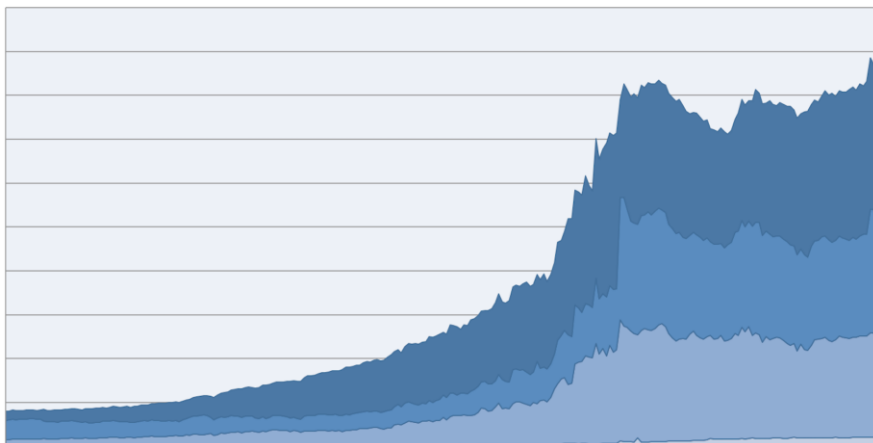


MONETARY REFORM

A BETTER MONETARY SYSTEM FOR ICELAND



A REPORT BY FROSTI SIGURJONSSON

COMMISSIONED BY THE PRIME MINISTER OF ICELAND

Monetary Reform - A better monetary system for Iceland

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Foreword by Adair Turner

In the aftermath of the 2008 financial crisis, financial regulators and central banks across the world have put great efforts into making the existing financial system more stable, increasing bank capital and liquidity requirements, developing bank resolution plans, and requiring derivatives trading to go through central clearing houses. Those efforts, in which I was deeply involved from 2008 to 2013, have been valuable, reducing the probability of another financial crisis in the short term.

But they have still failed to address the fundamental issue – the ability of banks to create credit, money and purchasing power, and the instability which inevitably follows. As a result, the reforms agreed to date still leave the world dangerously vulnerable to future financial and economic instability.

This report addresses those fundamental issues. It is rightly titled “Monetary Reform” because it goes beyond the technical details of bank regulation to question who should create money and how we ensure that new money is devoted to useful ends.

It does a crucial job of public education, explaining how “fractional reserve” banks create money, and why excessive levels of private debt will inevitably result in crisis. And it explains why financial and economic instability cannot be effectively managed using only the interest rate policy tool on which central banks have traditionally relied.

It proposes a radical structural solution to the problems we face. The feasibility and merits of that specific solution need to be debated. But whatever the precise policies pursued, they must be grounded in the philosophy which this report proposes – that money creation is too important to be left to bankers alone.

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Adair Turner was chairman of the UK Financial Services Authority from September 2008 to March 2013, and was chair of the policy development committee of the international Financial Stability Board from 2009-2013. His book on the crisis – *Between Debt and the Devil: Money, Credit and Fixing Global Finance* will be published in September 2015 by Princeton University press.

Preface

“Of all the many ways of organising banking, the worst is the one we have today. ... Change is, I believe, inevitable. The question is only whether we can think our way through to a better outcome before the next generation is damaged by a future and bigger crisis. This crisis has already left a legacy of debt to the next generation. We must not leave them the legacy of a fragile banking system too.” – Lord Mervyn King, Governor of the Bank of England 2003-2013¹

This report, commissioned by the Prime Minister of Iceland, presents the results of a study into the money creation mechanism in Iceland and the potential for its improvement.

For more than half a century, Iceland has suffered from serious monetary problems including inflation, hyperinflation, devaluations, an asset bubble and ultimately the collapse of its banking sector in 2008. Other countries have faced similar problems. Since 1970, bank crisis have occurred 147 times in 114 countries² causing serious reductions in output and increases in debt.

Despite its frequent failures, the banking system has remained essentially unchanged and homogenous around the world. Various reform proposals have been put forward, many of them promising, but none have been implemented.

A necessary step toward monetary reform is to increase awareness of the drawbacks and risks of the present system and why reform is needed. This report will hopefully serve as a useful source of information for the coming debate on the money creation process in Iceland and how it could be reformed to serve society better in the future.

Reykjavík, March 20th 2015

Frosti Sigurjónsson

¹ Mervyn King, (2010)

² Leaven L. & Valencia, (2012)

1 Overview and summary

1.1 Abstract

This report is a study of monetary problems in Iceland and in what part they may be caused by the current monetary mechanism, the fractional reserve system.

There is indication that the fractional reserve system may have limited the Central Bank's ability to control the money supply while giving banks both the power and incentive to create too much money. Indeed, commercial banks expanded the money supply nineteen-fold in the fourteen year period that ended with the banking crisis of 2008.

There is also indication that the fractional reserve system may have been a long term contributing factor to various monetary problems in Iceland, including: hyperinflation in the 1980s, chronic inflation, devaluations of the Icelandic Krona (ISK), high interest rates, the government foregoes income from money creation, and growing debt of private and public sectors.

Economists have long been aware of the problematic nature of the fractional reserve system and proposed various reforms. A program for monetary reform by Fisher et al in 1939 received the support of 235 economists from 157 universities and colleges but was not implemented. This report reviews some of the more frequently mentioned proposals for monetary reform: 100% Reserves, Narrow Banking, Limited Purpose Banking and describes in detail the Sovereign Money proposal.

In a Sovereign Money system, only the central bank, owned by the state, may create money as coin, notes or electronic money. Commercial banks would be prevented from creating money.

This report describes how such a Sovereign Money system could be implemented and what steps would be required for a successful transition.

1.2 The need for monetary reform

There is evidence that the fractional reserve system itself may have been a contributing factor to various monetary problems in Iceland including:

1.2.1 The Central Bank of Iceland is not in control of the money supply

Commercial banks create money when they make loans and delete money when loans are repaid. The Central Bank of Iceland must provide banks with reserves (money in accounts at the CBI) as needed, in order not to lose control of interest rates or even trigger a liquidity crisis between banks. The Central Bank of Iceland therefore had to create and provide new central bank reserves to accommodate banks as they expanded the money supply nineteen fold between 1994 and 2008.

1.2.2 Commercial bank lending tends to amplify the economic cycle

When the economic outlook is positive, banks acting to maximise profit will lend more (so the money supply grows at a faster rate) but when the economy is doing badly, banks' lending slows down (so the money supply grows at a slower rate, or even starts to contract). This lending behaviour amplifies the economic cycle.

In the expansionary years of 2003 to 2006, the Central Bank of Iceland raised the policy rate (the base rate of interest) and warned that the economy was overheating. However, this did not prevent the banks from over expanding the money supply.

1.2.3 Banks' expansion of the money supply has led to inflation and devaluations of the ISK

For decades, commercial banks in Iceland have expanded the money supply much faster than was required to support economic growth in Iceland. In the twenty years from 1986 to 2006, GDP grew on average by 3.2% per annum. In the same period banks expanded the money supply by an average of 18.6% per annum.

Expanding the supply of ISK *six times faster* than was needed for economic growth was a leading cause of inflation and devaluation of the ISK. In an effort to curb lending, the Central Bank of Iceland increased its policy rates from 5.6% in 2004 to 18.0% in 2008. Raising the policy rate was largely ineffective in restricting money creation by the banks, and also had the unwanted side effect of creating a surge in demand for ISK by foreign investors. This demand served to delay the inevitable devaluation of the ISK. In 2008 reality caught up with the ISK and the exchange rate fell by 50% against the USD.

1.2.4 The state foregoes considerable income by delegating money creation to the banks

By delegating the creation of money to private commercial banks, the Central Bank of Iceland, and thereby the state, foregoes considerable income that it would otherwise earn from creating new money to accommodate economic growth.

Commercial banks in Iceland reap a benefit from the ability to create money in the form of demand deposits. Banks can pay lower interest on demand deposits than they would by borrowing in the market. Owners of demand deposits are content with low interest rates because the deposits are a convenient form of money and for banks that are 'too big to fail', there is an inevitable state guarantee on deposits. Unless banks are engaged in 'perfect competition' (a situation that almost never arises outside of economic textbooks), much of this cost-advantage ends up as extra profit for the banks.

It can be estimated that by delegating the bulk of money creation in the economy to private banks, the Central Bank of Iceland foregoes estimated annual revenue of close to ISK 20 bn.³

1.2.5 The government is forced to guarantee bank deposits

Although demand deposits are a convenient form of money from the perspective of businesses and members of the public, fundamentally they are simply a liability (or IOU) of the issuing bank. A demand deposit represents a bank's commitment to pay the deposit amount in cash, or to electronically transfer it to another beneficiary, when the owner so demands.

A bank's stock of cash and Central Bank reserves (both assets of the bank) is small compared to total deposits (the banks' liability). A rumour that a bank may be in difficulty can therefore cause customers to withdraw their deposits in panic (a bank run). A bank run forces the bank to sell assets quickly to fund payouts to depositors. Such a sudden increase in the supply of assets can lead to a fall in market prices, putting other banks into trouble, and the whole banking system may follow. Faced with the possibility of such a scenario, governments prefer to issue a state guarantee on deposits, promising to repay depositors if the bank is unable to do so. The hope is that this guarantee will calm depositors and halt bank runs.

Faced with a bank run in 2008, the government of Iceland declared that the domestic deposits in the local banks were fully guaranteed. By 2015 this declaration has not been formally revoked. However, it

³ See section 7.1.5

makes little difference whether the government explicitly provides a guarantee on deposits: when faced with a run on a major bank, the government would in all cases be forced to issue or reaffirm a state guarantee on deposits to avert a full-blown crisis.

As long as the bulk of the money supply is in fact deposits (liabilities of commercial banks), backed by risk-bearing assets, the state will have no option but to guarantee these deposits to avert crises.

1.2.6 The implied state guarantee on deposits encourages risky lending

Because savers can expect that the state will step in and guarantee their deposits, the deposits of all banks become 'risk-free' to savers. Savers will therefore deposit their money with the bank that offers the highest rate with little consideration of the risk taken by the bank. Bank managers must therefore compete for customers, based mostly on interest rates, but not on how solid the bank is. The implied state guarantee therefore encourages risky lending, which in turn increases the risk of more bank failures and crisis.

Landsbankinn began offering online savings accounts in the UK in 2006 offering some of the highest deposit interest rates in the UK. When the bank collapsed in 2008, it had attracted 300 thousand customers and deposits of GBP 4 billion.

1.2.7 A state guarantee on deposits gives unfair competitive advantage

Commercial banks that are able to create money at will, have an unfair competitive advantage against investment banks and other financial firms. A commercial bank has access to cheap funding in the form of state guaranteed deposits with low rates, while an investment bank has to borrow its funds at market rates, because its liabilities are not explicitly or implicitly guaranteed by the government.

1.2.8 Deposit Insurance is ineffective if a large bank fails in Iceland

Deposit Insurance may work as intended in a country with thousands of participating banks, where risk can be distributed effectively. In Iceland however, the three large banks share 90% of the market. Should any one of them fail, the insurance fund will not suffice to bail out all depositors. In such circumstances, the government will have to step in with taxpayers' money to guarantee deposits.

Deposit Insurance creates an illusion of security that reduces savers' incentives to consider whether the bank is taking dangerous risks

with its investments. Banks are thus motivated to compete less on trust or the safety of its investments and more on high rates. To be able to pay these higher rates the bank must take more risk, which makes banks more likely to fail.

1.3 Alternatives to the fractional reserve system

It is tempting to add yet more rules and regulation to the current system hoping to reduce the risks. This has indeed been the approach to date (Basel I was 30 pages, Basel II was 251 pages and now Basel III is 509 pages). But ever-more complicated regulation is costly for banks to implement, difficult to monitor and does not remove the fundamental flaws of the system. Rather than attempting to patch a system that has consistently failed, it may be worth considering some alternatives.

Various alternatives have been proposed: 100% Reserves, Narrow Banking, Limited Purpose Banking and Sovereign Money. Of these proposals, only Sovereign Money transfers the power to create money to the state and effectively separates the *creation power* from the *allocation power*, and provides a transition to debt free money. The Sovereign Money System is described in detail in Chapter 7.

1.3.1 The Sovereign Money System

The Sovereign Money System is based on proposals outlined in *Modernising Money* (2013) by Dyson, Jackson, which in turn builds on *Creating New Money* (2000) by Huber and Robertson and the work of Fischer in the 1930's.

In a Sovereign Money system, private banks do not create money. Instead this power is in the hands of the Central Bank, which is tasked with working in the interest of the economy and society as a whole. In the Sovereign Money system, all money, whether physical or electronic, is created by the Central Bank.

Although commercial banks will no longer create money, they will continue to administer payments services for customers and will make loans by acting as intermediaries between savers and borrowers.

The payments service will consist of Transaction Accounts held by individuals and businesses. The funds in Transaction Accounts will be electronic sovereign money created by the Central Bank. Transaction Accounts are risk free, as they are kept at the Central Bank, and interest-free as they are not available to the bank to invest.

The intermediary service will consist of Investment Accounts held by individuals and businesses. Funds can be transferred from a Transaction Account to an Investment Account. Funds in an Investment Account are invested by the bank and not available to the owner before the due date, or after a notice period has passed. The commitment period can range from 45 days to a few years. Banks can offer Investment Accounts with different risk profiles, maturity and interest rates, catering to different types of savers.

The Central Bank will be exclusively responsible for creating the money necessary to support economic growth. Instead of relying on interest rates to influence money creation by banks, the Central Bank can change the money supply directly. Decisions on money creation will be taken by a committee that is independent of government and transparent in its decision-making, as is the current monetary policy committee.

New money, created by the Central Bank, will be transferred to the government and put into circulation in the economy via increased government spending, by reduction in taxes, by repaying public debt or by paying a citizen dividend.

The Central Bank will also be able to create money for lending to banks for onward lending to businesses outside the financial sector.

1.3.2 Benefits of the Sovereign Money System

In a Sovereign Money System the amount of money in the economy is controlled directly by the Central Bank, preventing private banks from expanding it.

The pro-cyclical expansion of the money supply by private banks will be made impossible. Instead, the Central Bank will increase the money supply in proportion with the overall growth of the economy and to meet inflation targets.

Crucially, the power to *create* money is kept separate from the power to decide how that new money is *used*, thereby ensuring that conflicts of interest do not lead to too much (or too little) money being created, or money being created for private, rather than public, benefit.

The risk of sudden bank runs is greatly reduced. Deposits on Investment Accounts have maturities that are distributed over a longer period, allowing banks time to liquidate assets if needed. Deposits in Transaction Accounts are protected in a bank failure as they are kept at the Central Bank, on behalf of the customers, and are separate from the failing bank's own assets. A deposit guarantee scheme is therefore not necessary for Transaction Accounts.

Income from creating the money supply accrues to the state owned Central Bank, resulting in larger dividend to the state, and can be used for democratically decided purposes. Based on annual GDP growth of 2%, an inflation target of 2%, and an initial money stock of ISK 500 bn the annual income from sovereign money creation could be close to ISK 20 bn.

In addition, the state will get a one-time income of 300-400 bn ISK over a number of years during the transition to a Sovereign Money system. This happens as the Central Bank creates sovereign money to replace the old bank created money. The new sovereign money can be put into circulation by the state via: the purchase of government bonds, increase in government expenditure or reduction of taxes, by lending to banks, or a blend of those methods.

By using a state created money supply, instead of effectively 'renting' the money supply from private banks, the overall level of debt in the economy will be reduced. Demand for loans will be reduced which puts downward pressure on interest rates.

A Sovereign Money system dramatically reduces the risk involved in commercial banking. This could open the way to some reduction in regulatory burden in banking and reduction of overhead costs. It could also reduce the need for separation of investment and commercial banks thereby allowing for better economies of scale.

1.3.3 Transitioning to a Sovereign Money System

From day one, banks will not be able to create money, but it may take a number of years for the money they have created to be replaced with sovereign created money. This allows for a smooth transition to the new system and banks will have several years to adapt.

Upon transition, existing demand deposits are transferred from commercial banks into Transaction Accounts held at the Central Bank of Iceland (CBI). In return for assuming this liability on behalf of the commercial banks, the CBI would receive a claim of equal value to the deposits it takes over from each bank. These claims, termed the Conversion Liability, would amount to a total of ISK 450 bn and the banks would repay them to the CBI gradually over a number of years.

As commercial banks repay their Conversion Liability, the bank-created money leaves the money supply. The CBI therefore creates new Sovereign Money to compensate for this reduction. The bulk of this new money can be put into circulation by reduction of public debt but other previously mentioned means could also be considered in part. Public debt could therefore be reduced by up to 450 bn ISK in the process of transitioning from private commercial bank money to new

sovereign money. The CBI could also use the transition to reduce the money supply if needed.

1.4 Recommendations

Commercial banks in Iceland have created far more money than was needed for economic growth. This caused severe monetary problems including; inflation, currency depreciations, an asset bubble and a banking crisis. Past attempts at preventing these problems have not given enough attention to the money supply, the money creation process and how it could be brought under control.

The present fractional reserve system is unstable and encourages risk taking. Banks have an incentive to create money and central banks have failed to constrain them. Without reform, the Central Bank must proactively enforce credit controls; set limits to the growth rate of bank lending and set limits to lending to the financial sector. Such measures will not be popular with banks, but necessary since traditional instruments have failed.

It would be preferable to remove the root-cause of the problems and secure the money power with the state owned Central Bank. Furthermore, the power to create money should be separated from the power to allocate new money. This will effectively reduce the risk and instability of the monetary system, debts will be substantially reduced and the income from creating money will accrue to the state rather than banks.

Iceland, being a sovereign state with an independent currency, is free to reform its monetary system from the present unstable fractional reserves system and implement a much better monetary system. Such an initiative must however rest on further study of alternatives and a widespread consensus on the urgency for reform.

The debate on the money creation process in Iceland is just starting and will need time to run its course. The findings in this report will hopefully be part of that debate.

Meanwhile, the Sovereign Money Proposal seems to offer a very promising basis for reform. It is therefore recommended that a feasibility study of its potential implementation in Iceland will be conducted.

2 Monetary problems in Iceland

It is fair to say that Iceland's monetary history has been a turbulent one. Currency controls in the 1920s to the 1950s were followed by chronic inflation in the 1970s to the 1980s, with annual inflation reaching a high of 83% in 1983. In 1981 it was considered necessary to redenominate the krona with 100 units being replaced by 1 new unit.

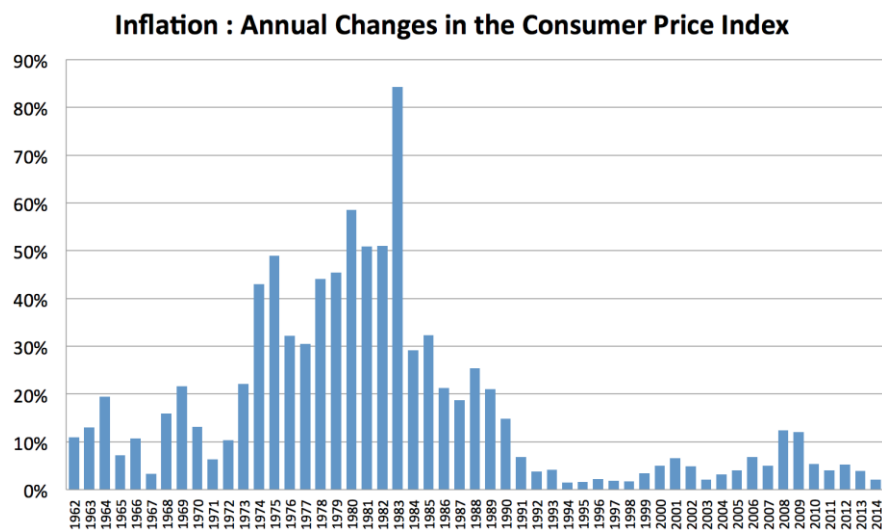


Fig 2.1. Source: Statistics Iceland

After the moderate 1990s came the booming 2000s that ended with a dramatic crash in 2008. Banks collapsed and the value of the ISK dropped by 50% in one year. Capital controls were introduced late 2008 and are still in force six years later.

The Central Bank of Iceland was established in 1961 with the aim to promote price stability. Five decades later, the ISK had lost 99.7% of its purchasing power.

In the following chapters we shall take a closer look at these serious monetary problems in an effort to determine what the main causal factors were.

Iceland's economy is an open one. Exports accounted for 57% of GDP in 2013. Imported goods account for close to half of private consumption, which means that the local price level is greatly affected by price changes in imported goods.

Iceland's exports have over the past decades diversified from consisting primarily of fish products to include aluminium, tourism and technology. Continued diversification offers hope for improved monetary stability in the future.

On the positive side, there is indication that many of Iceland's monetary problems may have been the result of a flawed system and by reforming the system, similar problems could be prevented from recurring in the future.

In Iceland, as elsewhere, new money is created and injected into the economy through the mechanism of fractional reserve banking. Critics have argued that inherent flaws in the fractional reserve system contribute to a range of monetary problems including; uncontrolled expansion of the money supply, asset price bubbles (especially in housing), and bank runs, growing debt and inequality, chronic inflation, economic instability, and loss of seigniorage income for the state.

We begin therefore by explaining the money creation mechanism in Iceland before we look more closely at how it has performed.

3 The money creation mechanism

A stable and adequate money supply is a fundamental requirement for a well-functioning economy. Excessive expansions/contractions of the money supply can lead to inflation/deflations of the price level as well as booms/busts in economic activity.

Until recently, the process of money creation has been widely misunderstood. Most economic textbooks explained money creation based on the “money multiplier model”, but as will be explained in Chapter 3.1 this is not what happens in reality.

According to the money multiplier model the Central Bank is in control of the total money supply. By creating a certain amount of base money and setting a reserve requirement that banks must abide by, the Central Bank is assumed to control the total money supply available to the economy.

However, the reality in Iceland and elsewhere is very different. Commercial banks create new money when they make loans and are not as constrained in their money creation as the multiplier model suggests. In reality, the Central Bank of Iceland (CBI) has very limited means to affect how much money is created by the commercial banks. Furthermore, as a rule, commercial banks have expanded the money supply much faster than the growth rate of the real economy, with much of the newly created money going into property and financial asset markets.

In the following sections, the money creation process will be detailed both for commercial banks and the CBI. In addition we will look at the incentives driving banks to create too much money. We also look at the CBI's tools to restrain money creation and why these tools have been largely ineffective.

3.1 How commercial banks create money

"The process by which banks create money is so simple that the mind is repelled." Kenneth Galbraith⁴

A commercial bank creates new bank deposits when it advances loans. These bank deposits are liabilities (IOUs) of the bank, which represent a promise to deliver cash on demand to the deposit owner, or to make an electronic payment to a third party on the owner's request. Deposits can therefore be used to make payments in the economy through debit cards and electronic fund transfers.

