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Evolution of Financial Institutions: Iceland's Path from Repression to Eruption

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Abstract

Iceland is the smallest sovereign state in the world that has an independent monetary policy. In the last 120 years the country has experienced four types of financial institutions: barter, an immature liberal system, a repressed financial market, and a full-fledged liberal market. The examination of institutional change in Iceland in the financial area provides interesting empirical evidence on the role of alternative financial institutions in economic development. The financial liberalization in the 1990s has generated a startling internationalization of Icelandic businesses.

Keywords: Iceland, financial institutions, economic developement
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1. Introduction

Iceland is the smallest sovereign state in the world that has an independent monetary policy (it was a Danish colony until 1944). In the last 120 years the country has experienced four types of financial institutions: barter, an immature liberal system, a repressed financial market, and a full-fledged liberal market. The examination of institutional change in the Icelandic financial system provides interesting empirical evidence on the role of alternative financial institutions in economic development.

In the first period, which ends in 1886, commercial banks do not exist and there is a primary reliance on barter. The use of Danish banknotes (but not silver coins) is actually forbidden in 1836 because of their perceived chaotic consequences. Lack of adequate financial arrangements slows down nascent modernization of the economy.

The second period, 1886 to 1930, sees the emergence of two commercial banks, one owned by Danish investors, and for a while the country relies on liberal financial institutions and open capital markets. Independence in 1918 gradually introduces mistrust of foreign investors and a believe in hands-on government management of financial markets. Private foreign investment is not permitted, access to foreign currency is strictly regulated, the government determines nominal interest rates, typically real interest rates are negative, management of financial institutions is openly divided between the political parties, and political managers ration credit to favored industries and borrowers. By the 1960s and 1970s the financial system has a closer resemblance to arrangements in the Third World than those in northwestern Europe. Mutual self-interest of leading political actors and pressure groups preserves the system.

The third phase comes to an end in 1979 when the system self-destructs. A rapidly rising rate of inflation creates double-digit negative real interest rates that reduce the demand for real deposits, slicing the banking system in half. The political managers react by protecting their favorite customers, partly by substantially increasing foreign borrowing, but it is soon becomes clear that the old system is untenable.

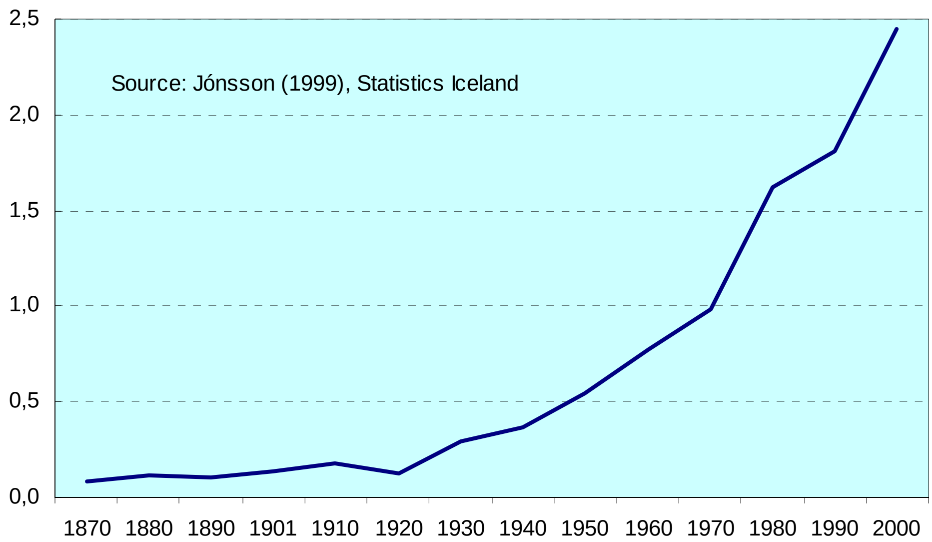
The fourth episode begins in 1979 with a transition to a liberal financial system. The elements of the new system are more or less in place by 1995. The first step, taken in 1979, involves the indexation of financial obligations, the next step is the deregulation of interest rates, and then standard liberalizations measures follow one after another until in 1995 international capital movements are fully liberalized. The transition to fully liberal markets was in part forced on Iceland’s politicians. The integration of Europe threatened to bar Iceland from its most vital exports markets. The decision in 1993 to join the European Economic Area, EEA, kept open the country’s export markets in European Union but the agreement also required free movement of capital and labor in the EU and EFTA areas.

The explosive impact of the new financial institutions is surprising. The country’s economic landscape has changed through the disappearance of formerly leading firms, mergers, and arrival of newcomers. The old guard is fading and a new business elite has emerged. The government has sold its banks and the new private banks have restructured through mergers and moved toward universal banking by incorporating investment houses. According to *The Banker* the three leading commercial banks are now among the fastest growing banks in the world. In fact they have outgrown Iceland and set up branches and acquired financial institutions in neighboring countries. The banks have also financed the internationalization of Icelandic businesses, which have, for instance, acquired major retail chains in Britain and Denmark among many other projects. In view of Iceland’s small population, less than 300,000, these developments have startled many observers.

2. The rise and fall of a liberal financial system, 1886-1930

Compared with its neighbors in Europe and North America, Iceland was a late bloomer. The local version of the Industrial Revolution finally arrived around 1900 with mechanization of the fishing fleet, which was accomplished in only 20 years, and with the arrival of the first trawlers (G. Jónsson 1981). In a thirty-year period 1900 to 1930 there was a fivefold increase in the size of the country's fishing fleet. The total fish catch increased rapidly with the growth rate peaking during the years 1920 to1930 when the catch increased at an annual rate of 10%.[1] The economy entered sustained economic growth with fish exports playing a huge role. The export sector became quite large relative to other European economies during the period 1890-1930, usually exceeding 40% of GDP, even reaching 60% of GDP in 1915 and 1916. *Figure* 1 presents GDP per capita in Iceland 1870-2000 measured in 2000 prices. The figure makes apparent that the entire period is one of sustained economic growth, notwithstanding temporary setbacks.

