

## REPRESSED FINANCIAL SYSTEMS AS INSTRUMENTS OF TAXATION: Evidence from Iceland

THRÁINN EGGERTSSON\*

*University of Iceland, 101 Reykjavík, Iceland*

*The paper discusses how inflation and direct government intervention in the financial sector can be used as a substitute for tax revenue and as a means for redistributing resources. Five stages of financial repression are identified and data presented which suggest that the post-war economy of Iceland has belonged to the fifth and highest stage. The industrial organization of a repressed financial system is examined along with the forces that undermined the Icelandic financial system. The final section introduces the dilemmas of financial liberalization.*

### 1. Introduction

Monetary theory usually treats the financial system as both exogenous and *invariant*. Furthermore, theories of money and finance often rest on the assumption that the economy contains mature financial institutions, which are found, primarily, in some of the advanced industrial countries. In this paper we plan to take a different route and explore the evolution of a financial system and the economic implications of alternative forms of organiza-

tion in the money industry. The empirical material is drawn primarily from Iceland where one finds, in the postwar era, the unusual combination of high income per capita and an unsophisticated, strictly regulated monetary system.<sup>1</sup>

One advantage of treating property rights and industrial organization in the financial sector as variable is that such an approach suggests important questions which have received scant attention in the literature. For instance, what is the relationship between the structure of the financial sector and economic growth? In general, is the relationship between macro-economic variables different under alternative financial regimes? How does the structure of the financial sector affect the organization and performance of enterprises in other sectors of the economy? And how do politics and economics interact to shape the industrial organization of the financial sector?

The study of comparative financial systems

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<sup>1</sup> *It was not until the 1980s that the first uncertain steps towards financial liberalization were introduced in Iceland.*

is still in its infancy, but pioneering contributions towards understanding repressed financial systems have been made by Shaw (1973) and McKinnon (1973) and their students at Stanford.<sup>2</sup> The examination of the financial system of Iceland which we propose can be seen as an application and, hopefully, extension of this line of research.

In the present paper we consider the use of repressed financial systems as instruments of taxation. In later papers, we plan to look at the micro-economic consequences of repressed financial systems for the organization and performance of financial and other enterprises, as well as the political economy of financial liberalization.

The paper is organized as follows. In the next section we discuss how the state can use the monetary system as a tax base and define five stages of increasing repression of the financial system. Data are presented to demonstrate that the post-war economy of Iceland has belonged to the fifth stage. The third section considers the industrial organization of a repressed financial system and the institutions used to channel subsidized credit to favored borrowers. The fourth section deals with the demise of the Icelandic system in the 1970s when the monetary tax base shrank by half. The final section introduces dilemmas of financial liberalization.

## 2. The inflation tax and stages of financial repression

In neoclassical models of the state, the authorities maximize an objective function, subject to constraints.<sup>3</sup> The constraints on the ability to tax include various transaction costs, such as the costs of measuring the tax base and agency costs involved in tax collection. The choice set of the authorities is also restricted by the prevailing structure of property rights and the distribution of political power among potential taxpayers. When the choice is from several instruments of taxation,

optimization involves using each instrument (and each tax base) to the point where the marginal cost (including political costs) of commanding a unit of resources is the same for each instrument (and each tax base). In history, and, today, in many parts of the world, the state has frequently used other methods of commanding resources than the conventional fiscal instruments of the public finance texts. Below we consider inflation and repressed financial systems as instruments of taxation.

Let us assume that the authorities can rely both on regular fiscal instruments for raising revenue and on financing through inflation and repression of the financial system.<sup>4</sup> Let  $G^*$  represent the optimal amount of resources (as valued by the authorities) to be allocated by the state toward its various goals. The state relies on three methods for allocating resources: (1) direct purchase of goods and services, (2) direct transfer of funds, and (3) indirect subsidies arising from the provision of credit at rates below the market equilibrium rate of interest.<sup>5</sup> Further it is assumed that the state has two means for commanding resources to meet its goals: We label as  $T^*$  the optimal amount of resources raised with traditional fiscal instruments, and  $Z^*$  stands for the optimal amount raised with the help of the inflation tax and also by the joint use of ceilings on interest rates (that create disequilibrium in the credit market) and state control of lending by the financial system. We can then write:

$$(1) \quad G^* - T^* = Z^*$$

In this context, it is clear that a policy of price stability and financial liberalization has the cost of removing  $Z$  as a method of commanding resources. If such a policy is carried through, the authorities must respond by lowering  $G$  and/or raising  $T$ . If such adjustments of  $G$  or  $T$  turn out to entail unacceptably high costs, the authorities will reintroduce financial repressions, as we discuss briefly in the paper's last section.

To simplify, we can think of taxation through the financial system as involving

<sup>2</sup> See Shaw (1973) and McKinnon (1973). A survey of some of this work is found in Fry (1982) and (1988).

<sup>3</sup> See »A Neoclassical Theory of the State,« Chapter III in North (1981). Also see, »The State in Neoinstitutional Economics,« Chapter 10 in Eggertsson (1990).

<sup>4</sup> This conceptualization is due to McKinnon (1985).

<sup>5</sup> Note that  $G^*$  includes only the indirect subsidy element involved in extending loans at rates below the market equilibrium rate.