⁴ Galbraith K. (1975) *Money: Whence It Came, Where It Went*, Ch. III, p. 18

A bank does not need to acquire money from a saver before it can make a loan to a borrower. Through some simple double entry accounting, when a bank lends money, it increases both the quantity of money in the economy, as well as the quantity of debt. The Bank of England explains this process in the following way:

“Commercial banks create money, in the form of bank deposits, by making new loans. When a bank makes a loan, for example to someone taking out a mortgage to buy a house, it does not typically do so by giving them thousands of pounds worth of banknotes. Instead, it credits their bank account with a bank deposit of the size of the mortgage. At that moment, new money is created.”⁵

“Money creation in practice differs from some popular misconceptions - banks do not act simply as intermediaries, lending out deposits that savers place with them, and nor do they ‘multiply up’ Central Bank money to create new loans and deposits.”

...

“In the modern economy, most money takes the form of bank deposits. But how those bank deposits are created is often misunderstood: the principal way is through commercial banks making loans. Whenever a bank makes a loan, it simultaneously creates a matching deposit in the borrower’s bank account, thereby creating new money.

The reality of how money is created today differs from the description found in some economics textbooks:

- *Rather than banks receiving deposits when households save and then lending them out, bank lending creates deposits.*
- *In normal times, the Central Bank does not fix the amount of money in circulation, nor is Central Bank money ‘multiplied up’ into more loans and deposits.”⁶*

“In fact, when households choose to save more money in bank accounts, those deposits come simply at the expense of deposits that would have otherwise gone to companies in payment for goods and services. Saving does not by itself increase the deposits or ‘funds available’ for banks to lend. Indeed, viewing banks simply as intermediaries ignores the fact that, in reality in the modern economy, commercial banks are the creators of deposit money.

⁵ Bank of England (2014)

⁶ Bank of England (2014)

...[R]ather than banks lending out deposits that are placed with them, the act of lending creates deposits - the reverse of the sequence typically described in textbooks.”⁷

BOX 3.A

What central bankers have said about money creation

“The actual process of money creation takes place primarily in banks.” - Federal Reserve Bank of Chicago, 1961, p. 3;

“By far the largest role in creating broad money is played by the banking sector ... When banks make loans they create additional deposits for those that have borrowed.” - Bank of England (2007)

“Over time... Banknotes and commercial bank money became fully interchangeable payment media that customers could use according to their needs” - ECB, 2000.

“Contemporary monetary systems are based on the mutually reinforcing roles of Central Bank money and commercial bank monies.” - BIS, 2003.

“The commercial banks can also create money themselves... in the eurosystem, money is primarily created by the extension of credit...” - Bundesbank, 2009

Note that a bank can also create money in this way when they buy assets, such as government bonds, property or buildings. Just as with a loan, the acquired property is recorded as an asset on the bank's balance sheet and the bank increases the seller's deposit with the equivalent value, recorded as a liability of the bank.

Commercial banks also handle physical cash, accepting money for deposits and providing cash when customers withdraw money from deposits. When a customer deposits cash at the bank, the cash (notes and coin) becomes property of the bank and the customer's deposit is increased. The deposit signifies the bank's liability to the customer. When a customer withdraws cash at the bank or via ATM, his deposit is reduced by the same amount.

Commercial banks both create and delete electronic money (in the form of deposits). Deletion of money happens when a bank accepts a deposit as repayment of a loan, or when a bank sells an asset and accepts a deposit as payment. Through simple double entry bookkeeping, the liability (the deposit account) is debited and the asset (such as a loan account) is credited. Both sides of the balance sheet are reduced.

⁷ Bank of England (2014)

It should be noted that only commercial banks and savings institutions (deposit taking institutions) are able to create money in the form of deposits. Investment banks do not offer deposits to the public and are not able to create money. Investment banks can only lend pre-existing money (although this money normally takes the form of deposits that were previously created by banks).

Because commercial bank lending increases the balance of the borrower's bank account without decreasing the value of anyone else's account, the additional deposit increases the level of money in the economy. If banks increase the money supply more than is needed in the economy this can lead to rising prices of products (inflation) or rising asset prices (asset price inflation, and often bubbles).

Commercial banks in Iceland have created approximately ISK 486 bn⁸ or 91% of the money supply (M1). Notes and coins issued by the Central Bank of Iceland (CBI) account for only 9%.⁹ This situation is far from unique to Iceland; in most countries commercial banks create the bulk of the money supply.

BOX 3.B

What is money?

Definitions of "money" may vary, but for the purpose of this report we use the term to signify money that is accepted as payment in commerce and can be used to settle debts and taxes. These requirements are met by coin and notes created by the CBI and demand deposits that are created by commercial banks.

The total amount of notes, coin and demand deposits available in the economy is termed the money supply (M1).

Term deposits, savings accounts, bonds, shares and various liquid assets are sometimes called "near money". But as such assets are normally not accepted as payment for taxes or debts, and cannot usually be used to make payments in commerce, they are not money in the strict sense.

What gives money its value?

The value of money is fundamentally based on law as well as supply and demand for money. In Iceland, the law states that the ISK is valid payment for financial obligations. The CBI has monopoly on the creation of notes and coin, but the CBI has only indirect means for

⁸ Central Bank of Iceland, year end 2014.

⁹ See chapter 4.1 for a more detailed description of the money supply categories.

influencing how much deposit-money is created by commercial banks.

The gross demand for money is affected by various factors such as the size and growth rate of the real economy, and the financial sector. Demand for ISK is also affected by the fact that taxes can only be paid in ISK, thereby creating an underlying demand for ISK by taxpayers.

It is probable that most of the deterioration in the value of the ISK is the result of banks creating deposits faster than was needed by the economy i.e. the supply of ISK grew much faster than the demand for ISK.

Because commercial banks create the bulk of the money supply, their lending decisions influence the general price level and monetary stability. The CBI is charged with the task of maintaining price stability, but it creates only a fraction of the money supply directly and must rely on indirect methods for affecting how much money the banks create.

3.2 How the Central Bank of Iceland creates money

Unlike commercial banks, which deal with businesses and members of the general public, the Central Bank of Iceland (CBI) acts as banker only to commercial banks and the government.

3.2.1 Creation of notes and coin

The CBI has monopoly on issuing notes and coin. Coin is manufactured for the CBI by the Royal Mint, and notes by a specialist printer in the United Kingdom.

Banks may purchase new coin or notes from the CBI in return for central bank reserves or securities. Individuals and firms cannot buy notes and coin directly from the CBI, only from banks, in exchange for a reduction in the balance of their deposit account.

The CBI earns a profit from issuing new notes, as the cost of manufacturing notes is only a fraction of the face value, but the notes are swapped for interest-bearing assets (such as bonds) equal to the face value of the bonds. The total stock of notes and coins in circulation was close to ISK 44 billion (December 2014) or close to 9% of the total money supply (M1).

3.2.2 Creation of central bank reserves

An important function of the CBI is to be the 'banker to the banks'. This involves providing commercial banks with accounts for holding central bank reserves. These reserve accounts allow commercial

banks to make payments to each other by transferring reserves between their respective accounts at the CBI.

The CBI creates and lends reserves to banks, on demand. The interest rate charged by the CBI (the policy rate) affects the interest rate at which banks lend reserves to each other. Indirectly, it also affects the interest rates that they charge or pay to customers in general.

If the CBI wishes to inject new central bank reserves into the banking system (for example in response to increased demand for reserves from the commercial banks), one way for it to do so is to create new reserves to purchase bonds held by the banking sector.

Commercial banks held around ISK 31 billion in reserve accounts at the CBI (December 2014).

3.3 The Central Bank's role

In addition to issuing money and providing reserve accounts for banks, the CBI provides a number of bank accounts to the government, in which funds from taxation and borrowing are temporarily held, before being used for government spending or paying the interest on previous borrowing. Among the CBI's other duties is the setting of monetary policy (through the policy rate of interest), promoting price stability, promoting financial stability, maintaining foreign exchange reserves, and operating a domestic payment system and payments abroad.

3.3.1 Promote price stability

The CBI's main objective is stated in the Central Bank of Iceland law from 1986, and revised in 2001. [Unofficial translation]:

"The main objective of the Central Bank of Iceland is to promote price stability. With the consent of the Prime Minister, the Central Bank is authorized to declare a numerical target for the inflation rate.

*The Central Bank shall help promote the government's economic policy as long as such promotion is not inconsistent with its main objective stated in paragraph 1."*¹⁰

The CBI is currently committed to maintaining an inflation rate close to 2.5%.¹¹ To manage the rate of inflation in the economy

¹⁰Act on the Central Bank of Iceland no. 36/2001

¹¹ Central Bank of Iceland (2014b)

“[t]he Central Bank implements its monetary policy by managing money market interest rates, primarily through interest rate decisions for its collateral loan agreements with credit institutions, which then affect other interest rates. Yields in the money market also have a strong impact on currency flows and thereby on the exchange rate, and in the long run on domestic demand”.¹²

The Monetary Policy Committee (MPC) of the CBI sets the target interest rate (the ‘policy rate’).

Although price stability is certainly very important to a healthy economy, there is danger that a central bank that measures its performance by one single criterion may fail to react promptly to negative developments in other important criteria, such as the money supply, asset prices or the exchange rate.

3.3.2 Promote an efficient and stable financial system

The CBI law states that [unofficial translation];

“The Central Bank should perform tasks which are consistent with its role as a Central Bank, specifically maintaining foreign exchange reserves and promoting an efficient and stable financial system, including the domestic payments system and payments abroad.”¹³

The Financial Stability department at the CBI carries out studies and analysis of the risks that can undermine the stability of the financial system in Iceland. Its aim is to identify the weaknesses of the system that could lead to severe shocks.¹⁴ The department works closely with the Financial Supervisory Authority in Iceland (i. Fjármálaeftirlitið FME). The FME is concerned with the stability of individual financial institutions while the CBI oversees the stability of the system as a whole.

3.3.3 The Central Bank’s toolkit

To pursue the above objectives the CBI can use various interventions. It can change its policy rate, trade foreign currency, trade bonds, change reserve requirements, and provide emergency funding for illiquid banks.

¹² Central Bank of Iceland (2014c)

¹³ Act on the Central Bank of Iceland no. 36/1986 and no. 36/2001

¹⁴ Central Bank of Iceland (2014d)

3.4 The incentive for creating money

Money, whether it is physical cash or electronic deposits, is a utility that is not provided free of charge. Both the CBI and commercial banks reap considerable income from issuing money.

Commercial banks are able to fund their investments and lending by creating new deposits. Deposits are liabilities of the banks and can be used as money by businesses and the public. Although banks do pay customers interest on deposits, it is lower than the rate banks would normally pay when borrowing in the market. This lower rate, gives banks an incentive to use deposit as a source of funding.

Deposit owners accept low rates on their deposits for two reasons. First, because deposits are liquid and can be used as money, and second because deposits are perceived as risk free, based on the assumption that a deposit insurance fund, or the government, will save depositors should the bank fail.

Figuring out how much banks benefit from using deposits for funding, and how much of this finally remains with the banks, depends on various factors, for example, the level of competition between banks, and would involve more detailed in-depth research.

While banks have an incentive to create money, the costs of an overshooting money supply, in the form of inflation or bubbles, are borne by society in general. This separation of benefit and cost may explain why banks have not created an optimal amount of money for the economy.

3.4.1 The CBI's income from issuing notes and coin

In Iceland, the CBI is a part of the state and creates notes, coin and reserves. Notably, in some countries, such as the US, the central bank is not state owned, and the Treasury instead of the central bank issues coin. When accounting for income from creation of money, such differences can be quite important.

The economic literature seems to lack clear consensus on how to measure income from money creation for central banks. The term "seigniorage" has been used to mean different things by different texts. Central banks around the world add to the confusion by accounting for notes as liabilities. That made good sense when a bank note was indeed a promise to pay the bearer in gold or silver, but today a bank note is no longer a promise to pay the bearer anything but an identical note. Therefore it is misleading to account for newly issued notes as an increase in central bank liabilities. The CBI follows this convention

and therefore its accounts do not show any income earned at the time of issuing money.

Despite money creation being the CBI's main source of income, the CBI's accounts do not show this import number separately. An estimate of this income can however be found in a recent report on future alternative currencies for Iceland. The CBI estimates ¹⁵ that its income from creation of money in the period 1995-2010 averaged 0.45% of GDP. At current prices this would total ISK 102 bn or close to ISK 7 bn on average per year. This is a considerable amount and close to half of the CBI's net interest income in the year 2012.

At year-end 2014 there were ISK 44 bn of notes and coin in circulation compared to ISK 12 bn year-end 2007, or an increase of ISK 32 bn. According to the CBI the cost of issuing notes and coin during this period was close to ISK 1 bn. The CBI's income from issuing notes and coin was therefore ISK 31 bn¹⁶ or an annual average of ISK 4.4 bn in the seven-year period.

3.4.2 Interest income from notes and coin in circulation

The Central Bank's interest borne annual income, from the stock of money it has created, can be estimated roughly by applying the nominal risk-free interest rate (currently at 4.5%) to the ISK 44 bn stock of notes and coin in circulation, on which the CBI pays zero interest. By this method of estimation, the annual income from notes and coin in circulation is ISK 2 bn for the CBI.

3.4.3 Little interest income on stock of reserves

The CBI can create reserves and use them to buy financial assets from banks. The accounting convention for central banks is to show an increase in reserves as an increase in debt rather than income.

The CBI pays interest on the reserves that banks hold at the CBI, and therefore earns very little over time from its stock of reserves.

Central bank reserves were ISK 31 bn by year-end 2014.

3.4.4 The incentive for creating too much money

Banks benefit from creating money and those that hold money are on the paying end. The opportunity cost of holding cash at zero interest, or deposits that pay less than market rates is considerable. The state

¹⁵ Sérít SBI (2012) [Valkostir Íslands í gjaldmiðils-og gengismálum](#), page 491

¹⁶ Central Bank of Iceland (2013b)

also loses out, as it is not being compensated for the inescapable state guarantee on deposits.

In the current system private banks are able to profit from issuing money while the CBI foregoes financial gains of close to ISK 20 bn annually.

Commercial banks have a strong incentive to create more money as this provides them with cheap funding for making loans. As long as banks have the freedom to create money, and while they can find creditworthy borrowers, this incentive will drive them to create money with little regard to its effects on the overall economy.

3.5 Can the CBI restrain money creation?

Many take it for granted that the CBI is in control of the money supply. That by setting Capital Requirements, Reserve Requirements and Policy Rates it can control the money creation of commercial banks. This chapter takes a closer look at how effective these instruments are at controlling money creation.

3.5.1 Restraining lending via capital requirements

It is widely believed that the ratio of capital to assets can be used as a regulatory tool to control a bank's lending. The Basel Capital Accords stipulate that the ratio of a bank's capital to its (risk-weighted) assets must not fall below some pre-determined amount. For Basel I and II, this was 8%. For Basel III the ratio will be increased via additional capital buffers. In theory, under Basel II, if the ratio of a bank's capital to its risk-weighted assets falls below 8% the bank would be unable to increase its lending any further without increasing its equity.

In practice however, capital requirements do not fully constrain bank lending for various reasons.

First, profits that are retained increase shareholder equity. This higher equity allows a bank to further increase lending which may lead to yet more profit and shareholder capital. As long as a bank's lending is profitable this cycle of expansion continues.

Second, banks are free to raise additional capital through new share issues. During boom periods, banks' profits tend to be high, and this leads to a higher return on equity and thus an increase in the price of banks' shares. Consequently banks can efficiently increase their capital through this avenue during booms.

Third, banks can engage in a process known as 'securitization'. This allows banks to package assets (loans) on their balance sheet and sell them on to 'special purpose vehicles', receiving a payment in exchange.

This has the effect of ‘freeing up’ the capital, which was being held to cover potential losses on the loans. As a result more (new) loans can be made and the pace of lending (money creation) can increase.

Fourth, the Basel Accords allow banks to calculate their capital requirements using what is known as the ‘Internal Ratings Based Approach’. A bank that uses this approach can, given the consent of its local regulator, develop its own empirical models to calculate the amount of capital required to hold against its assets. Any bank using this approach could therefore theoretically hold less capital than would otherwise be required.

Finally, banks could, either fraudulently or mistakenly, overestimate their assets. Indeed, the Special Investigation Committee, set up to investigate the collapse of the Icelandic banking system, concluded that banks had overestimated capital ratios by not deducting market sensitive loans from their equity.

3.5.2 Restraining lending via reserve requirements

Central bank reserves are used by commercial banks in order to make payments between each other. The CBI has monopoly on creating reserves and sets the reserve ratio. According to the money multiplier model, the CBI is able to limit how much money is created by commercial banks, by limiting the quantity of reserves and setting the reserve ratio.

The money multiplier model, prevalent in mainstream economics textbooks, stipulates that the total amount of loans that commercial banks are allowed to extend is limited to a certain multiple of central bank reserves. This multiple is the reciprocal of the reserve ratio set by the central bank.

According to the money multiplier model, the CBI should therefore be able to limit the total amount of money in the Icelandic economy. However, there is strong evidence and growing consensus that reserves are not a limiting factor; that banks first make loans and then look for reserves later, and the central bank must always provide banks with the reserves they need.¹⁷

By not providing reserves upon request, a central bank would be inviting either a liquidity crisis, or at best see interest rates rise to unwanted levels.

¹⁷ As mentioned in the introduction and chapter 2, Holmes (1969), King (1994), Constâncio (2011) have expressed this view, and Moore’s (1988) research has provided compelling evidence that banks lend before acquiring reserves.

If the central bank refused to provide more reserves, then the bank needing reserves would be unable to make payments to other banks. It would therefore need to sell some of its assets to get the reserves it needs. While liquid assets may be sold quickly for their full value, selling illiquid assets quickly usually means accepting lower prices. Liquidity problems can therefore become solvency problem, and a solvency issue at one bank may cause a cascade of bankruptcies throughout the entire banking system. Accordingly, the CBI is unlikely to refuse any request for additional reserves; indeed doing so would go against its mandate to promote financial stability.

There are also other reasons why reserves may not constrain lending.

First, to the extent that payments are made between customers of the same bank, no extra reserves will be required. The more a banking system is dominated by a few large banks, as in Iceland, the greater the number of payments that can be made across the banks' own books, and the less banks will need central bank reserves to make payments to each other.

Second, if banks grow their lending at similar rates, and flows of deposits between banks are fairly balanced, then banks can increase their lending considerably while requiring very little additional reserves. As Keynes (1930) explained in his *Treatise on Money*:

*"It is evident that there is no limit to the amount of bank money which the banks can safely create **provided they move forward in step**. The words [in bold] are the clue to the behaviour of the system. Every movement forward by an individual bank weakens it, but every such movement by one of its neighbour banks strengthens it; so that if all move forward together, no one is weakened on balance. Thus the behaviour of each bank, though it cannot afford to move more than a step in advance of the others, will be governed by the average behaviour of the banks as a whole – to which average, however, it is able to contribute its quota small or large. Each Bank Chairman sitting in his parlour may regard himself as the passive instrument of outside forces over which he has no control; yet the 'outside forces' may be nothing but himself and his fellow-chairmen, and certainly not his depositors."*

3.5.3 Restraining lending by raising interest rates

A central bank is the bank for commercial banks. It provides commercial banks with deposit accounts where they can keep reserves and it also lends reserves to commercial banks when needed. A central bank decides the rates it offers to banks on deposits and loans. These rates are called policy rates, and they affect what rates banks are willing to offer to their customers.

When a central bank raises its policy rate banks will also raise the rates they offer to borrowers. In theory, higher rates should discourage people and companies from borrowing. Higher rates should therefore restrain lending and thus restrain expansion of the money supply. In reality, however, raising the policy rate can be ineffective at discouraging borrowers and lead to various unwanted side effects. Raising policy rates could increase demand for the local currency by foreign investors, which tends to raise the exchange rate, which leads to a reduction in prices of foreign goods, followed by a boom in imports and a growing trade deficit. Raising policy rates in order to curb lending may in effect increase to unsustainable levels the cost to households and businesses of servicing existing debts. It could be argued that these and various other side-effects may constrain central banks' room to use the policy rate so much that they are in fact not at liberty to use interest rates as a tool to restrain lending.

When expectations are high, and assets are going up in price due to monetary expansion, customers are willing to borrow at ever-higher interest rates in order to purchase assets that are expected to go up faster in value than the loans. Such 'irrational exuberance' may continue for some time before reality strikes.

Expectations, whether positive or negative, seem to be a stronger influence on lending and money creation than interest rates, and central banks have little control over expectations.

3.5.4 Restraining lending by credit controls

Considered mostly a taboo by central bankers since 1970, Credit Controls were an effective tool for preventing lending bubbles from growing out of proportions, and also for directing bank lending to the productive sectors of the economy rather than for speculation in the financial sector.

In a letter 31st January 1969 to the Committee of the London Clearing Bankers, the Deputy Governor of the Bank of England talks of credit restrictions and high priority categories:

"The credit restrictions introduced last May, and intensified last November, have always implied a reduction in lending by the banks to customers that do not fall within the high priority categories."

The Central Bank of Iceland did not venture to apply credit controls to halt the credit bubble. Such a bold move might have worked, but it would have been both unorthodox and no doubt very unpopular with the banks.

3.6 Do banks simply lend existing money?

Most mainstream economics textbooks teach the ‘money multiplier model’ but this model is now considered by various economists and central bankers to be a misleading description of how money is created and that the ‘credit creation model’ is a more realistic description of the process.

The multiplier model describes banks as lending out the money that savers have placed on deposits while holding back a small portion for reserves. In contrast, the credit creation model describes banks as creating money when they make loans – it is the lending that creates the deposits. These differences have important implications for monetary policy. Both models are described in the following sections.

3.6.1 The money multiplier model

The money multiplier model (MMM) describes a process where banks’ accept deposits of cash from customers, hold back a certain fraction of the money for reserves, and then lend out the remainder. As both the required reserves ratio and the amount of base money is assumed to be controlled by the CBI, it follows that the CBI should have ultimate control over the amount of money in the economy.

The money multiplier process is often explained with a story that begins with a customer depositing cash into his bank account, say ISK 1,000. Because the average customer keeps his money in the bank most of the time, the bank keeps only a small ‘reserve’ of say 10% (ISK 100) to meet occasional withdrawals, and lends out the remaining ISK 900 to a borrower. The borrower takes the ISK 900 and buys product. The seller deposits this money with another bank: the seller’s bank balance is updated to ISK 900, whilst the bank takes the ISK 900 cash as its own property. The money supply, measured by the total stock of deposits, has now increased by ISK 900. On the second cycle, the seller’s bank keeps 10% of this new deposit as reserve (ISK 90) and lends out the remaining ISK 810. This process of re-lending and keeping a fraction for reserve continues with ever decreasing amounts. In this example the increase in money supply tops out at ISK 10,000 (ISK 100/10%). The banks have multiplied the original ISK 1,000 of the initial ‘base’ money (cash) tenfold.

The money multiplier model of banking implies three things:

1. Banks have to wait until someone puts money (usually assumed to be in the form of cash) into a bank before they can make loans.
2. The central bank has ultimate control over the total amount of money in the economy. It can control the amount of money by

changing either the reserve ratio or the amount of 'base money'.

