2010

Iceland's Failed Banks: A Post-Mortem

Mark J. Flannery

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by
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Prepared for the Icelandic Special Investigation Commission

November 9, 2009

I thank the Commission Staff for their help and support, and Anand Datar for outstanding research assistance.

Höfundur

Mark J. Flannery fæddist í New Jersey í Bandaríkjunum árið 1950. Hann hefur hagfræðigráður frá háskólunum Princeton og Yale í Bandaríkjunum. Frá árinu 1989 hefur hann verið prófessor í fjármálum við háskólann í Flórída (University of Florida). Áður var hann aðstoðarprófessor og prófessor í fjármálum við háskólann í Norður Karólínu (University of North Carolina) og aðstoðarprófessor við háskólann í Pennsylvaníu (University of Pennsylvania). Ítarlegri upplýsingar um feril og önnur störf Flannery eru aðgengilegar gegnum leitarvélar á netinu. Þá er Flannery höfundur úttektar með yfirskriftinni „The importance of government supervision in producing financial services“ sem birtist í viðauka 8 með vefútgáfu skýrslu rannsóknarnefndar Alþingis. Sú úttekt er í íslenskri þýðingu í rammagrein 1 í kafla 16.0, bindi 5.

I. Introduction

Following a period of extraordinary growth, the three largest Icelandic banks were taken into government custody in early October, 2008. As the domestic economy had grown and stock prices had soared, the three banks' assets had expanded from "100 percent of GDP in 2004 to 923 percent at end 2007" (IMF (2008), page 12). The Icelandic economic euphoria was crushed by the large banks' failures. In the wake of these failures, the Icelandic government took over the banks and guaranteed 1,212 billion ISK of domestic deposits. The government (or central bank) will probably also reimburse some depositor losses in Great Britain, the Netherlands, Germany, and Sweden.

How could things have gone so terribly wrong? The purpose of this Report is to respond to the first two points listed in the legislation creating Iceland's Special Investigation Commission:

> "1. Seek to clarify as well as possible the events leading to, and the reasons for, the difficulties of the Icelandic banking system that caused Parliament to enact Act No.125/2008, empowering the State Treasury to allocate funds on account of a special situation in the financial market, etc.
>
> "2. Collect information on the operations of financial institutions that may clarify their difficulties, such as financing, lending policies, ownership, audit, and their links to business and industry." (Althingi Act number 142/2008, Chapter I, Article 1).

Any firm's failure reflects some combination of bad luck and bank management. Which was more important for the Icelandic banks' demise?

Bad Luck

The country's three large banks – Glitnir, Kaupthing, and Landsbanki – had apparently succeeded in tapping international sources of profitability. Through mid-year 2008, they reported healthy profits, high capital ratios, and remarkably modest loan losses. For example, the three banks' total assets grew 34% during 2007 and their average return on (book) equity was 19.7%. Some observers maintained that the banks were solvent until the end:

> Like fellow Icelandic banks Landsbanki and Kaupthing, Glitnir was solvent. All posted good first-half results, all had healthy capital adequacy ratios, and their dependence on market funding was no greater than their peers'. None held any toxic securities. These banks had been managed well since their "mini-crisis" in early 2006. (Portes (2008)).

Did these apparently-healthy banks simply fall prey to a worldwide financial panic, or perhaps to the predatory behavior of British regulators?

Bad Management

It is also possible that some feature(s) of the Icelandic banking system might have rendered the banks susceptible to failure. Under this view, the very busi-

ness models and regulatory structure that drove the banking system's rapid expansion were destined to fail, whether or not financial markets panicked. The banks had suffered a funding mini-crisis in early 2006, when they were criticized for their opaque ownership structures, the potential for insider lending, risk-sensitive financing arrangements, and over-reliance on trading profits or stock collateral lending. As the banks expanded, they outgrew the CBI's and the government's ability to provide support in the event of serious problems. Without a basic change to their business models, these institutions may have been headed for disaster. Perhaps they were even insolvent before October 2008.