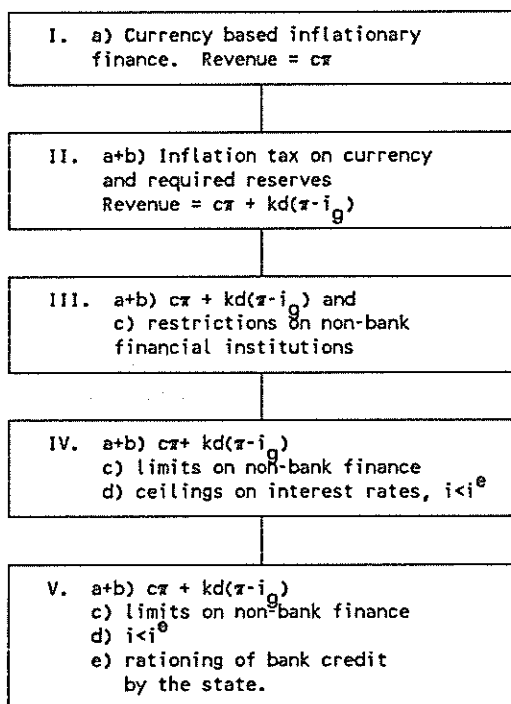


Figure 1. Five stages of implicit taxation of the monetary system.

Notation:  $\pi$  stands for the rate of inflation,  $c$  and  $d$  represent, in constant prices, currency and demand deposits.  $k$  is the required reserves ratio, and  $i_g$  the nominal interest rate paid on required reserves. Finally,  $i$  is a vector of nominal interest rates of deposit money banks and  $i^e$  stands for equilibrium interest rates.

five stages, which are presented in Figure 1. It must be emphasized that these are not historical stages which a country must always pass through in either direction and the mixing of elements from more than one stage is not precluded.

In stage 1, the authorities cover the fiscal deficit by issuing currency. However, the amount of real resources which the state can command in this fashion is limited because the public's demand for real currency balances,  $c = C/P$ , is a negative function of the expected rate of inflation,  $\pi$ .<sup>6</sup> For a steady-state economy, we can write:

$$(2) \quad (C/P)^D = f(\pi)$$

<sup>6</sup> See Bailey (1956) and Friedman (1971).

The revenue from inflationary finance based on currency is:  $R = c\pi$ . Cagan (1956), assuming a stationary economy, has shown that  $R$  is maximized when the rate of inflation is at a level where the elasticity of demand for  $c$  with respect to  $\pi$  is equal to 111.

The second stage adds a new instrument, required reserves,  $Q$ . The banks are required to keep a fraction,  $k$ , of their deposits,  $D$ , as reserves which either bear no interest or less than market rates of interest. Let us define the monetary base,  $B$ , as  $B = C + kD$ . The revenue from the inflation tax (in a steady state economy) can now be written as  $R = c\pi + kd(\pi - i_g)$ , where  $d = D/P$  and  $i_g$  is the nominal interest rate paid on reserves.<sup>7</sup>

Brock (1982), using conventional assumptions about the demand for currency, bank deposits, and bank loans, has shown that the introduction of  $k = Q/D$  as a policy instrument enhances the use of the monetary system as a tax base.<sup>8</sup> First, the introduction of  $k$  increases the maximum revenue obtainable from the inflation tax, compared to situations where only currency is taxed. Now maximization of  $R$  involves setting the appropriate value for both  $\pi$  and  $k$ . Second, by introducing  $k$  as a policy instrument, the state can obtain the same real revenue as before from the inflation tax but at a lower rate of inflation. Third, for any  $R$  less than maximum  $R$ , the state can, within limits, choose how to allocate the cost of the inflation tax between costs associated with inflation and costs which arise when high  $k$  crowds out private business from access to bank loans.<sup>9</sup>

In a competitive banking industry high values for  $\pi$  and  $k$  can give rise to very high real rates of interest on loans.<sup>10</sup> Let  $i_d$  and  $i_l$  represent vectors of nominal deposit and lending rates. To simplify, it is assumed that the

<sup>7</sup> The literature offers an alternative definition of  $R$ , namely the change in base money minus interest payments on required reserves. The two definitions are usually treated as equivalent in the academic literature. See Gross (1989) for more on these issues.

<sup>8</sup> Brock's (1982) model is formulated with special reference to developing countries where formal markets for primary securities are absent. Therefore, the real lending rate is determined inside the banking system in his model. See also Brock (1989).

<sup>9</sup> Brock (1982), pp. 17-32.