3. The money supply cannot grow out of control, unless the central bank allows it to.

In conclusion, the money multiplier theory sees the causality in the money creation process occurring in the following way:

- The central bank sets the reserve ratio, creates base money and injects it into the economy.
- Banks lend out most of the money deposited with them and keep a fraction 'in reserve'.
- The loans are spent and the money circulates, before it is re-deposited into another bank. The bank uses this new (smaller) deposit to make a further (smaller) loan, again keeping a fraction of the deposit 'in reserve'.
- The process continues until the amounts being re-lent are miniscule. The money supply is now a multiple of the base money (with the multiple being determined by the reserve ratio).

In 1984 Charles Goodhart, who became a member of the Monetary Policy Committee in England and chief advisor to the Bank of England, described the money multiplier model used in economics textbooks as

"...such an incomplete way of describing the process of the determination of the stock of money that it amounts to misinstruction".¹⁸

Yet, despite the fact that many economists and central bankers have long known this model to be a fallacy, it is still taught to students today as factual description of how the monetary system operates.

An empirical study by Werner¹⁹ concludes that the money multiplier theory is wrong and banks individually create money out of nothing.

This is confirmed in the 2014 Bank of England Quarterly Bulletin the popular money multiplier approach is characterized as inaccurate description of reality and a misconception:

"Another common misconception is that the central bank determines the quantity of loans and deposits in the economy by controlling the quantity of central bank money — the so-called 'money multiplier' approach. In that view, central banks implement monetary policy by choosing a quantity of reserves. And, because

¹⁸ Goodhart (1984)

¹⁹ Werner R. A. (2014a)

there is assumed to be a constant ratio of broad money [M3] to base money, these reserves are then ‘multiplied up’ to a much greater change in bank loans and deposits. For the theory to hold, the amount of reserves must be a binding constraint on lending, and the central bank must directly determine the amount of reserves. While the money multiplier theory can be a useful way of introducing money and banking in economic textbooks, it is not an accurate description of how money is created in reality.”²⁰

3.6.2 The credit creation model

The credit creation model states that, rather than lending out money that banks acquired from customers, banks actually create new money when they lend. When banks lend, they simply create a deposit in the name of the borrower equivalent to the borrowed amount. This new deposit can be used to make payments and is an increase in the money supply.

If a bank needs central bank reserves to settle any payments to other banks that arise as a result of its lending, it will be able to borrow them either from the CBI or from other banks.

As Alan Holmes, then Senior Vice President of the Federal Reserve Bank of New York put it in 1969:

“In the real world, banks extend credit, creating deposits in the process, and look for the reserves later.”²¹

Speaking on a panel in a conference in Toronto in April 2014, Lord Adair Turner, head of the Financial Services Authority 2008-2013, describes the money multiplier model as “mythological” and explains how banks create new money when they make loans:

“If you pick up most undergraduate textbooks...and you see how they describe the role of the banking system, they make two mistakes. First of all they describe a system which takes money from savers, and lends it to borrowers, failing to realise that the banking system creates credit, money and purchasing power ab initio, de novo, and with an important role therefore within the economy.

But also, again and again, [the textbooks] say “Well what banks do is they take deposits from households and they lend money to businesses, making the capital allocation process between alternative capital investments.” As a description of what modern

²⁰ Bank of England Quarterly Bulletin (2014)

²¹ Holmes (1969), p. 73

*advanced economy banking systems do, this is completely mythological."*²²

Also in a 2011 speech, Vítor Constâncio, Vice-President of the European Central Bank, explained that:

*"It is argued by some that financial institutions would be free to instantly transform their loans [of reserves] from the central bank into credit to the non-financial sector. This fits into the old theoretical view about the credit multiplier according to which the sequence of money creation goes from the primary liquidity created by central banks to total money supply created by banks via their credit decisions. In reality the sequence works more in the opposite direction with banks taking first their credit decisions and then looking for the necessary funding and reserves of central bank money."*²³ [Our addition in square brackets]

In his 1988 book *Horizontalists and Verticalists* Basil Moore also presents compelling evidence that banks lend before acquiring the necessary reserves:

*"The evidence presented strongly suggests that unidirectional causality runs from bank lending to each of the four monetary aggregates. Each monetary aggregate has been shown in turn to cause the monetary base unidirectionally."*²⁴

In conclusion, the credit creation model sees causality in the banking system occurring in the following way:

- When banks lend they create new deposits and thereby new money.
- Lending may increase a bank's demand for reserves in order to settle payments to other banks.
- The central bank must provide reserves when a bank needs them.
- While money is created when banks lend money, money is deleted when bank loans are repaid.

The fundamental implication of the credit creation theory is that commercial banks, rather than the central bank, determine the money supply. The central bank is obliged to support the lending decisions of banks by providing sufficient reserves to ensure that all payments are

²² www.positivemoney.org/2014/04/former-bank-regulator-adair-turner-says-economics-textbooks-teach-mythological-story-banks-full-transcript/

²³ Constâncio (2011)

²⁴ Moore (1988)

settled at the end of the day. This is the opposite of the money multiplier theory, which implies that the central bank controls the money supply.

4 The expanding money supply

In this chapter the history of the expanding money supply in Iceland is reviewed. The ISK has lost 99.7% of its purchasing power since the foundation of the CBI in 1961. This dramatic loss of value is primarily the result of Icelandic banks having expanded the money supply far beyond what was needed for a growing economy.

Such overproduction of money is however, to be expected in a system where commercial banks have a strong incentive to create ever more money and the CBI is unable to restrain their money creation.

4.1 Measures of money

Although this report generally uses the term money to mean cash and demand deposits that can be used for paying debts and taxes, other wider definitions of money are frequently used. Broad money is a term that is used to encompass bank deposits of varying liquidity. The following is a list of such money types, by decreasing level of liquidity:

- Notes and Coin in circulation
- Demand Deposits (sight deposits or current account deposits)
- General Savings Deposits
- Time Deposits (or savings accounts accessible after 3-24 months)

Since a large part of Broad Money is not available for withdrawal on demand, it can be useful to look at the subcategories of Broad Money when looking at trends in the money supply. Broad Money is referred to as M3 and can be broken down into the following subcategories:

- M0 Base Money = Central Bank Reserves + Notes and Coin in Circulation
- M1 Money Supply = Notes and Coin in Circulation + Demand Deposits
- M2: M1 + General Savings Deposits
- M3 Broad Money = M2 + Time Deposits

The CBI creates the Base Money (M0). At year end 2014 base money equalled ISK 81 bn.

M1, the money supply, can be thought of as the “on demand”, or cash equivalent portion of money. This type of money can be used to pay for everyday items and to settle debts and taxes. As can be seen in figure 4.1, around 485 bn ISK are categorized as M1.

Since many general savings accounts in Iceland can be accessed instantly one could argue that M2 could also be used as a measure of

money available in the economy “on demand”. M2 is close to being twice the amount of M1.

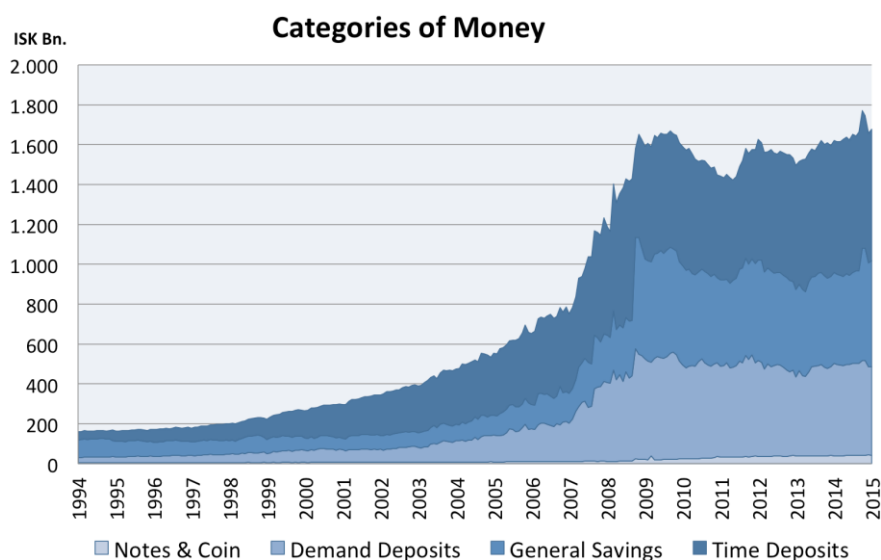


Fig. 4.1, *Broad money*, Source: Central Bank of Iceland

4.2 Deposits increased by 19-fold in 14 years

In the fourteen years from 1994-2008 broad money increased by 900%. While the nominal GDP of Iceland roughly tripled in these fourteen years, broad money increased tenfold.

		Money Categories	Increase '94-'08	% of M3 in '94	% of M3 in '08
M3	M2	M1			
		Notes & Coin	6 x	2.1%	1.3%
		Demand Deposits	19 x	17%	32%
		Savings Accounts	6 x	55%	35%
		Time Deposits	12 x	27%	31%

Table 4.1 Data: Central Bank of Iceland

Although all categories within broad money contributed to its tenfold increase, two categories stand out: Demand Deposits and Time Deposits, increasing nineteen- and twelvefold respectively.

In an attempt to understand the reason for the rapid multiplication of the money supply in Iceland, and its effects on the economy, the

following chapters look at developments in the financial markets in Iceland in the period of 2003-2008, a period of boom and bust of the Icelandic banking system.

4.3 2001 changes in monetary policy

Up until 2001 the CBI's monetary policy was based on mainly fixed exchange rates. Since 1990 the exchange rate of the ISK had been allowed to fluctuate within a certain bands; first by 2.25%, then by 6% in 1995 by 9% in early 2000. In 2001 the exchange rate bands on the ISK were abolished.

In 2000, the CBI's legally mandated goals of maintaining "a suitable money supply" and the "full productivity of the economy" were abandoned for the single objective of promoting price stability.

The basis for the current Central Bank Act in Iceland dates from 1986²⁵ when the role of the CBI was defined in the following way: [unofficial translation, our emphasis in bold]

"3. Article. *The Central Bank is responsible for:*

Issuing bank notes, coins and bills, and making sure that the money supply and the supply of credit is suitable so that the price level can remain stable and the production possibility of the economy can be reached in an efficient manner

- *Preserving and strengthening the foreign exchange reserves in order to ensure free trade with other economies and the financial security of the nation as it relates to other economies. The foreign exchange reserves should be preserved, as far as possible, in safe and liquid securities or deposits and foreign currency, which can be used for payment anywhere.*
- *Buying and selling foreign currency and supervising exchange rate matters and foreign exchange transactions*
- *Advising the government on all matters pertaining to foreign exchange and monetary issues*
- *Carrying out the banking transactions of the Treasury*
- *Being the deposit institutions bank and fostering a stable and healthy financial market."*

²⁵ Act on the Central Bank of Iceland no. 36/1986

In spring 2001 Act number 36/1986 regarding the CBI was revised. The third article of the act, which defines the role of the CBI, now reads [unofficial translation]:

“The main objective of the Central Bank of Iceland is to promote price stability. With the consent of the Prime Minister, the Central Bank is authorized to declare a numerical target for the inflation rate.

The Central Bank shall help promote the government’s economic policy as long as such promotion is not inconsistent with its main objective stated in paragraph 1.”²⁶

With the revised Central Bank Act, the CBI was longer required by law to focus on exchange rate stability or a suitable money supply as its main objectives. The CBI was however to watch the exchange rate developments closely and use open market operations - buying and selling foreign currency - if necessary, to promote price stability.²⁷

In the CBI’s view, the monetary policy was thus only able to reach one macroeconomic goal, price stability, as inflation was in the long run “first and foremost a monetary phenomenon”.²⁸

The changes in monetary policy made in 2001, put the main focus of monetary policy on controlling inflation by setting interest rates, but dismissed direct control of the money supply and exchange rate. This change may have been in line with what many central banks were doing at the time but with hindsight, it was not safe to abandon efforts to control the money supply.

4.3.1 Influencing demand and lending

After the policy change in 2001 the CBI has mainly used interest rates in the financial markets to hit its inflation target. To affect market rates, the CBI offers to both borrow and lend reserves to commercial banks on a short-term basis. Interest rates offered by the CBI have an effect on short-term interest rates in the financial markets. Through this, the CBI’s monetary policy affects the borrowing, spending and savings decisions of firms and households.

The CBI’s policy rate affects price levels via a complex interaction of:

- Market interest rates
- Equity prices

²⁶ Act on the Central Bank of Iceland no. 36/2001

²⁷ Petursson (2001)

²⁸ Petursson (2001)

- Money supply and bank lending
- Expectations and credibility
- Exchange rate of domestic currency

These factors affect domestic demand, imports and exports. Domestic demand, imports and exports in turn affect total demand and thus the production gap, which affects inflation. The exchange rate also affects domestic inflation, as roughly half of consumer goods in Iceland are imported.

An increase in the CBI's interest rate (the policy rate) is supposed to not only reduce borrowers' demand for loans but also the willingness of banks to lend money. The reason why higher interest reduces banks' willingness to lend is based on the premise that raising interest rates reduces the wealth of individuals in total as well as cash flow and market value of firms. Higher interest rates therefore increase risk of borrowers defaulting on loan repayments. A risk-averse bank is therefore expected to lend less when rates become higher.

In reality, the increased policy rates have not been proven as very effective at reducing bank lending in Iceland. In the years leading up to the crisis, both supply and demand for loans remained strong despite rising interest rates and the money supply continued to expand.

4.4 The money supply and inflation

For three decades, from 1961-1990, the correlation between growth of the money supply and inflation was remarkably strong (See Fig 4.2). Inflation was a serious problem, topping 83% in 1983, yet there was very little discussion of the need to restrain money creation to combat inflation. Instead, inflation was attributed to frequent wage increases, devaluations of the ISK and the government's lack of fiscal discipline. Obviously, such factors can be inflationary, but excessive increases in money supply, ranging from 20-80% per annum, must be considered as a likely cause of inflation in the period. It may also be that the frequent wage increases were often a response to monetary inflation rather than a cause.

Post 1993, the strong correlation between expanding money supply and inflation disappeared in Iceland, as it had indeed done in many other countries a decade earlier. The cause of this was not well understood at the time.

Post 1993, money supply continued to grow much faster than the GDP. It grew by 40% per annum from 2003 to 2008. Yet, the average year-on-year inflation during this period was 'merely' 5.5%. What

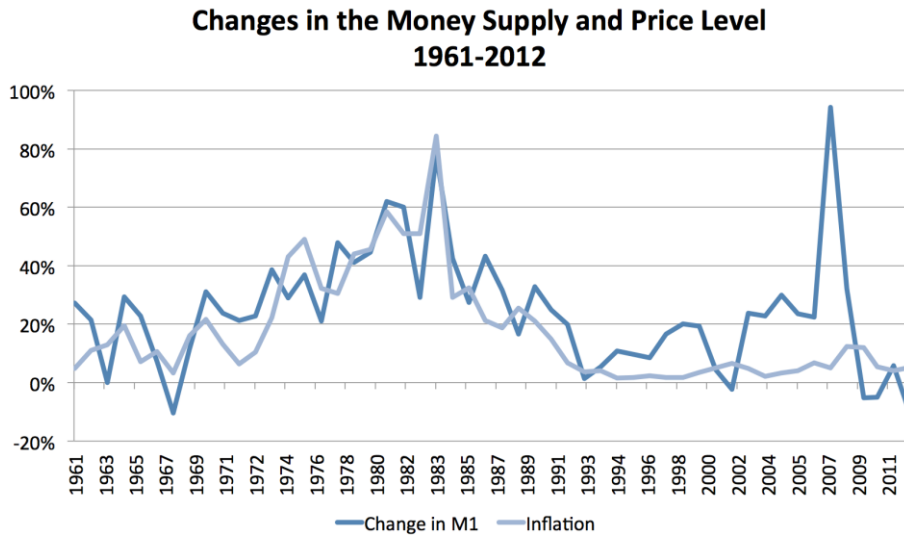


Fig 4.2 Source: Central Bank of Iceland, Statistics Iceland, Datamarket, author's calculations

happened to all the money? Why did it not cause more inflation? These questions are addressed in the following section.

4.4.1 Credit creation and expanding financial sector

In 1994 Iceland became member of the European Economic Area (EEA) and adopted its laws and directives for banking and finance. This EEA's regulatory framework introduced a sudden liberalization of Iceland's financial sector. Banks and capital markets had remained very small in relation to the overall Icelandic economy, but from now on these sectors began to grow. Banks grew larger and they began to provide loans for investing in financial assets.

By April 2008, loans to investment-related companies accounted for 46% of the loan portfolios of the three largest banks.²⁹

²⁹ Special Investigation Commission Report, ch. 15.5.3

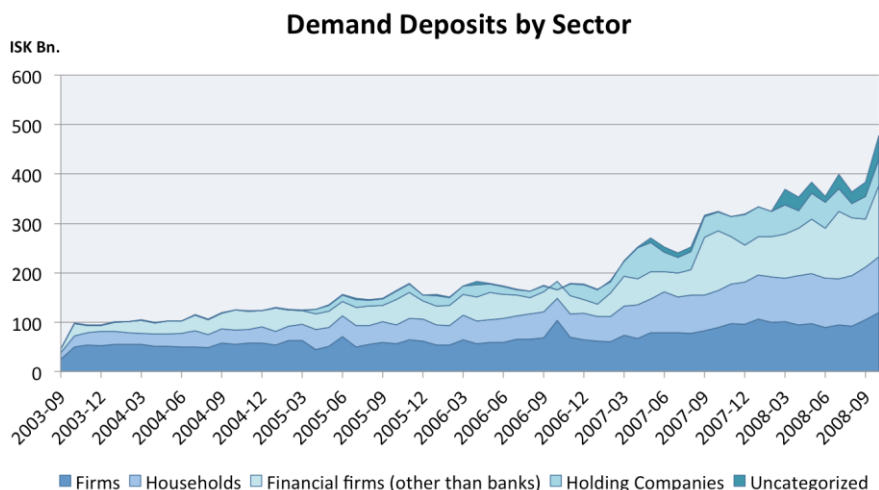


Fig. 4.3 Source: Central Bank of Iceland

Fig 4.3 shows how the money supply (Demand Deposits) by sector. All sectors grew faster after 2006, but deposits in the financial sector (Financial firms other than banks and holding companies) grew fastest.

Werner (1997, 2005, 2012)³⁰ has shown that an expanding financial sector can account for the break in the correlation between increase in money supply and inflation. In his Quantity Theory of Credit Werner (1997) showed that nominal GDP growth is a function of bank credit creation for GDP transactions (i.e. excluding all asset transactions). Likewise, asset price movements are determined by bank credit creation for asset transactions.

The financial sector in Iceland began to grow after 1994 and the growth pace became very fast after 2006. It seems plausible that a large portion of the quickly expanding money supply found its way into the financial market rather than the real economy, and thus inflation remained at relatively low levels despite the quickly expanding money supply.

While an expansion in the financial sector is able to absorb a portion of the money supply thereby reducing the inflationary effect of expanding money supply, a contraction in the financial sector can free

³⁰ Richard A. Werner (2012). Towards a New Research Programme on 'Banking and the Economy' –Implications of the Quantity Theory of Credit for the Prevention and Resolution of Banking and Debt Crises, *International Review of Financial Analysis*, 25, 94-105

up and direct a large portion of the money supply towards the real economy causing inflation. The money may also cause a sudden rise in demand for foreign currency and a drop in the exchange rate.

Although the financial sector can for a time mop up excessive expansion of the money supply, the tide can quickly turn with grave consequences for the real economy. A central bank that focuses on price stability in the real economy, while ignoring an expanding money supply and asset inflation, may therefore be inviting trouble further down the road.

4.4.2 The exchange rate and the price level

During 2002-2008 the ISK appreciated by 23% (Fig. 4.4). This was a side effect of rising policy rates, an effort by the CBI to curb the lending boom in Iceland. The high interest rates encouraged growing demand for ISK from abroad, which led to appreciation of the ISK. This in turn reduced the price of imported goods and increased consumption, which increased the trade deficit. While causing negative side effects, the higher policy rates did little to stop the domestic lending boom.

In Iceland, imports of goods and services amount to roughly half of GDP. Imported goods constitute a large portion of the consumption basket in Iceland. Therefore, a strengthening of the ISK reduces measured inflation.³¹

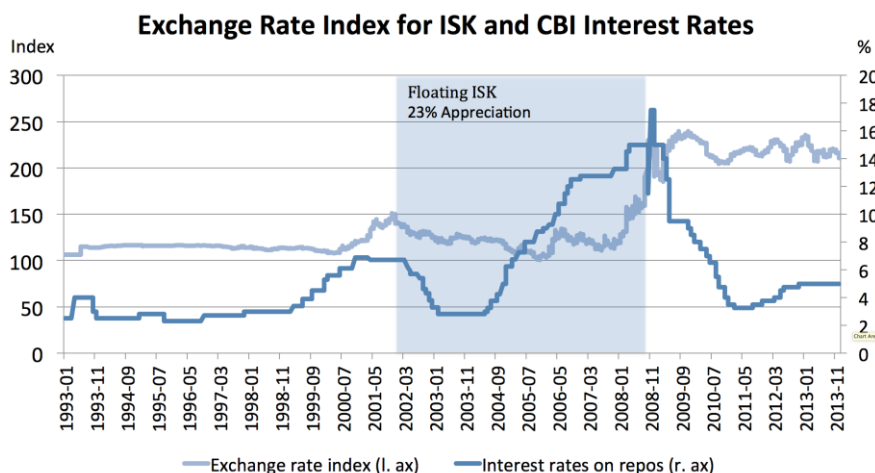


Fig. 4.4 Source: Central Bank of Iceland

³¹ Estimates show that a 1% weakening of the ISK leads to 0.4% increase in inflation - Petursson (2008)

To quote the CBI on the effects of policy rate on the exchange rate:

*"If interest rates on domestic securities are higher than similar foreign securities it may be beneficial to investors to own domestic securities. This is, among other things, contingent on a stable exchange rate. This leads to an increased inflow of capital to the economy, thus increasing the demand for ISK. Under normal circumstances, an increase in the interest rate thus leads to an appreciation of the ISK, which in turn reduces the price of imported products, which, other things being equal, directly reduces the inflation rate."*³²

High policy rates had propped up the currency and helped to reduce inflation for a few years³³ but in the long run the consequences of excessive money creation could not be escaped. Between October 2007 and October 2009 the ISK depreciated by 50%, which consequently fed into the inflation rate; a year-on-year rate of around 12% in 2008 and 2009.

4.4.3 Banks expanded the money supply by 40% annually

We will now take a closer look at the quick expansion of money that began after 1999 and culminated with the crash in 2008 while considering the CBI's failed efforts to curb the expansion.

In 2002 two of Iceland's largest banks were privatised. In the spring of 2003 the newly privatized banks commenced to expand the money supply at accelerating pace. Between spring 2003 and fall 2008 the money supply increased seven-fold, an average increase of around 40% per year.