Figure 1. *GDP per Capita (millions of IKR), 1870-2000*

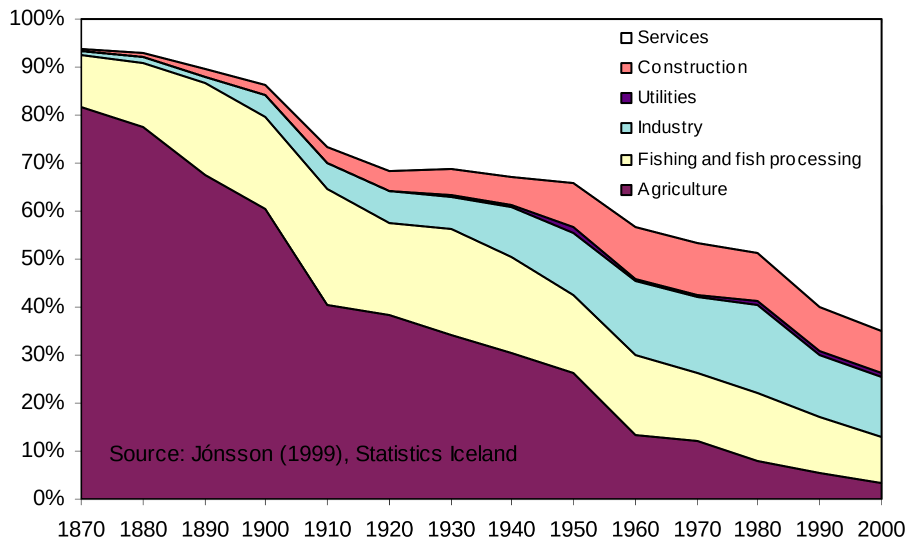


Until late in the 19th century Iceland was without virtually any infrastructure such as roads and harbors. There were no towns, specialized trades or factories; the economy depended on farming that used medieval technology, see *Figure* 2. Modernization therefore required vast financial resources relative to the size of the economy, yet

[1] The discussion of economic development in Iceland before World War II and estimates of economic magnitudes in that period draw on G. Jónsson (1999; 2002).

during most of the 19th century a general absence of banks and other credit institutions slowed down, but did not prevent, the transition. The country's first two commercial banks were established in 1886 (Landsbanki) and 1904 (Íslandsbanki, the first), while the last quarter of the 19th century had seen the emergence of rural savings banks, and from 1850 public funds provided limited amounts of credit.[2]

Figure 2. *Share of Industries in Employment, 1870-2000*



For most of the 19th century Iceland lacked not only credit institutions but also its own medium of exchange or money—exchange was predominantly in the form of barter. The farmers sold their surplus produce (especially mutton, woolens, and dried fish) to a merchant at their local trading point and the value of the transaction was credited to the farmers' accounts. The merchants in return provided all basic necessities to the farmers along with short-term loans in kind. The arrangement tended to tie the farmers to a particular merchant in an asymmetric power relationship, giving the merchant considerable scope for opportunistic behavior, although some competition among merchants did exist (G. Jónsson 2005, 12-15)

Foreign bank notes and coins were not unknown in Iceland in the 19th century (and earlier). The monies were primarily (but not solely) Danish currency since in the pre-modern period Iceland was the colony of Denmark. The authorities in Copenhagen

[2] The discussion of early 20th century banking in Iceland draws on G. Jónsson (2005) and Nordal (2002).

were responsible for providing financial services in Iceland but the two countries were at very different stages of economic development and it has been argued that the Danish authorities failed to appreciate the special conditions and needs of their underdeveloped colony (G. Jónsson 2005). To further complicate the situation, the Icelanders lost faith in Danish bank notes in the first years of the 19th century. Icelandic skepticism about Danish banknotes originated with their depreciation following the Napoleonic Wars that had wrecked the Danish economy. In Iceland the notes were traded at rates below face value and often accepted reluctantly. Moreover, the law of one price did not apply: Danish bank notes did not have uniform value in exchange throughout Iceland. Each region registered different rates for Danish paper money, which was a sign of isolation, underdeveloped markets, and high transaction costs. The Danish authorities felt compelled to take the unusual step in 1836 to forbid the use of bank notes in Iceland (G. Jónsson 2005, 12).

When not relying on barter, the Icelanders, especially in the first half of the 19th century, preferred (silver) coins. Contemporary accounts complain of the difficulties involved in transporting barrels of coins on horses when farmsteads were traded. The emergence of rural savings associations in the 1870 was an important step toward monetizing the economy. The Icelanders could now securely deposit their monies in savings accounts, and the savings banks also provided credit, which supplemented the traditional sources involving merchants and wealthy farmers. Around 1860 a new source of currency emerged when Icelandic farmers began to export life animals to the United Kingdom in return for cash. As for the merchants, foreign banks usually in Denmark met their financial needs (G. Jónsson 2005).

In order to protect its distant colony against foreign incursions, the Danish Crown put Iceland and a small band of the ocean around the island off limits to fishermen and others from countries outside the Danish kingdom. For the period 1602 to 1787 the Danish Crown monopolized trade with the country and collaborated with landowners to maintain the *status quo*, especially to prevent the development of an independent, modern fishing industry. Landed interest feared that a modern fishing industry would offer high pay and drain workers from the farm sector. They therefore sought to preserve the traditional system of part-time fishing by farm workers in small open rowboats mostly during the winter season. The results were disastrous. In the 18th century the Icelanders came close to extinction (Eggertsson 1996).

The late 18th century and the first part of the 19th century saw gradual liberalization of foreign trade, culminating in 1855 when free trade with all countries was introduced. The period from around 1855 to 1914, which was cut short by World War I, is the first period of fully liberal trade and financial policies in Iceland. The second episode of full-scale liberalization begins only in 1995, following some 15 years of financial reforms. It was a sign of the times that in 1904 Danish businessmen were permitted to establish a private bank in Iceland, Islandsbanki (the first), which was given the right to issue currency under the supervision of the country's parliament (Nordal 2002).

