to target the social sector and, therefore, to reassure Lukashenko's electoral support. Finally, the creation of rent-seeking mechanisms through licensing of certain economic activities, such as rationing access to cheap natural resources, introducing foreign exchange restrictions and a multiple exchange rates policy, were aimed at satisfying the interests of the political elite. Repression of the financial sector was placed at the centre of this policy, to make financial intermediaries serve government needs.

2.1 Banking Sector

In 1996 the practice of channelling lax credits to support loss-making enterprises was re-established through regaining state control over a banking system that had by that time been partly liberalised (Korosteleva 2004). State control was achieved through re-nationalising the banking sector, and legitimising the subordination of the National Bank of Belarus (NBB) to the government.

Re-nationalisation began in August 1995 with the merging of the state-owned National Savings Bank and the commercial Belarusbank. This turned Belarusbank into the state agent for channelling soft loans to the production sector.

Further re-nationalisation proceeded from Presidential decree No.209 of May 24th, 1996 'On measures on the Regulation of the Banking Sector of the Republic of Belarus'. This listed the banks servicing the state's programmes. Moreover it enumerated the measures to increase the government's share and the share of state-owned enterprises in the statutory funds of the banks. Finally it required bank clerks` wages to be paid according to the tariff system for the public sector.

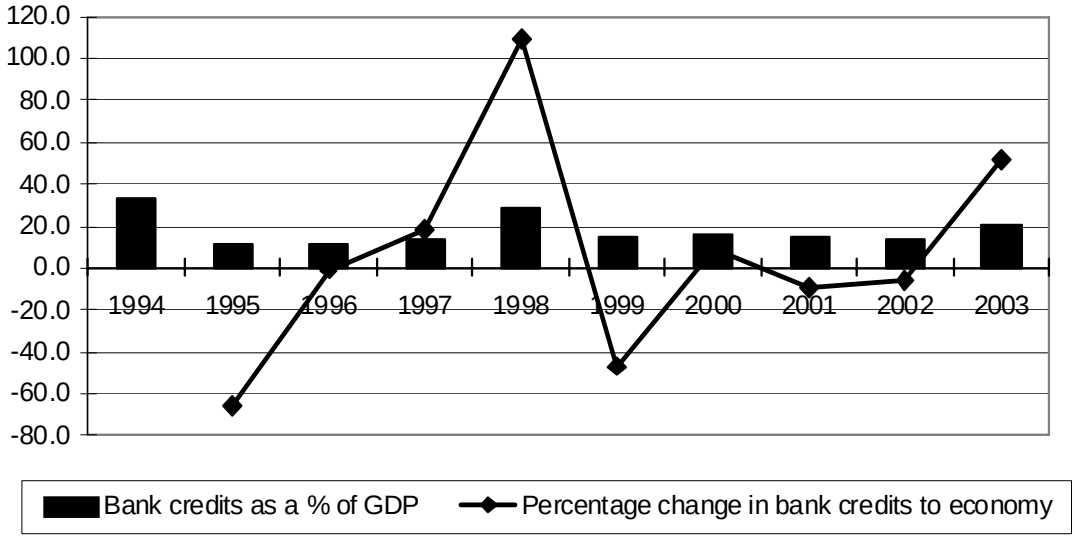
On October 2nd, 1996 the Council of Ministers issued Resolution No.647/9 that officially defined six large banks as the state's agents in servicing priority state socio-economic projects and government debt. Afterwards they were termed 'system-forming banks' (hereafter, SF banks). This term primarily refers to their key importance for the economy. They control over 90 per cent of total assets, 90 per cent of enterprise lending, almost 100 per cent of lending to households, and their capital accounts for 77 per cent of total banking capital (Korosteleva, 2004). Thus the

banking sector in Belarus is a highly concentrated state monopoly.[2] As of January 2001, non-state ownership in banking was just 12 per cent, down from 45 per cent[3] in 1995.

For the National Bank, edicts in 1998 and 2000 gave the State President the authority to appoint and remove the chairperson and Board of Directors of the NBB and to suspend and revoke any of its decisions (ibid.). Thus, monetary authorities were left with little room for manoeuvre in formulating and implementing their policies.

Financial intermediation is shallow. Domestic banking credit was equivalent to only 21 per cent of GDP in 2003, far below many other CEE countries (see figure 1). A loose monetary-credit policy, aimed at keeping the real sector afloat, drained banks' financial resources because many loans were never repaid and inflation eroded the real value of bank deposits and capital, thus leading to serious liquidity problems and undercapitalization (Korosteleva 2007). Priority financing of loss-making state-owned enterprises triggered problems of adverse selection and moral hazard. Thus access to credit for those willing to pay a competitive rate was hindered by the liquidity constraints and the low capitalization of the banking sector. At the same time, state-owned enterprises, correctly believing they were too important to fail, took bank loans for granted, often failing to repay them and expecting new bank loans to bail them out.

Figure 1: Bank credits as a per cent of GDP



Source: Authors' calculations from National Bank data (see National Bank of Belarus, 2000a, 2000b, 2001, 2002, 2003).

In summary, because the government assigned the central role in maintaining the Belarusian economic model to the banking system, it halted banking reforms and reinforced state control. Re-nationalisation of specialised banks, subordination of the NNB to the government, centralisation and state monopolisation made the banking system impotent and turned it into control tool. Moreover this occurred in a system with very shallow capital markets, where finance was solely bank-based.

2.2 Financial restraints

The key ideas behind Belarusian economic development in the late 1990s were as follows.

I. Disregarding the inflationary risk of money growth, the authorities stressed the importance of providing lax credit to finance increased output, as its decline, according to them, was solely attributable to enterprises' shortage of money.

II. The NBB demanded high reserve requirements in order to target excess liquidity resulting from the expansionary monetary-credit policy. In turn, higher reserve requirements increased the government's gains from seigniorage that flowed mainly from the expanding monetary base (Korosteleva 2007).

III Recognising the negative output effect of high real interest rates, the government favoured administratively controlled rates to make bank resources cheaper to enterprises.

IV. Seeing speculation as a driving force behind the BRB depreciation, the Belarusian authorities believed in their ability to ensure the BRB's stability by setting the nominal exchange rate administratively and by restricting the access of non-critical importers to the foreign exchange market.

These ideas led to the implementation of the four main financial repressionist policies that together formed the centre of the Belarusian strategy of economic development. These were: directed credits and preferential loans to key sectors; high reserve requirements; negative real interest rates; and multiple exchange rates.

Directed credits

Although directed credits were used continuously from the beginning of transition, they were first officially defined only in 1998. They were designated as loans designed mainly to support agriculture[4] and house construction. They can be regarded

as quasi-budget expenses. This explains why Belarus had an unusually low budget deficit, for post-communist countries, of under 3 per cent of GDP. Traditionally, the loans were channelled through SF banks within open credit lines, at interest rates varying between one fiftieth and one half of the refinancing rate (see below).

The NBB resolution also envisaged the use of bank-agents or 'system-forming' banks in financing other "high priority" governmental programs at 'favourable terms'[5] at the expense of banks' own or attracted capital. But because of banks` persistent liquidity problems, stemming from their financing of low-yield projects, the NBB had to bail them out. Therefore financing employing banks' resources remained significantly inflationary; the only difference being that now their loans were subsequently financed by NBB emissions. There is evidence that many loans were continually rolled over, often without even adding the interest due from the longer loan.