³² Central Bank of Iceland (2014b)

³³ See, for example, Baldursson & Portes' (2013) discussion on the carry trade in Iceland in the mid to late 2000's.

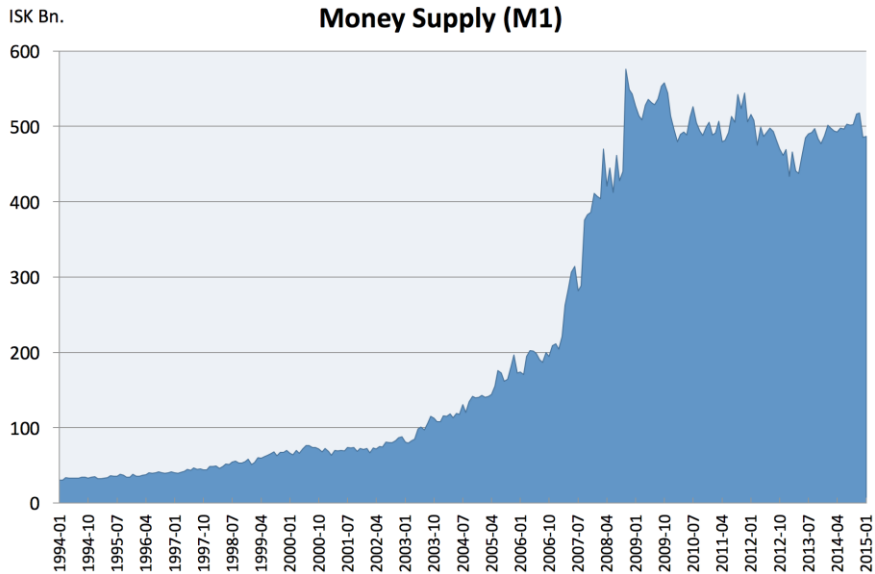


Fig. 4.5 Source: Central Bank of Iceland

The CBI tried to slow down the banks' money creation by raising interest rates from 5% to 18%. (See Fig. 4.6). Despite these dramatic increases in policy rates by the CBI, the commercial banks proceeded to expand the money supply until halted by the crash of 2008.

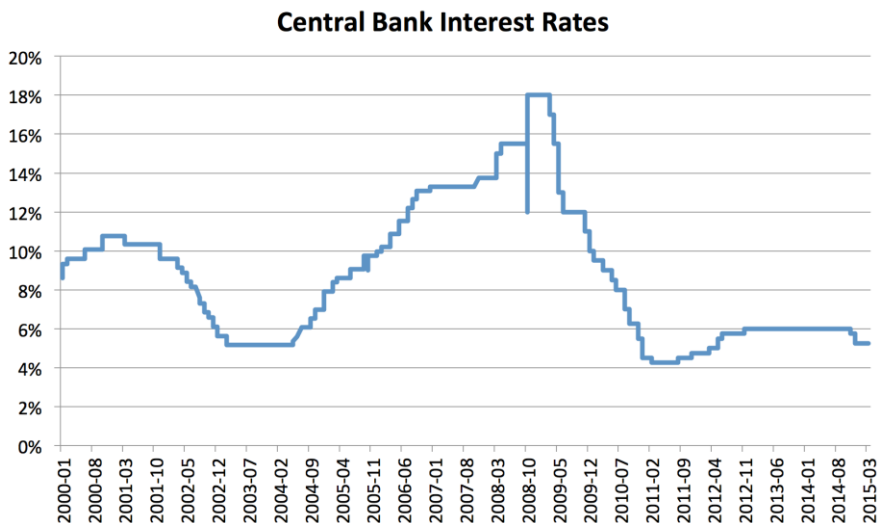


Fig. 4.6 Source: Central Bank of Iceland

As early as 2000, the CBI warned that rapid growth in lending could lead to crisis: [Our emphasis]

*“Given how costly financial crises may prove, preventive action is important. This needs to be based on signals, which suggest the presence of risk in good time... The most important macroeconomic indicators, which deserve to be monitored, are the following: Large growth in lending. **Very rapid growth has often preceded a serious financial crisis.** There is a risk that rapid growth will be accompanied by a deterioration in the quality of credit institutions’ portfolios.”³⁴*

In 2006, by which time the Icelandic banks had begun to capture the attention of foreign analysts, the CBI wrote in its Financial Stability Report: [Our emphasis]

*“Total debt of households, businesses and the aggregate economy rose at a record pace in 2005. So, in fact, did the value of assets. Much of the increase in corporate and national debt is explained by investment in foreign equities and foreign lending by the banking sector. Nonetheless, Iceland’s net external debt soared during the year. International financial conditions have been exceptionally favourable in recent years, enabling domestic financial institutions to maintain brisk lending growth for longer than otherwise. The Central Bank of Iceland has often pointed to the risk that deterioration in financial conditions may coincide with the inevitable adjustment of the economy. ... **growth in domestic lending is far in excess of a level compatible with stability.** Although this lending meets credit quality criteria, growth on such a scale heightens the risk of later impairment. Lending growth has remained buoyant so far in 2006 and clear signs of an improvement have yet to be seen.”³⁵*

It is clear that CBI’s warnings did little to curb the expansion. The commercial banks continued to expand the money supply at growing pace.

4.5 What enabled expansion of money in the 2000s

This chapter reviews the rapid expansion of the money supply in the 2000s and considers which model fits the facts better: the money multiplier model or the credit creation model.

The money multiplier model implies that the CBI is in control of the money supply by controlling the amount of base money in the system and setting the reserve requirement. If correct, this would suggest that the seven-fold increase of the money supply in the 2000s could

³⁴ Central Bank of Iceland (2000)

³⁵ Central Bank of Iceland (2006)

not have happened without the CBI either causing or allowing it to happen.

On the other hand, the credit creation model implies that the CBI is not in control of the money supply. Commercial banks can create money by lending and the CBI has to provide reserves when needed.

4.5.1 The CBI Reduces the Reserve Requirement and Increases Base Money

The CBI reduced the reserve ratio for deposit institutions in early 2003 and then again in December 2003. For savings deposits tied in accounts for two years or more, the ratio fell from 1.5% to 1%, and then to 0% in December 2003. For other deposits the ratio fell from 4% to 3%, and then finally to 2%.^{36,37} The CBI stated that this reduction was made to harmonize the regulatory environment for financial institutions in Iceland with the EU.

According to the money multiplier model (MMM), halving the reserve requirement should have enabled a doubling of the money supply. Indeed, the money supply doubled between 2003 and 2007 (Fig. 4.7) which seems to validate the money multiplier model. However, critics of the MMM would point out that reserve requirement do not act as a limit to money creation by banks, so the change in the reserve ratio was unlikely to be the causative factor behind the increase in the money supply.

Another doubling of broad money occurred between mid-year 2007 and until the banks collapsed in the fall of 2008. This time, there was no change in the money multiplier. The MMM would explain that there was an increase in CBI reserves, and this enabled banks to create more money. Critics of the MMM would reply by pointing out that banks first make loans and then request reserves, and the CBI must comply to avoid creating a liquidity shortage and potential payments crisis between the banks. Therefore lending came first, then the reserves.

³⁶ Central Bank of Iceland (2014g)

³⁷ Regulation on reserve requirements (Ice: Reglur um bindiskyldu), no. 906/2003

Base Money (M0) and Money Supply (M1)

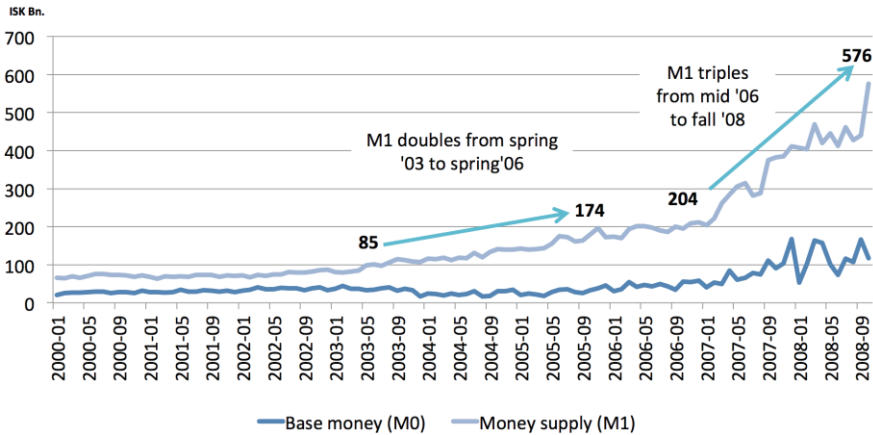


Fig. 4.7 Source: Central Bank of Iceland

4.5.2 The reserve requirement did not restrict money creation

From mid-year 2003 the reserve requirement was 2% and it was not until spring 2007 that base money started to increase. However, the banks were able to increase the money supply threefold in just two years, from mid-2006 to mid-2008.

In the two years running up to the crash, the CBI had to provide liquidity (by creating and lending central bank reserves) to Icelandic banks. As the CBI describes in its 2009 Financial Stability Report:

*"Financial institutions' demand for Central Bank collateral loan facilities surged in 2008, and until the banking system collapsed that October, the Central Bank was their chief source of liquidity. In 2007 and 2008, the Central Bank amended its Rules on Central Bank Facilities for Financial Institutions so as to facilitate access to liquidity, as the liquidity shortage had begun to cause problems in payment systems, among other things."*³⁸

In less drastic times, excessive demand for reserves may push interest rates to undesirable levels. To prevent this, a central bank will inject reserves into the system.

Indeed, the CBI's Monetary Bulletin in 2000 mentions:

"On first impression it may appear rather risky to allow the total amount of Central Bank facilities to be determined by bids from

³⁸ Central Bank of Iceland (2009)

credit institutions, but it should be remembered that the Bank attempts to manage short-term yields rather than money stock, with the aim of exerting an impact on other interest rates, currency movements, exchange rate and demand in the economy. Its ultimate goal is price stability.”

4.5.2.1 Banks grew in tandem reducing their need for reserves

If the banks increase their lending at a similar rate, they may need very little reserves for the expansion. First of all, when a borrower at Bank A uses his loan to pay another customer of the same bank, then Bank A will need no extra reserves. On the other hand, if the borrower at Bank A uses the money to pay a customer of Bank B, then there will be a flow of reserves from Bank A to B.

Considering the large number of bank customers borrowing and transferring funds between banks, the flows of reserves between banks are likely to be great in both directions. If banks A and B happen to grow their lending at similar rates, then the flow of reserves between them will more or less cancel each other out. Banks that grow in step with each other can therefore expand whilst requiring only a minimal increase in reserves.

As can be seen in Fig. 4.8 the assets of the Icelandic banks grew more or less in tandem throughout their expansion period, which reduced their need for reserves.

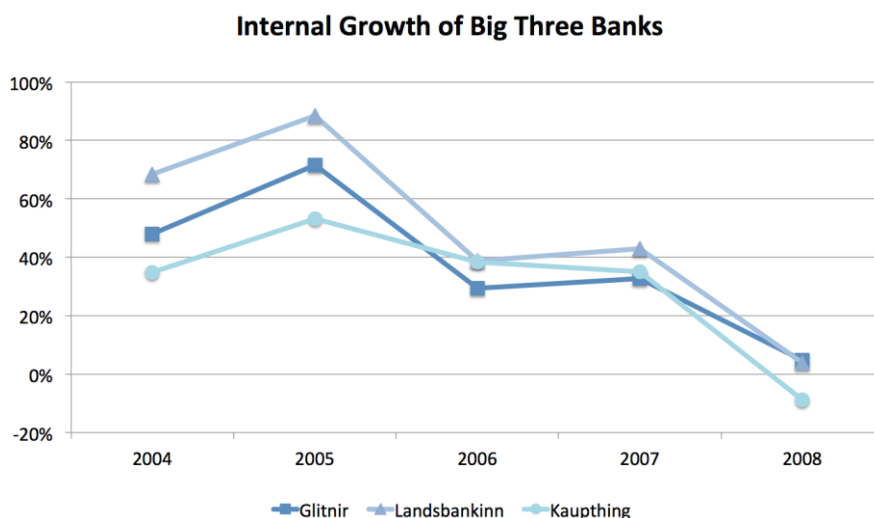


Fig. 4.8 Source: Special Investigation Committee

4.5.3 Equity requirements did not restrict money creation

Equity requirements did not restrict the Icelandic banks from extending loans. Profits were strong and equity grew quickly thereby making ever more lending possible. As can be seen in Fig 4.9 the profits of the three big banks increased dramatically in the years before the financial crisis. Their combined profits (right axis) rose from just under ISK 11 bn in 2002 to roughly ISK 140 bn in 2007.

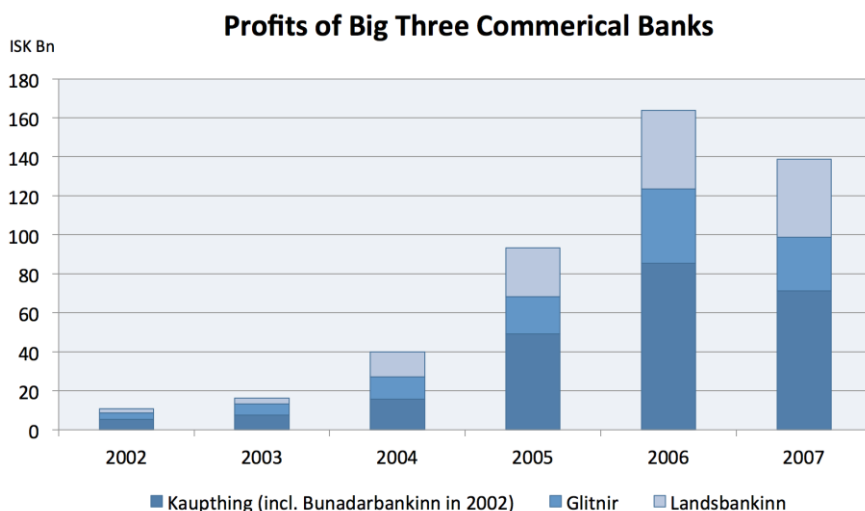


Fig. 4.9 Source: Central Bank of Iceland

In the period 2002 to 2007 the equity of the three big banks' increased by a factor of ten; from ISK 70 bn to ISK 695 bn (Fig 4.10). Given that the equity requirements for the banks remained unchanged throughout this period it is clear that the banks' room for lending and consequent money creation grew ten-fold in these five years. Indeed the combined assets of the three big banks went from roughly ISK 1,000 bn to ISK 10,000 bn in the five-year period.

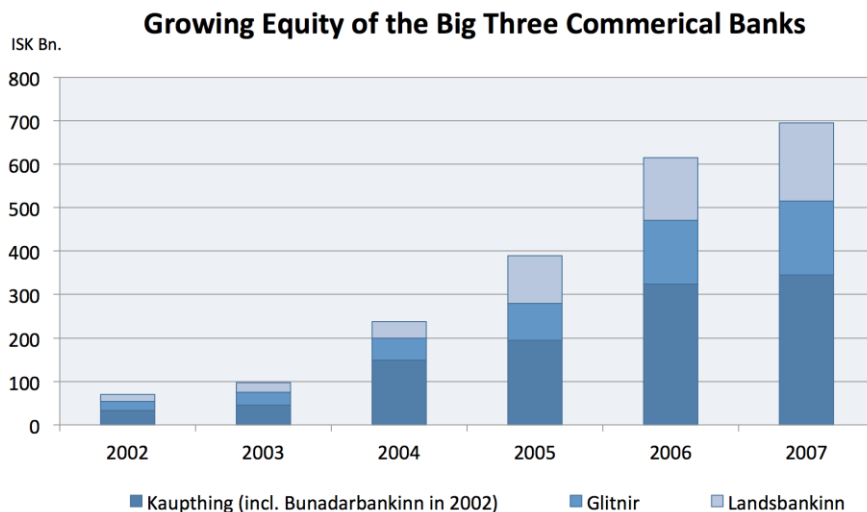


Fig. 4.10 Source: Central Bank of Iceland

4.5.4 The CBI's higher interest rates did not reduce money creation

In 2006 and 2007 the year-on-year inflation rate in Iceland was 6.8% and 5.0% respectively. In the first 10 months of 2008 the average year-on-year inflation rate was around 12%. During this time the CBI had conveyed its concerns regarding excessive domestic consumption in Iceland. Policy rates were raised significantly, with rates on repos and reserves raised to around 13%, up from 4% from early 2006. These increases did little to reduce money creation by the banks.

4.5.5 Did the Central Bank ignore the money supply?

The Special Investigation Committee concludes that:

"[T]he willingness of the Central Bank [of Iceland] to accept bonds and bills [issued by the banks themselves] as collateral meant a transfer of the power of money printing to the banking system."³⁹

In its report the Special Investigation Committee (the SIC) tried to offer a logical explanation as to why the CBI did not attempt to counter the rapid increase in money supply [unofficial translation]:

"Although today's central banks use policy rates to reach their inflation goals it is common that they also keep an eye on the money supply, specifically in order to increase their credibility. For

³⁹ Special Investigation Report (2010), part 1, page 166

*example the European Central Bank has a certain money supply criteria that it follows in addition to its interest rate rules (a two pillar approach). The money supply is also used as an intermediate target when monitoring financial stability, as research has shown that rapid growth in the money supply is a crucial clue as to [an imminent] dual crisis, i.e. currency and financial crisis. In Iceland the money supply increased without any attempt [by the Central Bank of Iceland] to counter the increase. **It could be claimed that after the inflation target approach was instated [the Central Bank] entirely ignored that increased money in circulation was a signal of an overheating [banking system].** This was, among other things, due to the fact that it was not fully clear to the Central Bank why the money supply was increasing.”⁴⁰ [Our emphasis in bold]*

The SIC concludes that the CBI did not intervene to counter the expanding money supply because the CBI did not understand why the money supply was increasing.

There is of course an alternative explanation; that in the fractional reserve system the CBI has no alternative but to provide reserves as needed.

The latter view is perhaps supported by a comment that Sturla Pálsson, director of Treasury and Market Operations at the CBI gave to the Special Investigation Committee. He and other staff of the CBI believed that the banks had in fact gone bankrupt in the fall of 2007 and that from that time on, the liquidity provisions from the CBI to the banking system actually constituted emergency lending.⁴¹

The SIC does point out that as a general rule a Central Bank provides a bank with liquidity (i.e. loans of reserves) if the bank is suffering from a temporary liquidity shortage. In this transaction the loan of reserves is given in exchange for reliable collateral. However, it is the common consensus that supplying liquidity to a financial institution that is going bankrupt is not acceptable.⁴²

It is also clear that if one of the three large banks in Iceland had become insolvent, it was likely that other banks would suffer the same fate. Due to the nature of the fractional reserve system where liabilities of private banks form the bulk of the money supply, the payments system itself is dependent on banks' continuing liquidity and to a lesser extent, solvency. Any sign of a major bank failing

⁴⁰ Special Investigation Report (2010), part 1, page 187

⁴¹ Special Investigation Report (2010), part 1, page 165

⁴² Special Investigation Report (2010), part 1, page 165

therefore threatens the total collapse of the payments system, and the inability of members of the public to withdraw money or make payments. This means that the government has no option, when a major commercial bank fails, other than to intervene and guarantee the deposits with taxpayer money.

That is what happened in Iceland. In the boom years, commercial banks expanded the money supply and the CBI was unable to slow them down. When liquidity became scarce the banks turned to the CBI who had no alternative but to provide reserves to avoid destabilizing the system. Despite its efforts the banks eventually collapsed.

If the power to create and expand the money supply remains with commercial banks, a similar crisis can happen again. Indeed similar bank crisis have occurred many times before in several advanced economies including the UK in the 1970s, and in the 1990s Finland, Norway and Sweden.

Adair Turner, the chairman of the UK's Financial Services Authority, member of the BoE's Financial Policy Committee, set out his view of the fundamental cause of the financial crisis⁴³:

"The financial crisis of 2007/08 occurred because we failed to constrain the private financial system's creation of private credit and money."

While the fractional reserve system allows private banks to create the money supply, further bank crisis may be inevitable.

⁴³ Adair Turner - speech to the South African Reserve Bank on Friday 2nd Nov 2012

5 Fractional reserve issues

This chapter reviews some of the problems that critics have attributed to the fractional reserve system. These problems include the risk of bank runs and the inefficiency of deposit insurance, particularly in a market such as Iceland that is dominated by three large banks. Each of the three large banks is too big to fail. Banks have in-built incentives to increase risk. When banks get in trouble, they must be saved at taxpayers' expense.

The CBI is unable to stop commercial banks from expanding the money supply far beyond what is compatible with the economy.

Banks are allowed to lend money into existence under the fractional reserve system while the state itself could lend or spend it into existence. Money creation by banks therefore means more household debt than would be necessary if the state created the money supply.

The considerable income from money creation also accrues to the banks instead of the state.

5.1 Deposit Insurance

The purpose of Deposit Insurance is to reduce the risk of bank runs. A bank run can start if depositors fear that their bank could be in trouble. Because banks finance their long term lending with demand deposits, they hold only enough cash (or reserves) to pay out a fraction of deposits at any one time. A bank run can therefore lead to a liquidity crisis for the bank. This in turn could force the bank to hold a 'fire sale' of assets in order to raise liquidity, leading to a price drop in financial markets. The panic can then spread to other banks, causing a full-scale financial crisis.

In accordance with EEA (European Economic Area) regulation, the Icelandic government is responsible for ensuring that a deposit guarantee fund is operated. The Depositors' and Investors' Guarantee Fund (TIF) is a private foundation operating pursuant to Act No. 98/1999. The objective of the Act is to guarantee a minimum level of protection to depositors in commercial and savings banks, should a bank fail to meet its obligations, for example due to default.⁴⁴ This guarantee, known as 'deposit insurance', is set at 20,000 EUR but is payable in ISK. In the event of insolvency the TIF offers depositors to pay out a minimum guarantee in return for the depositors' claim to the failed bank. If the TIF is able to recover more than the minimum

⁴⁴ Tryggingarsjóður innstæðueigenda og fjárfesta (2014)

guarantee, the proceeds go to the depositors, capped at the total deposits.

The guarantee fund's assets are required to be the equivalent of at least 1% of all guaranteed deposits in the previous year in Iceland and funded by annual dues from the banks.⁴⁵

As with other insurance schemes, it is desirable to have many participating banks that are not interdependent or likely to get into trouble simultaneously. Unfortunately, in Iceland the three large banks have more than 96% share of deposits and they are in many ways dependent on each other, and dependent on the same small economy.

In early 2000, deposits in Icelandic banks amounted to ISK 250 bn while the TIF's assets were ISK 2.9 bn or 1.2% of the total deposits.

By the fall of 2008, deposits in Icelandic banks – excluding deposits of financial firms – had grown to ISK 3,100 bn thereof nearly ISK 1,700 bn were in branches outside Iceland. The TIF contained only ISK 13 bn, or 0.41% of total bank deposits.⁴⁶ Clearly, the deposit insurance fund was in no way sufficient to halt a bank run, or to reimburse more than a fraction of deposits of a failed bank.