Figure 3. *Deposits/GNP and Lending/GNP Ratio*, 1901-2003

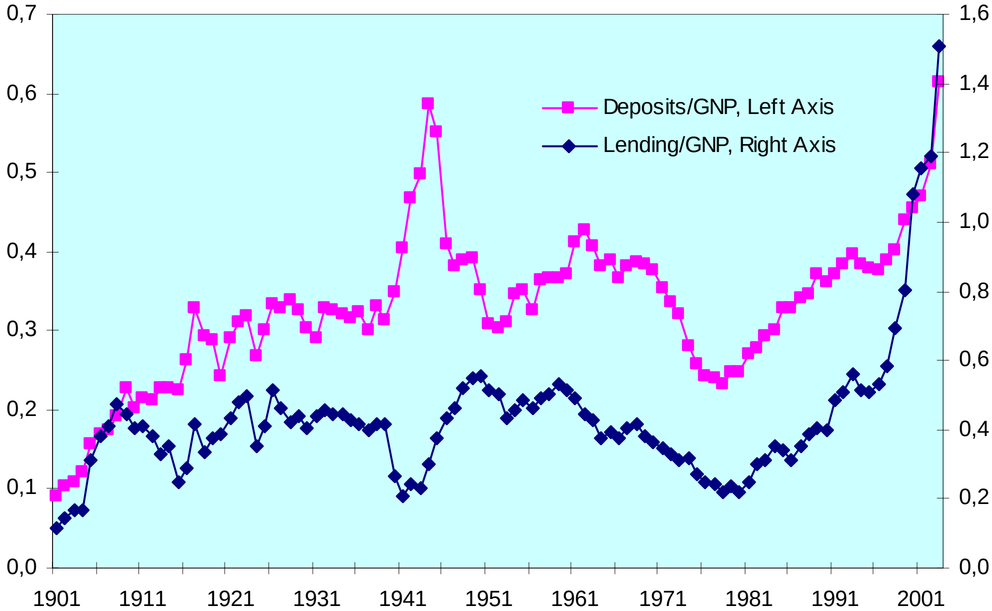


Figure 3 shows the development of deposits and lending by commercial banks in Iceland 1901 to 2003, measured as a share of GNP. The volume of banking expands extremely fast in Iceland during the first two decades of the 20th century. Deposits increase from about 9 % of GNP in 1901 to some 20% in 1909, exceed 30% in 1917 and then hovering around 30% until 1930. Bank loans as percentage of GNP begin around 11% in 1901, rapidly reach 38% in 1906, and except for five years remain in the 38%-52% range from 1906 to 1930. Historians of the period emphasize that the large increase in lending by Icelandic banks in part reflects reduced reliance on foreign and various informal domestic sources (G. Jónsson 2005.)

World War I was a turning point for economic policy in Iceland. Various restrictive measures that had been introduced during the war were continued and expanded when peace had arrived. The arrangement to let a private bank, Íslandsbanki, issue money in cooperation with the country's parliament had not been entirely successful. Íslandsbanki closed its doors in 1930 following a period of financial difficulties (Nordal 2002).

3. The rise and fall of a repressed financial system, 1930-1979

In 1930 several developments came together and put the finishing touches on a repressed, state-managed financial system that served Iceland almost until the end of the 20^{th} century. The year 1930 saw the establishment of a state-owned bank on the ruins of Íslandsbanki. The new bank, Útvegsbanki, should especially serve the fishing industry. Also in 1930 the government set up a bank that was oriented toward the farm sector, Búnadarbanki. Finally, a special central bank division was established in Landsbanki, which was also owned by the state. All banks, except for the relatively small savings banks, were now state owned. The banking system was specialized by industry with priority given to farming and fishing. The system was augmented by government controlled investment credit funds that were also specialized by industry. Foreign exchange was strictly rationed (Nordal 2002; G. Jónsson 2005).

Iceland had become an independent nation in 1918 (although full sovereignty came only in 1944, during the Nazi occupation of Denmark) and the country's response was not unlike the response of many European colonies that gained independence after World War II. In particular, the country did not trust foreigner entrepreneurs and virtually outlawed direct foreign investment. Foreign capital entered the country primarily through government controlled financial institutions that allocated the funds to favored projects. A ban on foreign capital in Iceland's fisheries and in energy production is still effective at the time of writing.

Repressed financial systems were a common phenomenon in the 20^{th} century, especially among countries in the Third World. *Table* 1 presents quantitative indicators for the institutional characteristics of financial systems at regular intervals from 1975 to 2002. The relative ranking is based on a composite index compiled by Frasier Institute in Canada and 60 participating institutes around the world. The index covers all countries for which necessary information is available, in recent years 123 countries, and ranks them in terms of how liberal their capital markets are—from the most liberal to the most repressed. *Table* 1 gives the ranking of Iceland in each period and also shows the ranking of a sample of countries.

Table 1. *Credit Market Regulation*

	1975	1980	1985	1990	1995	2000	2002
Albania	na	na	na	107	110	96	91
Argentina	69	86	99	89	36	30	88
Belgium	7	8	12	13	23	19	21
Bulgaria	na	na	73	101	103	108	80
Canada	8	7	8	6	8	7	8
Central Africa Republic	na	na	82	69	95	115	119
Croatia	na	na	na	na	115	89	86
Czech Republic	na	na	na	na	67	45	42
Denmark	16	21	24	19	16	14	15
Estonia	na	na	na	na	81	35	13
Finland	21	16	15	20	15	13	11
France	31	28	35	22	34	38	45
Germany	6	5	7	9	13	15	22
Greece	25	32	53	43	57	42	43
Hong Kong	1	1	1	1	1	1	1
Hungary	na	81	62	79	54	47	26
Iceland	53	62	51	28	17	12	14
Ireland	18	18	21	17	6	8	9
Italy	40	47	42	30	44	36	39
Japan	14	15	18	16	30	24	40
Latvia	na	na	na	na	100	56	36
Luxembourg	5	10	6	7	11	11	10
Mexico	34	50	87	46	55	70	61
Myanmar	na	74	91	110	122	122	123
Netherlands	11	9	10	8	10	9	12
New Zealand	32	20	29	11	3	4	3
Poland	na	na	103	108	94	67	68
Romania	na	na	81	96	120	114	105
Russia	na	na	na	na	118	112	115
Slovak Republic	na	na	na	na	84	68	58
Slovenia	na	na	na	na	97	81	73
Spain	29	29	31	33	28	22	33
Sweden	37	31	23	26	27	21	23
Switzerland	3	2	4	4	7	5	6
Ukraine	na	na	na	na	117	116	110
United Kingdom	20	19	9	5	5	6	4
United States	4	4	5	3	4	2	5
Zimbabwe	na	68	77	74	60	120	122
No. of countries in sample	75	102	109	113	123	123	123