Banks' margins for directed credits or preferential loans were often set at 1-2 per cent. So, the concept of margin was practically meaningless as 1) real lending rates were often negative and could not even cover banks' borrowing costs. 2) Interest payments were only occasionally paid (house construction and industry), if at all (agriculture). 3) Outstanding loans were rarely recovered, and so were potential bad debts. The National Bank or the Ministry of Finance applied debt-for-equity swap schemes to these banks, so increasing their degree of their state ownership.

Financing of priority enterprises by commercial banks 'on favourable terms' surged, especially after 1999 when the authorities expressed their intention to increase the use of commercial banks' resources to finance economic agents. In fact, official statistics suggest that, in 2000, directed credits to house construction and to agriculture were fully replaced with preferential credits issued by commercial banks. But this did little to change the essential problem, as inflationary financing was still in place. Therefore the table 1 figures on direct credits do not reflect the full extent of inflationary financing of the economy as they omit preferential loans[6].

According to the NBB all forms of refinancing, excluding directed credits, are defined as market forms of refinancing. But none of these credits were allocated on a true market basis, and interest rates were wholly administrative.

Table 1: Structure of banks' refinancing

Share of each form of refinancing in total volume of refinancing, %	**1996**	**1997**	**1998**	**1999**	**2000**
Directed credits	65.3	53.5	58.7	45.1	0
including:					
house construction	N/a	25.7	32.4	33.9	0
agricultural sector	N/a	27.2	23.4	9.3	0
other				1.9	
Lombard credits	8.5	1	0	14.7	15.8
Overnight credits					37.4
Purchase of government securities (including 'repo' operations)	12.8	14.6	28.4	22.9	18.7
Swap transactions	13.4	29.9	11.3	15.1	5.3
Other forms refinancing	0	1	1.6	2.2	22.8
Total:	100	100	100	100	100

Source: NBB material given to the authors by the Head of Foreign Exchange Analysis and Forecasting Division of the NB in March 2003.

Alongside directed credits and preferential loans schemes, the NBB consistently monetised the budget deficit[7]. So it is worth comparing data on NBB credits to the government to the actual budget expenditures supporting priority sectors (agriculture, house construction and industry) to see to what extent the latter could potentially be covered by the NBB emission.

In fact there was little conceptual difference between loans granted to the government to finance priority sectors and the NBB directed credits. The National Bank issued loans to the Ministry of Finance, which in turn reallocated them between the SF banks. Also from 1999 SF banks commonly financed 'strategic' enterprises at the actual refinancing rate, but were compensated by the government at only half of the refinancing rate due to be paid by 'strategic' enterprises. In fact, this compensation was meant to be paid from the Republic's budget (from the item on 'Subsidies to state enterprises and organisations and other subsidies'). A similar contemporary state budget financing scheme, envisaged compensation of 50 per cent of the refinancing rate, for SF banks that issued loans to 'strategic enterprises' at half of the refinancing rate. Compensation was not commonly paid.

Table 2: Actual government expenditures, in part financing agriculture, house construction and industry

	1996	**1997**	**1998**	**1999**	**2000**
Total expenditure, mln. BRB	63345.7	135865.3	249577.5	1142843	3181146
including:					
Agricultural sector	1996.0	4222.9	9799.0	37253.6	87050.9
House construction	2489.0	6133.9	13107.3	81387.7	248081.6
Industry	675.4	1730.4	3747.9	20409.9	34735.6
Budget deficit/surplus	-3645.9	-6738.5	-9995.5	-87935.7	-1747.3
Total expenditures on the aforementioned budget articles, as % of total government expenditure	8.1	8.9	10.7	12.2	11.6
NBB financing of government deficit (plan)	1860.00	3375.0	6075.3	28700	75875.9
NBB financing of budget deficit (actual)	7484	12437.9	48440.7	138682.7	261058
Percentage change in government financing by NBB		66	289	186	88
Total expenditures on the aforementioned budget articles, as % of NBB financing (actual)	69	97	55	100.3	142

Source: Authors' calculations on the NBB data. Figures on NBB financing of the budget deficit were derived from the Law 'On Budget of the Republic of Belarus for 1996', No. 279-XIII (19 April 1996), the Law 'On Budget of the Republic of Belarus for 1997', No. 20-3 (21 February 1997); the Law 'On Budget of the Republic of Belarus for 1998', No.107-3 (29 December 1997); the Law 'On Budget of the Republic of Belarus for 1999', No.245-3 (24 February 1999); the Law 'On Budget of the Republic of Belarus for 2000', No.367-3 (31 January 2000) (Konsul'tant Plyus: Belarus [CD-Rom] 2002).

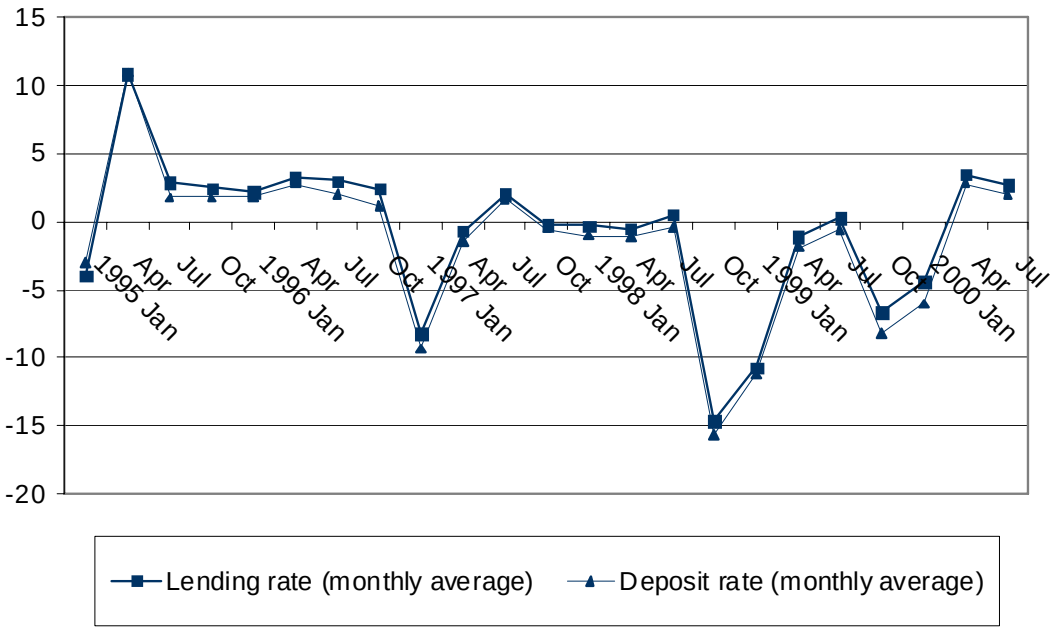
Interest rates controls

Belarusian credit policy has primarily been based on the policy of administratively controlled interest rates. But available official records of interest rate controls (especially lending and deposit rates) are very limited. The legal database holding most of the records on bank regulation contains some fragmentary information on the use of deposit rate floors, margin controls, and lending rate ceilings (primarily for directed credits). Lending interest rates ceilings on loans of commercial banks are only directly mentioned in 'Main Monetary and Credit Guidelines of the Republic of Belarus for 1994' and in Banking Code No.441-3 (25 October 2000). The former document states that 'until the market mechanism of economic regulation is in place, the NBB has the right to carry out a policy of temporarily imposing lending rates ceilings both on directed credits and on the loans of commercial banks to the real

sector'. The second document adds: 'In exceptional cases the NBB has the right to set minimum/maximum lending interest rates for commercial banks in their operations with individuals and legal entities' (paragraph 52). In fact many instructions, including those regulating interest rates, came in the form of the written letters for the 'internal use' of the NBB or in the form of NBB oral 'recommendations'. Most of the information on interest rates ceilings, particularly on lending interest rates ceilings, is confidential (confirmed by the Head of Foreign Exchange Analysis and Forecasting Division of the NB in March 2003).