Indeed, when a bank run began in 2008 the government had no option other than to declare that all deposits in domestic banks were guaranteed in full by the state.

The practice of maintaining the TIF in Iceland, gives the illusion that the banks themselves are funding the insurance against their failure, when the reality is that bank deposits must be guaranteed by the state, at taxpayers' expense.

Box 5.A

Emergency Legislation and Capital Injection

Emergency measures were taken in October of 2008 in response to the banking crisis in Iceland. An emergency legislation was passed by parliament in early October of 2008 where all domestic assets of the three big deposit institutions; Kaupthing, Glitnir and Landsbankinn, were transferred along with domestic deposits to new banks at "fair" value. The new banks were capitalized by the government and

⁴⁵ Special Investigation Report (2010), part 5, pages 203-204

⁴⁶ Special Investigation Report (2010), part 5, page 193

resumed the role of the old banks in running the payment system.

The operations and assets of the old banks abroad were put into liquidation. Deposit holders were given priority over other creditors of the banks. Thus, deposits in foreign branches were given priority to other claims at the old banks.⁴⁷

According to the National Audit Office, the government injected roughly ISK 130 bn into the new banks. In addition the Icelandic government took over claims held by the CBI for the amount of ISK 370 bn due to collateral lending to financial institutions, of which ISK 190 bn were immediately written off. The estimated loss of the state (Treasury and the CBI) due to loans to the banking system before the crisis was estimated at ISK 270 bn, or close to 20% of 2008 GDP.⁴⁸

Deposit insurance has further downsides. It removes the incentive for depositors to monitor their bank's risks. In a system without deposit insurance, depositors would have an incentive to continuously monitor their bank's risk to ensure the bank does not act in a manner that may endanger solvency. Other things being equal a bank with a higher capital ratio would be considered safer and in consequence could be expected to attract more customers⁴⁹ and its depositors would demand lower interest rates. When customers lack the incentive to pay attention to the risk taken by banks, banks will compete simply by offering the highest interest rates on deposits without regard to risk. Deposit insurance can therefore lead to more risk taking by banks, which increases the likelihood of bank failures.

5.1.1 The too-big-to-fail problem

Each of the three large banks in Iceland is considered too big or too important to fail. Unfortunately, this does not mean that these banks can't fail. It simply means that when any of these banks gets into trouble the government has no alternative but to save it.

If one large bank were allowed to fail, this would mean that almost a third of the population and companies could not access their deposit money and would therefore be unable to do business or pay for necessities. Emergency liquidation of assets by a large failing bank would cause a price fall in financial markets and the problem could soon spread to other banks and companies. Governments will do what

⁴⁷ Arnason (2011), Baldursson (2011)

⁴⁸ Government Offices of Iceland (2012), National Audit Office (2012)

⁴⁹ This would reduce their capital ratio and thus prove self-limiting, unless continued retained earnings and capital raising maintains the high ratio.

it takes to prevent such a scenario from developing, usually at great cost to taxpayers.

In its 2014 Global Financial Stability report, the International Monetary Fund (IMF) tries to estimate the implicit subsidy for banks, which are considered Too-Important-To-Fail (TITF). The IMF summarizes its results in the following way:

*“Government protection for too-important-to-fail (TITF) banks creates a variety of problems: **an uneven playing field, excessive risk-taking, and large costs for the public sector.** Because creditors of systemically important banks (SIBs) do not bear the full cost of failure, they are willing to provide funding without paying sufficient attention to the banks’ risk profiles, thereby encouraging leverage and risk-taking. SIBs thus enjoy a competitive advantage over banks of lesser systemic importance and may engage in riskier activities, increasing systemic risk. Required fiscal outlays to bail out SIBs in the event of distress are often substantial.”*

5.2 Lending for speculation vs economic growth

There is a widespread belief, that despite all its risks, fractional reserve banking has been instrumental for economic progress. If banks were not able to create money, the argument goes, fewer economic opportunities would be harnessed.

Yet, analysis of the share of mortgage loans in total bank lending for 17 advanced economies from 1870 until present shows that the sharp increase in debt to GDP ratios in the 20th century is mainly a result of rapid growth of mortgages. The share of mortgages of banks’ total lending has doubled from 30% in 1900 to 60% today. By contrast non-mortgage bank lending to companies for investment and non-secured lending to households has remained stable in relation to GDP.⁵⁰

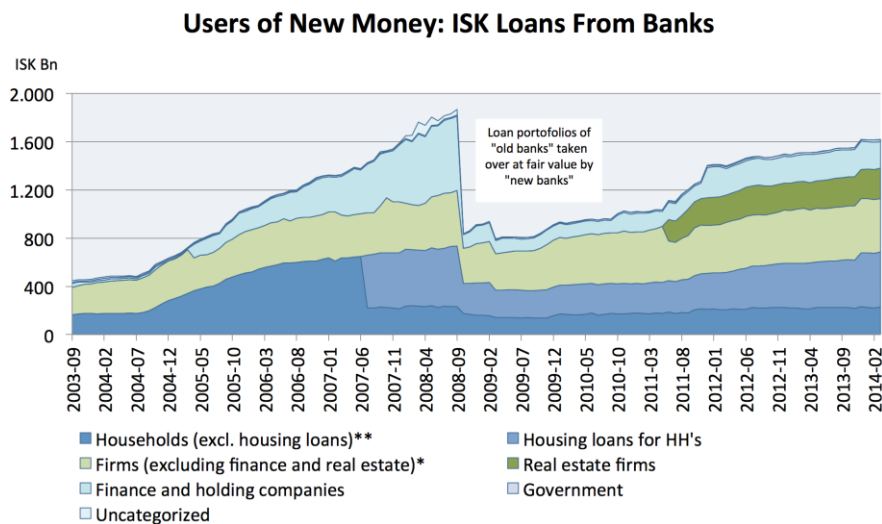
In Iceland, the data (Fig 5.1) indicates that most new money created by banks was lent to borrowers that invest; in existing assets, in existing real estate or for speculation in financial assets while a minor share was lent into the real economy; to fund new business, invest in new technology, create new jobs, and build new housing or infrastructure.

In the five year period from 2003 to 2008, loans extended by deposit institutions to domestic entities (excluding FX loans) increased by ISK 1,400 bn. Thereof, approximately ISK 620 bn, or 45%, were loans

⁵⁰ The Great Mortgaging - Jorda, Taylor, Schularick - 2014

made to financial firms other than deposit institutions, holding companies and companies that are in the aforementioned “unknown” sector, with the increase in household loans around 40% of this figure. See Fig 5.1.

In the last two years of this period almost two thirds of the money created by banks was lent to financial and holding firms.



*Fig. 5.1 Source: Central Bank of Iceland. * Includes real estate companies before 06/2011. ** Includes mortgages before 07/2007*

The point here is not that banks do not want to lend to the real economy. Opportunities for lending to companies are however limited by various factors. The growth of companies is limited by many other factors than access to funding. Resources may be scarce, demand may be limited, and companies may prefer equity finance to bank loans.

Banks are not faced by similar limitations when lending for financial speculation. Lending for investment in existing assets tends to increase demand for assets, leading to higher asset prices, expectations of future asset price increases, more demand, and more lending possible. This feedback loop and growth in private leverage has been described by Adair Turner as

"A major cause of the crash of 2007 and the predominant reason why the post crisis recession was so deep and the recovery so weak and slow."⁵¹

⁵¹ Escaping the debt addiction - Adair Turner - 2014

Because the economy is dependent on using bank deposits as money, banks must comply with regulations (Basel) that favour lending against existing collateral over lending towards business. The unwanted side effect of such regulation is to further divert bank lending towards existing assets rather than lending for growth.

5.3 Commercial banks control the money supply

5.3.1 Is the CBI not in control?

Since 1961, when the CBI was founded there has been very little evidence of the CBI having (or taking) effective control of the money supply. Its warnings of too much lending had no noticeable impact on banks' lending behaviour. The CBI's efforts to raise interest rates in the years leading up to the crisis did not halt the fatal credit bubble from expanding.⁵²

When the banks needed liquidity, the CBI was not able to deny them reserves.

For more than half a century, the money supply in Iceland has been determined first and foremost by the lending activities of the commercial banks and not by the policy decisions of the CBI.

5.3.2 Have banks created an optimal amount of money?

Since 1961, commercial banks have, with few exceptions, expanded the money supply much faster than the real economy was growing. The consequences of their uncontrolled money creation include inflation, hyperinflation, and devaluations of the ISK, asset bubbles and a bank crisis.

Commercial banks have created money in such excess that the ISK has lost 99.7% of its purchasing power in just 50 years.

Between 1994 and 2008 the banks expanded the money supply by a factor of ten, while nominal GDP only tripled. The rapid expansion of the money supply was disastrously out of proportion to the needs of the economy with most of the money going not into the real economy but into speculative financial markets and asset price bubbles.

Banks that create too much money are not doing so out of ignorance. On the contrary, by using the power to create money within the current system, each bank is simply acting in the best short-term interest of its shareholders, by maximising the amount of interest-

⁵² When the CBI raised interest rates in ISK the banks began offering foreign loans domestically at very low rates.

bearing loans issued, and therefore maximising interest income for the bank.

It seems reasonable to expect that without reform of the fractional reserve system, commercial banks may keep lending and expanding the money supply as creditworthy borrowers can be found. The CBI will not be in a position to stop them.

Fortunately, there are some alternatives to the current fractional reserve system that could reduce the odds of financial crisis in the future.

6 Alternatives to fractional reserve

In order to evaluate the costs and benefits of fractional reserve banking it is useful to take a look at some alternatives. A variety of alternatives have been proposed in the last century but none of them have been implemented yet.

In this chapter we provide an outline of the following proposals for reform:

- The Chicago Plan, as proposed in Benes' and Kumhof's paper in 2013
- Kay's Narrow banking proposal from 2009
- Kotlikoff's Limited Purpose Banking (LPB) from 2010
- The Sovereign Money Proposal (2014)

The Sovereign Money Proposal is covered in more depth as it provides a good understanding of the issues and it seems to solve the main issues with minimal changes to the current system.

6.1 The Chicago Plan revisited

After the Great Depression eight economists from the University of Chicago put forth a proposal for monetary reform in a memorandum to the President of the United States.⁵³ This proposal, later known as the Chicago Plan, advocated for 100% reserve banking; where each bank deposit that could be withdrawn on demand would be backed in full by an equivalent reserve of cash or deposits at the Federal Reserve. Variations of the proposals were put forth by respected economists, among them Fisher (1936) and Friedman (1948).⁵⁴ Although proposals varied between economists, all agreed that it would be necessary to separate the money creation from the lending activity of banks. This way, the money supply would not be determined by or dependent on bank lending and the solvency of the banking sector. In an IMF working paper, Benes and Kumhof (2013) modelled the effects of a 100% reserves banking system in the US economy with a DSGE⁵⁵ model. According to Benes and Kumhof:

⁵³ Knight, F. (1933). "Memorandum on Banking Reform", March, Franklin D. Roosevelt Presidential Library, President's Personal File 431.

⁵⁴ Fisher, I. (1936). 100% Money. New York: Adelphi

Friedman (1948). "A Monetary and Fiscal Framework for Economic Stability". The American Economic Review 38.3: 245-264.

⁵⁵ Dynamic Stochastic General Equilibrium

*"Our analytical and simulation results fully validate Fisher's (1936) claims. The Chicago Plan could significantly reduce business cycle volatility caused by rapid changes in banks' attitudes towards credit risk, it would eliminate bank runs, and it would lead to an instantaneous and large reduction in the levels of both government and private debt. It would accomplish the latter by making government-issued money, which represents equity in the commonwealth rather than debt, the central liquid asset of the economy, while banks concentrate on their strength, the extension of credit to investment projects that require monitoring and risk management expertise. We find that the advantages of the Chicago Plan go even beyond those claimed by Fisher. One additional advantage is large steady state output gains due to the removal or reduction of multiple distortions, including interest rate risk spreads, distortionary taxes, and costly monitoring of macro economically unnecessary credit risks. Another advantage is the ability to drive steady state inflation to zero in an environment where liquidity traps do not exist, and where monetarism becomes feasible and desirable because the government does in fact control broad monetary aggregates."*⁵⁶

In Fisher's description of the Chicago Plan (1936) other, more general benefits were also noted, among the return to a simpler banking system.

The Chicago Plan Revisited has helped to explain the flaws of the fractional reserve system and modelled one possible avenue for reform of the monetary system.

6.2 Narrow banking

Narrow banking proposals emphasize the prevention of contagion in the financial system. Many of the proposals were set forth in the late 1980s to early 1990s, shortly after the financial liberalization and securitization took place in western financial markets and the savings and loans crisis occurred in the United States.⁵⁷ Proposals vary in terms of implementation and detail, however they all suggest that the two major functions of banks - deposit-taking and payments services, and lending - should take place within different institutions to avoid financial contagion. John Kay (2009) explains that

⁵⁶ Benes and Kumhof, The Chicago Plan Revisited, 2012

⁵⁷ See Litan (1987), Pierce (1991) and Bryan (1991)

“Financial services companies must be structured so that in the event of an overall failure of the organization the utility can be readily separated from the casino.”

6.2.1 The narrow bank

The term ‘narrow bank’ is used to describe the banking entity, which specializes in deposit-taking and payment activities. A narrow bank does not provide lending services. However, as Kobayakawa and Nakamura (2000) mention, the definitions of narrow banks vary greatly. Pierce (1991) proposed that narrow banks should be limited to investing in safe short-term assets such as treasury bills. And Bryan (1991) suggests allowing narrow banks to lend money to small firms. Narrow banks would provide checking accounts and transfers and be permitted to pay interest on all their accounts.

Kobayakawa and Nakamura (2000) evaluated several narrow banking proposals in an effort to determine which narrow bank model would best serve the purpose of achieving financial stability. They categorized the proposals by means of two standards:

- Whether the assets that a narrow bank is allowed to hold are limited to short-term
- Whether a narrow bank is allowed to take part in lending activities

Kobayakawa and Nakamura conclude that the most desirable narrow bank proposal is the one that allows a bank to take deposits as well as provide loans, although such lending activities would be restricted. The desirable narrow bank would be allowed to invest in safe short-term assets. Kobayakawa and Nakamura, however point out that one of the main limits to their analysis is that they focus only on the liquidity risk, without paying heed to credit risk. That is a bank run only happens in their analysis due to unexpected deposit withdrawal, rather than an increase in nonperforming bank loans.

Narrow banks would be the only banks to receive any government guarantee, for example deposit insurance, and have access to lender of last resort funding. As mentioned, it has been suggested that these banks be required to hold liquid safe securities such as government bonds, although some proposals allow for extending credit to small firms.⁵⁸ To the extent that safe government assets are in amount equal to deposits, the plan constitutes full reserve banking. Kay (2009) believes the most effective way to prevent any form of public subsidy to a failed financial institution is to require that retail deposits which

⁵⁸ Kobayakawa (2000)

qualify for deposit insurance be 100% supported by safe and liquid assets, ideally government securities.⁵⁹

6.2.2 The investment bank

The investment banks in the narrow banking proposals are sometimes referred to as financial holding companies. Investment banks make loans and are to be fully funded by debentures and equity. They take care of all non-monetary activities of current commercial banks, yet are not able to take deposits. Investment banks would not have to be bailed out with public funds when they fail. They would have to match the maturity of their own liabilities and investments.⁶⁰

The variations of the proposals discuss whether the investment banks should be separate entities or subsidiaries of narrow banks. In any case, the separation needs to be monitored to ensure that investment banks do not use the assets of the narrow banks and that investment banks do not have access to the payments system of the narrow banks.⁶¹

6.2.3 Benefits of narrow banking

According to Phillips (1995), the separation of monetary and financial service companies, i.e. narrow banks and investment banks, solves a number of problems with respect to the financial system.

- Enhances the safety of the payments system, as very safe and liquid assets back deposits. Bossone (2002) also mentions that by forcing banks to hold high-quality instruments, such as government securities, narrow-banking regulation would minimize any liquidity and credit risk banks may have.
- Reduces the need for government regulation of banks. In this context Phillips mentions that there will be more supervision and less regulation. For the narrow banks, supervision would be required to determine whether a bank is holding assets, which can back its deposit liabilities.
- Would make deposit insurance redundant or minimal, because the narrow bank's liabilities will already be backed by state liabilities (i.e. government bonds).

In addition, Phillips (1995) mentions that under the reform monetary policy would be separate from credit policy. Today, in fact, we view these tasks, monitoring money and credit as “intertwined” as under

⁵⁹ Dixhoorn (2013)

⁶⁰ De Grauwe (2008)

⁶¹ Dixhoorn(2013)

the current system monetary policy is simultaneously credit policy. However, in a reformed narrow banking system Phillips contends that the Central Bank would play a major role in monetary policy but a minor one in lending. This would simplify the system. In similar vein, Kay (2009) points out that optimal environment would be one with minimum regulation, where the market takes on that responsibility. Finally, Kay (2009) also suggests as an additional measure that retail depositors be given priority over general creditors when it comes to liquidation.

6.3 Limited Purpose Banking

In Kotlikoff's (2010) view, the main problem with the fractional reserve system is that banks use state guaranteed deposits to fund their 'gambling' at the taxpayers' expense.

Kotlikoff's 'Limited Purpose Banking' (LPB) proposal is to limit banks to their original purpose: to intermediate between borrowers and investors. Kotlikoff's reform builds on the mutual fund model. In LPB all banks that participate in financial intermediation, i.e. financial and insurance companies with limited liability, operate as holding companies of unleveraged pass-through mutual funds. Banks would offer securities ranging from safe to risky. Kotlikoff's proposal assumes that banks would never own financial assets or borrow to invest in assets other than those needed to run their mutual funds' operations (such as buildings, office furniture etc.). Hence, it is the customers who are leveraged, not the banks. As the banks function as simple middlemen, all risk is borne by the investors themselves.⁶²

Kotlikoff acknowledges that the LPB system cannot fully prevent irrational collective exuberance, which can lead to financial instability. However, in the reformed system the effects of such negative consequences will be limited to those who willingly took part in the activities that led to the instability. In this way Kotlikoff's system aims to better align risk and return in the economy and simplify the financial system.⁶³

All securities in the LPB system need to be evaluated by a Financial Services Authority (FSA). This is so it is clear what is being bought and sold. The FSA can hire private companies, working only for it, to verify, appraise, rate, custody and disclose all securities held by mutual funds. All of the securities must be assessed by the FSA. The point is not to ban any securities but to ensure that investors are informed. The LPB

⁶² Kotlikoff (2010)

⁶³ Kotlikoff (2010)

can only buy and sell 'FSA-processed' and disclosed securities at auctions so all issuers of securities receive a fair price for their paper.

⁶⁴

According to Kotlikoff, since LPBs are not permitted to hold risky assets and hold no debt, capital requirements are not necessary.

After the reform individuals are still free to buy and sell individual securities outside of LPBs. LPBs would be able to broker such transactions, but not hold any securities. The proposal suggests that the FSA establish an escrow service for the transfer of money to sellers and the securities to buyers. In this way, the FSA, not the broker-dealers would clear the securities markets. Financial firms organized as proprietorships and partnerships that do not have limited liability will be free to invest. These firms do not rely on the government to limit their losses and are thus free to 'make gambles' and take on all manner of risk. Individuals operating as conventional banks, yet without limited liability, would be personally liable for their losses.⁶⁵

In the LPB proposal all limited liability financial intermediaries including: commercial banks, investment banks, insurance companies, hedge funds, private equity funds, credit unions and other limited liability intermediaries, must play by the same rules: as mutual fund holding companies which issue 100% equity financed mutual funds. This simplifies the financial system and increases transparency.

Since the mutual funds are not leveraged, they cannot fail even if their assets lose value. The same goes for their parent holding company. It is hence claimed that the financial system will never fail under Limited Purpose Banking. Although shadow banks will be permitted to leverage, they are without limited liability and therefore risk averse.

⁶⁴ Chamley Kotlikoff & Polemarchakis (2012)

⁶⁵ Goodman & Kotlikoff (2009)

7 The Sovereign Money Proposal

The Sovereign Money Proposal has its origins in a proposal first put forward by Frederick Soddy in the 1920s, and then later by Irving Fisher and Henry Simons in the aftermath of the Great Depression. Variations of these ideas have since been proposed by Friedman (1960), Tobin (1987), Kay (2009) and Kotlikoff (2010).

While inspired by Irving Fisher's original work and variants on it, the Sovereign Money Proposal has its unique features. The starting point was the work of Huber and Robertson in their book *Creating New Money* (2000). Dyson, Ryan-Collins, Greenham and Werner further developed their proposal in their 2010 submission to the UK's Independent Commission on Banking.

The Sovereign Money Proposal is outlined in full detail in Jackson and Dyson's book *Modernising Money* (2012). Parts of this report, and in particular this chapter, borrow material from Dyson's and Jackson's book and from Huber's writings, with their generous permission.

7.1 Key advantages of a Sovereign Money System

7.1.1 A reliable money supply

In the fractional reserve system 91% of money consists of bank deposits. These deposits are liabilities of commercial banks and their functionality as money depends on the banks remaining solvent. The entire payments system, which underpins the real economy, therefore depends on the solvency of commercial banks. When banks fail the government is forced to step in, usually at great cost to taxpayers.

Past efforts to reduce risk of bank failures have relied on more stringent regulation and supervision on banking. These efforts have increased overheads and complexity but they have not eliminated bank failures. Time will tell whether Basel III (590 pages) and the Dodd-Frank Act (8,000 pages) will succeed where previous efforts have failed.

Deposit insurance and implicit state guarantees on deposits have the side effect of encouraging banks to take more risk and so increase risk of bank failures. Deposit insurance will not be needed under the Sovereign Money System, as the funds held in Transaction Accounts (which collectively make up the payments system) are held at the CBI and never placed at risk by the bank.

In a Sovereign Money System, money creation and the payments system is separate from the risky investing and lending of banks. The

money needed to make payments is held at the CBI, rather than being liabilities of commercial banks. This means that even if a commercial bank were to fail, its administration of Transaction Accounts could be handed to a different bank with no loss to the taxpayer or Transaction Account holders.

7.1.2 Greater economic stability

As discussed earlier, money creation cannot be controlled effectively by central banks in the present system. Commercial banks, aiming to maximize their profit, expand the money supply faster than is compatible with economic growth. In Iceland, the banks have expanded the money supply many times faster than needed for the economy which has caused inflation, hyperinflation and asset bubbles.

In the Sovereign Money System, only the CBI would be responsible for creating and managing the money supply. Its decisions on money creation would take into account parameters including economic growth rate, inflation goals and prices of financial assets. An independent CBI would have no motives to create an excess or shortage in money supply. Even if the CBI were to create too much or too little money from time to time, due to errors of judgement or rapidly changing economic circumstances, the scale of such errors would hardly be anywhere close to the scale of error experienced in the current system.

7.1.3 Less debt

In the current system the bulk of new money is created when banks make loans. This means that in order to create new money for a growing economy, households and businesses must go deeper in debt.