Source: Economic Freedom of the World 2003 and authors' calculations

According to the Frasier Economic Freedom Index in 1980, toward the end of Iceland's period of financial repression, the country's credit market ranked number 62 of 102 markets in as many countries. [3] In 2002 the most regulated credit market of the 123 countries that the Economic Freedom Index ranks was in Myanmar but the most liberal in Hong Kong. Iceland has now moved up dramatically and is number 14 of 123 countries. These measures indicate that in the post-World War II period and until the 1980s the Icelandic financial market is best described as a Third World phenomenon.

4. A theoretical note

The literature contains various but related definitions of repressed financial systems, often inspired by the work of McKinnon (1973; 1985) The following definition of advanced financial repression is based on Abiad and Mody (2003).

1. Interest rates are determined by the government and kept below expected market rates.
2. There is excess demand for loans and the government regulates the flow of credit and gives priority to politically favored borrowers.
3. The government (the central bank) imposes high reserve requirements on deposit money banks.
4. The government controls and blocks entry of new firms into banking and limits new branches. The authorities also narrowly define the financial services that the banks are allowed to provide. In particular the authorities block the development of securities markets because their availability would limit state control of the financial system and taxation through inflation.
5. Private banks and other private financial institutions are either not permitted or they are limited to small size and scope. Public or semi-public investment funds, specialized by function, are the main source of financing for housing and long-term industrial investments.

[3] The Frasier Institute Index is made out of five sub indices that measure:

1. Ownership of banks (percentage of total deposits held in privately owned banks).
2. Competition (how much competition domestic banks face from foreign banks).
3. Allocation of credit (percentage of credit extended to private sector).
4. Extent of regulations that lead to negative real interest rates.
5. Interest rate controls (interest rate controls on bank deposits and/or how freely loans are determined by the market).

6. There is no direct investment by foreign investors in the private sector but government organizations borrow abroad and channel the resources to domestic users.
7. Private international financial transactions on capital and current accounts are strictly limited.

All these elements are present in the financial system that emerged in Iceland following the restructuring in 1930. A comparison of the financial systems of Iceland and Colombia (as reported by McKinnon 1981) in the 1970s indicates that the two systems were structurally quite similar. The central bank in both countries was not limited to traditional central banking but was directly involved in the economy—sometimes as a lender of first rather than last resort. A hands-on-approach was used to manage financial markets, for instance, the investment credit funds received government grants and requisite or forced loans from deposit money banks and pension funds (Eggertsson 1990).

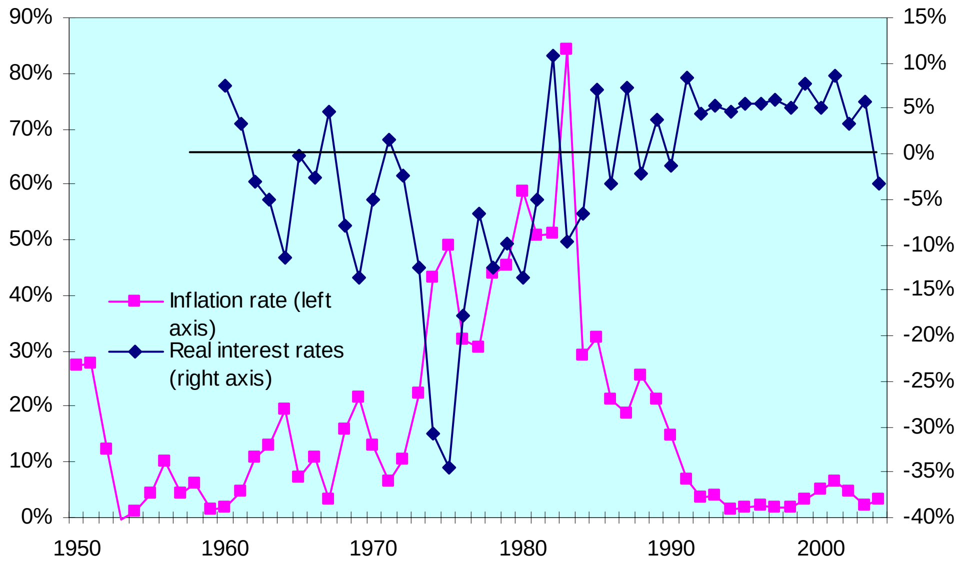
Iceland's repressed financial system was seriously dysfunctional in terms of standard economic criteria but nonetheless for a long while the system was politically stable. Major financial reforms had to pass through the legislature but no political party on the right or the left was committed to change—until the after the system had virtually self-destructed. The stability of the financial system reflected social equilibrium that was glued together by self-enforcing institutions that brought continuous rewards to the country's leading political parties, regardless of whether they were part of the current government or in opposition. Each of the three bourgeoisie parties (the radical socialists were not part of the game until toward the end) possessed *de facto* property rights to one of the three management positions at each of the three state commercial banks and to one of the three governorships at the central bank. When the position of a bank manager or central bank governor was vacated, the politicians and the whole nation immediately knew to which party the new job belonged.