Following Roubini and Sala-i-Martin's approach (1992), in the absence of reliable information on the actual controls, the level of real interest rates can be useful in evaluating the degree of the interest rate repression (figure 2).

Figure 2: Real lending and deposit interest rates



Source: Authors' calculations on the data provided by the National Bank of the Republic of Belarus

There is no documentary evidence on deposit interest rate ceilings. However, as in the case of lending interest rate ceilings, figure 2 speaks for itself. Moreover, as Fry argued, 'in the absence of deposit rate ceilings, the FR tax may still be borne by depositors to the extent that banks are required to use their own resources to acquire non-reserve assets that yield net returns below the world market interest rate' (Fry,

1995:6). Thus, by being obliged to issue loans at low or negative real interest rates or to invest in government bonds whose real yield was proxied by the real announced refinancing rate, commercial banks had little choice but to offer comparable returns on deposits.

In summary, interest rates never operated as an efficient instrument to allocate funds. Moreover, very high interest rates had an adverse selection effect on borrowers - encouraging investment with low returns (agriculture, house construction and state industrial enterprises) - and crowding out high-yielding private sector projects.

Reserve requirements

The policy of unprecedented monetary-credit expansion created excess liquidity in the market. Yet some of the SF banks (particularly Belarusbank and Agroprombank) were facing contracting liquidity, while others had it in excess. Thus the NBB resorted to the policy of higher reserve requirements to be able to regulate any such 'market' imbalances.

De Melo and Denizer (1997) in their work on monetary policy during transition, use 12 per cent or less as a yardstick for maximum reserve requirements to classify economies as market-oriented. In Belarus, while never exceeding 30 per cent and falling in recent years, reserve requirements were above 12 per cent for most of the period. The policy of high reserve requirements can still have a greater than expected negative effect on the financial sector. With high inflation, increasing reserve requirements has a magnified effect, expanding the wedge between deposit and lending rates (Fry, 1995:43). Thus, under de-facto controlled lending rates, deposit rates could potentially have been negligibly low. Hence the authorities' decision was to impose deposit floors in 1996.

Multiple exchange rates

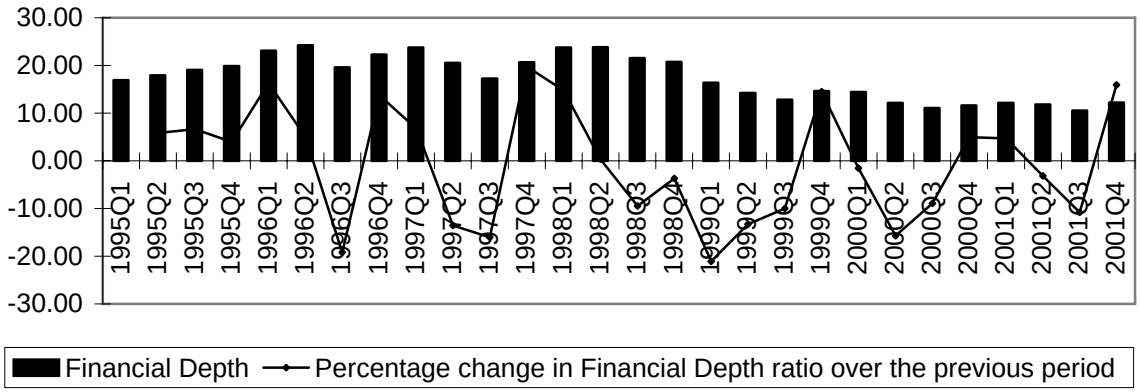
Exchange rate policy can be divided into three main periods: 1993-4, with a floating rate; 1995-6 with a fixed rate; and 1996-2000, with a 'planned devaluation' system. The latter relied on multiple exchange rates. Since the official exchange rate was on average 60 per cent lower than the market exchange rate, the obligation on exporters to surrender 30-40 per cent of earnings at the official exchange rate, in effect imposed an additional 15 per cent tax[8].

In 1999 the authorities began to move towards a uniform and stable exchange rate and current account convertibility. Indeed, at the end of 1999 the NBB freed the exchange rate applied by commercial banks for cash currency sale to individuals. By September 2000 the official exchange rate was devalued to the market level, which in turn was maintained by partial sterilisation of foreign exchange movements. Since the unification the exchange rate has remained relatively stable.

2.3 Policy implications

All four highlighted policies had a magnified negative effect on economic development. For example, the expansionary policy of directed credits and preferential loans, targeting, in the first place, 'strategic' (state) enterprises, resulted in high inflation and shallow financial depth. Although negative real interest rates boosted aggregate demand, an inability to stimulate domestic saving and therefore private fixed investment imposed constraints on its sustainability. Figure 3 shows the change in financial depth, narrowly defined as the ratio of total rouble denominated bank deposits to GDP.

Figure 3: Financial depth, measured as a ratio of quarterly average rouble bank deposits to GDP nominal



Source: Authors' calculations on the data provided by the National Bank of the Republic of Belarus (NBB, 2000a, 2000b, 2001, 2002, 2003).

Figure 3 shows the ratio of total rouble deposits to GDP never exceeded 25 per cent, implying that, as a potential source of investment, domestic deposits played a fairly insignificant role in financing the economy. This is not surprising, as only 70 per cent of the economy was monetised.

As inflation led to devaluation the Belarusian rouble lost credibility, and dollarisation spread. With the ratio of foreign currency deposits to broad money

exceeding 30 per cent for most of the period, Belarus was a highly dollarised economy. So, the policy of multiple exchange rates was an instrument to hold down the price of foreign exchange. But this created the shortage of foreign currency in the official market that stimulated the development of the shadow market.

Moreover, excess demand for foreign currency prompted the authorities to impose foreign exchange and cross-border payments restrictions. The latter, and high inflation shrank enterprises' nominal assets and induced them to use alternative financial mechanisms and barter operations. According to official data, non-monetary operations held a steady share of 30 per cent in total sales during 1997-2002.

But like the overall financial strategy, the consequent financial disintermediation is damaging in the long run.