The money supply is currently issued only when households or businesses take on loans from the banks, placing an unnecessary burden of interest payment on society.

In a Sovereign Money System, the CBI can create the money that is needed by the economy. No one has to take on more debt to create sovereign money. When the CBI creates sovereign money the government can spend or invest it into circulation.

Furthermore, the transition to a Sovereign Money System implies a very significant one time lowering of public debt.

7.1.4 More effective monetary policy

In the fractional reserve system the CBI must rely on indirect tools to influence the money creation of commercial banks. These tools can have various unwanted side effects that put constraints on their use.

In addition, it can take several months for these tools to take effect, by which time the situation may call for a very different policy.

In a Sovereign Money System the CBI has direct control over money creation. By controlling the money supply directly the CBI can impact price levels more effectively than with its current tools.

7.1.5 The income from creating money will accrue to the state

In the present system, the benefit from creating deposit money accrues to the banks rather than to the CBI and the state. Banks benefit primarily because demand deposits (their liabilities) can be used as money and are considered risk free and thus carry considerably lower interest than other liabilities of the bank.

In a sovereign money system the CBI creates all forms of money; coin, notes and deposits. Income from creating all types of money would therefore accrue to the state.

Assuming a GDP growth of 2%, inflation of 2% and an initial money supply of ISK 486 bn the CBI's annual income from creating new money would be close to ISK 20 bn.

7.2 The Sovereign Money System in detail

The Sovereign Money System prevents commercial banks from creating new demand deposits in the process of lending. Banks will continue to act as intermediaries between savers and lenders and provide payment and transaction services. The CBI will create money to keep the growth of the money supply in line with the needs of a growing economy.

Banks will offer two distinct types of accounts to customers: Firstly, Transaction Accounts that are used for storing funds that are available on demand to make payments and transactions. The funds in Transaction Accounts are stored at the CBI. Secondly, a customer who wants their funds to be invested by the bank can transfer them to an Investment Account. The bank can invest funds in Investment Accounts. Investment Accounts would have a predetermined maturity or notice period and earn interest. Investment Accounts cannot be used to make payments or be reassigned to a third party during the term of the investment. Upon maturity, funds in Investment Accounts are transferred back to Transaction Accounts (unless the customer decides to rollover and extend their investment). These two types of accounts will now be described in more detail.

7.2.1 Transaction Accounts

Present-day demand deposits will be replaced by Transaction Accounts that:

- Can be accessed with debit cards.
- Provide electronic payment services for salaries and other payments.
- Provide instant money transfers and cash withdrawals.
- Provide overdrafts at the bank's discretion⁶⁶.

Transaction Accounts are risk-free and securely held the CBI. Although Transaction Accounts will be managed by commercial banks, they will not be liabilities of the commercial banks and therefore not dependent on the condition of their assets. This is in contrast to present-day demand deposits, which are backed by risk-bearing assets and can only be withdrawn as long as the bank correctly manages its small stock of liquidity.

Transaction Accounts balances will represent (electronic) sovereign money, issued by and held at the CBI. Money deposited in a Transaction Account remains the legal property of the account holder, rather than becoming the property of the bank as happens in the current system. The commercial bank will act as a middleman relaying payment instructions and information between its customer, the CBI where Transaction Accounts are held, and the banks that payments are sent to.

The management of Transaction Accounts can be transferred from one bank to another at any time and by any number of customers without impacting the banks' liquidity and regardless of the bank's solvency. Transaction Accounts can in some ways be compared to risk-free, electronic safe deposit boxes for money. This is in stark contrast to the present system where amounts in demand deposits are in fact liabilities of commercial banks.

⁶⁶ Overdrafts provided with Transaction Accounts would not allow the banks to create additional money. When a customer with an approved overdraft draws down the overdraft, he is borrowing from pre-existing sovereign money owned by the bank. From the customer's point of view, the experience of using overdraft in the sovereign money system will be very similar to using an overdraft in the current system.

7.2.2 No need for Deposit Insurance

With the money in Transaction Accounts safely held by the CBI, there is no longer a need for a deposit insurance or guarantee scheme for Transaction Accounts.

7.2.3 Account fees for Transaction Accounts

Funds in Transaction Accounts will not be available for banks to lend or invest, and therefore banks cannot earn a return on them. However, banks will incur costs of administering and servicing Transaction Accounts (as they do today with demand deposits). Therefore, banks will have to charge some fees for servicing Transaction Accounts.

Customers will be able to assign the management of their Transaction Account to the bank that offers the best services or fees.

7.2.4 Investment Accounts

Banks will offer Investment Accounts, which will earn interest for customers in proportion to the account's risk and duration.

Like present-day savings accounts, Investment Accounts will:

- Be used by customers who wish to earn interest on their savings.
- Pay varying rates of interest.
- Be provided by commercial banks.
- Be liabilities of the banks, i.e. the bank promises to repay the customer the invested money at a future date with interest.

7.2.4.1 The bank's Investment Pool Account

Money deposited in an Investment Account by a customer is transferred from the customer's Transaction Account at the CBI to the commercial bank's 'Investment Pool Account' also held at the CBI. Money deposited in Investment Accounts will become the property of the bank, not of the account holder. The Investment Account is the bank's liability to the customer, while the deposited money is an addition to the bank's Investment Pool (an asset of the bank).

When money stored in the Investment Pool is lent to a borrower, it is transferred from the Investment Pool to the borrower's Transaction Account and becomes the property of the borrower. In return the borrower has signed a loan that is an asset of the bank.

Both Transaction Accounts and Investment Pool Accounts are held at the CBI.

7.2.4.2 An Investment Account is not money

Investment Accounts represent liabilities of commercial banks to their customers. Customers cannot transfer their Investment Account balances to third parties or use them to pay or settle transactions through the payments system, meaning that they are unable to use Investment Account balances as a form of money. Only Transaction Accounts can be used to make payments, transactions and withdraw cash.

7.2.4.3 Investment Accounts will have pre-agreed maturity or notice periods

Deposits in Investment Accounts will not be available on demand. Customers will agree to either a *maturity date* or a *notice period* that will apply to the account. There will be no *instant access* savings accounts. This restriction is necessary in order to prevent commercial banks from creating demand liabilities that could be used to make payments and thereby replicating the ability to create money that they have in the present system.

Upon maturity of the Investment Account, the bank transfers money from its own accounts into the account holder's Transaction Account.

7.2.4.4 Investment Accounts will be risk-bearing

The risk of lending money to borrowers can be shared between the commercial bank and holders of Investment Accounts, according to the terms and conditions of the specific account. Before committing money to a particular Investment Account, the customer is informed of its level of risk, duration and interest level. By sharing risk and reward the incentives of banks and their customers are better aligned.

By sharing the risk and reward of investment transparently between the bank and its customers the danger of taxpayers having to shoulder losses of bank failures is reduced. This danger is further reduced by the fact that Transaction Accounts, the basis of the payments system, are secure regardless of the liquidity or solvency of banks. Without the government needing to promise to rescue the banks regardless of their behaviour, the moral hazard associated with the current banking system is thus reduced considerably.

If a commercial bank becomes insolvent in the sovereign money system, customers can move the administration of their Transaction Accounts to some other bank of their choice. Claims of the Investment Account holders who opted for the lowest risk accounts would have priority over those who opted for the higher risk accounts. A failing bank would not have to be taken over by the state but could enter the

usual legal process for failing companies. Shareholders and wholesale creditors will face losses before holders of Investment Accounts.

In the sovereign money system, the danger of the government being forced to save failing banks at great cost to taxpayers is small compared to the current system.

7.2.5 Accounts available to commercial banks at the Central Bank

Under the present-day system, commercial banks have accounts at the CBI in which they keep 'central bank reserves' for the purpose of settling payments with other banks and with the government. In a Sovereign Money System each bank will manage three distinct accounts at the CBI. These accounts will hold sovereign electronic money created by the CBI.

7.2.5.1 The Operational Account

The Operational Account will hold money for use in the bank's own operations. The bank will own the money in this account and it is recorded as an asset of the bank.

7.2.5.2 The Investment Pool

The bank uses the Investment Pool Account to receive funds from customers, make loans to borrowers, receive loan repayments from borrowers and make payments (of interest and principal) back to Investment Account holders. This account represents the lending side of the bank's activities. The money in this account is recorded as an asset of the bank.

7.2.5.3 The Customer Funds Account

The sum total of a bank's customers' Transaction Accounts is referred to as its Customer Funds Account. The bank does not own the money in the Customer Fund Account; it only administers the funds on behalf of holders of Transaction Accounts.

The CBI need not hold information on individual Transaction Accounts; this information will be the responsibility of the banks.

7.2.6 Only one kind of electronic money

In the current fractional reserve system there are effectively two types of electronic money. The first is central bank reserves, used by commercial banks to make payments to other banks or to the government. Individuals or non-banking companies cannot access central bank reserves. Central bank reserves are held in reserve accounts at the CBI. The second type of electronic money is the

demand deposits at commercial banks that are used as money and can be used to make payments between customers of commercial banks.

By contrast, in a Sovereign Money System there is only one type of electronic money circulating among banks and non-banks alike. This is sovereign money created by the CBI.

7.3 Payments, loans and maturity transformation

7.3.1 Using Transaction Accounts to make payments

Payments between Transaction Accounts held at different banks will be made in much the same way as today. Money is transferred from the Customer Funds Account of the payer bank to the Customer Funds Account of the payee bank. The individual banks update their records of Transaction Account balances as appropriate.

7.3.2 Saving using Investment Accounts

Saving money through an Investment Account requires the customer to transfer ownership of the saved money to the bank. This reduces the balance of the customer's Transaction Account and increases his Investment Account. At the CBI the amount is moved from the Customer Funds Account administered by the bank to the bank's Investment Pool.

7.3.3 Borrowing from the bank

When a customer borrows money from a bank, the bank's money is transferred from the bank's Investment Pool into the Customer Funds Account, with the borrowing customer's Transaction Account being marked up accordingly. The borrower becomes the owner of the borrowed money, but owes a corresponding liability to the bank.

In contrast with the fractional reserve system, commercial bank lending in the Sovereign Money System does not increase the quantity of money in circulation; the act of making loans merely transfers pre-existing money from the bank's Investment Pool to the borrower's Transaction Account. While the loan increases the aggregate balance of Investment Accounts, such accounts are non-liquid and non-transferable and so cannot be used as money.

7.3.4 Maturity transformation

The funding of long-term loans with short-term investments is called maturity transformation. A bank can perform a maturity transformation in the Sovereign Money System, as it can in the present system. In both cases the bank matches the demand of long-

term borrowers with supply of several successive short-term investors.

Maturity transformation carries risk in the present system and will continue to do so in the Sovereign Money System. A bank, that is unable to find new investors to replace the investors that choose to end their investment, may run into liquidity problems. It is not the purpose of the Sovereign Money System to eliminate this risk, but rather to reduce the danger of losses being passed on to the state, by protecting the payments system and the funds of those who did not wish to take any risk. Furthermore this risk will decrease significantly under the Sovereign Money System, as short term funding in the form of deposits will not be part of commercial bank's balance sheets.

7.3.5 Size transformation

Size transformation is the process of aggregating savings from several small investors to fund larger loans to borrowers, or conversely to help a large saver to fund many smaller borrowers.

As in the present system, in the Sovereign Money System banks will continue to attract savings from many small investors and pool them to fund loans to larger borrowers, and vice versa.

8 Creating Sovereign Money

This section explains the process of money creation in the Sovereign Money System.

The CBI will be the sole creator of money in the economy. It will create coin, bank notes and electronic sovereign money. The CBI will create enough money to promote the non-inflationary growth of the economy.

8.1 Separating the creation and allocation of money

In the current system, commercial banks have the power create new money and decide what to use it for.

The danger of the power to create money being used for private benefit is greatly reduced by having independent and transparent institutions make the two decisions separately: how much money to create and how to allocate the newly created money.

8.2 The Money Creation Committee

A fundamental aim of the Sovereign Money System is to reduce the risk of the power to create money being misused or abused for private gains. The powers to create and allocate money presently available to every commercial bank will be repatriated to the state. The power to create money will be held by the CBI while parliament will decide how any new money is allocated. The power to *create* money is thereby separated from the power to *allocate* new money.

An independent Money Creation Committee (or the current Monetary Policy Committee) at the CBI will decide how much money is *created* by the CBI while the elected government will decide how new money is *used*. As with the state budget, the parliament will debate the government's proposal for allocation of new money.

8.3 Deciding how much money to create

In line with democratic principles and current practice, parliament through the government will determine the overall targets and remit of monetary policy.

The Money Creation Committee (MCC) will aim to increase the money stock in line with economic growth but without exceeding the inflation target (e.g. 2.5% per annum).

Assuming an initial money stock of ISK 486 bn, GDP growth of 2% and inflation of 2%, then the required annual increase in money supply

will be close to ISK 20 billion. Although this is a considerable amount it is less than 4% of the total budget.

The MCC does not have to make perfect decisions on money creation to deliver a dramatic improvement on the present system where commercial banks have expanded the money supply at unsustainable rates. In contrast, the MCC will have no goals other than to create enough money to support economic growth and to promote price stability.

Each month, the MCC will meet and decide whether to increase, decrease, or hold constant the level of money in the economy. Once the amount of new money has been decided, the MCC will authorise the creation of the money. The newly created money can then be introduced to the economy as detailed below.

8.4 Introducing new money into the economy

Upon making a decision to increase the money stock, the MCC authorises the CBI to create new money by increasing the balance of the government's Transaction Account. This newly created money is granted, rather than lent, to the government and accounted for as additional revenue for the state.

The newly created money will enter the economy according to the elected government's allocation plans that have been approved by parliament. Any mixture of the following routes can be employed for entering new money into circulation:

8.4.1 New money used to increase government spending

By using the newly created money to increase government spending, the government can increase the provision or quality of public services such as education, health care or public transport, without increasing the tax burden or the amount of public sector borrowing. Even if all new money would be used for this purpose, it would only be a proportionately small increase in government spending.

Using new money for government spending will tend to increase economic growth.

8.4.2 New money used to reduce taxes

Rather than increasing spending the government can reduce the tax burden, using the newly created money to replace the reduced tax revenue.

The part of the extra money that taxpayers choose to spend or invest will tend to increase economic growth.

8.4.3 New money used to reduce public debt

Newly created money can be used to reduce the public debt. This will reduce future interest payments on public debt, which gives opportunity to reduce taxes or spend more on services in the future.

Most of the new money used to reduce public debt will tend to continue circulating within the financial markets (as investors who received the money invest it in other assets) and therefore have little direct impact on growth of the real economy.

8.4.4 New money used for “citizens’ bonus”

Newly created money could be distributed between all citizens, or all adults.

In contrast to using new money to reduce taxes, a citizen dividend can reach those who do not currently pay taxes due to low incomes. Similar to a tax reduction, individuals may use the dividend to spend more, to save it or to pay debts. The effect on growth will depend on how the public decides to use the money.

8.4.5 New money to increase lending to businesses

The MCC may, if the need arises, decide to create money that is lent to banks specifically for the purpose of lending to businesses. The money can be lent to banks, regional banks, or peer-to-peer lending companies with the requirement that it is only lent to businesses outside the financial sector. This ensures a healthy level of credit provision to businesses.

The CBI will not make any loans direct to businesses, nor choose the individual businesses that are to receive loans.

8.5 Removing money from circulation

A growing economy will usually need a growing stock of money. In normal times, the MCC will adjust the positive growth rate of the money supply by choosing to create greater amounts of money when the economy needs stimulus, and smaller amounts of money when it does not. However, in extreme economic circumstances the MCC may decide that there is a need to reduce the money stock. In this case, there are different ways to remove money from circulation.

If the money needs to be removed from the real economy, then the government will choose the method, but if the money needs to be removed from the financial sector then the CBI will decide the method.

To remove money from the real economy, the most direct route is for the government to cut its spending whilst maintaining taxes at their current level, but increasing taxes will also deliver a strong reduction.

To remove money from the financial sector, the CBI can sell financial assets that it already owns or reduce bank's access to CBI loans.

If the MCC, CBI and government agree that there is a substantial overstock of money in the economy, then these institutions could decide not to re-circulate a portion of the Conversion Liability that banks will need to re-pay to the CBI during transition to Sovereign Money System. This method can, if needed, be used to extinguish hundreds of billions of ISK from the money supply over a few years. The Conversion Liability is further explained in Chapter 9.1.3 detailing the transition to the sovereign money system.

8.6 Accounting for Sovereign Money

Adopting the Sovereign Money System does not require a change in central bank accounting conventions for money. Traditionally, central banks account for notes, coin and reserves as liabilities. The same method can also work for Sovereign Money created by the CBI.

However, it can be argued that it is misleading to account for money as a liability of the CBI. Unlike conventional government debt, sovereign money has no date on which it must be 'repaid', carries no interest and holders of money can only demand identical money in return for their money. The CBI has the power to create this money at will and at negligible cost.

It may therefore be more in line with reality to account for money not as liabilities, but rather as tokens (or licenses) that the CBI creates at very low cost and sells at face value with profit. An increase in money would then be shown, not as an increase in liabilities, but as income from money creation. This income would lead to an increase of the CBI's equity and its ability to pay dividend to the state.

The debate on how to classify money in central bank accounts is interesting, but outside the scope of this chapter, as the sovereign money proposal does not by itself require a change in the accounting convention for money.

Using conventional accounting, an increase in electronic sovereign money is credited to the governments Transaction Account. To balance the transaction, the government issues a perpetual, zero-coupon (interest free) bond of identical amount that becomes an asset of the CBI. The government bond will not count as a part of the national debt, as it has no servicing cost and no repayment obligation.

This method of accounting for new sovereign money provides a way to adhere to the traditional accounting conventions while acknowledging the fact that money issued by a sovereign state is *not* a debt of that state, or an obligation to repay anything other than identical money.

9 The transition to sovereign money

The Sovereign Money System transfers the power to create money from commercial banks to the CBI.

On day one of implementation of the reform, all existing bank-issued demand deposits are converted into Transaction Accounts held at the CBI. The CBI assumes the banks' liability towards current account ISK depositors. In return the banks become indebted to the CBI to an equal amount; this new liability is known as the Conversion Liability. To avoid making the banks better (or worse) off as a result of this change, the interest rate due on the Conversion Liability will be similar to the average interest rate paid across all pre-reform demand deposits. The banks will repay the Conversion Liability to the CBI over a period of several years. The repayment schedule for the Conversion Liability will be decided, taking into account the repayment structure of the bank's assets and liquidity. The banks should therefore neither profit nor bear cost from this transfer at day one.

On day one, all savings accounts will be converted into Investment Accounts that are not available on demand and cannot be used for making payments.

On day one, the economy will be operating on the basis of the reformed monetary system with increased stability of money supply. However, it will take several years for the current debt levels to adjust to new system, as debt created from money creation under the fractional reserve system is being repaid. Banks will therefore have a number of years to adjust their operation to the change.

The transition process is further explained in the following subsections.

9.1 Account conversions

9.1.1 Transaction Accounts and Investment Accounts

ISK denominated demand deposits of commercial banks and other deposit taking institutions will be converted to Transaction Accounts held at the CBI. Therefore, the deposits will no longer be recorded as liabilities on balance sheet of the banks, but as sovereign money, issued by and held at the CBI.

Saving accounts, fixed-term and fixed-notice savings accounts are converted into Investment Accounts remaining on the balance sheet of each bank.

The government's reserves at the CBI will be moved to a Government Transaction Account, also at the CBI.

9.1.2 Operations Accounts

Reserves at the CBI owned by banks and other financial institutions will be converted to Operation Accounts for the respective banks. Such accounts will continue to be recorded as assets of commercial banks.

Unlike CBI reserves in the current system, which can only be used to make payments between banks, funds in Operation Accounts can be transferred to the CBI accounts of other banks or to the Transaction Accounts of members of the public.

9.1.3 The Conversion Liability

Each bank will record a new liability to the CBI, of the same amount as the demand deposits that are moved from the bank to the CBI. This liability is called the Conversion Liability.

The Conversion Liability will be repayable to the CBI at a schedule that matches the maturity profile of the bank's assets (i.e. the bank will repay the CBI at the same speed that the bank's loans to businesses and the public are repaid). The Conversion Liability would pay interest that is similar to the interests that banks pay on deposits. Banks should therefore not recognize profit or loss from having the demand deposits moved to the CBI.

Each month, as the banks' customers repay their bank loans, the banks will in turn repay part of their Conversion Liability to the CBI. The process of repayment deletes money from the money supply. However, the CBI will create new sovereign money to replace the deleted money and to keep the money supply steady. The government will decide how the new money enters circulation, taking into account the need for money in the real economy vs. the financial market.

Assuming that ISK 400 bn of demand deposits is converted into Transaction Accounts at the CBI, the banks' aggregated Conversion Liability will amount to ISK 400 bn.

Assuming for the sake of example that banks will repay the Conversion Liability evenly over a period of 10 years, each year the CBI will receive ISK 40 bn of sovereign money from the banks, and the government will have to decide how to put the new money back into circulation. The government can do it by reduction of public debt, lower taxes, by increased expenditure or by investing in new infrastructure, or by lending to banks for lending to individuals and non-financial businesses.

9.2 Availability of bank credit following the switchover

After the change to Sovereign Money, banks will no longer be able to create money by lending. However, they will still be able to lend, using funds that they borrow from savers, or their own funds. There are a number of sources of funds that ensure that banks will have access to enough money to meet the demand for loans.

From day one, banks will have access to considerable funds in their Operational Accounts that can now be lent out to businesses and members of the public. These are the funds that were pre-reform held in reserve accounts, which – as reserves – could only be used between banks, but not lent to the public. As Operational Accounts will not earn interest, banks will want to lend the funds that are not required for operations.

After reform, repayments on existing customer loans will be made into the bank's Investment Pool Account. These funds can then be used to finance new customer loans. In addition, interest earned from outstanding loans to customers of banks will be added to the banks' Operational Account. The bank can then choose to re-invest this income by using it to fund new loans.

Initially, the Investment Pools of banks will be empty, but from day one banks will begin attracting funds from customers wanting to earn interest on their money. Funds in Transaction Accounts will not earn interest, so customers will have an incentive to move funds that are not needed in the near future into interest bearing Investment Accounts.

If there is an excess of funds for lending, creating a risk of a lending boom, the CBI may allow banks to reduce their excess funds by immediately repaying some of their Conversion Liability. This would effectively reduce the money supply.

If there is a shortage of funds for lending, then banks will offer higher interest rates to attract funds from savers, which they can then use for lending. If the CBI does not want market rates to rise further, it can create new money and lend it to commercial banks.

9.3 Impacts of a Sovereign Money System

9.3.1 Key benefits

In the reformed system, bank lending will not expand the money supply and repayments of bank loans will not reduce the money

supply. The money supply will be stable regardless of the lending activities of banks.

The CBI will be in control of money creation directly rather than trying to influence the lending and money creation of commercial banks.

Money can be injected into the economy without the need for any household or business to take on more debt.

The potential for abusing the power of money creation for individual gain is greatly reduced.

The payment system will operate using sovereign money, rather than liabilities of banks.