Bank managers and governors were formally appointed by a government minister but interestingly enough the country's state banks and financial institutions were not all under a single ministry (of banking) but divided among several industry-oriented ministries. Iceland usually was (and is) governed by coalition governments and this arrangement meant that normally no one political party in a coalition government had formal control of appointments in all the state banks and other leading financial institutions. The game therefore involved holding hostages. If a coalition partner violated the informal agreement about ownership rights in the financial system, retaliation from other coalition members was to be expected. Moreover the political game was a repeated one, which made it logical for the parties in power to recognize political ownership rights of opposition parties.[4] Appointments to the board of directors for the state banks and the central bank further reinforced the equilibrium. Members of the boards were appointed by parliament and the political party had rights of representation in proportion to their strength in parliament. The major investment credit funds used similar rules for dividing the pie. Political control of the financial system involved more than plush positions for favorite sons. Control of credit flows was an important tool for solidifying electoral support. The glue holding the system together was strong. Only virtual breakdown of the financial system or important exogenous developments could upset the parties' peaceful coexistence at the financial trough.

In a repressed financial system where real interest rates are negative, a bank loan is essentially a hidden subsidy. When nominal interest rates are held constant, the value of the implicit subsidy depends on the rate of inflation. Post World War II Iceland suffered from an inflation-prone economy with the average rate of inflation edging upward over time, as shown in *Figure* 4.

Figure 4. *Inflation and Real Deposit Rates, 1950-2004*

[4] The party of radical socialists was a special case because the party was initially excluded from the game. When they joined a coalition government in the 1970's, however, the radical socialists got even and appointed their own man as a central bank governor, failing to recognize the property rights claimed by another political party.



In the 1970s and early 1980s, real deposit rates and real lending rates were often double-digit negative figures: From 1972 to 1980, the average real lending rates of the commercial banks ranged from -5.1% to -26.5%, giving borrowers a substantial subsidy. For instance, a bank customer, who at the end of 1972 borrowed 1 million krónur from a commercial bank at average lending rates, made a good deal when he paid the loan with interest at the end of 1977 or five years later. Valued in 1972 prices, and using the nominal lending rates that prevailed during this period, the repayment equals 395,528 krónur, which amounts to less than 40% of the real value of the original loan (Eggertsson 1990, 18). In an environment of negative real interest rates and credit rationing, highly inefficient firms can easily survive as long as they are favored by the political (financial) system. Favored borrowers, in turn, have strong incentives to preserve the system.

While bank loans favored the borrower, those who deposited their funds with the banking system were heavily punished. The annual capital losses of depositors in commercial banks 1972 to 1983, measured as percentages of GDP, range from 2.12% to 7.46% (Eggertsson 1990, 24). Many elderly people, among others, lost their life-time savings. In a repressed financial system, inflation is a form of taxation but one that has serious long-term consequences. People's demand for cash balances is an inverse function of the expected rate of inflation. If the inflation persists, not to mention when it gradually increases, the public demands lower real cash balances. Currency in circulation equaled 5.15 % of GDP in 1961 but fell steadily over time until in 1985 the ratio bottomed out at 1.04% of GDP. At the time, probably no other nation substituted out of cash to this extent.[5]

The demand for bank deposits depends directly on real interest rates. In a repressed financial system that lacks markets for securities there are no close financial substitutes for bank deposits. When the rate of inflation increases and real deposit rates fall sharply, actors redouble their efforts to substitute out of bank deposits, trying to store their wealth in physical assets such as housing—or they increase their consumption expenditures. A major reduction in real deposits, however, creates a financial crisis for producers and others who rely on bank credit, although the authorities can cushion the shock somewhat by borrowing abroad and relending the funds at home. Moreover, when the capacity of a repressed financial system to provide credit is curtailed, it is to be expected that the system will concentrate on protecting its politically favored customers.

The experience in Iceland is consistent with these general observations. First, bank deposits shrank in response to negative real deposit rates. As *Figure* 3 shows, in the 1960s the ratio of bank deposits to GNP ranges from 39% to 44%. In 1973 when real deposit rates 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 sliced in half. As expected, the domestic financial system sought relief through foreign borrowing and relending at home. Net external claims increase from about 20% of GNP in the early 1970s to 30-40% of GNP in the late 1970s, and finally in the 1980s net external claims range from 46-61% of GNP. Similarly, long-term foreign debt goes from about 25% of GNP in the early 1970s to about 50% in the early 1980s. These figures indicate there was little room for further increases in the country's foreign debt.

[5] For Instance, in 1984 the C/GDP ratio was 3.3% in Chile and 5.9% in Argentina but 1.1% in Iceland (International Monetary Fund, 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 gray and black markets. The small size of the economy and of the population—the extent of personal recognition—also reduces the transactions cost of using non-cash means of payment. In the 1990s and early 2000s, although inflation had been brought under control, the C/GDP ratio remained at or below 0.1. Apparently, Iceland is (once again) headed for a cashless society. Bank cards are generally used for even very small transaction, electronic transactions are more common than in most countries, and personal checks have become virtually non-existant.

In this crisis the financial system favored two industries, agriculture and the fishing (fisheries and fish processing) but manufacturing along with the trade and services sectors received second class treatment. To pacify entrepreneurs in underprivileged sectors the government eventually allowed them to establish private bank. The size of these banks, however was held back through limits on branches and by refusing private banks until 1984 to deal in foreign currency. The gradual emergence of small private banks was never a threat to the state banks.[6] From 1975 to 1985 the share of state banks in total lending hovered above 80%.

Table 2 provides evidence of the favored position of agriculture and fishing in the financial system (Eggertsson 1990, 21). The figures show how the commercial banks responded in the 1970s when their capacity to provide credit was dramatically curtailed. In 1972 total deposits of the commercial banks equaled 34% of GNP but six years later the deposits had shrunk to 21% of GNP. The banking system responded by roughly maintaining undiminished flow of credit to the favored sectors and reducing lending to other customers. In 1972 outstanding credit by deposit money banks (DMBs) to the agriculture and fisheries sectors was equal to 25.1% of total DMB lending but in 1978 the ratio had increased to 40.4%. The investment credit funds display comparable behavior. In 1978 firms in agriculture and fishing received 70% of new loans extended to enterprises by the credit funds.

