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Assessment of possible outflows upon capital account liberalisation

When the capital controls are liberalised, capital outflows can be expected, owing to an increase in firms' foreign direct investment and to firms' and individuals' interest in diversifying risk in their asset portfolios. On the other hand, a wide interest rate differential with abroad, a stronger economy in Iceland than in trading partner countries, low inflation, and trade-related capital inflows with the associated appreciation of the króna reduce the risk of substantial outflows when the controls are lifted.

In order to assess the impact of possible capital outflows on the domestic economy – particularly the balance of payments and the Central Bank of Iceland's foreign exchange reserves – the Central Bank carried out an analysis of the assets most susceptible to outflows in the event that households and businesses decide to exercise their authorisations for foreign investment in order to diversify risk in their portfolios or to purchase substantial amounts of foreign currency for other reasons. Furthermore, stress tests were carried out on the balance sheets of commercial banks in order to assess how well prepared they are for the next steps in capital account liberalisation. Consideration was given to the effects of potential outflows of deposits on the banks' liquidity. This note reviews the main results of the analysis.

The analysis of the potential effects of liberalisation, which is based on various assumptions concerning individuals' and firms' propensity to diversify risk abroad and on their expectations concerning financial and foreign exchange markets, indicates that the economy can sustain significant capital outflows, as the foreign exchange reserves are sizeable, and the most recent outlook envisages continued trade related foreign currency inflows in coming years. Furthermore, the commercial banks' liquidity is strong, and stress tests suggest that their liquidity ratios will remain above the regulatory minimum specified by the Central Bank. Nevertheless, it is clear that if actual outflows resemble those shown in the scenario providing for the largest outflows, which is unlikely but possible, the strain on the foreign exchange market, financial institutions, and the economy as a whole would be enough that it would be imprudent to open the way for additional freedom of movement of capital before the markets have normalised once again. The results highlight the value of the strategy of lifting the capital controls in stages.

Domestic liquid assets

At the end of June 2016, total deposits in deposit institutions amounted to just over 1,720 b.kr., of which 1,710 b.kr. held in commercial banks. About 40% of deposits in the banks are

owned by individuals.¹ Concentration of individuals' deposits is limited. The ten largest depositors in each bank hold about 1% of total deposits. Roughly 66% of individuals' deposits are less than 16.5 m.kr. Only four individuals hold deposits of over 1 b.kr., and about 200 individuals hold deposits of over 100 m.kr.

Companies own 26% of bank deposits. The deposits are distributed relatively broadly. The ten largest corporate deposits with the four commercial banks total 75 b.kr. The majority of the largest depositors in this category have already been granted exemptions from the capital controls or are companies with a long operational history in Iceland.

Non-residents (individuals and legal entities with a legal address outside Iceland) hold about 5% of total deposits.

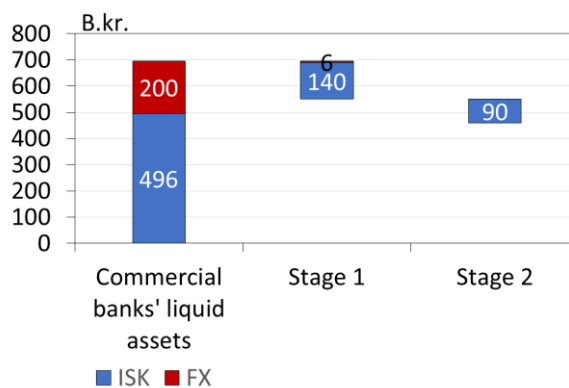
Approximately 13% of bank deposits are in foreign currency. The banks hold foreign-denominated liquid assets (government bonds with high credit ratings and deposits) to cover these deposits. Withdrawals of foreign-denominated deposits would therefore not cause problems for the banks, as they would only cause their balance sheets to shrink. As a consequence, financial stability would not be affected, and there would be no impact on the balance of payments.

Stress tests on commercial bank liquidity – deposit outflows

Various stress tests have been carried out to assess how well prepared the banks are for deposit outflows. Chart 1 shows one of the scenarios. It also forms a basis for the scenarios used in the analysis of the effects of potential outflows on the balance of payments and the foreign exchange reserves.

It is based on the authorisations provided for in the bill of legislation on capital account liberalisation, which was introduced on 17 August 2016. It is assumed that the maximum movement of capital per national ID number is 30 m.kr. and that households and businesses with over 100 m.kr. in deposits will exercise that authorisation in full. It is also assumed that those with less than 100 m.kr. but more than 1 m.kr. will withdraw 10% of their deposits, although certain groups, such as non-residents, are assigned a higher outflow rate. The second stage of the scenario is based on authorisations coming into force at the turn of the year, when the maximum permissible movement of capital will be 100 m.kr.