3. Evaluating the impact of financial restraints on financial development

In order to examine the impact of FR on financial depth we estimate equation (1) replicating the model that Demetraides and Luintel (1997) use to examine the Indian case of FR, but allowing for its modification to take into account the specifics of the Belarusian economy:

$$\text{LFD}_t = \alpha_o + \alpha_1 LYsa_t + \alpha_2 R_t + \alpha_3 FRI_t + \alpha_4 DEV_t + u_t \quad (1)$$

where LFD is the log of financial depth, measured as the ratio of bank deposits to nominal GDP; and

LY is the log of real GDP per capita, seasonally adjusted;

R is the real deposit interest rate;

DEV is the rate of devaluation of domestic currency;

FRI is a summary measure of financial repression

The DEV variable proxies dollarisation. To construct this series it is necessary to recall the multiple exchange rate regime operating from 1996 to 2000. The nominal exchange rate is computed as a weighted average of official (15 per cent) and market end-of-month exchange rates (85 per cent) [9]. With financial depth measured as total rouble deposits to nominal GDP, the coefficient on DEV is expected to be negative[10].

As noted, the widespread use of barter and other non-monetary operations in transactions between economic agents was another consequence of FR policies. But it is impossible to address this problem due to the lack of information on barter transactions.

Our empirical analysis has two objectives: first, to examine whether financial policy can be described as financial repression, and if so, to explore the effects on financial deepening. Second, to uncover the interactions between financial depth and economic growth through performing a Granger-causality test.

The initial hypothesis is that FR took place in Belarus in 1996-2000 and led to financial disintermediation with further implications for economic growth. So the coefficient on FRI in (1) is expected to be negative and significant[11].

3.1 Methodology and data

The monthly data run from May 1995 to December 2002. The sample is chosen on the basis of data availability and the desire to incorporate both the 1996-2000 repression and the fragments of partial financial liberalisation in 1995 and in 2001-02.

Financial depth is measured by the ratio of total bank deposits denominated in roubles, to nominal GDP. Data on 6-month rouble bank deposits, deposit and lending interest rates, official and market-determined parallel exchange rates were obtained from the National Bank of Belarus. Real deposit/lending rates are defined as nominal deposit/lending interest rates minus the current rate of inflation. The rate of inflation is defined as the percentage change in a consumer price index (CPI). Data on the monthly rate of inflation and monthly real GDP were provided by the Belarusian Research Centre of Institute of Management and Privatisation. The real GDP series was seasonally adjusted using an X-11.2 procedure. The real GDP per capita series is calculated by dividing the aggregate series by population. Financial depth and real GDP per capita are in logarithmic form.

To avoid multicollinearity and a reduction in the degrees of freedom we use a summary index of FR (FRI) instead of introducing each repressionist policy individually (see Roubini and Sala-i-Martin 1992, Demetriades and Luintel 1996, 1997). FRI is a simple arithmetic average of normalised policy variables.

The index is composed of series on four repressionist policies: (i) deposit rate ceiling; (ii) lending rate ceiling; (iii) directed credit schemes; (iv) reserve requirements.

Because of the fragmentary nature of official data recording ceilings on deposit and lending interest rates, the first two controls are measured on the basis of Agarwala's approach (1983).[12] In the latter, the degree of interest rate repression is defined as being high when real interest rates were less than minus 5 per cent per

annum; medium between 0 and minus 5 per cent per annum; and low/absent when real interest rates were positive. Respectively, values 3, 2 and 1 are assigned to a dummy variable denoting FRI in Agarwala's work. In Belarus the annual real interest rate sometimes exceeded minus 200 in 1995-2002. To capture the severity of interest rates repression, we use a different scale of values for the dummy variable. It is zero when interest rates are positive; one when they are between 0 and minus 20; two, between minus 21 and minus 40 and so on, up to a value of eleven when real interest rates exceed minus 200.

The 'directed and preferential credits' repression instrument reflects the intensity of the program. The dummy variable is zero for no directed credit; and one, two and three when the share of directed and preferential loans reach 20 per cent, 21-40 per cent, and over 40 per cent, respectively, of total bank credit (see Demetriades and Luintel 1997). As only annual data on the directed credit program are available, some subjective judgement was used to construct this variable. Monthly data were derived on the basis of annual data, taking into account the seasonal pattern of agricultural subsidies and the even annual distribution of house construction loans.[13]

Finally, the required reserve ratio is a weighted average of the reserve requirements rate on demand and time deposits, with their shares in total deposits nominated in BRB as weights. Data on the required reserve ratio was provided by the NBB.

The arithmetic average FR index was linearly transformed to take the value zero in May 1995 and to be scaled by 100. It is strongly positively correlated with each policy variable.

3.2 Empirical results

From the unit root analysis only the financial depth variable appears to be first differences stationary (see Appendix A). Therefore, after first differencing LFD, OLS is used. Other variables enter the equation in levels. In particular, an Autoregressive Distributed Lag (ADL) model is used to capture the dynamics[14]. The estimated coefficients of the explanatory variables are interpreted as their impact on financial deepening during the evaluation period. Unlike cointegration techniques, the ADL model will not allow us to draw any separate inferences about the short-run and long-run effects that the explanatory variables exerted on financial deepening. The ADL model is specified as follows.

$$\Delta LFD_t = \alpha_0 + \alpha_1 t + \alpha_2 \Delta LFD_{t-1} + \alpha_3 \Delta LFD_{t-2} + ... + \beta_1 LNYsa_t + \beta_2 LNYsa_{t-1} + ... + \delta_1 FRI_t$$
$$+ \delta_2 FRI_{t-1} + ... + \phi_1 R_t + \phi_2 R_{t-1} + ... + \mu_1 DEV_t + \mu_2 DEV_{t-1} + \gamma_1 DU98 + u_t \quad (2)$$

The expected rate of devaluation in the equation is proxied by the actual rate of devaluation[15].

The appropriate lag-length is chosen by the general-to-specific approach advocated by Hendry (1995). Given our monthly data we start with 12 lags and then use unit reductions to achieve the highest values of AIC and SBC (model selection criteria) consistent with white noise residuals. This results in the choice of an ARDL [(1, 12), 2, (1, 3) 1, 1] specification, where (1, 12) means that only the 1st and the 12th of ΔLFD series are included in the equation, as they are the only ones that appear to be statistically significant. Their inclusion is required to overcome a problem of serial correlation in the residuals. The choice of the 1st and the 3rd lags for the FRI series can be similarly explained.

Before utilising the ADL estimator we tested all the series for weak exogeneity using a Hausman test. We ran an auxiliary regression with application to the real GDP series, financial repression index, the rate of devaluation and the real deposit interest rate of the kind of ADL model specified above (2). We introduced the first differences of the financial depth variable in equation (2), for the OLS estimates to be valid. The logarithms of the real government expenditures per capita and of the real industrial output per capita were used as instrumental variables for the real income series with the other variables treated as exogenous or predetermined. The current and the lagged values of the inflation series were used as instrumental variables for the real deposit interest rate, the devaluation rate and for the index of financial repression. The retrieved residuals from the estimated regression were included in the model of financial deepening (2). The coefficient of the variable denoting residuals from estimated equation (2) appears to be statistically insignificant for all the tested series[16], implying that the OLS estimates are consistent and the real GDP per capita, the financial repression index, the real deposit interest rate and the rate of devaluation series are determined outside the system under analysis.

The results of the ADL model estimation are presented in table 3.