<sup>10</sup> The formulation below is based on McKinnon (1981).

banking system has no operating costs. The zero profit constraint of a competitive banking industry can then be written as:

$$(3) \quad i_d = (1 - k)i_1 + ki_g$$

Writing (3) in terms of real interest rates,  $r$ , gives:

$$(4) \quad r_1 = r_d / (1 - k) + (\pi - i_g)k / (1 - k)$$

The equilibrium spread between real lending rates and deposit rates can be found by rearranging (4):

$$(5) \quad r_1 - r_d = [k / (1 - k)](\pi - i_g + r_d)$$

It is clear that the instruments,  $\pi$  and  $k$ , interact multiplicatively to determine  $(r_1 - r_d)$  and the spread can become large. For instance, consider  $k = .32$ ,  $\pi = 44$  and  $i_g = 0$ , values which prevailed in 1978 in Iceland, and let us assume, for instance, that the average real deposit rate on the free market is +1 %. Then  $(r_1 - r_d)$  is 21 %, and the real lending rate is 22 %. In general, if  $k$  is given and  $\pi$  increases, the usual assumptions about the public's demand for deposits and loans suggest that the increase in the inflation tax will be shared between depositors and borrowers:  $r_d$  will fall and  $r_1$  increase. A lower  $r_d$  implies a reduction in D/P and a smaller monetary tax base.

If the authorities use  $k$  and  $\pi$  to tax the monetary system, the availability of close substitutes for bank deposits becomes a concern. Markets for bonds and equity which operate alongside a heavily taxed banking system endanger the monetary tax base. If transaction costs (and political costs) of drawing resources from bond and equity markets is high, compared to imposing reserve requirements on deposit money banks, DMBs, the authorities have an incentive to limit, rather than encourage, formal markets for bonds and equity.<sup>11</sup> When such limits on non-bank finance are added, we enter the third stage of financial repression.

The use of relatively high values for  $k$  and  $\pi$  leads to high values for  $r_1$ . If the authori-

ties find high real interest rates on bank loans politically unacceptable, they have an incentive to introduce ceilings on nominal interest rates and enter the fourth stage of financial repression. An effective ceiling on nominal interest rates implies that *both*  $r_1$  and  $r_d$  fall as  $\pi$  increases. Therefore, the burden of the inflation tax on deposits is now carried solely by depositors, and no part of the tax is shifted forward to borrowers.<sup>12</sup> This has several implications: First, for any  $k > 0$ , D/P shrinks more rapidly in inflation with ceilings on interest rates than when interest rates are free. Second, there is excess demand for bank loans and credit must be rationed. And, third, a bank loan now involves an element of subsidy.

Loans which carry negative or very low real interest rates are equivalent to direct subsidies, except that such indirect subsidies are less visible to the taxpayer than regular grants. When regulation puts an effective ceiling on interest rates, the government has an incentive to control the rationing of credit and substitute cheap loans for conventional taxes and outright grants. When the authorities nationalize the banking industry, partly or wholly, the fifth stage of financial repression is reached. Iceland in the postwar era has had a repressed financial system, comparable to the fifth stage in Figure 1. The liberalization of trade, which took place at the beginning of the 1960s, did not include lifting restrictions off the financial system. Values for some indicators of financial repression,  $c$ ,  $k$ ,  $\pi$ ,  $r_1$ ,  $r_d$  and  $\dot{B} = (1/B)dB/dt$ , for the years 1961 to 1986 are found in table 1.

First of note in Table 1 is that the ratio C/GDP displays a strong downward trend in 1961 - 1986 and is now among the lowest in the world.<sup>13</sup> It is clear from Table 1 that  $R = \pi c$  is no longer an important source of real revenue for the state.

Second, the ratio  $k = Q/D$  is high in Iceland

<sup>12</sup> McKinnon (1985), p. 193.

<sup>13</sup> For instance, in 1984 the C/GDP ratio was 3.3 % in Chile and 5.9 % in Argentina but 1.1 % in Iceland (IMF, 1988.) In Iceland the cost of substituting out of currency is, for various reasons, relatively low. Personal checks can be written »to the bearer,» which makes them a good substitute for cash in the grey or black markets. The small size of the economy and of the population — the extent of personal recognition — also reduces the transaction costs of using non-cash means of payment.

<sup>11</sup> See Fry (1982). The limits can take the form of strict regulation of the capital market and unfavorable tax laws.

Table 1. Indicators of financial repression Iceland 1961–1986.

Year	C/GDP	k = Q/M3	r <sub>d</sub>	r <sub>l</sub>	π	B̄
1961	5.15 %	0.11	-8.7	-6.3	4.6	0.50
1962	5.13 %	0.17	-2.0	0.7	11.1	0.56
1963	4.32 %	0.19	-5.8	-3.3	12.7	0.14
1964	3.95 %	0.22	-4.4	-2.0	19.7	0.31
1965	4.67 %	0.23	-6.0	-3.6	7.0	0.33
1966	3.89 %	0.22	-2.3	0.0	10.8	0.07
1967	3.85 %	0.22	1.7	4.0	3.3	0.03
1968	3.58 %	0.22	-8.1	-5.9	16.0	0.06
1969	3.16 %	0.24	-12.3	-10.3	21.8	0.27
1970	3.20 %	0.23	-8.9	-6.5	13.1	0.21
1971	3.06 %	0.23	3.7	6.3	6.4	0.20
1972	3.03 %	0.24	-7.4	-5.1	10.3	0.25
1973	2.76 %	0.26	-18.0	-15.7	22.2	0.38
1974	2.45 %	0.25	-28.7	-26.5	43.0	0.27
1975	2.23 %	0.27	-20.7	-18.4	49.0	0.35
1976	2.09 %	0.28	-13.6	-10.9	32.2	0.36
1977	2.25 %	0.31	-15.4	-12.2	30.4	0.55
1978	2.09 %	0.32	-19.7	-14.9	44.1	0.53
1979	1.84 %	0.30	-21.2	-15.4	45.5	0.46
1980	1.45 %	0.33	-13.4	-7.5	58.5	0.73
1981	1.66 %	0.31	-9.5	-4.6	50.9	0.65
1982	1.38 %	0.30	-12.5	-8.6	51.0	0.47
1983	1.17 %	0.29	-14.4	-9.6	84.3	0.74
1984	1.10 %	0.28	-0.8	4.9	29.2	0.29
1985	1.04 %	0.23	-6.6	-1.2	32.4	0.22
1986	1.09 %	0.23	-1.0	8.1	21.3	0.37