Chart 1
Stress which includes significant outflows from deposits¹



1. Pension funds will not take out their deposits. No asset sale assumed or slowdown in lending. Parent company data.

Source: Central Bank of Iceland.

¹ The deposit analysis here is based on deposit data from four commercial banks. National ID numbers are not linked between banks. As a result, stressed outflows are larger than could be expected if restrictions were set concerning capital movements from individual ID numbers.

Table I Deposit outflows		ISK	FX
	Commercial banks' liquid assets	496 b.kr.	200 b.kr.
Stage 1	Maximum movement of capital 30 m.kr.	140 b.kr.	6 b.kr.
Stage 2	Maximum movement of capital rises to 100 m.kr.	90 b.kr.	
Total		230 b.kr.	6 b.kr.

The results are shown for the four commercial banks combined. Liquid assets held by the commercial banks to satisfy the Central Bank's liquidity requirements amount to just under 700 b.kr. Based on the maximum withdrawal of 30 m.kr. and 10% unrestricted outflows, potential outflows total about 140 b.kr. If the withdrawal ceiling is raised to 100 m.kr., potential deposit outflows will include an additional 90 b.kr. Combined outflows will then total about 15% of all deposits owned by individuals and firms. These scenarios assume significant deposit outflows. In comparison, it could be noted that under entirely different and noticeably poorer conditions than currently reign in Iceland, deposits in Spain, Ireland, and Portugal contracted by 8-10% from July 2011 to July 2012, and deposits in Greek banks contracted by 19% over the same period. After Stage 1, the commercial banks' combined liquidity ratio is higher than Central Bank rules provide for, particularly for foreign currency.

Table II Impact on the banks' liquidity ratios	FX	Total
Pre-outflow liquidity ratio	451%	157%
Movement of capital 30 m.kr.	439%	138%
Movement of capital 100 m.kr.	432%	128%

Under the increased strain scenario mentioned above – 15% outflows instead of 10% for national ID numbers whose expected outflows are not limited to the specified ceilings – outflows total about 230 b.kr. in the first stage and another 80 b.kr. in the second stage. The four commercial banks' combined liquidity ratios are still above the Central Bank's regulatory minimum.

Investment funds

At the end of June, mutual funds' total assets amounted to just under 600 b.kr., including about 400 b.kr. held by individuals and firms. If 10-15% of the funds' assets are directed towards foreign investment, outflows will total 40-60 b.kr., if no consideration is given to the ceilings that apply during the first two stages of liberalisation. Data from mutual fund management companies show that 65% of individuals' and firms' mutual fund assets are held

by parties that hold 100 m.kr. or more.² The cap on movement of capital will therefore pose somewhat of a limitation on funds' capital movements, and this is accounted for in the balance of payments analysis scenarios.

The vast majority of mutual funds' assets are domestic securities. Price developments on domestic securities markets will therefore have a considerable impact on when and to what degree the funds invest abroad. It is likely that funds will gradually invest abroad in line with developments in securities markets and the foreign exchange market.

Portfolio investment

Approximately 12% of securities, or about 387 b.kr., are held without intermediation by individuals and firms, including 237 b.kr. in equity. Highly liquid securities therefore account for 150 b.kr. If 10-15% outflows are assumed, outflows will total 15-22 b.kr.

Table III Owners of securities						
	Bonds	%	Equities	%	Total	%
Banks and savings banks	227,994	10%	54,813	5%	282,807	8%
Individuals	30,895	1%	51,627	5%	82,522	2%
Non-residents	318,065	14%	179,438	17%	497,503	15%
Companies, other	118,981	5%	185,524	17%	304,505	9%
Pension funds	1,179,167	52%	432,019	40%	1,611,186	48%
State and local authorities	81,718	4%	32,650	3%	114,367	3%
Undertakings for Collective Investment in Transferable Securities (UCITS) and investment funds	182,352	8%	119,844	11%	302,195	9%
Other	137,903	6%	17,812	2%	155,715	5%
Total	2,277,075	100%	1,073,726	100%	3,350,801	100%