Table 3: Summary of the results of estimating model (2)

Explanatory variables	Coefficients	Diagnostic tests
α_0 (intercept)	-14.09*** (3.25)	Serial Correlation: χ^2 (12)= 15.6 [.212] Functional Form: χ^2 (1)= 2.36 [.124] Normality: χ^2 (1)= 2.12 [.347] Heteroscedasticity: χ^2 (1)= .014[.706]
α_1 (trend)	-.009*** (.002)	
α_2 (ΔLFD_{t-1})	-.138* (.079)	
α_3 (ΔLFD_{t-12})	.478*** (.089)	
β_1 *(LNYsa)*	.479 (.255)	
β_2 ($LNYsa_{t-1}$)	.677** (.264)	
β_3 ($LNYsa_{t-2}$)	.735** (.289)	
δ_1 *(FRI)*	-.001*** (.000)	
δ_2 (FRI_{t-1})	.001*** (.000)	
δ_3 (FRI_{t-3})	-.001*** (.000)	
ϕ_1 *(R)*	-.002*** (.000)	
ϕ_2 (R_{t-1})	.001** (.000)	
μ_1 *(DEV)*	-.002 (.002)	
μ_2 (DEV_{t-1})	.003 (.001)	
γ_1 *(DU98)*	-.123** (.049)	
R-bar sq.	0.69	

Source: Authors' calculations on data provided by the NBB. Standard errors are in round parentheses.

The empirical performance of the model is satisfactory. It passes all diagnostic tests. All the coefficients with the exception of the rate of devaluation appear to be statistically significant. All but the real deposit interest rate variable in the current period have the expected signs. Theoretically, a real deposit interest rate should be positively correlated with financial deepening. Imposition of financial restraints should affect only the significance of this variable (reducing it), but not the direction of the relationship. However, the results above show that the real deposit interest rate at the current period in Belarus was negatively correlated with the current level of the financial depth. This may suggest that its repression was particularly severe. Indeed, even when the deposit interest rate was rising in real terms it still remained negative

for most of the analysed period and in this way could not gain households' credibility to make them switch from investing in tangible assets and buying foreign currency (cash) to depositing their earnings in banks.[17] Furthermore the FRI also exerts a direct negative impact on financial deepening that is independent of the influence of FR through the real deposit rate of interest, and it is statistically significant at the 1% level.

The results suggest that financial repression had an overall negative impact on financial deepening. Financial disintermediation could have had negative implications for economic growth, if the financial development had mattered. In the case of Belarus, it appears that finance did not matter for economic development in the period under analysis, although given the estimation technique we can only talk about the contemporaneous rather than long-run effect. A Granger-causality test suggests a one-way relationship between the income series and the first differences of LFD[18]. The null hypothesis of the first differences of LFD not Granger causing LNYsa cannot be rejected at any levels of statistical significance (Fst. =.32, p-value= .96), whereas the null hypothesis of LNYsa not Granger causing the first differences of LFD can be rejected at the 10 % level of statistical significance (Fst. =1.83). Interestingly, while investigating whether various monetary-policy variables mattered for output and prices in CIS countries[19] over the period of 1995-2003, Starr (2005) finds that a Granger- effect of broad money (M2) on real GDP per capita in Belarus is statistically significant at the 10% level. However, it should be noted here that the definition of M2 is broader than the definition of our financial depth series as it also includes foreign currency deposits. Furthermore, Starr (2005) extends the time span to 2003, the year by which some substantial progress has been made towards financial liberalisation in Belarus. Finally, the statistical significance, 10%, of the Granger-causality effect of M2 is very marginal.

The effect of financial development on economic growth materialises through two major channels: capital accumulation (extensive growth), and technological change (intensive growth). As FR resulted in financial disintermediation and demonetisation, growth can hardly be attributed to capital accumulation. Perhaps paradoxically, the policy of macroeconomic expansion triggered liquidity contraction and consequently an increase in arrears and barter transactions.

There are two reasons why financial development could not raise growth through technological change. First, the state subsidies and banks' loans were mainly

designed to support poorly performing state-owned enterprises in agriculture and industry to keep them afloat. Industrial policy was lacking 'strategic coherence and selectivity' and was unable to promote investment in specific sectors with strong growth potential and to 'spur structural change towards rapid modernisation of the economy' (Haiduk et al., 2004). As noted, the pattern of credit and subsidies allocation and a policy of low interest rates resulted in problems of adverse selection and moral hazard that were at the opposite extreme to that produced by the policy of high interest rates. The investment did not go to support the newly created private enterprises that were mainly serviced by non-system forming banks. In the risky and information-limited environment where the law often had a retroactive force and inactive bankruptcy procedures existed, the majority of the latter were reluctant to lend to the real sector, preferring to operate in the interbank loan or foreign exchange markets. Furthermore the economic mechanism envisaged not only direct but also implicit subsides to the state-owned enterprises in a form of tax exemptions for some state-owned firms. This was at the expense of increasing the tax burden on the private sector, and granting access to cheap natural resources, which together led to a crowding out of the private entrepreneur from the market.

Second, due to the highly inflationary environment, mainly short-term loans were granted to finance enterprises' working capital. The rate of capital depreciation fell from 6-8 per cent prior to 1991, to 1.5-2.4 per cent in 2002, suggesting that it would take 42-66 years instead of 12-16 years for full renewal of the fixed capital stock (Daneiko, 2003, p.125). Overall capital depreciation reached 60 per cent in 2002 (ibid, p.125). Taken together this suggests that the average productivity of capital was expected to fall, due to the replacement of high-yielding investments that can be generated in the private sector or in the branches of the economy with high technological potential, by low-return investments, directed mainly to the loss-making agricultural and industrial sectors, the inefficient house construction sector, and to stimulate household consumption through wage increases.

Therefore, neither lowering the cost of capital nor directing credits and preferential loans to SOEs - the two core late 1990s FR policies - could facilitate efficient capital allocation and consequently sustainable long-run growth. In contrast, the policy of money-led stimulation of the economy triggered an inflationary spiral leading to demonetisation and unofficial dollarisation of the economy. According to an earlier study of inflationary tendencies in Belarus a one per cent increase in the

monthly inflation rate in Belarus during 1995-2002 on average led to a 7.8 per cent decrease in monthly real money balances (Korosteleva 2007).

The slowdown in growth in 1999-2002, growing inventories[20], an increase in loss-making enterprises[21] and significant deterioration of Belarus' competitive position[22] all provide evidence of the inefficiency of the economic strategy. Belarus has neither attempted to create a competitive environment allowing new entrants into the market and opening itself up to FDI, nor has it used the opportunity of high growth to promote structural and institutional reforms.

4. Conclusion

The Belarusian experience of financial repression has had an overall negative effect on financial development, producing a shallow finance system and passive financial intermediaries. If finance had mattered in the long run, financial repression would have inhibited economic growth through decreasing the share of savings allocated to investment and reducing the average productivity of capital. Therefore the financial policy pursued in 1996-2000 can be viewed as a 'survival-oriented strategy' rather than a 'growth-oriented strategy' (Bakanova et al., 2003) that, in the first place, aimed to serve the government's own needs in ensuring its political survival.

Although since 2000 government policies have been gradually adjusted towards reducing economic distortions, particularly in the financial sector, and growth surged again from 4.5 per cent in 2002 to 11 per cent in 2004, the sustainability of the new growth pattern and therefore social stability remains questionable. This is due to the delay in economic restructuring and the economy`s vulnerability to changes in the external environment. Since 2001 improvements in the external environment largely explain these high rates of economic growth.[23] Therefore if the government continues to avoid fundamental reforms when growth is high[24], it puts the country at greater risk of a severe transition crisis that will inflict even greater economic and social costs than after the Soviet Union's collapse.