Source. c, GDP, B: International Monetary Fund (1988); r<sub>d</sub>, r<sub>l</sub> (average real deposit and lending rates of DMBs) and π (annual changes in the consumer price index): National Economic Institute (1988).

compared to the value for k in the Western industrial countries, but equally high and higher values are common for developing and semi-developed economies. Evidence supporting this is found in Table A-1, in the appendix, which gives k values select years for Iceland, Belgium, Sweden, the United States,

Table 2. The declining real value of one million krónur invested at average DMB-loan rates.

Year	r <sub>l</sub>	value of repayment in 1972 prices
1972		1,000,000
1973	-15.7	843,000
1974	-26.5	619,605
1975	-18.4	505,598
1976	-10.9	450,488
1977	-12.2	395,528

Source: National Economic Institute (1988).

Peru, Somalia and Sri Lanka.

Third, in recent decades Iceland has had the highest rate of inflation in Western Europe. The inflation rate accelerated in the 1970s and early 1980s and peaked in 1983, when the level of prices rose 83 % from the previous year. Large fiscal deficits, at least as conventionally defined, are not seen as the primary cause of inflation in Iceland.<sup>14</sup> Rather, the inflation reflects a failure by the authorities to neutralize impact of wide swings in the value of the country's exports, which are largely based on marine products.<sup>15</sup> Table A-2 shows the official fiscal deficit in relation to GDP for the years 1972–1985 and Figure A-1 relates  $\bar{B}$ ,

<sup>14</sup> However, some Icelandic economists maintain that official statistics of government surplus/deficit in Iceland are narrowly defined and systematically underestimate the net impact of the public sector on aggregate demand.

<sup>15</sup> In a good year, the value of exports is equal to about 40 % of GDP.

changes in dollar value of exports, and  $\pi$ .  
 Finally, Table 1 shows how  $r_i$  and  $r_d$  have been negative most years from 1961 to 1986 with the largest negative values found in the years after 1970.

### 3. The industrial organization of a repressed financial system

The new theory of the firm, a branch of Industrial Organization which has grown out of Ronald Coase's (1937) paper, «The Theory of the Firm,» seeks to model the structure of economic organizations in terms of transaction costs.<sup>16</sup> Recently the approach has been extended to include political institutions. In this paper we do no more than draw attention to the fact that organizations and institutions of repressed financial systems are highly amenable to such analysis.

Consider briefly issues involved in political control of a nationalized banking system. In countries where coalition governments are common, control of subsidized credit involves implicit contracts among politicians of different parties. Such contracts are notorious for the high costs of their enforcement. Iceland has evolved institutions for lowering the cost of enforcing implicit contracts among politicians for sharing control of the nationalized part of the financial system. Financial institutions usually have three directors, and each of the three major bourgeois parties has claimed property rights in one of the directorships. The boards of directors of public financial institutions are usually appointed by Althing and reflect the relative strength of the political parties in the legislative body. The share of the three state banks in commercial bank lending remained around 80 % from 1975 to 1985, in spite of vigorous competition from a number of private banks.<sup>17</sup> The success of the state banks in keeping their share of the market is explained in part by control of entry:

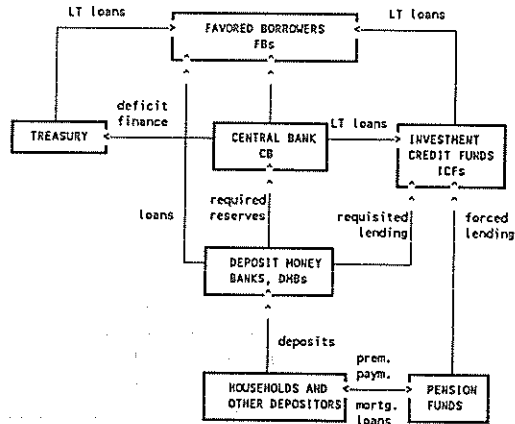


Figure 2. Sources of subsidized credit to favored borrowers in a repressed financial system.

the monetary authority controls which bank can open a new branch and where. Further, the private banks were denied the right to deal in foreign currency until 1984.

The industrial organization of repressed financial systems has certain general features shared by the Icelandic system outlined in Figure 2.<sup>18</sup> Let us briefly consider some of these features. Financial repression in Iceland had its heyday in the 1970s; the first measures to lift restrictions of financial institutions were taken towards the end of that decade. Figure 2 and the discussion in this section refers primarily to the state of affairs during the 1970s.