> A review of the three banks' lending processes and the limited supervisory oversight to which they were subject suggests that the banks made a sequence of poor decisions, particularly in their loan underwriting. The financial crisis certainly made it more difficult for them to obtain financing, but these difficulties had begun more than six months before Lehman's failure caused world financial market to freeze. Likewise, a larger central bank with more foreign reserves might have postponed their troubles. But the bankers and their regulator should have understood the central bank's limited ability to aid them, and incorporated those limitations in their business plans.

The goal of this report is to assess whether the banks' failures reflected primarily bad luck, or if their downfall resulted from poor governance, poor oversight, and/or poor credit quality. The report is organized as follows. Section II recounts the expansion of Iceland's international banking operations between 2003 and 2008. Section III describes the outside analyst assessments that accompanied the 2006 funding mini-crisis. The banks' corrective measures following the mini-crisis are described in Section IV. Ultimately, these responses proved to be inadequate. Section V evaluates whether the banks were solvent when they were seized in October 2008. Although a firm conclusion is impossible to provide, it is quite possible that the banks' loan portfolios had accumulated sufficient losses to render them insolvent at the end. The final Section concludes and summarizes.

II. The Rise of the Icelandic Banks

The three Icelandic banks began expanding their international operations in the early 2000s. Iceland's membership in the European Economic Area (EEA) permitted its banks to operate financial businesses in Scandinavia and northern Europe. At yearend 2007, approximately half of the three banks' assets were outside of Iceland and 75% of their funding derived from the wholesale market (IMF (2008), page 11).

Table 1 illustrates the banks' rapid asset growth and decomposes that growth into several components. The annual growth rate of assets, valued in ISK, varied between 27% and 103% (See Column (3)). However, this aggregate growth rate combines domestic with foreign expansion; it also combines acquisitions, internal growth, and exchange rate revaluations. Column (4) records the ISK asset value (at the acquisition date) of firms *acquired* during the year. Column (5) approximates the exchange rate effect on total assets by multiplying the prior yearend's foreign-denominated assets by the change in

the ISK-Euro exchange rate.[1] By subtraction, then, column (6) represents the banks' "organic" asset growth during the year and column (7) is the organic growth as a proportion of prior-yearend assets. Organic growth measures the firms' expansion of assets in place at existing affiliates. Organic expansion provided at least half of total asset growth in 2004-2007. In other words, acquisitions were important, but the Icelandic banks also expanded their old and new subsidiaries' businesses quite substantially.

Table 1: Year-end Asset and Liability Values (million ISK), sum of the three largest Icelandic banks.

	(1) *Total assets at year-end*	(2) *Change in Assets*	(3) *Asset growth rate %*	(4) *Firm acquired during the year*	(5) *Asset value change due to ISK revaluation*	(6) *"Organic Growth"*[1]	(7) *Organic growth rate %*
2003	1,450,751						
2004	2,946,494	1,495,743	103.1	797,609	-50,882	749,016	51.6
2005	5,418,521	2,472,027	83.9	726,316	-202,822	1,948,533	66.1
2006	8,474,660	3,056,139	56.4	0	1,068,092	1,988,047	36.7
2007	11,353,801	2,879,141	34.0	58,339	-231,263	3,052,065	36.0
2008[2]	14,436,884	3,083,083	27.2	0	3,301,994	-218,911	-1.9

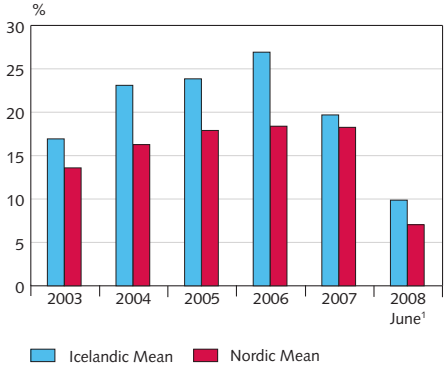
1. "Organic growth" is the ISK-denominated growth in assets at the banks and their subsidiaries, *not* related to acquisitions.
2. 2008 numbers as of June.
Source: Commission Staff calculations.