Appendix A: Unit Root Test Analysis

To test our series for stationarity we begin by applying the Augmented Dickey-Fuller (ADF) tests. Regressions (A.1) and (A.2) were estimated to test for the presence of a unit root in level and in first differences of series, respectively:

$$\Delta y_t = \alpha_0 + \gamma y_{t-1} + \sum_{i=2}^{p} \beta_i \Delta y_{t-i+1} + \alpha_1 t + u_t \qquad \text{(A.1)}$$

$$\Delta^2 y_t = \alpha_0 + \gamma \Delta y_{t-1} + \sum_{i=2}^{p} \beta_i \Delta^2 y_{t-i+1} + \alpha_1 t + u_t \qquad \text{(A.2)}$$

Along with (A.1) and (A.2) two other regressions were estimated; the first with a linear trend not included in (A.1) and (A.2), and the second with both intercept and a linear trend again, not included in (A.1) and (A.2). The null hypothesis in the ADF is the presence of a unit root in the series. Table A.1 presents the summary of the ADF test for the presence of a unit root in levels.

The results show that for the natural logarithm of real seasonally adjusted GDP per capita (LNYsa), for the real deposit interest rate (R) and for the rate of devaluation (DEV) it is possible to reject the null hypothesis of a unit root at the 1 % and 5 % levels of significance. This implies that these variables are I(0). The results of the ADF test for financial depth and for the index of financial repression cannot reject the null hypothesis of a unit root, and this implies that these variables are not stationary in levels.

Table A.1: Results of ADF test for the presence of a unit root in level

Variable /Test statistic	τ_τ	$\tau_{\alpha\tau}$	$\tau_{\beta\tau}$	ϕ_3	ϕ_2	τ_μ	$\tau_{\alpha\mu}$	ϕ_1	τ
Model	Intercept & trend included in (A.1)					A linear trend excluded from (A.1)			Random walk
Hypothesis	$\gamma = 0$	$\alpha_0 = 0$ given $\gamma = 0$	$\alpha_1 = 0$ given $\gamma = 0$	$\gamma = \alpha_1 = =0$	$\gamma = \alpha_1 = = \alpha_0 = 0$	$\gamma = 0$	$\alpha_0 = 0$ given $\gamma = 0$	$\alpha_0 = = \gamma = 0$	$\gamma = 0$
LFD (L=12)	-1.01	.895	-1.161	.01	1.31	-2.02	1.99	1.98	-.42
LNYsa* (L=12th)	-5.87***	5.88***	5.66***	15.47***	11.54***	-1.61	1.62	1.32	.91
FRI (L=12)	-1.20	2.25	-1.79	1.61	1.71	-1.47	1.37	.93	-.53
R (L=1)	-2.89	-0.55	-0.9	.03	1.29	-2.91**	-1.23	1.95	-2.63***
DEV (L=1)	-3.04**	1.54	-.41	.09	1.44	-3.07**	2.05*	2.09	-2.25**

Source: Authors' calculations on the data provided by the National Bank of the Republic of Belarus (National Bank of Belarus 2000a (January), 2000b (January), 2001, 2002, 2003); Institute of

Privatisation and Management [online]; available from: http://ipm.by/index.pl?topicid=inside. *** = reject the null hypothesis at the 1 % level; ** = reject the null hypothesis at the 5 % level; * = reject the null hypothesis at the 10 % level. L in parentheses denotes a number of lagged differences.
* Note: Since only the AR at lag 12 is significant, there is no need to include all the AR terms up to 12 into the regression, but only the 12th lagged differences.

Table A.2 summarises the results of the unit root test for LFD and FRI variables in first differences. The null hypothesis of a unit root can be rejected at the 1 % level of significance.

Table A.2: Results of ADF test for the presence of a unit root in first differences

Variables /Test statistic	τ_τ	$\tau_{\alpha\tau}$	$\tau_{\beta\tau}$	ϕ_3	ϕ_2	τ_μ	$\tau_{\alpha\mu}$	ϕ_1	τ
Model	Intercept & trend included in (A.2)					A linear trend excluded from (A.2)			Random walk
Hypothesis	$\gamma = 0$	$\alpha_0 = 0$ given $\gamma = 0$	$\alpha_1 = 0$ given $\gamma = 0$	$\gamma = \alpha_1 = 0$	$\gamma = \alpha_1 = = \alpha_0 = 0$	$\gamma = 0$	$\alpha_0 = 0$ given $\gamma = 0$	$\alpha_0 = = \gamma = 0$	$\gamma = 0$
LFD (L=11)	-11.51***	-1.77	1.77	1.57	1.08	-11.23***	-.34	0.06	-11.3***
FRI (L=1)	-7.93***	.93	-.99	.49	.33	-7.88***	.12	.008	-7.92***

Source: Authors' calculations on the data provided by the National Bank of the Republic of Belarus (National Bank of Belarus 2000a (January), 2000b (January), 2001, 2002, 2003); Institute of Privatisation and Management [online]; available from: http://ipm.by/index.pl?topicid=inside. *** = reject the null hypothesis at the 1 % level; ** = reject the null hypothesis at the 5 % level; * = reject the null hypothesis at the 10 % level. L in parentheses denotes a number of lagged differences.

Diagnostic tests (see table A.3) performed to check whether the residuals are white noise highlight the problem of normality in R and DEV series. This suggests a structural change in the data that can be also traced by the graphic analysis of the data. Therefore, the conclusion of the absence of a unit root in these series can be biased. For the plausibility of the results we test all the series for a unit root, allowing for a structural change in them.

Table A.3: Summary of diagnostic tests

Variables /Diagnostic Tests χ^2 [Pr]	Serial Correlation	Normality	Heteroscedasticity

LFD (L=11) I(1)	χ^2 (12)=10.06 [.611]	χ^2 (2)= .972[.615]	χ^2 (1)= .353[.553]
LNYsa (L=12th) I(0)	χ^2 (12)=14.10[.294]	χ^2 (2)= 2.78[.249]	χ^2 (1)= .408[.523]
FRI (L=1) I(1)	χ^2 (12)=15.96 [.193]	χ^2 (2)= 2.43[.297]	χ^2 (1)= .752[.386]
R (L=1) I(0)	χ^2 (12)= 13.93[.305]	χ^2 (2)= 134.49[.000]	χ^2 (1)= .029[.864]
DEV (L=1) I(0)	χ^2 (12)= 5.88[.922]	χ^2 (2)= 269.33[.000]	χ^2 (1)= 3.5[.061]

Source: Authors' calculations on the data provided by the National Bank of the Republic of Belarus (National Bank of Belarus 2000a (January), 2000b (January), 2001, 2002, 2003); Institute of Privatisation and Management [online]; available from: http://ipm.by/index.pl?topicid=inside. *** = reject the null hypothesis at the 1 % level; ** = reject the null hypothesis at the 5 % level; * = reject the null hypothesis at the 10 % level. L in parentheses denotes a number of lagged differences.

Zivot and Andrews' (1992) methodology is employed to perform a unit root test with the presence of a structural change. It allows us to treat the breakpoint as endogenous or unknown. Table A.4 presents the results of the Zivot-Andrews test.