Note first that the state's reluctance to encourage formal markets for bonds and equity implies that the authorities must make alternative arrangements to provide finance for long-term investments. The usual result, common in less-developed countries, is a proliferation of public investment banks or funds, each serving a highly specialized function.<sup>19</sup>

<sup>18</sup> The Icelandic system of the 1970s for channelling subsidized credit to favored borrowers has the same basic elements as the Colombian financial system in 1972, as reported by McKinnon (1981).

<sup>19</sup> In Iceland the ICFs have names like: Agricultural Loan Fund, Agricultural Productivity Fund, Icelandic Fisheries Loan Fund, Commercial Loan Fund, Co-operative Loan Fund, Tourism Fund, Truck Investment Fund, Manufacturing Operations Fund, Credit Fund for Manufacturing and Crafts, State Housing Fund, Workers Building Fund.

<sup>16</sup> Coase (1937). A survey of this literature is found in Eggertsson (1990), especially, Chapter 5: Ownership Structure of Firms and Economic Outcomes, and Chapter 6: The Contractual Nature of the Firm.

<sup>17</sup> The state banks' share in total lending by commercial banks was 84 % in 1975, 83 % in 1980, and 82 % in 1985. Source: Central Bank of Iceland, Annual Reports.

In the 1970s Iceland had a system of 16 investment credit funds, ICFs, mostly public or semi-public in nature.<sup>20</sup> The primary domestic sources of funds for the ICFs are direct government grants, requisited loans from the DMBs, and forced loans from the pension funds. The allocation of long-term credit through the ICFs is in most cases under political control (or controlled directly by special interest groups) and credit goes to politically worthy borrowers. In some instances, the dynamics of representative democracy generate rules whereby a broad class of individuals, who share common characteristics, is automatically entitled to subsidized loans. This is true, for instance, of the State Housing Fund. *The agency relationship* between the directors of public ICFs and their principals higher up in the state structure along with *organizational forms* devised to control the ICFs are topics that wait to be studied.

Another aspect of politicized financial systems is the relatively large role given the central bank, which acts as a lender of *first* resort to both the treasury and the DMBs and also extends subsidized credit to various parties in the public and private sectors. It is also common that the central bank, with or without ministerial or cabinet approval, is authorized to regulate interest rates and apply various quantitative controls in the credit market. Such a role has characterized the Central Bank of Iceland.

The investment options of private pension funds are obviously limited in a repressed financial system where the banks offer negative real interest rates on deposits and no formal markets for bonds and equity exist. In Iceland a substantial share of the country's financial savings flows into pension funds, which usually are controlled by associations of employers and employees. Prior to the general introduction of indexed loans at the beginning of the 1980s, the assets of the pension funds were dissipated in inflation. In the mid-1970s cash flow statistics for the funds show that some 25–35 % of the pension funds were used as loans to the ICFs, and most of the remainder flowed out as new mortgage loans to fund members.<sup>21</sup> The pension funds, which

only could pay token pensions, thus became institutions of subsidized home finance.

*Favored borrowers* are central to any repressed and politicized financial system. Obviously, a modern monetized economy cannot function if all credit flowing from the financial system goes only to borrowers with high political rating. However, it is reasonable to hypothesize that the structure of credit in a typical repressed financial system can be explained better in terms of power politics than in terms of the neoclassical investment criteria. It must be reemphasized that the granting of loans in a repressed financial system often involves large transfers of wealth, as we illustrate in the case of Iceland with Table 2. The table shows that an individual, who borrowed 1 million krónur from an Icelandic DMB at the end of 1972 and paid the loan back with interest at the end of 1977, returned less than 400 thousand krónur, measured in 1972 prices. The reverse side of the coin are the losses suffered by owners of deposits (but note that some depositors also receive loans from the banks). In Table A-3 we present a rough estimate of the capital losses met by owners of deposits in Icelandic DMBs during the years 1972–1983. The figures show only the decline in real value of the assets and do not include the opportunity cost of positive yield forgone. The losses, expressed in percent of the gross domestic product for each year, range from about 2 % to 7.5 % of GDP.

There exists no detailed study of gainers and losers in the Icelandic financial system. One reason is that statistics categorizing depositors of the DMBs have not been collected or published.<sup>22</sup> However, it is generally believed that the elderly are overrepresented among net lenders. Furthermore, the state system of home finance clearly represented a large-scale transfer of resources to young homebuilders from elderly depositors and contributors to pension funds.

In terms of industries, it is clear that agriculture and the fishing industry (fisheries and processing) are favored borrowers in Iceland. Manufacturing along with the trade and

<sup>20</sup> In 1988 there were 18 ICFs in Iceland.

<sup>21</sup> Central Bank of Iceland (1988).

<sup>22</sup> In order to encourage financial savings, even at the risk of aiding tax evaders, authorities allowed depositors to use code names and numbered accounts and to hide their identity. As it were, those who wished were allowed to commit financial suicide anonymously.

Table 3. Adjustments to a shrinking monetary tax base.