Organic growth and acquisitions are likely to expose an institution to different sorts of risk. In an acquisition, the risk is that the acquirer will over-pay for the asset. With organic growth, the risk is that the firm implements poor policies for its new business. If these policies are the same across subsidiaries, a flaw in its business model will affect all parts of the firm. Rapid bank expansion is often associated with poor underwriting or record-keeping, which can lead to solvency-related difficulties within a few years. Competition for new business may also induce lower lending standards or underpricing of credit risk.

As the banks expanded, they reported extraordinary profitability. Table 2 reports the return on (book) equity for the three largest Icelandic banks and for six large banks from other Nordic countries. Rows reporting the mean (equally-weighted) ROEs for Icelandic and other Nordic banks are highlighted in Table 2 and plotted in Figure 1. The average Icelandic bank's ROE exceeded the other Nordic institutions' average every year, sometimes by quite a wide margin.

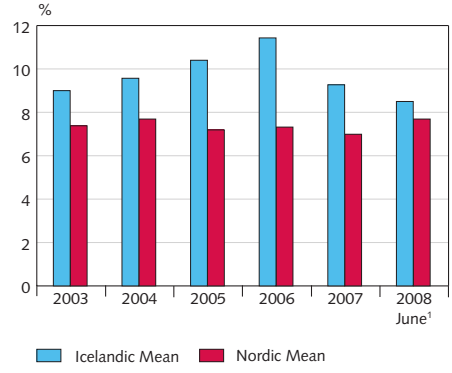
Remarkably, the Icelandic banks' high ROE was accomplished with very high capital ratios. Table 3 and Figure 2 show that the Icelandic banks operated with higher book equity than their Nordic peers.[2] The Icelandic banks' high ROE was attained via two channels. First, the banks were reporting very

Figure 1
Mean Returns on Book Equity (%), Icelandic vs. Other Nordic Banks



1. ROE for June 2008 recognizes earnings only for one-half of the calendar year.
Source: Individual banks' published reports.

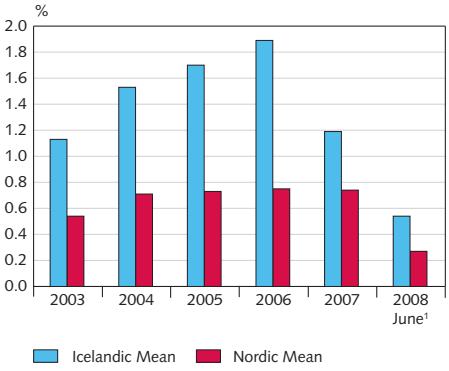
Figure 2
Mean Tier I Capital Ratios (%), Icelandic vs. Other Nordic Banks



1. Tier 1 capital for June 2008 numbers only for one-half of the calendar year.
Source: Individual banks' annual reports.

1. The banks maintained positive net foreign assets to hedge the ISK value of their equity accounts. The asset revaluations in column (5) therefore reflect an appreciating ISK during 2004, 2005, and 2007, and a depreciating ISK in 2006 and (especially) during the first half of 2008.
2. Table 3 and Figure 2 describe the banks' ratio of Tier I regulatory capital to risk-weighted assets. Other capital measures yield similar implications.

Figure 3
Mean Return on Assets (%), Icelandic vs. Other Nordic Banks



1. ROA for June 2008 recognizes earnings only for one-half of the calendar year.
Source: Individual banks' annual reports.

Table 2: Reported Return on Equity (%) for Icelandic and Other Nordic Banks.

	2003	*2004*	*2005*	*2006*	*2007*	*2008*[1]
Glitnir	19.83	22.75	22.54	26.16	16.27	6.73
Kaupthing	17.22	12.22	26.29	26.72	20.6	8.02
Landsbanki	13.74	34.33	22.73	27.87	22.19	14.87
Icelandic Mean	*16.93*	*23.1*	*23.85*	*26.92*	*19.69*	*9.87*
Nordea Bank AB	12.24	16.41	17.56	20.64	18.32	8.05
Danske Bank	15.36	13.97	17.22	14.24	14.25	5.54
Skandinaviska Enskilda Banken	11.77	14.28	14.86	18.8	17.83	6.23
Swedbank AB	15.13	22.52	22.8	18.43	17.84	9.29
Svenska Handelsbanken	14.28	16.07	17.31	19.82	20.82	6.86
DnB NOR Bank	12.77	14.36	17.67	18.39	20.49	6.25
Nordic Mean	*13.59*	*16.27*	*17.90*	*18.39*	*18.26*	*7.04*