Table A.4: Results of Zivot-Andrews' unit root test in the presence of a structural change

Variables	Minimum t statistic/time of break		
	Shift in intercept	Shift in trend	Shift in both trend and intercept
LFD (L=1)	-3.93 1995:09	-3.93 1995:09	-3.93 1995:09
LNYsa (L=0)	-8.15*** 1997:06	-7.66*** 1998:04	-8.16*** 1997:06
FRI (L=1)	-3.93 1995:09	-5.1*** 1998:11	-6.002*** 1998:09
R (L=1)	-4.59 2000:02	-4.78** 1998:11	-5.59*** 1998:9
DEV (L=1)	-4.07 1998:08	-4.07 1998:11	-4.92 1998:08
Critical values			
[1 %]	-5.34	-4.93	-5.57
[5 %]	-4.80	-4.42	-5.08

Source: Authors' calculations on the data provided by the National Bank of the Republic of Belarus (National Bank of Belarus 2000a (January), 2000b (January), 2001, 2002, 2003); Institute of Privatisation and Management [online]; available from: http://ipm.by/index.pl?topicid=inside. *** = reject the null hypothesis at the 1 % level; ** = reject the null hypothesis at the 5 % level; * = reject the null hypothesis at the 10 % level. L in parentheses denotes a number of lagged differences.

The results presented in table A.4 confirm that the natural logarithm of real GDP per capita appears to be I(0). Moreover, the real deposit interest rate could also be treated as an I(0) rather than I(1) variable, if we allow for a structural change in the data in both intercept and trend in the aftermath of the Russian financial crisis. The breakpoint picked up in the intercept of R in February 2000, for which the minimum t-statistic does not reject the null hypothesis of a unit root, can neither be explained rationally nor be supported graphically. As a result of the test, the rate of devaluation turned out to be I(1), whereas the ADF suggested it was stationary in levels. Similarly, the graphic examination of the series suggests it is I (0). But it should be noted that while the Zivot-Andrew test allows for only one exogenous break in a series, the graph suggests this series has more than two structural breaks in levels. Therefore, for our further analysis we will treat DEV series as I(0).

The ADF results for FRI suggest an I(0) series. But the Zivot-Andrew test with a structural break at the date of the Russian financial crisisi rejects this. The results of a unit root test in the presence of a structural change for the LFD series are in line with the ADF results. Summarising the results of both the unit root tests we conclude that the LFD series appears to be stationary in first differences, while LNYsa, FRI, DEV and R are stationary in levels. Moreover Zivot-Andrews suggests a clear break in intercept/or trend/or both is present in at least three series. It occurred in the aftermath of the Russian financial crisis. The test results suggest the breakpoint occurs around September-December 1998. Therefore, the latter has to be incorporated into the model as a dummy variable to capture an impact of the Russian financial crisis on Belarusian[25] financial depth.

Notes:

1. For an overview of empirical studies on financial repression see Fry (1995).
2. The term ‘state monopolisation’ is used here to show that the banking sector is mainly represented by the six largely state-owned system-forming banks that have a dominant position in the market. More accurately each of these banks operates in its own segment of the market, without competition from the others.
3. See IMF 1995:33.
4. Most agricultural loans were to finance state grain reserves, the purchase and delivery of agricultural products, and sowing/harvesting campaigns.

5. The expression ‘on favourable terms’ means that the lending interest rate was only half of the refinancing rate.

6. The lack of transparency in banking statistics prevents us collecting data on preferential loans.

7. As a matter of fact monetisation of government debt has been banned in Russia since 1995, and in many CEECs from even earlier.

8. 15 per cent = .40*.60/1.60 (Nuti, 1999, p.8).

9. These proportions are based on the NBB approximate evaluation of the volume of transactions at each exchange rate.

10. It would be also interesting to estimate an equation with financial depth measured as a ratio of deposits denominated in foreign currency to GDP. We would expect the real deposit interest rate on deposits denominated in foreign currency (FXC) and a devaluation of domestic currency to have positive effects on financial depth. But the lack of data on the deposit interest rate for FXC deposits prevents such an analysis.

11. We also test for a non-monotonic relationship between FR and financial depth by entering FRI squared in (1). The latter turns out to be statistically insignificant. Complete model estimation results are available from the authors on request.

12. As Roubini and Sala-i-Martin’s (1992) work suggests, the distortion dummy which is defined as dichotomous, taking the values zero when financial restraints are present or one when they are not, may fail to capture the severity of financial repression, producing statistically insignificant results.

13. Both sectors were major recipients of directed credits.

14. We also tried ARDL approach to conintegration or the 'bounds test', developed by Pesaran, Shin and Smith. This approach does not require us to know whether the variables are integrated of order I(1) or I(0) that perfectly served our needs, given that our dependent variable appears as I(1) and our explanatory variables emerge as I(0) variables. The ARDL procedure envisages two stages. The first stage involves checking for the existence of long-run relation between the variables, based on computing the F-statistic for testing the significance of the lagged levels of the variables in the error-correction form of the ARDL. The second stage includes estimating the long-run coefficients and the associated error-correction model. These results suggest that there exist more than one cointegrating relationship in the financial depth equation. A further application of the ARDL procedure is

inappropriate in estimating the financial depth equation, because the ARDL technique is based on estimating a single equation, while dealing with situations where there can be more than one level relationship, as in our case, is a matter of employing the VAR model. Following the unit root analysis all our explanatory variables emerge as I(0) variables that implies that our dependent variable - financial depth which is I(1) - cannot form any cointegrating relationships with explanatory variables. With a view to employing the Johansen cointegration procedure, the inclusion of level stationary series in a cointegrated space is visible following the arguments developed by Rahbek and Mosconi (1999), who contend that the inclusion of the accumulated stationary explanatory regressors in the error correction term will not affect the distribution of the test statistics. However, in the present circumstances it is not advisable, as the results can be spurious and hard to interpret, suggesting more than one cointegration relationship when, in fact, there exists only one true cointegration relationship. This is because the number of cointegrated relationships increases with every stationary variable included (this may be the same problem with ARDL approach to cointegration used initially). Moreover, the inclusion of a dummy variable to capture the impact of financial crisis in Russia would have affected the distribution of the test statistics, such that the critical values for these tests reported by software can lead to biased results. Finally, the Johansen cointegration procedure does not have good small samples properties; it tends to over-reject when the null hypothesis is true. Therefore, our only visible option here is to employ Autoregressive Distributed Lag (ADL) model by taking the first differences of the dependent variable to make it stationary and allowing other variables enter the equation in levels.

15. In fact, hypothesizing the prevalence of rational expectations in the formation of the rate of devaluation of the national currency, we pre-estimated the model by using the Generalised Instrumental Variable Method, to account for a problem of measurement errors. Twice lagged values of the devaluation rate were used as instrumental variables. The results were unsatisfactory, with Sargan's χ^2 statistic indicating model misspecification.

16. The p-values for the coefficients of residuals for LNYsa, FRI, DEV and R regressions are respectively .167, .515, .737 and .543 and therefore the null hypothesis of exogeneity cannot be rejected. Complete model estimation results are available from the authors on request.

17. Given high correlations between devaluation, real interest rates and the FR index, a negative sign on the coefficient for the real interest rate can be attributed to multicollinearity in the model. To check this we performed some sensitivity analysis to see whether the estimates are different when 1) the rate of devaluation is removed from the equation, and 2) when the deposit rate ceiling is removed in constructing the index of financial repression. The estimates were little different from those obtained by estimating equation (2). So both the sign and magnitude of the coefficient for the real interest rate were confirmed. This suggests that the negative coefficient for the real interest rate is more likely to reflect a poor instrument.