	% of DMB credit outstanding		% of labor force	% of factor income
	1972	1978	1978	1978
Agriculture	9.8	16.9	8.6	6.0
Fishing Industry	15.3	23.5	16.7	17.8
Commerce	21.7	15.3	13.4	14.9
Manufacturing	13.2	11.2	15.2	11.0

Source: National Economic Institute (1988).

service sectors have been given a second-class treatment by the financial system. Table 3 shows how the system protected its favored borrowers in the 1970s when the monetary tax base shrank dramatically in response to mounting inflation. The shrinking of the monetary tax base is discussed in the following section, but here we jump ahead to note that, while in 1972 total deposits of DMBs were equal to 34 % of GDP, six years later, in 1978, deposits had shrunk to 21 % of GDP. The banking system responded by increasing

the share of agriculture and fisheries in outstanding credit (end-of-year figures) — from 10 % and 15 %, respectively, in 1972 to 17 % and 24 % in 1978 — thus roughly maintaining an undiminished flow of credit to the favored sectors. The structure of credit advanced by the investment credit funds throws further light on the special status of agriculture and the fishing industry. For instance, firms in agriculture and the fishing industry received 70 % of new loans extended to enterprises by the ICFs in 1978.<sup>23</sup>

#### 4. Limits to taxation: inflation and erosion of the tax base

In repressed financial systems, mounting inflation erodes the monetary tax base. Eggertsson (1982), using data for Iceland 1952 to 1979, has estimated the elasticity of demand for  $M_3/P$  with respect to inflation at  $-0.013$  for each percentage point of expected inflation.<sup>24</sup> In Figure 3 we record the decline of real bank deposits as inflation mounts and relate it to values for  $r_d$ , the real deposit rate. Total DMB deposits are measured in percent of GDP. In the 1960s the ratio of deposits to GDP ranges from 39 % to 44 %. In 1973, when negative  $r_d$ s move into double digits, the deposit ratio falls below 30 % and bottoms out in 1978 at 21 %. In other words, by 1978 the Icelandic banking system had been cut in half. One response to the decline of the domestic banking system was to seek a substitute in foreign credit. Iceland's rising foreign debt is documented in Table A-4. Net external claims increase from about 20 % of GDP in the early 1970s to 30–40 % of GDP in the late 1970s, and finally in the 1980s net external claims range from 46–61 % of GDP. Similarly, long-term foreign debt goes from about 25 % of GNP in the early 1970s to about 50 % in the early 1980s. The figures

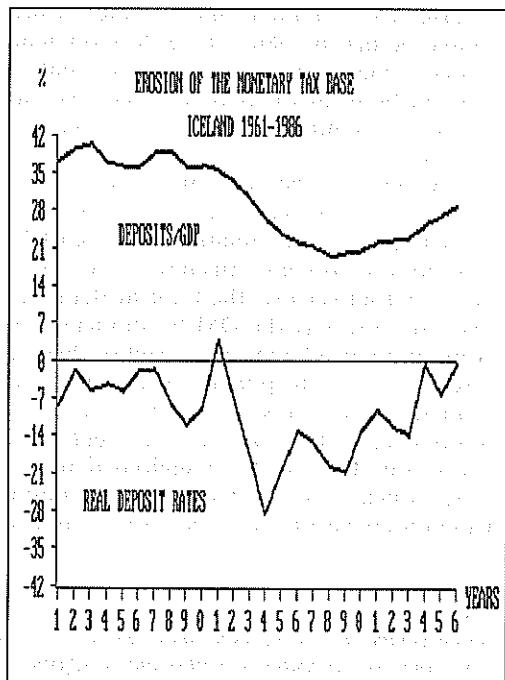


Figure 3.

<sup>23</sup> Census Bureau of Iceland (1984). Also, of outstanding ICF loans in 1980 to enterprises, 72 % were for firms in agriculture and the fishing industry (thereof 16 % for those in agriculture). Annual Report 1983, Central Bank of Iceland.

<sup>24</sup> Eggertsson (1982). Note that the elasticity coefficient implies that an increase in inflation, for instance, by 10 percentage points, reduces  $M_3/P$  by 13 %.



show little room for increasing the country's foreign debt.<sup>25</sup>

### 5. Dilemmas of financial liberalization

In a repressed financial system, the time may come when the authorities decide to lift restrictions of the credit market because they perceive that the cost of taxing the monetary base under the current arrangements is too high. This can happen, for instance, in response to the growing political strength of those who lose from the present system or because unanticipated side-effects of financial repression, such as economic stagnation, become evident over time. Even when side-effects, such as the demise of the money market, are foreseeable, politicians with high rates of time preference may prefer to take advantage of the old system while it lasts and leave reforms to their successors. Also, outcomes of the prisoners' dilemma variety seem to be common in politics.

If the authorities find that a sharply reduced flow of domestic financial savings involves unacceptable political costs, one obvious response is to raise nominal interest rates and perhaps leave the rates to be determined by the market. For an economy, which is at stage V of financial repression (see Figure 1), only freeing interest rates (and perhaps making minor other adjustments) creates a hybrid system, which has little-known properties.<sup>26</sup> So far, economics does not have much to say about comparative financial systems.