1. ROE for June 2008 recognizes earnings only for one-half of the calendar year.
Source: Individual banks' published reports.

high returns on their assets (ROA), as shown in Table 4 and Figure 3. In each sample year except 2007, the Icelandic mean return on assets was ***at least double*** that of the other Nordic banks. Put another way, in the same markets and under the same world financial conditions, the Icelandic banks had found a way to earn substantially more than their more experienced, overseas competitors.[3] Moreover, these higher earnings were attained with a higher cost of funds, because the Icelandic banks relied more heavily on relatively expensive wholesale funding.

Table 3: Tier 1 Capital Ratios, reported in percentage points.

	2003	*2004*	*2005*	*2006*	*2007*	*2008*[1]
Glitnir	8	9.4	9.9	10.8	8.1	8
Kaupthing	12.1	11.5	9.4	10.5	9.6	9.3
Landsbanki	6.9	7.8	11.9	13	10.1	8.2
Icelandic Mean	*9.00*	*9.57*	*10.40*	*11.43*	*9.27*	*8.50*
Nordea Bank AB	7.3	7.3	6.8	7.1	7	7
Danske Bank	7.7	7.7	7.3	8.6	6.4	10
Skandinaviska Enskilda Banken	8	7.76	7.53	8.19	8.63	8.64
Swedbank AB	7.2	8.2	6.5	6.5	6.19	6.7
Svenska Handelsbanken	7.3	7.6	7.6	6.8	6.5	7.1
DnB NOR Bank	6.8	7.6	7.4	6.7	7.2	6.7
Nordic Mean	*7.38*	*7.69*	*7.19*	*7.32*	*6.99*	*7.69*

1. ROE for June 2008 recognizes earnings only for one-half of the calendar year.
Source: Individual banks' published reports.

A second factor supporting the Icelandic banks' relatively high ROE was the composition of "equity" capital. The Icelandic banks' Tier I capital included a relatively larger proportion of "subordinated loans" (EU Directive 2006 – 48-ec).[4] This subordinated, or hybrid, debt counts as regulatory capital but

3. Merrill Lynch (March 7, 2006, page 1) drew attention to the unusual gains on equity investments reported by Kaupthing and Landsbanki for 2005. Such gains contributed to ROA in some years and for some banks, but this was not always the source of high reported ROA.

4. Such deeply subordinated, perpetual hybrid debt resembles the U.S. "trust preferred securities" which can be included in Tier I capital up to a statutory maximum of 25%, with a recommended maximum of 15%.

Table 4: Reported Return on Assets (%) for Icelandic and Other Nordic Banks.

	2003	*2004*	*2005*	*2006*	*2007*	*2008*[1]
Glitnir	1.31	1.69	1.3	1.7	0.94	0.35
Kaupthing	1.42	1.17	2.01	2.13	1.33	0.52
Landsbanki	0.66	1.74	1.78	1.85	1.31	0.74
Icelandic Mean	*1.13*	*1.53*	*1.7*	*1.89*	*1.19*	*0.54*
Nordea Bank AB	0.57	0.74	0.7	0.9	0.8	0.32
Danske Bank	0.51	0.45	0.53	0.49	0.44	0.17
Skandinaviska Enskilda Banken	0.45	0.46	0.45	0.65	0.58	0.2
Swedbank AB	0.63	0.97	1.02	0.82	0.75	0.39
Svenska Handelsbanken	0.64	0.75	0.72	0.73	0.83	0.25
DnB NOR Bank	0.43	0.91	0.94	0.89	1.02	0.28
Nordic Mean	*0.54*	*0.71*	*0.73*	*0.75*	*0.74*	*0.27*

1. ROA for June 2008 recognizes earnings only for one-half of the calendar year.
Source: Individual banks' annual reports.

not as common equity when computing ROE. Hybrid debt is designed to absorb losses without forcing the issuer into bankruptcy. When the institution's profitability resumes, its retained earnings would be used to re-establish the debt obligations. Other Nordic countries permitted such hybrids to comprise no more than 15% of total Tier 1 capital, but Icelandic regulations were changed in January 2005 to permit up to 33%.[5] Table 5 shows that halfway through 2008 the banks were maximizing their hybrid debt issuances.