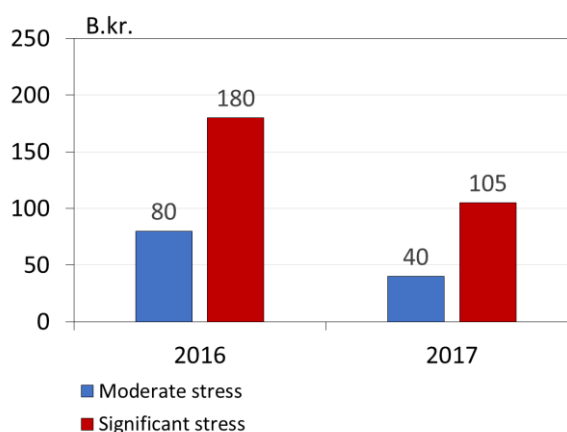
Total outflows

Based on the assumptions above and assuming that individuals' and firms' desire to diversify risk totals about 10% of deposits, securities, and holdings in funds, total outflows stemming

² The commercial banks call under single ID number here, but it is likely that this represents a number of customers; therefore, this figure is somewhat overestimated.

from them will amount of deposits, securities, and holdings in funds, total outflows stemming from them will amount to 285 b.kr. Assuming that the ceiling per national ID number is 30 b.kr. until year-end 2016 and 100 m.kr. thereafter, total outflows in 2016 will amount to about 180 b.kr. It is clear that the outflows are likely to be somewhat front-loaded, as a large share of individuals will not be subject to the above-mentioned ceilings because 99% of them hold less than 50 m.kr. in liquid assets. If it is assumed that individuals only invest abroad for 20% of their holdings in funds and 10% of their direct securities holdings, total outflows will amount to 120 b.kr., some 80 b.kr. of which will exit before the end of 2016.

Chart 2
Potential capital outflows under stress, two scenarios



Source: Central Bank of Iceland.

Tax data

The data above do not indicate how much savings each individual holds. As a result, scenarios based on those data will probably overestimate outflows as long as capital transfer ceilings are applied per national ID number. Tax data are used to analyse potential outflows more fully. Data for households show the balance as of year-end 2015, but company data extend only through 2014. The data shows that individuals hold liquid assets – deposits and Treasury bonds – valued at approximately 900 b.kr. Only 0.3% of these individuals hold more than 100 m.kr. in liquid assets, and 99% of individuals hold less than 50 m.kr. in liquid assets. As of year-end 2014, just under 2% of firms held cash and cash equivalents in excess of 100 m.kr.

Table IV Individuals' liquid assets

	Number	% of number	Total liquid assets in m.kr.	Average liquid assets in m.kr.
< 1 m.kr.	175,816	63.3%	53,530	0.3
< 10 m.kr.	260,306	93.8%	320,615	1.2
< 50 m.kr.	275,440	99.2%	622,927	2.3
< 100 m.kr.	276,834	99.7%	717,864	2.6
>100	772	0.3%	190,753	247.1
Total	277,606	100.0%	908,617	3.3

Potential total outflows are estimated to be about 60-100 b.kr. less using tax data but based otherwise on the same assumptions as in the assessment above. Unlike the previous assessment, the analysis based on tax data tends to entail an underestimation of outflows based on the given assumptions. Data on firms' liquid assets are rather old; furthermore, there is the possibility that not all firms have submitted annual accounts to the tax authorities. It is likely that households' liquid assets are underestimated in an amount equivalent to their unit share holdings in funds.

Pension funds

Pension funds' increased investment authorisations in recent months have greatly reduced their pent-up need for investment that resulted from the capital controls. It is possible that outflows stemming from the pension funds' foreign investments will range between 60 b.kr. and 80 b.kr. per year. The interest rate differential with abroad and good investment opportunities in Iceland, particularly in domestic mortgage loans, greatly reduces expected outflows related to the pension funds' foreign investment.

Impact on the balance of payments and the foreign exchange reserves

In order to assess the impact of outflows on Iceland's balance of payments and the Central Bank's foreign exchange reserves, several scenarios were construed. Two of them are shown here. They are based on the above-mentioned calculations of potential outflows upon capital account liberalisation. One of the scenarios assumes significant outflows but not disorderly ones, and the other assumes more moderate outflows. These two scenarios can be interpreted as the upper and lower borders of capital outflows that can be assumed to have some weight in the probability distribution. The assessment is a cautious one, however, as is explained below.

Table V shows key assumptions and the results of the scenarios. In both scenarios, it is assumed that the pension funds will continue to receive special authorisations for increased investment abroad. In Scenario 1, which goes further than Scenario 2, it is also assumed that, in addition to outflow related to pension funds, individuals and firms will export capital equivalent to just over 10% of their total holdings in deposits, securities, and unit shares in funds, or in accordance with the calculations above. Scenario 2 is more moderate. It assumes that outflows will amount to 20% of individuals' and firms' holdings in funds and 10% of their direct securities holdings, and that there will be no outflows from their current deposit holdings.