From the viewpoint of the authorities, a retreat to a lesser stage of financial repression changes the constraints of their choice sets, as both microeconomic and macroeconomic properties of the economy are likely to change. A new financial system will also

<sup>25</sup> *In per capita terms, Iceland has one of the largest foreign debts of any country. However, the debt service burden is not exceptionally heavy, as Iceland is a high-income country and the value of export is often close to 40 % of GDP.*

<sup>26</sup> *For instance, Cho (1984) has argued that the liberalization of the financial system from various government interventions, such as ceilings on interest rates, is not sustainable without fairly well developed securities markets.*

change the political environment by creating new categories of winners and losers. For optimizing politicians, the central question is whether they are better off under the new system than with the old.

We hope to deal with the problems of financial liberalization in Iceland in a separate paper and limit ourselves to a few comments. Financial liberalization in Iceland began at the end of the 1970s, when the monetary tax base had shrunk in half and politicians felt that foreign debt was reaching a dangerous level. The most significant aspects of the reforms are the legalization of indexation of financial obligations, effective in 1980, and the freeing of interest rates, effective in 1986.

The politicians had hoped (and economists had predicted) that the financial reforms would increase the supply of loanable funds and give rise to financial equilibrium at low real rates of interest. However, the immediate results seemed unfavorable. In 1986  $r_l$ , the real lending rate of the DMBs, which for decades had been negative or close to zero, rose to +8.1 %. Further, the wedge between deposit and lending rates widened. Prior to 1978 the value of  $(r_l - r_d)$  had ranged from 2 to 3.2 percentage points, but after 1978 the spread increased to 5–6 points and became 9.1 percentage points in 1986. These developments startled some economists and policy makers who had been taught that free markets lead to lower, not higher, prices for goods and services.

However, in 1986 several major components of the old system were still in place.  $\pi$  was at 21 %, and a relatively high  $k$  (0.23) crowded out private business from bank loans.<sup>27</sup> Paradoxically, the Central Bank had now started to pay the DMBs compensation for inflation on a large component of their required reserves. The public DMBs and the investment credit funds were still the center of the financial system, but now they lent mostly at positive (and relatively high) real interest rates, which has caused severe economic difficulties in various sectors of the economy.

<sup>27</sup> *A new development in the post-1986 period is the emergence of private non-bank investment institutions. This development took the monetary authorities by surprise as they were prepared to neither collect statistics in the new field nor lay down careful rules for governing these activities.*

It is clear why a high  $r_1$  may threaten the solvency of Icelandic enterprise. In the past large firms and major investment projects were typically financed by politicized financial institutions, and many of these enterprises will not survive without some form of subsidy. Further, it has been observed that the financial structure of the typical Icelandic firm is characterized by a relatively high debt-equity ratio as it relies heavily on debt finance.<sup>28</sup> A weak financial structure of this kind implies that the firm can easily move close to insolvency when hit with an increase in  $r_1$  or a temporary decline in the demand for its products. Many favored borrowers of the past seem to follow a policy of borrow and bust in the belief that they will have enough political weight to compel the government to come to their rescue with credit subsidies or outright grants.

Here is where the dilemma of financial liberation arises. The authorities, it seems, have three choices:

a) proceed with financial liberalization and tolerate bankruptcies of clients who formerly enjoyed loans at negative real interest rates.

b) proceed with financial liberalization but extend help to political clients through direct grants from the treasury, which requires new taxes and/or new priorities for government expenditures.

c) reintroduce repressed finance in some form, with or without increased reliance on direct grants.

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<sup>28</sup> This point has been made in »Memorandum on the Development of an Equity Market in the Republic of Iceland,» which was written for the Central Bank of Iceland by Enskilda Securities of London. March 1988. The report notes that »historically, investment in Icelandic industry has been channelled through the development funds and the banks.» (p. 5) And, further, »the tax consequences for individuals associated with investing in equity is materially less favorable than those associated with investing in debt.» (p. 6)

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## Appendix

Table A-1. Ratio of required reserves to total deposits in seven countries.

	k = R/D			
	1970	1975	1980	1985
Iceland	0.23	0.27	0.33	0.23
Belgium	0.02	0.01	0.01	0.01
Sweden	0.01	0.02	0.02	0.02
U.S.	0.05	0.04	0.03	0.02
Peru	0.47	0.59	0.58	0.64
Somalia	0.53	0.23	0.22	0.18
Sri Lanka	0.20	0.21	0.14	0.20

Source: International Monetary Fund (1988).  $k = (14-14a)/(35I-14a)$  where 14 is line 14, reserve money; line 14a is currency outside DMBs and line 35I is money plus quasi-money.

Table A-2. Central government deficit/surplus as percent of GDP: Iceland 1972–1985.

Year	Deficit/GDP
1972	-2.58
1973	-3.07
1974	-4.64
1975	-6.17
1976	-2.51
1977	-4.44
1978	-2.63
1979	-2.22
1980	-1.24
1981	-0.70
1982	-2.50
1983	-3.02
1984	-1.83
1985	-3.94

Source: International Monetary Fund (1988).

Table A-3. Capital losses of depositors in DMBs 1972–1983.

Year	$r_d$	Capital loss as % of GDP
1972	-7.4	-2.43
1973	-18.0	-5.35
1974	-28.7	-7.46
1975	-20.7	-4.82
1976	-13.6	-2.96
1977	-15.4	-3.19
1978	-19.7	-3.78
1979	-21.2	-4.28
1980	-13.4	-2.72
1981	-9.5	-2.12
1982	-12.5	-2.83
1983	-14.4	-3.33

Source: National Economic Institute (1988).