Table 5: Hybrid Debt in Tier 1 (regulatory) Capital, June 2008.

	Book Equity (bill ISK)	*Hybrid debt (bill ISK)*	*Hybrid debt / Common*	*Hybrid debt / (Tier 1 capital)*
Glitnir	198	142.7	72	42
Kaupthing	200	80.4	40	29
Landsbanki	424	185.6	44	30
Sum	*822*	*409*		
Average			*52*	*33*

Source: Individual banks' annual reports.

To summarize, then, as the Icelandic banks moved into the international arena they were reporting rapid growth, remarkably high profits, and abundant capitalization. Against this broadly positive impression stood two potential warning signs: surprisingly low reported loan problems and a growing (but uncertain) reliance on shares to collateralize their loans.

Table 6 reports the banks' average allowance for loan losses (ALL). The relatively high ALL ratios in 2002 and 2003 reflect an old accounting standard, under which specific and general loan loss reserves were intended to reflect forward-looking assessments of likely loan problems. This (International GAAP) standard was replaced on January 1, 2005 by the International Financial Reporting Standard (IFRS), under which banks were required to base their general reserves on their recent, realized losses. The transition to IFRS resulted in a noticeably lower ALL in 2005 because the prior few years

5. FME "Rules on additional own funds items for financial undertakings", No. 156 of 26 January 2005 Article 4.

had low corporate defaults. The adoption of IFRS explains the decline in ALL proportions between 2004 and 2005. However, the slight ALL declines for 2006 and 2007 are curious because the European economies were starting to slow. Moreover, a bank's rapid organic asset growth is often associated with underwriting or information technology problems that eventually manifest themselves as unusually large loan losses. These loss rates appear with a lag in a growing portfolio because rapid growth can disguise problem loans for a year or two: few loans go bad shortly after being written.

Table 6: Loan Loss Allowances in million ISK, end of year.
Sum of three large Icelandic Banks

	Allowance for losses on loans and advances	*Gross loans and advances*	*Ratio*
2002	18,856	723,145	2.61
2003	24,932	975,141	2.56
2004	30,932	2,253,878	1.37
2005	34,983	3,911,525	0.89
2006	45,655	5,577,804	0.82
2007	55,755	7,267,160	0.77
June 2008	88,988	9,288,815	0.96

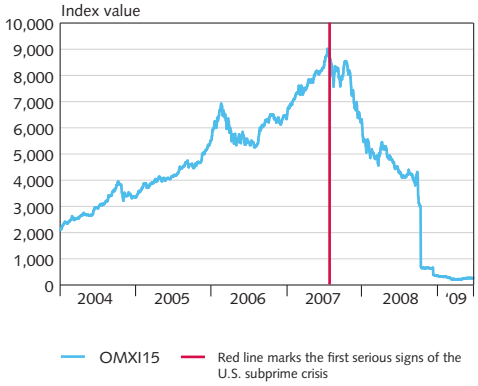
Source: Individual banks' annual reports.

The ALL occupies a central place in presenting a bank's financial results. Bank accounting standards give managers substantial discretion in recognizing credit impairments, and these recognitions can have a first-order effect on a bank's apparent condition. An under-stated ALL not only misleads outsiders about the quality of the bank's assets, but it also generates artificially high reported earnings. Rating agencies and other analysts regularly expressed concerns about the banks' asset quality, primarily on account of limited disclosure and the potential for concentrated or connected lending. We shall return to this issue below.

The outsiders' questions about credit quality may have been further exacerbated by the accounting change to IFRS. The reported ALL may have provided little information to outside investors because there was so little experience with that new standard. In addition, the Icelandic banks themselves had only a short history for their international operations.