Table 2. *Relative Importance of Industries in 1978 (1972)*

	DMB credit outstanding, %	Labor force, %	Factor Income, %
Agriculture	16.9 (9.8)	8.6	6.0
Fishing Industry	23.5 (15,3)	16.7	17.8
Commerce	15.3 (21,7)	13.4	14.9
Manufacturing	11.2 (13,2)	15.2	11.0

Source: National Economic Institute (1988)

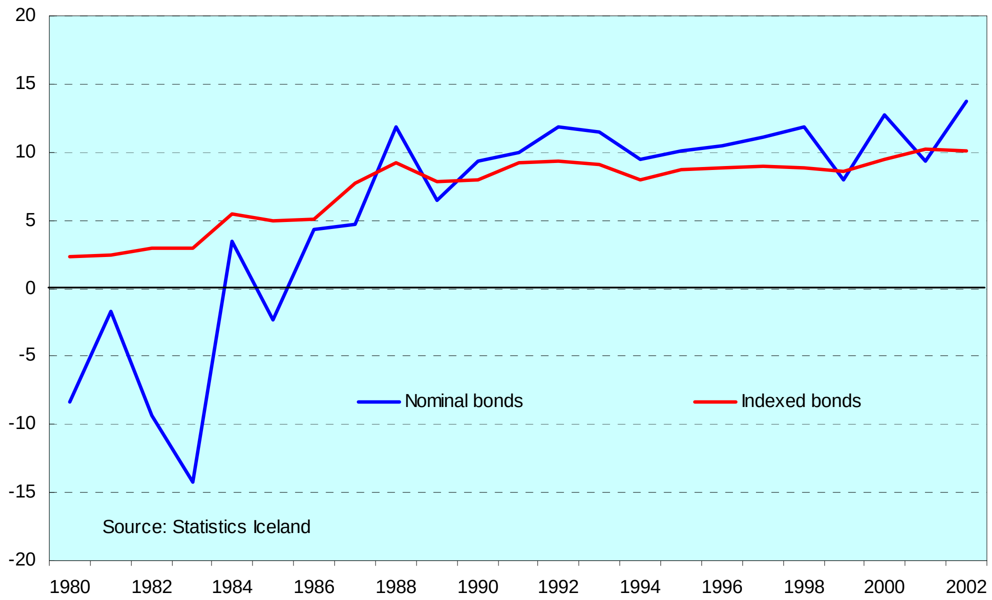
[6] In addition to manufacturing and commerce, two powerful interests groups were allowed to enter the banking game, the Federation of Labor and the very large SÍS Corporation, formally a cooperative conglamorate with strong ties to the Progessive (farmers) Party.

No detailed studies exist that identify by social category the individual losers and gainers from financial repression in Iceland. Statistics categorizing depositors in commercial banks have not been collected or published, partly because the authorities, hoping to encourage financial savings, allowed depositors to use code names and numbered accounts to hide their identities. As it were, those who so desired were allowed to commit financial suicide anonymously. It is generally believed that the elderly are overrepresented among net lenders. The official system of home financing constituted a large-scale net transfer of resources from elderly depositors and contributors to pension funds to relatively young people. The investment options of pension funds are obviously limited in a repressed financial system where the banks offer negative real interest rates on deposits, no formal markets for bonds and equity exist, and the purchase of foreign securities is forbidden. Prior to the general introduction of indexed loans in the 1980s and the evolution of securities markets, inflation dissipated the assets of the pension funds. In the mid-1970s cash flow statistics for the funds show that some 25-35% of the pension fund resources were allocated as requisite loans to the investment credit funds but a large part of the remaining resources flowed out as once-in-a-lifetime mortgage loans to pension fund members. The pension funds, which in this period could only pay token pensions, thus became institutions of subsidized home finance (Eggertsson 1990).

5. The transition to a modern, liberal financial system, 1979-2005

The transition to a liberal financial system began as a response to critical interactions in the 1970s between high inflation and full-scale financial repression, which reduced real bank deposits by one half. It has been estimated (Eggertsson 1982) that in Iceland the elasticity of broad money, M_3/P, with respect to inflation equals -0.013 for each percentage point of expected inflation. An increase in inflation, for instance, by 10 percentage points is then estimated to reduce M_3/P by 13%, and so on. In 1973 and the following years the annual change in the consumer price index usually exceed 20%, coming close to 50% in some years, and eventually reaching 84% in 1983 (see *Figure* 4). The first step in the reform process was taken in 1979 when the authorities, while still controlling nominal interest rates, introduced general indexation of financial obligations, including bank deposits and bank loans. Indexation involves the adjustment of nominal values of financial asset to changes in the price level, which generally means that real interest rates are positive as long as the nominal rates are positive. Introducing indexation in a repressed financial system with government controlled nominal interest rates involved various technical issues that with time were successfully resolved (B.B. Jónsson 1999). In Iceland financial indexation proved highly successful in gradually restoring the stock of financial saving.

Figure 5. *The Average (Weighted) Real Interest Rates Loans of DMBs 1980-2002*



The next major step was taken in 1984-1986 when government control of interest rates was abolished, which along with other forms of deregulation stimulated a rapid development of markets for various types of securities. The central bank gradually reduced the reserve requirement ratios of the commercial banks from 28% in 1979 to 5% in 1992. In the old system the Treasury met its financial needs through overdraft with the central bank but a new policy in the 1990s ended that practice. The Treasury now meets its borrowing needs in the financial market. In sum, the reforms involve standard approaches to liberalizing financial markets: various reforms at the central bank, development of securities markets, privatization of state banks (in the 1990s and early 2000s), diminished role for public investment credit funds, and liberalization of both short-term and long-term international capital movements.[7]