Risk and reward in the banking sector will be better aligned. The state and taxpayer will not be obliged to bail out failing banks. A depositor insurance scheme will not be necessary.

The income from creating money will benefit the state and society as a whole rather than the banks.

A one-time reduction of public debt, amounting to ISK 3-400 bn, as bank created money is retired and replaced by sovereign money.

With direct control of the money supply, the CBI will have a better chance of meeting its goals of monetary and financial stability.

9.3.2 Banks continue their most important roles

Post-reform, commercial banks will not be able to create money, but they will continue to provide important services:

- Banks will continue to act as intermediaries between savers and borrowers.
- Banks will allow small savers to participate in making large loans.
- Banks will enable successive short-term investors to make long-term loans.
- Although funds in Transaction Accounts will be stored at the CBI, commercial banks will continue to provide their customers with all services related to Transaction Accounts, such as debit cards, statements, internet or mobile banking, and so on.

9.3.3 Positive aspects for commercial banks

Banks will lose the ability to create money and gradually lose the income related to money creation. However, banks will also benefit from the reform.

As the failure of a bank would no longer threaten the payments system there is may be an opportunity to reduce or simplify banking regulation, allowing banks to reduce overhead costs.

Post-reform, banks will have much smaller maturity gap between their assets and liabilities. The Conversion Liability will have a maturity of several years, while the demand deposits that it replaced had a maturity of zero days, meaning they could be withdrawn without notice. Savings Accounts, many of which could be drawn on without notice, will become Investment Accounts with defined maturities and notice periods. This makes liquidity management easier for the banks, and banks will be safer.

As all Transaction Accounts will be kept at the CBI, there will be no need to fund a costly deposit insurance scheme for Transaction Accounts.

Banks will be able to collect transaction fees and account fees for providing various services to Transaction Account holders.

Lower debt levels across the economy will decrease levels of risk, financial instability, and reduce loan impairments. This safer long-term environment for banking should partly offset the loss of the subsidy from money creation.

9.3.4 Lower interest rates

Post-reform, the economy and the money supply will be able to grow in harmony and without increasing the overall level of debt to GDP. As the banks' Conversion Liability is repaid over a number of years, both public and private debt will be reduced. The aggregated balance sheets of the economy will grow stronger which means that the financial position of borrowers will improve, both when negotiating with domestic and foreign lenders. This lower level of risk should tend to lower interest rates.

The government will need to borrow less than before, because it will receive considerable new income from the creation of money, especially while banks are paying down the Conversion Liability. As the government borrows substantially less than before, the effect on the market will be towards lower interest rates.

Deposit insurance will not be necessary so banks will not have to make allowances for an insurance premium in their interest rates.

As the CBI will be able to control the money supply directly, interest rates will no longer have to be raised by the CBI to discourage money creation by commercial banks. This should result in more stable interest rates across the economy.

The stability of prices will be much improved when the money supply grows in harmony with the economy. Inflation premium in lending rates may become lower.

9.3.5 Impacts on the payment system

The payments system will no longer be dependent on the solvency and liquidity of individual banks. Instead of using bank liabilities for money, payments will be made with debt-free sovereign money, created and held in risk free Transaction Accounts at the CBI.

Although banks will charge their customers for handling Transaction Accounts such fees are likely to be modest. If the fees are too high at one bank, customers can easily transfer the handling of their Transaction Accounts to a bank that offers better fees.

There will be no change in the way banks handle notes and coin. Banks will offer exchange between cash and Transaction Accounts, for a modest handling fee.

Demand for bank notes as a safe storage of money may fall somewhat because Transaction Accounts at the CBI will offer a risk-free alternative that is more convenient than bank notes.

9.4 Impacts in an international context

Adopting sovereign created money instead of money created by commercial banks does not change the way we do international trade. An ISK will still be an ISK in the international context.

9.4.1 Increased attractiveness of the ISK

By reforming to a Sovereign Money System, a very big source of instability will be removed. The money supply can grow in harmony with the economy and the ISK will be a more stable currency than before.

A reform to sovereign money can therefore help to make Iceland more attractive to foreign investors.

9.4.2 No impact on international currency exchange

The structure of the payments systems that handle currency exchanges between countries is independent of whether the ISK is initially created by the CBI or by commercial banks.

In a sovereign money system, the process for exchanging ISK with foreign currency is essentially the same as in a fractional reserve system. International banks wishing to buy or sell ISK will notice no difference in the way the process works.

9.5 Scepticism about Sovereign Money

As with other proposals, Sovereign Money has met with skeptical questions. This chapter covers key issues that are frequently raised and how advocates of Sovereign Money have addressed them.

9.5.1 Will the ability to perform maturity transformation be lost?

Maturity transformation is the process where banks utilize short-term deposits to fund long-term loans. The process allows depositors to share in the interest charged by the banks, without any commitment. There is real risk of too many depositors choosing to withdraw funds. In such an event, the bank may become illiquid and the state may have to step in, usually at the expense of taxpayers. It could be argued, that using demand deposits for maturity transformation in the current system would be difficult without the implicit state guarantee on deposits.

In a Sovereign Money system, Transaction Accounts cannot be used for maturity transformation. They will be maintained at the CBI and always be available for withdrawal. However, instead of having demand deposits as a form of funding, the banks will be funded with the Conversion Liability, which is repayable over a number of years. Therefore, post-reform reform the banks will have much less maturity mismatch between their assets and liabilities than before.

Deposits in Investment Accounts will be available for the maturity transformation process. Investment Accounts cannot be withdrawn on demand so the liquidity risk involved in the maturity transformation is reduced compared to the current situation.

9.5.2 A tax on money

The objection is heard that transferring the value of money creation to the state will be to put a tax on money.

The assumption seems to be: first that, commercial banks operating in a competitive market would have to pass on to their customers all of the special profits they make from issuing new money; and second, that this would distribute the profit of money creation fairly throughout society.

Huber and Robertson question both points:

"Competition between banks is not sufficiently fierce to achieve the first; and there is no reason to suppose that, even if it was, the resulting distribution of the special profits would be economically efficient and socially fair."

*In fact the objection backfires. Defining seigniorage as a tax involves recognising that allowing the commercial banks to create new money, as now, allows them to levy a private tax. Few people would agree that that is preferable to collecting the value of new official money as public revenue."*⁶⁷

For perfect competition to exist requires that there should be a large number of competitors, no barriers of entry or exit, perfect information, zero switching costs for customers, non-economies of scale, rational customers etc. Such conditions do not apply to banking in general, and certainly not in Iceland, where three large banks have more than 90% of the market share.

9.5.3 What if the money creation committee makes mistakes?

It has been pointed out that the money creation committee may not possess all the information necessary for creating the optimal amount of money for the economy. The concern is that wrong decisions by the committee may lead to either inflation or the economy failing to reach its potential.

It would be unrealistic to demand or expect perfect decisions on money creation under a sovereign money system. But it would also hard to believe that a committee tasked with creating the proper amount of money for the economy would consistently create money to similar excess as the commercial banks have done in the past.

9.5.4 Fear of government creating money to fund its policies

Concerns exist that if governments are allowed to create money directly, they will get carried away and create excessive amounts of money to pay for vote-winning projects.

Under Sovereign Money, however, the government is not allowed to create money directly. The decision to *create* money would be made by a money creation committee, independent of government, on the basis of what is appropriate for the economy as a whole. The committee will not have the power to decide who benefits from its money creation or what new money will be used for. The *allocation* of new money will be decided democratically by parliament.

In the current system however, commercial banks are allowed to both create money and decide what new money is used for. Also, banks are currently incentivized to create money based on what is best for their bottom line, but not on what is appropriate for the economy as a whole.

⁶⁷ Creating New Money, Huber and Robertson - 2000

9.5.5 A nationalization of the banking system

The nationalization of money is sometimes confused with a nationalization of the banking system itself.

Sovereign money effectively restores the power to create money to the CBI but the ownership of banks remains unchanged and banks will continue to provide banking services as before. Although Transaction Accounts will be kept at the CBI, commercial banks will continue to handle consumer interaction and services in relation with such accounts. The CBI will not lend money to the public or companies, lending will remain the exclusive domain of banks.

9.5.6 The availability of credit

The concern has been raised that removing the banks ability to create money for lending may cause a reduction in availability of loans compared with the present system and the reformed system would be too constrained.

In the present system, most of the money created by banks has been lent for purchase of existing assets, causing asset price bubbles and crisis. (See Chapter 5.2)

There will be less credit available to fuel rapid asset price rises in a sovereign money system. The important question is whether there will be enough credit available for people to buy houses and to meet funding needs in the real economy.

During the transition period the private and public debt levels will decrease as debt, originated from the creation of the current money supply, is repaid and debt free Sovereign Money is created. This will increase the portion of equity funding in the economy and demand for loans may decrease.

As long as the money supply grows in step with the economy and savers remain keen to earn interest on their savings, and while interest rates are free to reflect supply and demand, banks should have enough money to lend. If however, there is a shortage of credit, or if interest rates are considered too high, the CBI could intervene. The authors of the Sovereign Money proposal have suggested the following response:

“After the reform, the Money Creation Committee would also be tasked with ensuring that businesses in the real (non-financial) economy have an adequate access to credit. ... The [Central Bank] would monitor the economy both through quantitative and qualitative methods. If, based on this analysis, the [Central Bank] concluded that banks were unable to meet demand for loans from

*creditworthy borrowers and businesses and this is negatively affecting the economy, then the [Central Bank] could make up the shortfall by creating additional money specifically for the purposes of lending to businesses. This money would be lent to banks with the requirement that the funds are only lent to businesses outside the financial sector (rather than property or financial sector companies)."*⁶⁸

Creating money for banks, specifically to lend into the real economy may run counter to the central bank orthodoxy of leaving decisions of credit allocation entirely to the markets. However, after the crisis, some central banks have decided to direct credit towards specific sectors. In July 2012, the Bank of England launched a Funding for Lending Scheme (FLS) that specifically incentivized banks and building societies to boost lending to the real economy. The scheme has since been amended further to boost lending to small and medium sized enterprises. Similar schemes have been activated by central banks in Korea, USA and the Eurozone.

Adair Turner concludes that bank's bias toward lending for real estate should be compensated for by regulation:

*"Left to themselves, banks lend much more towards real estate than is socially optimal. This has led to crisis and socialisation of debts. This bias towards real estate lending must be offset by; much higher bank capital requirements, much higher counter-cyclical capital requirements, increase capital risk weights for real estate lending above IRB levels, loan to income constraints on borrowers and by dedicating some banks to non real-estate lending."*⁶⁹

Post-crisis incentive schemes of central banks, and Turner's conclusions indicate that it is becoming acceptable for central banks to direct the supply of bank credit away from the financial sector and towards the real economy.

9.5.7 Development of alternative means of payment

The Sovereign Money proposal does not attempt to control all forms of 'money' in the system. Sovereign Money involves control only the type of money that is by law acceptable as payment in commerce and for settlement of debts and taxes.

Regardless of monetary reform, there may be circumstances where alternative community currencies may be a useful response to economic crisis.

⁶⁸ Modernising Money (2012)

⁶⁹ [Lecture](#) by Adair Turner - October 7th 2014 London

However, the motivation for creating money substitutes is strong in any monetary system as the issuer is rewarded with seigniorage. If money substitutes are allowed to gain too much traction, they could lead to inflation and asset bubbles.

9.5.8 Supposed international disadvantages

Sovereign Money will probably have to be pioneered by one country. The question is whether that country is likely to face international disadvantages.

Will the reform cause difficulties for engaging in transactions with other countries? There is no obvious reason for such difficulties to arise. It makes little difference in regard to international transaction systems whether the CBI or commercial banks create the local currency.

Will the exchange rate be affected? Might reform encourage capital flight? This may depend on how well the intended reform is explained. Control of money creation will be improved and the growth of money more in line with the needs of the economy. Greater stability of the currency, and therefore the economy should not make the country any less attractive for foreign investors.

Will domestic banks deprived of the ability to create money be at a competitive disadvantage to foreign banks? It should be noted that banks will not lose the subsidy from creating money overnight. It will happen gradually over a number of years as banks repay the Conversion Liability. This should allow domestic banks time for adjusting their operations. Domestic banks, having better information about the domestic market than foreign banks, are likely to retain the competitive advantage when lending to companies that primarily do business domestically.

However, large foreign banks with superior economies of scale, and lower cost of funding, already have a competitive edge on Icelandic banks, when lending to large Icelandic export companies.

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10 Samantekt á íslensku

10.1 Formáli eftir Adair Turner lávarð⁷⁰

Í kjölfar fjármálakreppunar árið 2008 hafa yfirvöld og seðlabankar víðað um heim gert átak í því að auka stöðugleika núverandi fjármálakerfa. Kröfur hafa verið auknar um eiginfjár- og lausafjárhlutföll, áætlanir gerðar um slitameðferðir, og þess krafist að afleiðuviðskipti fari í gegnum miðlægar uppgjörstofnanir. Þessar aðgerðir, sem ég tók virkan þátt í á árunum 2008 til 2013, eru mikilvægar til að minnka líkurnar á annari fjármálakreppu á næstunni.

En þeim hefur ekki tekist að fást við aðalvandamálið; getu bankanna til að búa til skuldir, peninga og kaupmátt og þann óstöðugleika sem óhjákvæmilega leiðir af því fyrirkomulagi. Afleiðingin er sú að þau úrræði sem hafa verið samþykkt hingað til, skilja heiminn eftir hættulega berskjaldaðann fyrir fjármálalegum og efnahagslegum óstöðugleika í framtíðinni.

Þessi skýrsla snýr að grundvallarvanda. “Umbætur á peningakerfinu” er titill sem hæfir efninu, því hún sneiðir framhjá tæknilegum reglum og spyr þeirrar spurningar hver eigi að búa til peninga og hvernig við tryggjum að þeim verði varið gagnlega.

Skýrslan fræðir almenning um hvernig brotaforðakerfið gerir bönkum kleyft að búa til peninga, og hvers vegna of mikil skuldsetning einka-geirans leiðir óhjákvæmilega til kreppu. Hún útskýrir hvers vegna það er ekki hægt að tryggja fjármálalegan og efnahagslegan stöðugleika með stýrivöxtum sem seðlabankar hafa hefðbundið reitt sig á.

Hún leggur til róttæka kerfisbreytingu sem lausn á vandanum sem við blasir. Ræða þarf fýsileika og kosti þeirrar lausnar. En hvaða stefna sem tekin verður á endanum, þá verður hún að byggjast á því viðhorfi sem birtist í þessari skýrslu – að peningamyndun er of mikilvæg til að láta bankamenn eina um það verkefni.

10.2 Inngangur

“Af öllum hugsanlegum útfærslum á peningakerfinu höfum við innleitt þá sem er allra verst. ... Breytingar, eru að mínu mati óhjákvæmilegar. Spurningin er, tekst okkur að finna betri leið, svo forða megi komandi kynslóð frá enn stærri bankakreppu í

⁷⁰ Adair Turner var stjórnarformaður breska fjármálaeftirlitsins frá 2008-2013, og formaður þeirrar nefndar sem mótaði stefnu alþjóðafjármála-stöðugleikaráðsins 2009-2013.

fram tíðinni.” - Mervyn King Lávarður, bankastjóri Seðlabanka Englands 2003 - 2013.

Þessi skýrsla er unnin að beiðni forsætisráðherra. Umfjöllunarefnið er vandamál í peningamálum Íslands, hvort megi rekja þau til ágalla peningakerfisins að einhverju leiti og hvaða endurbætur séu mögulegar.

Í meira en hálfa öld hafa Íslendingar glímt við alvarleg peningaleg vandamál svo sem verðbólgu, gengisfellingar, eignabólu og að lokum hrun bankakerfisins árið 2008. Kaupmáttur krónunnar hefur rýrnað um 99,7% frá því Seðlabanki Íslands var stofnaður árið 1961. Segja má að Seðlabanka Íslands hafi hvorki tekist að tryggja verðstöðugleika né fjármálastöðugleika en það eru hans meginmarkmið. Þetta eru reyndar ekki alveg sér-íslenskt vandamál. Síðan 1970 hafa orðið alls 147 bankakreppur í 114 ríkjum og afleiðingar þeirra ávallt verið aukin skuldsetning og minni landsframleiðsla.

Þrátt fyrir tíð og dýr bankahrun, hefur grunngerð peningakerfisins haldist óbreytt og útfærsla þess verið svipuð allstaðar. Tillögur að endurbótum hafa komið fram, margar mjög áhugaverðar, en þær hafa hvergi verið innleiddar.

Hingað til hefur almenningur ekki verið nægilega upplýstur um það hvernig núverandi peningakerfi starfar, hversu óstöðugt það er eða hvaða endurbætur eru mögulegar. Þessi skýrsla miðar að því að varpa ljósi á þessi atriði í því skyni að vekja umræðu um ferli peningamyndunar á Íslandi og mögulegar umbætur á því svo peningakerfið geti þjónað samfélaginu betur í framtíðinni.

Reykjavík, 20. mars 2015

Frosti Sigurjónsson

10.3 Úrdráttur

Í þessari skýrslu má finna samantekt á nokkrum kunnuglegum vandamálum í stjórnun peningamála á Íslandi með hliðsjón af eiginleikum brotaforðakerfisins, en svo nefnist það peningakerfi sem Íslendingar og aðrar þjóðir búa við.

Margt bendir til þess að brotaforðakerfið skapi innlánsstofnunum bæði hvata og svigrúm til að auka peningamagn í landinu. Seðlabankinn virðist ekki fær um að halda aftur af aukningunni. Líklegt er að þetta fyrirkomulag hafi átt þátt í að peningamagn í landinu nítján-faldaðist á því fjórtán ára tímabili sem endaði með hruni fjármálakerfisins árið 2008.

Svo virðist sem brotaforðakerfið hafi einnig stuðlað að vandamálum á borð við óðaverðbólgu á nífunda áratugnum, háum fjármagnskostnaði og vaxandi skuldsetningu í samfélaginu.

Í brotaforðakerfinu er innlánsstofnunum heimilt að búa til lausar innstæður sem nota má í stað reiðufjár til að greiða skatta og skuldir. Seðlabankinn býr til reiðufé en það er aðeins lítið brot af heildarpeningamagninu. Peningamagnið, sem hagkerfið gæti ekki verið án, útheimtir að bankarnir séu ávallt gjaldfærir.

Veikleikar brotaforðakerfisins hafa verið þekktir lengi og ýmsar útfærslur á endurbótum þess verið settar fram. Í þessari skýrslu er fjallað um nokkrar útfærslur að endurbótum og ein þeirra rakin í smáatriðum. Hana mætti kalla *þjóðpeningakerfi* (e. Sovereign Money) en með henni er tryggt að einungis seðlabankinn geti búið til þá peninga sem nota má til staðgreiðslu. Farið er náið yfir kosti og galla þjóðpeningakerfa og hvaða skref væru nauðsynleg fyrir innleiðingu slíks kerfis.

Ákvörðun um innleiðingu þarf að byggjast á upplýstri umræðu meðal almennings, sérfræðinga og stjórnámálamanna. Á meðan væri æskilegt að hefja ítarlegri greiningu á því hvort þjóðpeningakerfi sé raunhæfur kostur fyrir Ísland og jafnframt grípa til þeirra úrræða sem finnast til að draga úr áhættu núverandi kerfis.

10.3.1 Hvers vegna þarf endurbætur á peningakerfinu?

Brotaforðakerfið hefur sætt vaxandi gagnrýni. Fyrrum bankastjóri Englandsbanka hefur kallað það verst allra mögulegra peningakerfa og telur afar brýnt að gera endurbætur á. Adair Turner fyrrum formaður fjármálaeftirlits Bretlands er á sama máli þótt hann hafi ekki tekið jafn sterklega til orða. Hér á eftir fer stutt samantekt á helstu göllum brotaforðakerfisins og skoðað hvernig þeir kunna að hafa birst hér á landi.

10.3.2 Seðlabankinn hefur litla stjórn á peningamyndun

Viðskiptabankar skapa nýja peninga í formi innstæðna þegar þeir veita lán en þegar lán eru endurgreidd hverfa peningar aftur. Seðlabankinn skapar aðeins lítið brot af peningamagni í landinu. Skorti viðskiptabanka grunnfé vegna mikilla útlána, á Seðlabankinn vart annan kost en að útvega það. Að öðrum kosti missir Seðlabankinn stjórn á vaxtastiginu eða skapar hættu á lausafjárskorti hjá bönkum.

Seðlabanki Íslands varð að útvega bönkunum grunnfé á meðan þeir nítjánfölduðu peningamagn í landinu á tímabilinu 1994 - 2008. Seðlabankinn hækkaði stýrivexti og varaði sterklega við þenslunni, en það

hafi lítil áhrif. Bankar héldu áfram að þenja út lánabóluna með vaxandi hraða þar til hún sprakk.

Til að hemja lánabóluna hefði Seðlabankinn þurft að setja bönkunum stífar skorður um vöxt útlána og takmarka sérstaklega útlán þeirra til fjárfestingafélaga og spákaupmennsku. Slíkar aðgerðir hefðu vafalaust verið mjög óvinsælar.

10.3.3 Lánveitingar viðskiptabanka auka á hagsveiflur

Þegar hagvöxtur er mikill keppast bankar við að veita lán og lántökuvilji er mikill. Útlánavöxtur eykur peningamagnið sem eykur enn á þenslu í hagkerfinu. Aukning peningamagns getur leitt til hækkandi eignaverðs sem eykur möguleika bankanna til að veita enn meiri lán. Þegar verr árar verða bankar hins vegar tregari til að lána og skuldarar keppast við að greiða niður lán. Við það dregur úr vexti peningamagns og það getur jafnvel dregist saman. Minnkandi peningamagn eykur samdrátt í efnahagslífinu og dýpkar þannig niðursveifluna.

Útlánahegðun bankanna eykur því hagsveiflur en þessi útlánahegðun er einfaldlega afleiðing af því að sérhver banki tekur fyrst og fremst ákvarðanir út frá eigin hagsmunum.

Á árunum fyrir hrun kepptust íslenskir bankar við að lána út peninga, lántakendur voru bjartsýnir og tóku mikil lán. Peningamagn margfaldaðist og eignabólan óx sífellt hraðar. Frá hruni hefur vöxtur peningamagns verið afar lítill enda keppast flestir við að greiða niður skuldir sínar.

10.3.4 Vöxtur peningamagns hefur verið allt of hraður

Áratugum saman juku íslenskir viðskiptabankar peningamagnið margfalt hraðar en hagkerfið þoldi. Á tímabilinu 1986-2006, var hagvöxtur að meðaltali 3,2% á ári. Á sama tímabili juku bankarnir peningamagn að meðaltali um 18,6% á ári.

Aukning peningamagnsins var því sex sinnum hraðari en hagvöxtur og var því mikilvægur orsakabáttur verðbólgu og gengisfellinga.