The second problematic feature of Icelandic banks' lending was their apparent heavy reliance on shares as collateral for loans. On June 30, 2007, Glitnir and Landsbanki's parent companies had 14% of their outstanding loans secured primarily by shares. For Kaupthing's parent, the corresponding proportion was 23%. Such a concentration constitutes a noteworthy risk exposure, particularly in a small country. Figure 4 shows that the Icelandic share market had rocketed upward from a value of 2,103 at the start of 2004 to a peak value of 9,016 on July 18, 2007. (The vertical line in Figure 4 marks the first serious signs of the U.S. subprime crisis.) Many observers considered Icelandic stocks over-valued at their peak, and over the next year the index fell 55%. In August, 2008, an IMF team undertaking an FSAP update for Iceland observed that "The strong credit performance to date reflects, in part, collateral policies of the banks and Iceland may be exchanging credit risk for market risk." (IMF (2008), page 17).

Figure 4
Value of Iceland's Aggregate Share Price Index



Source: Commission staff.

III. A Warning: Early 2006

Fitch published two reports in February, 2006, which apparently set off a substantial re-evaluation of the Icelandic banks' situations and lead to a funding mini-crisis in the first quarter of that year.

As part of its "Bank Systemic Risk Report" (February 6, 2006), Fitch discussed several countries whose macroprudential indicators were weak or deteriorating. Its treatment of Iceland began: "The credit boom in Iceland gives most cause for concern." With respect to the Icelandic banks, Fitch averred that

> the risk is that if the credit cycle turns and equity and property prices fall sharply, banks will suffer a deterioration in loan quality with an adverse impact on financial performance. Icelandic banks, through a combination of direct equity holdings and collateralised exposure to Icelandic corporates, have a relatively large exposure to the small and volatile stock market. (page 3)

On February 21, Fitch also changed the outlook for Icelandic companies' Issuer Default Ratings from "stable" to "negative," citing the country's "macroprudential risk indicators, unsustainable current account deficit, and soaring external indebtedness." While Fitch considered the Icelandic public sector a solid "AA" risk, it pointed out "that one of the most important lessons to come out of the Asia crisis was that countries with seemingly sound public finances ignore private sector imbalances at their peril." Concerning the large private banks, Fitch "cautions that the banks remain heavily dependent on foreign funding and could ill afford to be shut out of international capital markets for any length of time."

Several analyst reports in the first quarter of 2006 identified four broad features of the Icelandic banking system that could become problematic.

Lending to Related Entities

JPMorgan (March 24, 2006) page 5: "in terms of big risks to the banks themselves, we think they are (assuming the funding holds) the cross-holdings and related party and equity based lending. Given the small domestic market, it is perhaps not surprising that there is some level of cross-holdings among the major investment companies, corporates and banks, but we are surprised at the level."

Merrill Lynch (March 7, 2006) page 15: "while we acknowledge that the banks have diversified their revenues sources by expanding abroad, the risks faced in the domestic market are far from negligible, and have been compounded by a complex system of cross shareholdings and nominee accounts which make the true risks faced by these banks difficult to quantify."

Questions about Credit Quality

JPMorgan (March 24, 2006) page 5: "While we note that the banks have stated that they have stress tested their positions for various conditions and also that not all these Icelandic entities are dependent on Iceland for revenue, we still have strong suspicions that there is likely to be a very high correlation across assets classes. Additionally, we believe that their corporate clients and retail customers are more heavily leveraged than the European average."

Merrill Lynch (March 7, 2006) page 7: "At this stage, we have very poor visibility … as to how asset quality may evolve at the banks. However, we do have some concrete reasons to be concerned about the impact of a cyclical change in the credit cycle at the Icelandic banks."

Ibid., page 8: "we just can't get comfortable with the loan portfolios of the Icelandic banks."