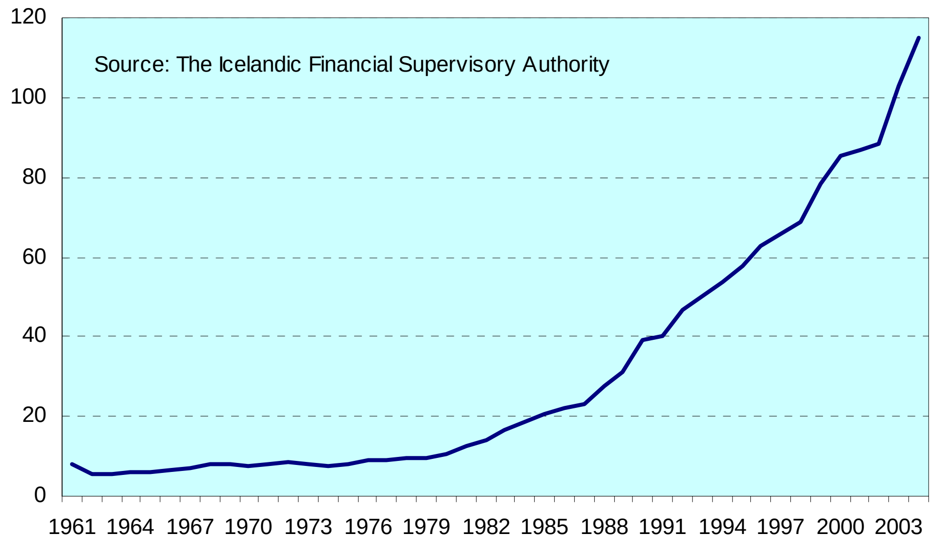
[7] The actual dates for major steps in the reform process include: Financial indexation (1979); liberalization of domestic bank rates (1984-85); Interest Rate Act (1987); regulation on stepwise liberalization of capital movements (1990); closing of Treasury overdraft facility at Central Bank (1992-93); new liberal foreign exchange legislation (1992); Iceland becomes member of European Economic Area (1993); interbank market for foreign exchange is

The most unusual aspect of the reform process in Iceland is the extraordinary expansion of the banking system that has occurred since the reform process was completed—as shown in *Figure 3*. In the period from 1996 to 2003 the ratio of deposits to GNP has increase from 36.7% to 60.1%, and the bank lending/GNP ratio has increased from 52% to 148% (and further to 206% in 2004). *The Banker* in a survey of the of the performance of the world's 1000 largest banks in 2004 reports that three of Iceland's commercial banks are among the fastest growing banks in the world, being in the 3rd, 4th, and 13th places. The banks no longer limit their activities to Iceland. The country's largest bank will soon conduct some 80 percent of its business abroad. The remainder of the paper examines some factors lying behind the extraordinary expansion of Iceland's financial organizations.

Unlike many other countries Iceland is not threatened by a looming pension crisis. A reform of the pension system, which began in 1969, is not only responsible for a stable outlook for future pensions but also in an important way for the rapid expansion since 1996 of the country's banking system. The pension system in Iceland is chiefly organized around occupational pension funds. Many of these funds emerged in 1969 and became mandatory a few years later. The new system originated in general wage settlements following three-way negotiations between labor unions, the federation of employers, and the state. Under the agreement a sum equal to 10% of the wages of all private sector employees is transferred to an occupational pension fund either chosen by the wage earners themselves or, more commonly, by their labor unions. However, more than half of the burden is carried by the respective employer, who contributes a minimum of 60% of the total contribution. State employees have a similar, but more generous arrangement, see Herbertsson (2001).

Figure 6. *Assets of Pension Funds – GDP Ratio*, 1961-2004

established (1993); long-term capital movements fully liberalized (1994); short-term capital movements fully liberalized (1995); new legislation for foreign direct investment (1995). Source: Gudmundsson and Davídsson (2000).



The assets of the pension funds were dissipated under financial repression but in the new system asset growth took off during 1979-1986 when indexation and free interest rates were introduced—see *Figure* 6. Prior to the liberalization of the financial system the pension funds had very few choices for properly investing their funds, as we have already discussed. However, the coincidence of the new pension system and liberalization of financial markets had powerful interactive effects. We claim that strong demand by the pension funds for financial instruments combined with new opportunities for supplying securities was the catalyst that in the 1990s rapidly triggered a vibrant market for securities in Iceland. The pension fund system also served an indirect educational function by training investment managers and providing challenging opportunities for young experts often educated abroad at major business schools. The opportunity to manage the assets of the pension system as well as the constant need for new financial products provided opportunities for a new generation of financial managers, who were also helped by a stable and favorable economic climate during the 1990s. The outcome is a dynamic financial system that has outgrown the Icelandic market (the country's population is less than 300,000). Leading Icelandic banks have set up branches abroad in several countries, acquired foreign financial firms, and financed remarkable excursions abroad by Icelandic enterprises, which include takeovers of major retailing chains in the United Kingdom and Denmark. The three leading commercial banks now conduct a large part of their business abroad. *Table 3* documents the explosive increase in total assets of the Icelandic banking system during the transition period 1980-2004. The table also compares developments in Iceland with developments in a sample of 23 other countries.

Table 3. *Total Assets of Banking System in Selected Countries*

	1980*	1985	1990**	1995***	2000	2003	2004
Australia	na	na	na	1,29	1,57	1,62	1,78
Belgium	na	na	na	na	3,14	3,33	na
Canada	0,98	0,93	0,91	1,14	1,46	1,47	1,47
Chile	na	na	0,92	0,84	0,98	0,94	1,02
Czech Republic	na	na	na	1,33	1,34	1,02	0,96
Finland	na	na	na	na	na	1,11	1,23
France	na	na	na	2,22	2,43	2,54	na
Germany	na	na	na	na	3,03	3,04	3,02
Hong Kong	na	5,70	8,91	7,15	5,17	5,32	5,53
Hungary	na	na	na	0,69	0,64	0,73	0,77
Iceland	0,37	0,50	0,57	0,55	1,18	1,80	2,54
Italy	na	na	na	na	1,53	1,73	1,76
Japan	na	1,66	2,11	1,72	1,62	na	na
Malaysia	na	na	na	2,03	1,92	2,07	1,94
Netherlands	na	na	na	na	4,03	4,26	4,44
Norway	na	na	0,85	0,76	0,91	1,10	1,07
Saudi Arabia	na	na	na	0,64	0,64	0,68	0,70
South Africa	na	na	0,77	0,73	0,92	1,14	na
Spain	na	na	na	na	1,84	2,02	2,05
Sweden	na	na	na	na	2,13	2,14	2,35
Switzerland	2,63	3,18	3,30	3,56	5,11	5,19	5,60
Thailand	na	na	na	na	1,27	1,15	1,11
UK	0,47	0,68	1,09	1,05	1,54	1,72	1,81
USA	0,57	0,58	0,57	0,57	0,62	0,67	0,68