In assessing the impact of potential outflows in the wake of liberalisation on the balance of payments, the effects on the foreign exchange reserves are assessed assuming constant exchange rates, and the size of the reserves is placed in the context of various reserve adequacy criteria. This is done for simplification and for ease of comparison with previous balance of payments estimates, but does not represent any intention or indication concerning exchange rate policy more generally. This is explained further in the comments on the bill of legislation. Table V shows changes in the reserves according to each scenario. The Central Bank's foreign exchange reserves are currently large in historical context. At the end of July,

they totalled 721 b.kr., including 475 b.kr. financed domestically. The ratio of the reserves to the IMF's reserve adequacy metric (RAM), which takes account of a variety of factors that affect a country's balance of payments and can provide an indication of potential capital outflows based on historical data, is estimated to have been about 160% at the end of July. It therefore exceeds the 150% ratio that the Central Bank and the IMF consider necessary during the run-up to capital account liberalisation.

Table V Developments in the foreign exchange reserves upon capital account liberalisation¹

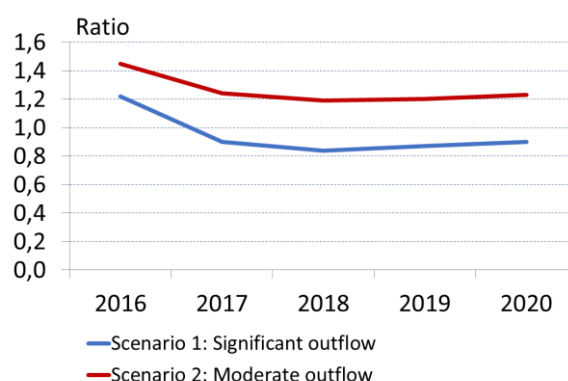
		2016	2017	2018	2019	2020
Scenario 1: Significant outflows	Outflows from individuals and firms (b.kr.)	180	105	0	0	0
	Balance of FX reserves (b.kr.)	531	432	406	453	474
	Ratio of reserves to RAM criterion	1.22	0.90	0.84	0.87	0.90
Scenario 2: Moderate outflows	Outflows from individuals and firms (b.kr.)	80	40	0	0	0
	Balance of FX reserves (b.kr.)	631	598	574	623	646
	Ratio of reserves to RAM criterion	1.45	1.24	1.19	1.20	1.23

1. Scenario 1 assumes that, for risk diversification purposes, individuals and firms will export capital equivalent to slightly more than 10% of their total holdings in deposits, securities, and unit shares in funds. Scenario 2 assumes that outflows will extend to 20% of their holdings in funds and 10% of their securities holdings.

The assessment of potential outflows upon capital account liberalisation entails that the balance of payments could be considerably affected. Whether these effects emerge depends on firms' and individuals' desire to diversify risk in their asset portfolios and on expectations concerning conditions in financial and foreign exchange markets. Based on the current economic situation and conditions in domestic and foreign markets, it is likely that outflows will be less than the scenarios suggest. Table V and Chart 3 show how the ratio of the foreign exchange reserves to the RAM criterion declines, to 1.22-1.45 at the end of 2016. It also declines in 2017, to 0.90-1.24, but begins to rise thereafter. It appears clear from the above that the domestic economy can sustain sizeable capital outflows, as the ratio does not fall excessively even under the substantial outflows assumed in Scenario 1.

The impact of capital account liberalisation on the reserves depends importantly on future foreign currency revenues. The Central Bank has purchased foreign currency in the market

Chart 3
Ratio of foreign exchange reserves to RAM¹



1. RAM is a reserve adequacy metric developed by the IMF.
Source: Central Bank of Iceland.

amounting to about 250 b.kr. in 2016 year-to-date. It bought about 270 b.kr. in 2015. If developments continue in line with expectations, potential outflows should not be overly onerous for the domestic economy.³ If foreign currency inflows during the liberalisation process are similar to those in the recent term, the ratio of the reserves to the RAM criterion will not fall as much as the scenario indicates. Furthermore, the reserves can be expected to return to the RAM criterion within one to two years, even in the event of significant outflows.

³ Caution is usually exercised in forecasting. In this context, it should be noted that the balance of payments model takes account of the Central Bank's forecast of developments in key economic variables, including the forecast concerning the current account balance. In recent years, Iceland's current account surplus has been somewhat less than estimated foreign currency inflows and the Central Bank's foreign currency purchases indicate. The balance of payments analysis therefore presents a cautious estimate of developments in the foreign exchange reserves over the forecast horizon.