Funding

JPMorgan (March 24, 2006) page 5:"the reliance on the wholesale market and the short-term nature of their funding is a serious flaw in their business models. … while funding appears supported in the short term we still think that a material risk is that *funding problems can become a self fulfilling prophesy"* (emphasis in the original)

Merrill Lynch (March 7, 2006), page 5: "the European bond markets effectively closed to the Icelandic banks even before the February volatility. In our opinion, at that time, this was more owing to the technical overhang from the issuance of so much paper by end-2005, rather than anything more sinister, though *there were already rumblings of concern with respect to the growth of the banks and their acquisition strategies* even then." (emphasis added)

Limited Government and Central Bank Support

Analysts often compared the size of the Icelandic banking system to the country's economy or the central bank's foreign reserves. Most observers agreed that Iceland would be inclined to provide liquidity and solvency support for its banks – as it had in the past – but questioned whether the government sector could, in fact, provide sufficient support.

By early 2006, the banks may have become in part victims of their own success. In explaining the funding mini-crisis, JPMorgan (March 24, 2006, page 2) asserted that "the 'market' has begun to focus on some of the structural issues and risks around the (Icelandic banks') names and this has caused considerable volatility in their respective spreads." The report then asked, rhetorically, "Why has this not been noticed before?" and answers that

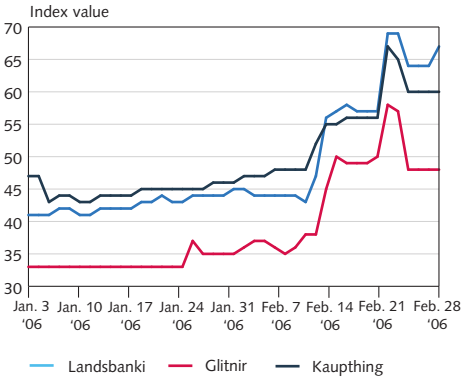
> most investors were indifferent, as these issuers were too small and their bonds were off-benchmark for the majority of funds. More recently the firms have grown to a size where their funding needs dictated a much bigger presence on the international debt markets and have consequently attracted more attention. More importantly, an active CDS market has developed and this has allowed people with strong negative opinions to exercise their views. (page 2)

In other words, further growth by the Icelandic banks required them to convince an ever-larger proportion of financial investors that their operations were sound and profitable.

Table 7 illustrates the effect of the mini-crisis on the banks' use of wholesale funding. Foreign bond obligations financed the banks' initial overseas expansions, but the growth in outstanding foreign bonds had slowed by the end of 2005, and virtually stopped thereafter.

Market concerns about the individual banks were promptly reflected in CDS spreads. Figure 5 indicates that all three banks' spreads rose from an average of about 40 bps in early January 2006 to about 60 bps by late February. All three banks received a shock in March 2006 (Bawden (2006)), when U.S. money funds refused to extend the maturity of the 13-month, extendible notes it had issued the prior year "because the fair value had changed due to concerns about the operating environment in Iceland." (Moody's October 2006, page 9). The funding mini-crisis had apparently ended by April when

Figure 5
Value of Iceland's Aggregate Share Price Index



Source: Commission Staff calculations.

Table 7: Three Largest Icelandic Banks' Outstanding Bonds (billion euros, at year end).[1]

	Total	*Glitnir*		*Landsbanki*		*Kaupthing*	
	EUR bn	*EUR bn*	*% ta*	*EUR bn*	*% ta*	*EUR bn*	*% ta*
2003	6,160	1,481	29.9	2,332	46.7	2,347	37.7
2004	20,091	4,002	49.5	4,491	50.9	11,598	63.1
2005	42,629	12,554	63.7	9,237	49.1	20,838	61.3
2006	50,657	14,563	61.3	10,728	46.7	25,367	59.2
2007	56,997	19,147	59.2	9,167	27.3	28,684	48.9
2008	51,278	17,889	58.0	10,384	32.8	23,005	43.7

1. Most of these bonds were denominated in foreign currencies – primarily dollars and euros. To remove the impact of exchange rate fluctuations, the reported numbers deflate the reported ISK bond values (from the companies' Annual Reports) by the end-of-year ISK/EUR exchange rate.Source: Individual banks' annual reports.

Kaupthing successfully placed a $1.25 billion subordinated obligation with institutional investors.

It is important to note that the analysts' concerns and the 2006 funding mini-crisis completely pre-dated the U.S. subprime crisis, which developed into a worldwide financial panic. The market was reacting to bank characteristics that would complicate funding for any bank, anywhere in the world, even under normal financial market conditions.