Note: * 1981 for Canada and Iceland, ** 1991 for South Africa, *** 1996 for Malaysia, and 2001 for Sweden.
Source: BIS, unofficial statistics.

In order to test our hypothesis that an expansion of a national pension system will make a country's financial system grow, including private credit and bank assets, we conducted a simple regression analysis. First we regressed the bank assets/GDP ratio on the pension assets/GDP ratio,using an unbalanced panel of 19 OECD countries and data for the period 1980-2003 – see equation (1) in table 4.[8] Second we ran a regression using the private credit/GDP ratio as the dependent variable and pension assets as an independent variable as before – see equation (2) in table 4.

[8] The full data set for a individual country consists of four observation each consisting of a five year average of the respective variable and one based on a three year average.

Table 4. *The partial relationship between bank assets, private credit, and pension assets in OECD countries 1980-2003*

	Pensions assets	R^2-adj.
(1) Bank assets	1.41	0.69
	(5.38)	
(2) Private credit	1.44	0.91
	(4.21)	

t-statistics in parenthesis

The analysis supports our hypothesis – there is a significant statistical relationship between pension assets and bank assets (private credit).

6. Conclusions

The paper has argued that repressed finance in Iceland was a stable arrangement held together by the self-interest of the leading players. It was argued moreover that only unexpected exogenous forces could upset the equilibrium. What forces then overcame vested interests and pushed the leaders to liberalize the financial system—and turn the clock back to 1914? Three elements were involved: perverse dynamics of the financial system and two external factors. First, in the 1970s inflation reached unexpected highs, and very high inflation interacted with the old financial system to produce a genuine crisis that could not be neglected. The banking system had been cut in half and the old system with its comfortable division of the pie between the established political parties had become a liability. With no obvious immediate solution to the inflation problem, the leaders saw the indexation of financial assets and later the freeing of interest rates as the only way to restore the financial system.

The two external forces pushing for liberalization are linked: the worldwide move toward (financial) liberalization in the last quarter of the 20th century and European integration. As already noted, Iceland in the 19th century was affected by external ideological drift toward liberalization of markets and late in the 20th century it was happening again. In the last part of the 20th century, moreover, the integration of Europe had picked up speed. Iceland's most important export markets are in Europe and continued access to these markets is vital for the country. Iceland's politicians were not ready for full membership of the European Union, especially because of the EU fisheries policy, but exclusion from European markets was unthinkable. The first compromise involved joining EFTA in 1970, which required liberalizing the country's foreign trade but not its capital market. The final step was taken in 1993 when Iceland joined the European Economic Area. The EEA agreement not only provides unrestricted access by Iceland to all EFTA and EU markets but also requires free movement of goods, services, labor and capital in the EEA. When joining EEA Iceland had no choice but to lift restrictions on short and long term capital movements, which was fully achieved in 1995. With the sale of state banks in the 1990s and early 2000s, the banking system that was set up in 1930 was finally dismantled and a new generation of well-educated young men and women replaced most of the old financial apparatchiks.

We highlight three consequences of financial liberation in Iceland. The first and most immediate effect came with the introduction of positive real interest rates. In the adjustment period of the 1980s, the wedge between deposit and lending rates widened for various reasons and real lending rates became very high. Prior to the reform, typical Icelandic firms relied heavily on debt finance—their debt-equity ratio was high. Many firms were therefore vulnerable to the dramatic increase in real lending rates—going from a negative figure to a relatively high positive figure. The shock in fact changed the economic landscape. Old landmarks disappeared, such as SÍS, the conglomerate association of cooperative societies that was Iceland's largest and most powerful business organization. Many other firms folded while others merged. Reorganization was particularly evident in the fishing industry. Since 1990 access to the fishing grounds has been regulated through a system of individual transferable fishing quotas, which has initiated an extensive and sometimes painful reorganization of the industry. In a relatively short period, some 10-years, Iceland has seen a surprising emergence of a new business elite and the fading away of established firms and business leaders.

Secondly, in the financial sector itself the firms also responded by merging and reorganizing. The most significant aspect of the new order is a movement in the direction of universal banking. Early in the reform process private securities firms had appeared offering investors, especially the pension funds, various financial instruments, including shares in mutual funds. The privatization of the state banks unleashed merger waves that involved established commercial banks and also the securities firms, extending the scope of the country's commercial banks into investment banking. The financial market is now dominated by three banks that provide all types of financial services and are also directly involved in the acquisition of (non-financial) firms. The three banks are now among the fastest growing banks in the world, as mentioned. *Table* 3 documents these developments.

Third, the Icelandic banking sector has in the last few years outgrown the Icelandic economy—the country has a population of little less than 300,000 individuals. The country's largest bank expects that in the next few years some 80% of its business will be conducted abroad. The three leading banks have set up branches abroad and acquired financial institutions abroad. The commercial banks have also financed Icelandic enterprises that have established branches abroad and taken over foreign companies. These activities are now highly visible in neighboring countries such as Britain and Denmark, which has created speculations in the media about how tiny Iceland is able to take over, for instance, major retail chains in Great Britain. In part, the answer is that these takeovers are to a large extent financed with foreign money and that the banks are now managed by bold and highly skilled professionals who contrast sharply with the old troikas of political appointees in the old state banks.

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