Table A-4. Increasing foreign debt, Iceland 1970–1986.

Year	Net external claims/GDP	Long-term debt/GNP	Debt service/export earnings
1970	20.1	25.6	11.4
1971	19.6	26.3	10.2
1972	20.4	25.2	11.4
1973	16.2	23.5	9.2
1974	29.9	24.2	11.3
1975	39.0	34.0	14.2
1976	34.9	32.1	13.9
1977	32.9	30.0	13.8
1978	36.8	31.2	13.3
1979	32.2	31.2	13.1
1980	34.6	30.7	14.2
1981	30.1	31.9	16.7
1982	52.3	40.5	21.8
1983	53.2	51.0	20.9
1984	60.6	50.9	24.7
1985	59.6	53.2	19.5
1986	45.9	49.1	19.1

Source: National Economic Institute (1988).

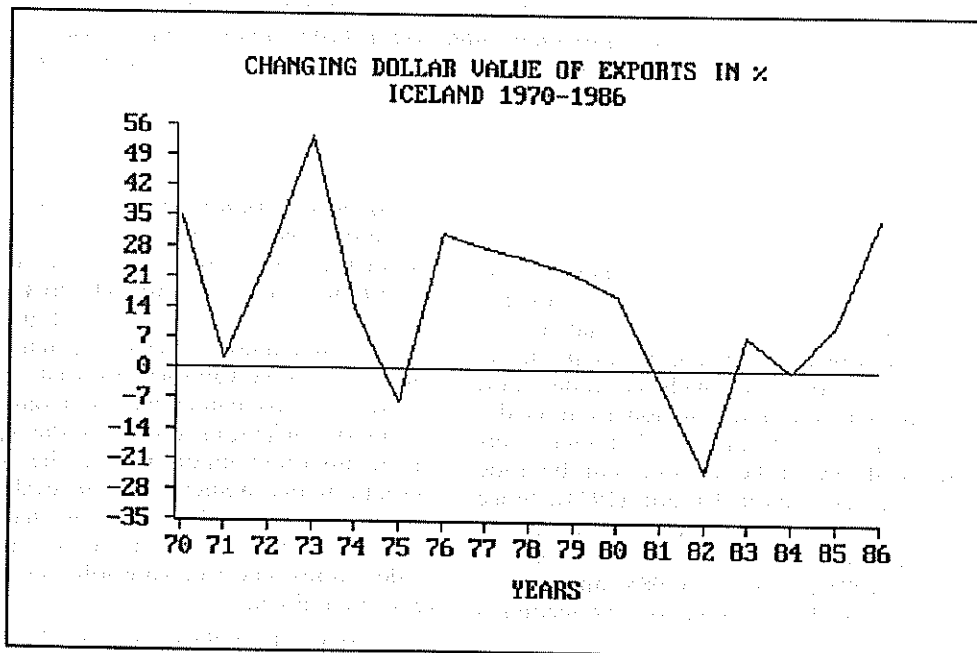
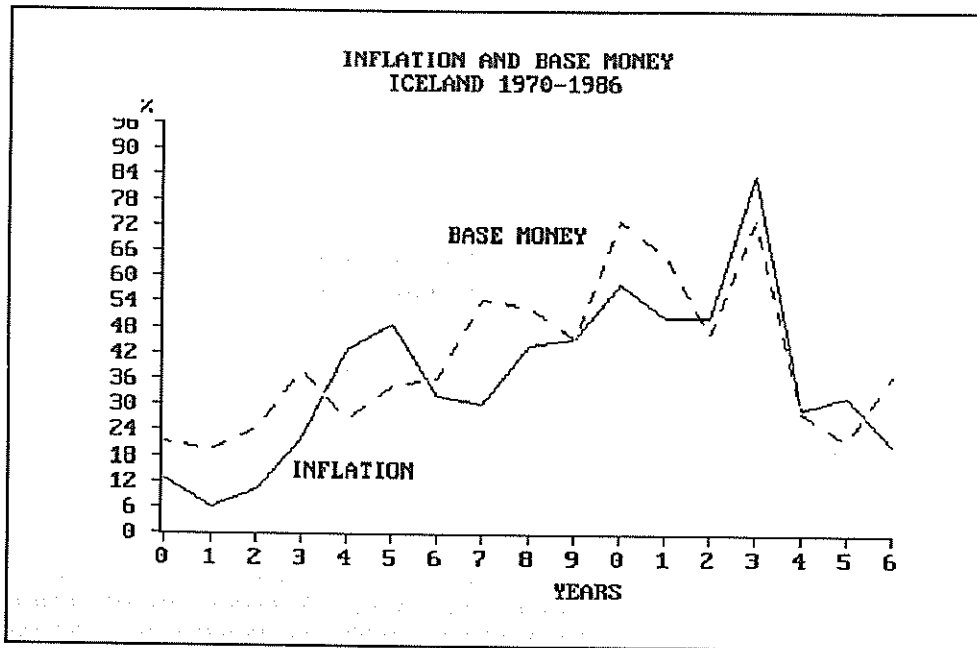


Figure A-1.