Seðlabankinn hækkaði stýrivexti ítrekað og fóru þeir úr 5,6% 2004 í 18,0% árið 2008. Þreföldun stýrivaxta dugði ekki til að draga úr útlánum, en hún leiddi hinsvegar til innflæðis á erlendu lánsfé og styrkingar á gengi krónu. Bankar hófu að bjóða gengistryggð lán í stórum stíl. Árið 2008 urðu afleiðingar of mikils peningamagns og lánabólu þó ekki lengur umflúnar, bankarnir féllu og krónan með. Gengi bandaríkjadals fór úr 63 kr í 120 kr.

10.3.5 Ríkissjóður verður af myntsláttuhagnaði

Ætla má að ef Seðlabanki skapaði þá peninga sem þyrfti til að mæta hagvexti í landinu og markmiðum um verðbólgu, væri ágóði Seðla-bankans af því um 20 milljarðar á ári. Þess í stað hafa innlánsstofnanir séð um peningamyndun og notið ágóðans.

Ágóði innlánsstofnana af peningamyndun verður til með þeim hætti að þeir geta fjármagnað lánastarfsemi með útgáfu innstæðna sem hafa ígildi peninga og njóta óbeinnar ríkisábyrgðar. Bankar greiða ekki ábyrgðargjald fyrir hina óbeinu ríkisábyrgð. Þar sem innstæður eru þægilegur og öruggur greiðslumiðill sætta innstæðueigendur sig við lága ávöxtun á innstæðum. Fjármagnskostnaður bankanna er því mun lægri en ella og í því felst ágóði þeirra af myndun peninga.

10.3.6 Ríkisábyrgð á innstæðum er óhjákvæmileg

Þótt innstæða sé þægilegur greiðslumiðill er hún ekki áhættulaus. Innstæða er skuld þess banka sem hefur gefið hana út, loforð bankans um að afhenda innstæðuhafanum reiðufé fyrirvaralaust.

Í brotaforðakerfinu eiga bankar aldrei nóg reiðufé til að borga út nema lítinn hluta af lausum innstæðum. Venjulega er það þó ekki vandamál því innstæðuhöfum finnst þægilegra að eiga innstæðu en reiðufé.

Komi hinsvegar upp grunur um að banki sé í vandræðum, myndast kapphlaup milli innstæðuhafa um að taka út inneignir áður en reiðufé bankans klárast. Slíkt áhlaup neyðir bankann til að selja eignir með hraði til að losa reiðufé. Vegna flýtisins er líklegt að bankinn verði að selja ódýrt og það getur leitt til verðfalls á eignamörkuðum. Fleiri bankar geta þá komist í vanda, innstæðuhafar byrja þá kapphlaup um að taka út reiðufé úr þeim líka. Afleiðingin getur orðið keðjuverkun og allsherjar bankahrun.

Ríkisstjórn sem stendur frammi fyrir bankaáhlaupi mun því neyðast til að lýsa yfir ríkisábyrgð á innstæður í þeirri von að innstæðuhafar róist.

Árið 2008 hófu áhyggjufullir innstæðuhafar að taka út innstæður sínar í vaxandi mæli. Áhlaupið stöðvaðist ekki fyrr en ríkisstjórnin lýsti yfir ríkisábyrgð á innstæðum.

10.3.7 Ætluð ríkisábyrgð á innstæðum eykur áhættusækni banka

Þar sem innstæðueigendur geta reiknað með því að ríkið ábyrgist innstæður þeirra, hafa þeir engan hvata til að velja banka sem leggur áherslu á öryggi umfram ávöxtun. Áhersla banka verður því sú að hámarka ávöxtun og arðsemi en til þess þarf að auka áhættusækni bankans.

Landsbankinn hóf árið 2006 að bjóða innlánsvexti sem voru með því hæsta sem þekktist í Bretlandi á þeim tíma. Þegar bankinn féll höfðu 300 þúsund viðskiptavinir lagt 4 milljarða punda á Icesave reikninga Landsbankans þar í landi.

10.3.8 Ætluð ríkisábyrgð á innstæðum bjagar samkeppni á fjármálamarkaði

Aðeins innlánsstofnanir geta fjármagnað sig með ríkistryggðum innstæðum. Fjárfestingabankar og önnur fjármálafyrirtæki njóta ekki sömu ívilnunar. Þeir þurfa því að fjármagna allar lánveitingar með eigin fé eða með lántökum á markaðsvöxtum.

10.3.9 Innstæðutryggingakerfi nær ekki tilgangi sínum á smáum markaði

Á Íslandi eru þrír stórir bankar með meira en 90% af innstæðum. Lendi einn þeirra í vanda mun tryggingasjóður innstæðueigenda ekki duga til að afstýra áhlaupi og hugsanlegri keðjuverkun. Stjórnvöld munu því knúin að lýsa yfir ríkisábyrgð til að afstýra áhlaupi ef til þess kemur.

Innstæðutryggingar valda kostnaðarauka í rekstri banka en skapa ekki raunverulega tryggingavernd. Kerfið dregur úr aðhaldi neytenda sem eykur áhættusækni banka og líkur á áföllum.

10.4 Valkostir við brotaforðakerfið

Til þessa hefur verið reynt að draga úr áhættu og vandamálum brotaforðakerfisins með því að setja strangari reglur um bankastarfsemi og auka eftirlit með þeim. Basel I var 30 blaðsíður, Basel II var 251 blaðsíður og Basel III 509 blaðsíður. Sífelld viðameira regluverk um brothætt bankakerfi hefur valdið auknum kostnaði fyrir bæði banka og eftirlitsaðila. Rót vandans er enn til staðar.

Sú skoðun nýtur vaxandi fylgis að í stað þess að auka reglur og eftirlit með kerfi sem er óstöðugt í eðli sínu sé vænlegra að breyta kerfinu. Ýmsar hugmyndir hafa komið fram þar að lútandi, meðal annars 100% bindiskylda, "Narrow Banking", "Limited Purpose Banking" og Þjóðpeningakerfi (e. Sovereign Money). Í skýrslunni er þessum hugmyndum lýst og fjallað nokkuð ítarlega um útfærslu þjóðpeningakerfis og hvernig mætti innleiða það. Þjóðpeningakerfi hefur þann kost að varðveita bankakerfið í nær óbreyttri mynd en færir þó peningamyndun alfarið frá bönkum til Seðlabanka. Seðlabankinn væri þá fær um að koma í veg fyrir ofpenslu peningamagns auk þess sem ágóði af peningamyndun myndi renna til ríkisins.

10.5 Þjóðpeningakerfi

Sú útfærsla á þjóðpeningakerfi sem hér er lýst, byggir á tillögum sem komu fram í bókinni "Modernising Money" (2013) eftir Dyson og Jackson sem aftur byggir á hugmyndum Huber og Robertson sem fram komu í bókinni "Creating New Money" (2000).

Í þjóðpeningakerfi geta innlánsstofnanir ekki búið til ígildi peninga í formi innstæðna. Aðeins Seðlabankinn má þá búa til peninga hvort sem um er að ræða mynt, seðla eða innstæður sem nota má sem peninga. Innlánsstofnanir munu eftir sem áður geta veitt lán og alla aðra hefðbundna bankaþjónustu.

Í þjóðpeningakerfi verða öll veltiinnlán, sem nú eru hjá innlánsstofnunum, færð í Seðlabankann á svonefnda *færslureikninga* (e. Transaction Accounts). Peningamagnið í landinu væri þar með hvorki háð greiðsluhæfi einstakra innlánsstofnana né útlánahegðun þeirra. Innstæður á færslureikningum væru ávallt aðgengilegar, án áhættu og bæru því ekki vexti.

Innlánsstofnanir myndu áfram bjóða upp á bundna innlánsreikninga, svokallaða *fjárfestingareikninga* (e. Investment Accounts) en enga reikninga sem hægt væri að taka út af fyrirvaralaust.

Með þessu er komið í veg fyrir að innlánsstofnanir geti búið til ígildi peninga. Fjárfestingareikningar væru bundnir í fyrirfram ákveðinn tíma eða úttektir af þeim háðar uppsagnarfresti. Reikningarnir gætu verið bundnir til mismunandi langs tíma og borið mismunandi áhættu og vexti.

Seðlabankinn myndi skapa peninga í nægu magni til að mæta þörfum vaxandi hagkerfis, að teknu tilliti til markmiðs um stöðugt verðlag. Ákvarðanir um peningamyndun eru teknar af sjálfstæðri peningamagnsnefnd sem væri óháð stjórnvöldum með sama hætti og núverandi peningastefnunefnd.

Nýir peningar sem Seðlabankinn býr til eru færðir á færslureikning ríkissjóðs. Um leið eignast Seðlabankinn jafn háa kröfu á ríkissjóð sem ber enga vexti og er án afborgana.

Í stað þess að lána nýja peninga í umferð eins og bankar gera í dag, geta stjórnvöld sett nýja peninga í umferð með því að auka ríkisútgjöld, lækka skatta, lækka ríkisskuldir eða dreifa peningunum jafnt á skattgreiðendur eða hvern íbúa í landinu. Auk þess gæti Seðlabanki búið til peninga til að lána bönkum sem aftur myndu lána þá til fyrirtækja sem ekki eru í fjárfestinga eða fjármálastarfsemi.

Peningamagnsnefndin tekur eingöngu ákvörðun um hvort auka skuli peninga en hún getur ekki ákveðið til hvaða verkefna þeim er varið.

Alþingi ákveður til hvaða verkefna nýjum peningum er varið, en getur ekki ákveðið hvort búnir séu til nýjir peningar. Þannig er dregið úr hættu á að peningavaldið sé misnotað.

En hvað þyrfti að auka peningamagn mikið á ári? Ef miðað er við 2% hagvöxt, 2% verðbólgu og upphaflegt peningamagn 500 milljarða króna, má áætla að bæta þyrfti við 20 milljörðum króna á hverju ári. Það er há fjárhæð en þó innan við 3% af núverandi fjárlögum.

10.5.1 Helstu kostir þjóðpeningakerfis

Kostir þjóðpeningakerfis umfram brotaforðakerfi eru taldir vera þó nokkrir og er tæpt á þeim helstu hér.

Í þjóðpeningakerfi er peningamagni stýrt af seðlabankanum og einkabankar geta ekki aukið peningamagn stjórnlaust eins hingað til.

Seðlabankinn mun auka peningamagnið í takt við vöxt og þarfir hagkerfisins og í samræmi við markmið um stöðugt verðlag.

Valdið til að *skapa* peninga er aðskilið frá valdinu til að *ráðstafa* nýjum peningum. Með því að skipta peningavaldinu upp er dregið úr hættu á að það verði misnotað í þágu sérhagsmuna. Í dag hefur sérhver innlánsstofnun peningavaldið óskipt á sinni hendi.

Hættan á áhlaupi á banka minnkar verulega. Innstæður á *fjárfestinga-reikningum* eru allar bundnar til skemmri eða lengri tíma og því tæki áhlaup á þá marga mánuði. Ástæðulaust væri fyrir innstæðueigendur að gera áhlaup á færslureikninga því þeir eru allir í Seðlabankanum og innstæður á þeim jafn öruggar og peningaseðlar. Það er því ekkert tilefni til að vera með innstæðutryggingakerfi fyrir færslureikninga.

Tekjur af peningamyndun munu renna í ríkissjóð og þeim varið í samræmi við fjárlög. Eins og áður var nefnt, gætu tekjur ríkisins af peningasköpun numið 20 milljörðum króna árlega.

Að auki mun ríkissjóður njóta einskiptis hagnaðar sem nemur samtals 3-400 milljörðum króna við umbreytingu í þjóðpeningakerfi. Hann verður til á um það bil 10 árum. Það peningamagn sem bankar hafa skapað (um 450 milljarðar) með lánveitingum, minnkar aftur þegar lánin eru endurgreidd. Til að halda peningamagni stöðugu, myndi Seðlabankinn búa til nýja þjóðpeninga í stað þeirra bankapeninga sem hverfa úr umferð.

Með því að nota skuldlausa þjóðpeninga í stað þess að nota bankapeninga sem búnir eru til með lántöku, myndi heildarmagn skulda í hagkerfinu vera minna en ella. Eftirspurn eftir lánsfé gæti því minnkað sem gæti leitt til lægra vaxtastigs.

Í þjóðpeningakerfi er mjög dregið úr þeirri áhættu sem samfélagið ber af rekstri viðskiptabanka. Með minkandi áhættu er hugsanlegt að draga megi eitthvað úr regluverki og eftirlit með starfsemi viðskiptabanka. Þörfin fyrir að aðskilja rekstur fjárfestinga- og viðskiptabanka yrði sömuleiðis minni en í núverandi kerfi.

10.5.2 Umbreyting í þjóðpeningakerfi

Frá fyrsta degi gætu innlánsstofnanir ekki búið til peninga, en það myndi taka mörg ár, líklega áratug, að skipta út því peningamagni sem þeir hafa skapað fyrir þjóðpeninga. Það verða því ekki skyndilegar breytingar á afkomu bankanna.

Við umbreytingu í þjóðpeningakerfi eru allir veltureikningar og hlaupareikningar í innlánsstofnunum (nú um 450 milljarðar) fluttir yfir á færslureikninga sem geymdir eru í Seðlabankanum. Um leið eignast Seðlabankinn jafn háa kröfu á innlánsstofnanirnar, sem kölluð er *umbreytingarkrafa*. Innlánsstofnanir munu endurgreiða Seðlabankanum umbreytingarkröfuna á álíka löngum tíma og þeir fá sín útlán endurgreidd, líklega á 10 árum. Umbreytingarkrafan gæti borið svipaða vexti og innlánsstofnarnirnar greiða innstæðuhöfum veltu-hlaupareikninga í dag.

Í hvert sinn sem innlánsstofnanir greiða af umbreytingakröfunni minnkar peningamagn í umferð. Seðlabankinn þarf því að búa til nýja þjóðpeninga jafn óðum til að halda peningamagninu stöðugu líklega 45 milljarða króna á ári í 10 ár. Því peningamagni gæti Seðlabankinn komið í umferð með því að greiða upp ríkisskuldir eða með því að fela stjórnvöldum að nota þær aðferðir sem það hefur til að setja nýja peninga í umferð. Ef Seðlabankinn teldi æskilegt að minnka peningamagn í umferð gæti hann það með því að búa til minna af þjóðpeningum.

10.5.3 Gagnrýni á þjóðpeningakerfi

Eðlilega hafa hugmyndir um þjóðpeningakerfi vakið ýmsar gagnrýnar spurningar. Hér á eftir er gerð grein fyrir þeim algengustu ásamt svörum talsmanna þjóðpeningakerfisins.

1. Geta bankar áfram breytt stuttum innlánnum í lengri útlán?

Í núverandi brotaforðakerfi nýta bankar innstæður á hlaupareikningum til að veita lán til lengri tíma. Í þjóðpeningakerfi er ekki hægt að nota færslureikninga í Seðlabankanum til útlána. En á móti kemur að í stað þess að skulda innstæður á hlaupareikningum, skulda bankarnir umbreytingarkröfuna sem þeir geta endurgreitt á mörgum árum. Bankar eru því með aðgang að mun lengri fjármögnun eftir upptöku þjóðpeningakerfis.

Bankar munu áfram geta notað innstæður á Fjárfestingareikningum til að veita útlán til lengri tíma.

2. Hagnaður Seðlabankans af peningamyndun er skattur

Þar sem Seðlabankinn mun hagnast á því að búa til þjóðpeninga er spurt hver borgi þann "skatt".

Ef Seðlabankinn býr til svo mikla peninga að verðbólga geri vart við sig myndast tap hjá þeim sem eiga peninga. En ef Seðlabankinn býr aðeins til nægilegt magn peninga til að mæta þörf vaxandi hagkerfis þá tapar enginn.

Í núverandi kerfi hefur hagnaður af peningamyndun runnið til innánsstofnana. Þær hafa yfirleitt skapað of mikið af peningum og þannig valdið verðbólgu og tjóni hjá þeim sem eiga peninga. Á Íslandi er fákeppni meðal banka og þeir geta því haldið eftir stórum hluta ágóðans af peningamyndun.

3. Peningamyndunarnefndin getur ekki tekið réttar ákvarðanir

Upplýsingar um stöðu hagkerfisins eru ófullkomnar, framtíðin er óviss og fólk gerir mistök. Peningamagnsnefndin mun því ekki alltaf taka réttar ákvarðanir.

Á móti má segja að í núverandi kerfi, þar sem bankar ráða för og taka ákvarðanir út frá eigin hagsmunum, hafa alls ekki verið tekið réttar ákvarðanir út frá hagsmunum heildarinnar. Bankar hafa aukið peningamagn margfalt hraðar en hagkerfið þolir.

Peningamagnsnefnd sem hefur hagsmuni heildarinnar að leiðarljósi getur líklega tekið betri ákvarðanir um peningamagn en hagnaðar-drifnir bankar hafa gert undanfarna áratugi.

4. Ríkisstjórnir munu freistast til að prenta peninga

Er ástæða til að óttast að ríkisstjórnir láti freistast til að prenta peninga til að sinna gæluverkefnum?

Þjóðpeningakerfið gefur ríkisstjórn alls ekki vald til að búa til peninga. Valdið til að búa til peninga verður varðveitt hjá óháðri peningamagnsnefnd sem tekur ekki við fyrirmælum frá ríkisstjórn, en miðar sínar ákvarðanir við markmið um stöðugt verðlag.

5. Jafngildir þetta því að ríkisvæða bankastarfsemi?

Spurt er hvort ríkisvæðing peningamyndunar jafngildi ríkisvæðingar á bönkum og lánastarfsemi?

Svo er ekki, því ríkið mun ekki eignast bankana og þeir munu áfram geta veitt alla bankaþjónustu. Bankar munu taka við bundnum innlánum og ákveða hverjum þeir veita lán. Bankar munu jafnfram

annast öll samskipti við eigendur færslureikninga fyrir hönd Seðlabankans.

6. Verður nægt lánsfé í boði ef bankar geta ekki búið til peninga?

Ef bönkum er meinað að búa til peninga munu þeir þá ekki verða tregari til að veita lán? Verður minna framboð á lánsfé?

Í þjóðpeningakerfi mun Seðlabankinn búa til nægt magn peninga til að anna eftirspurn í hagkerfinu, en þó ekki svo mikið að verðbólga eða eignabólur myndist.

Þótt bankar muni ekki búa til peninga munu þeir hafa nóg af peningum til að veita lán: bankar eiga reiðufé sem þeir geta lánað út, einnig munu þeir geta lánað lausafé sem nú liggur á reikningum í Seðlabankanum og einnig munu bankar lána út peninga sem sparifjáreigendur leggja inn á fjárfestingareikninga, og bankar munu einnig geta fjármagnað sig með útgáfu skuldabréfa.

Að því gefnu að fjárfestar vilji ávaxta sparnað sinn munu bankar hafa peninga til að lána út. Ef skortur verður á lánsfé, getur það verið vísbending um að skapa þurfi meira af þjóðpeningum, eða vextir séu of lágir. Peningamagnsnefndin mun fylgjast með slíkjum merkjum og getur skapað peninga og lánað þá bönkum svo þeir geti veitt lán.

7. Geta bankar sniðgengið bann við peningamyndun?

Sumir hafa áhyggjur af því að ef bönkum sé bannað að búa til peninga í formi lausra innstæðna þá muni þeir búa til ígildi peninga með öðrum leiðum.

Starfsemi banka er hins vegar háð leyfum og eftirliti og það verður því að teljast ólíklegt að bankar myndu sniðganga eða brjóta lög.

Þjóðpeningakerfi bannar öðrum en Seðlabanka að búa til peninga sem nota má til að greiða skatta og eru skilgreindir sem lögeyrir í landinu.

Þjóðpeningakerfið krefst þess hins vegar ekki að önnur form greiðslumiðla séu bönnuð. Hugsanlegt er að staðbundnar hliðarmyntir geti til dæmis komið að notum við að draga úr atvinnuleysi.

Hvatinn til að búa til ígildi peninga verður ávallt fyrir hendi því sá sem getur búið til ígildi peninga nýtur hagnaðar af því. Fáir slíkir peningaform að ná mikilli útbreiðslu gæti það leitt til tekjutaps fyrir Seðlabankann og aukins viðskiptakostnaðar og óstöðugleika í verðlagi.

8. Hver yrðu áhrifin á viðskipti við útlönd?

Sú spurning hefur vaknað hvort fyrsta landið sem tekur upp þjóðpeningakerfi yrði fyrir truflunum í viðskiptum við útlönd. Er hætta á fjármagnsflóttu?

Litlu máli skiptir fyrir erlendan viðskiptaaðila hvort Íslendingar kjósa að geyma lausar innstæður í Seðlabankanum eða í viðskiptabönkum. Millifærslur milli reikninga innanlands verða alveg jafn einfaldar og áður.

Útflutningur og innflutningur frá Íslandi er nær alltaf verðlagður og greiddur í erlendum gjaldmiðli. Þar koma krónur lítið við sögu.

Gengi krónunnar gagnvart erlendum myntum gæti hugsanlega styrkst ef peningamyndun yrði aðhaldssamari en hjá öðrum ríkjum. Vaxtastigið gæti einnig lækkað. Viss hætta er á að erlendir fjárfestar myndu vilja veðja á styrkingu krónu og sækjast eftir að kaupa íslensk skuldabréf. Jafnvel gæti verið að erlendi aðilar myndu vilja kaupa krónur til að eiga á öruggum reikningum í Seðlabankanum. Í því tilfelli gæti þurft að setja reglur eða jafnvel skatt á innflæði fjármagns.

10.6 Niðurstöður

Það er ljóst að innlánsstofnanir hafa aukið peningamagn margfalt hraðar en hagkerfið þoldi. Afleiðingarnar, verðbólga, gengisfellingar, eignabóla og bankakreppa, hafa valdið þjóðinni gríðarlegu tjóni.

Brottaforðakerfið er óstöðugt og ýtir undir áhættusækni. Bankar hafa hvata til að búa til peninga og seðlabönkum hefur ekki tekist að hemja peningamyndun þeirra. Við óbreytt kerfi mun Seðlabankinn þurfa að beyta óhefðbundnum aðferðum: Banna bönkum að auka útlán of hratt og banna þeim að lána til spákaupmennsku. Það yrði án efa óvinsælt meðal bankamanna en hefðbundin stýritæki hafa reynst óskilvirk.

Til að fjarlægja sjálfa rót vandans þarf hins vegar að koma peningavaldinu í skjól. Færa þarf peningamyndun frá bönkum til Seðlabankans. Um leið þarf að aðskilja magn- og ráðstöfunarþætti peningavaldsins. Þannig má draga mjög úr óstöðugleika, minnka skuldir og beina tekjum af peningamyndun í ríkissjóð.

Flest bendir til að þjóðpeningakerfi geti verið góður grunnur að endurbótum á peningakerfi Íslands þótt ekki megi útiloka aðrar umbótaleiðir.

Ísland er fullvalda ríki, með sjálfstæðan gjaldmiðil og getur því ákveðið að hverfa frá hinu óstöðuga brottaforðakerfi og innleiða nútímalegra fyrirkomulag í peningamálum. Slíkt frumkvæði verður þó að byggja á vönduðum undirbúningi og víðtækri samstöðu.