18. To run a Granger-causality test we take first differences rather than levels of the financial depth series to obtain consistent OLS estimates (Toda and Yamamoto 1995; Starr 2005).

19. In her empirical study Starr (2005) focuses specifically on Russia, Ukraine, Kazakhstan and Belarus.

20. By 2002 inventories had reached 65.3 per cent of current monthly output (Haiduk et al., 2004).

21. By 2002 35 per cent of enterprises were loss-making, compared to 7.3 per cent in 1994. The share of profits plummeted from 52.9 per cent to 11.8 per cent of GDP, over the same period.

22. Competitiveness is an important determinant of economic growth in small open economies. The erosion of Belarus' competitive advantage can be explained by high wage growth attributed to nominal wage increases and real currency appreciation (World Bank, 2005).

23. In 2001-2004 Belarus benefited directly from the growth in oil prices – directly by increased transit and refining earnings, and indirectly through increased Russian income raising demand for Belarusian exports. Russia remains Belarus' main trade partner (World Bank, 2005).

24. A high growth rate allows smoother transition reforms, but reduces the demand for them.

25. While estimating the final model other breaks mentioned in the text were included in the regression to test their significance. None of them appears to be statistically significant in explaining financial depth. That is why we include only one dummy variable, denoting financial crisis in Russia, in a final regression.

References:

Agarwala, R. “Price Distortions and Growth in Developing Countries”. *World Bank Staff Working Paper 575* (1983). Washington D.C.:World Bank.

Bakanova, M., L. V. deSouza, I. Kolesnikov, and I. Abramov. *Explaining growth in Belarus* [online], http://www.gdnet.org/pdf/draft_country_studies/Belarus_final.pdf [Accessed 22 March 2003].

Daneiko, P., I. Pelipas, and E. Rakova. “Belarus': vybor puti” [“Belarus: the path choice”]. *Ekovest* [online], http://www.ipm.by/index.pl?topicid=f9637dc3&briefid=d98b85388206fc93 [Accessed 2 October 2004].

De Melo, M., and C. Denizer, Monetary Policy during Transition: an Overview. *World Bank Policy Research Working Papers* 1706 (1997), Washington D.C.: World Bank.

Demetriades, P. O., and K. B. Luintel. “The Direct Costs of Financial Repression: Evidence from India”. *Review of Economics and Statistics* 79, no. 2 (1997): 311-20.

Demetriades, P. O., and K. B. Luintel. “Financial Restraints in the South Korean Miracle”. *Journal of Development Economics* 64, no. 2 (2001): 459-79.

Fry, M. J. *Money, Interest, and Banking in Economic Development,* 2nd edition. Baltimore: The Johns Hopkins University Press, 1995.

Fry, M. J. “In Favour of Financial Liberalisation”. *The Economic Journal* 107 (May 1997): 754-770.

Haiduk, K., H. Herr, T. Lintovskaya, S. Parchevskaya, J. Priewe, and R. Tsiku. *The Belarusian Economy at a Crossroads,* Moscow: Actrav, 2004.

Harris, R. *Using Cointegration Analysis in Econometric Modeling.* London, New York, Toronto, Sydney: Prentice Hall/Harvest Wheatsheaf, 1995.

Hendry, D. F. *Dynamic Econometrics.* Oxford: Oxford University Press, 1995.

Institute of Privatisation and Management. *Belaruskaia Macroekonomicheskaya Statistika* [online], http://research.by/cgi-bin/activate.pl?key=a6372c3b78579276&lang=en [Accessed September 2007].

International Monetary Fund. “Belarus - Recent Economic Developments”. *IMF Staff Country Report* 95/99 (1995). Washington D.C.: IMF.

Korosteleva, J. A. “Continuity over change: Belarus, financial repression and reintegration with Russia”, in Robinson, N. (ed.), *Reforging the Weakest Link.* Hants, Burlington: Ashgate: 61-80, 2004.

Korosteleva, J. A. “Maximizing Seigniorage and Inflation Tax: The Case of Belarus”. *Eastern European Economics* 45, no.3 (May-June 2007): 33-50.

McKinnon, R. *Money and Capital in Economic Development.* Washington D.C.: Brookings Institution, 1973.

McKinnon, R. *The Order of Economic Liberalization.* Baltimore and London: John Hopkins University Press, 1993.

National Bank of the Republic of Belarus. *Dinamika Denezhno-kreditnykh Pokazatelei za 1995-1999 gody* [Monetary and credit indicators 1995-1999] Minsk: NBB, 2000a January.

National Bank of the Republic of Belarus. *Dinamika Denezhno-kreditnykh Pokazatelei za 1995-1999 gody* [Monetary and credit indicators 1995-1999]. Minsk: NBB, 2000b January.

National Bank of the Republic of Belarus. *Bulleten' Bankovskoi Statistiki* [Bulleten of Banking Statistics]. Minsk: NBB, 2001.

National Bank of the Republic of Belarus. *Bulleten' Bankovskoi Statistiki* [Bulleten of Banking Statistics]. Minsk: NBB, 2002.

National Bank of the Republic of Belarus. *Bulleten' Bankovskoi Statistiki* [Bulleten of Banking Statistics]. Minsk: NBB, 2003.

Nuti, D. M.”Belarusian alternative: transition or solely reform”. *Belarusian Economic Trends.* TACIS: Minsk, (1999 April-June): 15-20.

Rahbek, A. and Mosconi, R.“Cointegration rank inference with stationary regressors in VAR models”. *Econometrics Journal*, 2 (1999): 76-91.

Roubini, N. and X. Sala-i-Martin. “Financial Repression and Economic Growth”. *Journal of Development Economics* 39, (1992): 5-30.

Shaw, E. S. *Financial Deepening in Economic Development.* New York: Oxford University Press, 1973.

Starr, M. “Does Money Matter in the CIS? Effects of Monetary Policy on Output and Prices.” *Journal of Comparative Economics* 33, 2005: 441-461.

Stiglitz, J. “The role of the state in financial markets”, in Bruno M. and B. Pleskovic (eds.), *The World Bank Annual Bank Conference on Development Economics 1993*, Washington D.C.: World Bank, 1993: 19-52.

Stiglitz, J. and A. Weiss. “Credit Rationing in Markets with Imperfect Information.” *American Economic Review* 71, 3 (1981): 393-410.

Toda, H. and T., Yamamoto. “Statistical Inference in Vector Autoregressions with Possibly Integrated Processes.” *Journal of Econometrics*, 66, (1995), 225-250.

Weller, C.E. “Financial Crises After Financial Liberalization: Exceptional circumstances or structural weakness?” *The Journal of Development Studies* 38, 1 (2001): 98-127.

World Bank. *Belarus: Window of Opportunity to Enhance Competitiveness and Sustain Economic Growth.* Report No. 32346-BY, Washington D.C.: World Bank, 2005.

Zivot, E. and D. W. K. Andrews. “Further Evidence on the Great Crash, the Oil-price shock, and the Unit-root Hypothesis”. *Journal of Business and Economic Statistics* 10, 3 (July 1992)**:** 251-270.