IV. Responses to the 2006 Mini-Crisis

Each of the banks made explicit adjustments to address the concerns expressed by outside analysts. Some banks liquidated their shares in affiliated holding companies and identified borrower composition more fully.[6] Landsbanki and Kaupthing embarked on aggressive deposit-gathering campaigns in the UK, Dutch, German, and Swedish retail markets. Despite these operating and reporting adjustments, however, the banks never fully dispelled the concerns first raised in early 2006. Indeed, these same issues – reliable funding and uncertainty about credit quality - would remain important through 2008. Moreover, it seems as if some of the banks' responses to the analysts' criticisms were more directed at style than substance. We now review market and operating developments in three important areas of bank operations.

Private Market Funding

Table 8 indicates that the banks' initial asset growth in 2003-5 was financed largely by the issuance of public bonds in international markets. More than half of assets were funded with public bonds through the end of 2006, and the proportion subsequently remained close to one-half. In a sense, the Icelandic banks were fortunate (at least temporarily) to have begun their international expansion when money was easy to raise. Interest rates were historically low in all major markets. Investors were hungry for any promised yields above normal levels. This situation made it possible for the Icelandic banks to obtain very substantial resources in short order. At the same time, rapid growth based on non-deposit funds exposed the banks to relatively large illiquidity

6. Even with these changes, the FME concluded from its on-site inspections in autumn 2007 that the banks were not fully recognizing relationships among the entities to which they were making loans.

Table 8: Asset growth and public bond issuance (million ISK)
Sum of three largest Icelandic banks.

	Total assets at year end	*Bonds at year end*	*Change in bonds / Change in assets (%)*	*Bonds / Assets (%)*
2003	1,450.751	552.946	---	38.1
2004	2,946.494	1,677.801	75.0	56.9
2005	5,418.521	3,184.350	61.0	58.8
2006	8,474.660	4,792.702	53.0	56.6
2007	11,353.801	5,198.144	14.0	45.8
June 2008	14,436.884	6,426.672	40.0	44.5

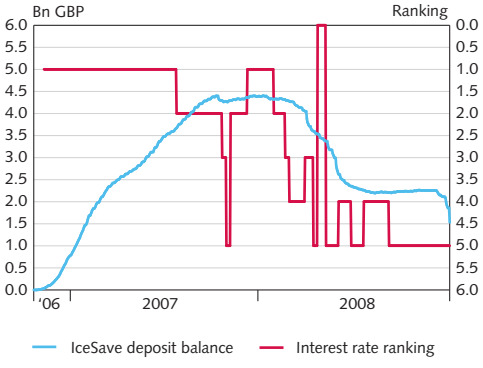
Source: Bank's annual financial reports.

risks, particularly as their scale expanded in relation to international financial markets.

Despite efforts to borrow in the U.S. and elsewhere, Table 8 indicates that the banks did not substantially increase their net outstanding bond balances after 2005. Rather, Landsbanki and Kaupthing moved aggressively into retail, internet deposit-taking in the U.K. and a few other European countries. This innovation addressed the *form* of the foreign analysts' funding criticisms, but may have responded only slightly to the *substance* of those concerns.[7] Landsbanki and Kaupthing apparently replaced credit-sensitive, international wholesale funding with interest-sensitive retail funding: when the banks' credit quality came into question in 2008, even the retail funds ran.

The behavior of these internet UK balances is reflected in data collected by the Commission's staff. The solid line in Figure 6 shows that Landsbanki's IceSave deposit balances in the UK had grown from zero to more than £4.4 billion within one year. At the end of 2007, these deposits were funding 20% of Landsbanki's total assets. IceSave's rapid expansion can be attributed to its policy of paying unusually high interest rates to attract interest-sensitive savers. The dotted line in Figure 6 plots IceSave's interest rate rank among retail deposits on offer in the UK, according to a daily compilation printed in the London *Times*. IceSave paid the highest available rate (its rank was "1") on every business day between October 31, 2006 and July 6, 2007. When IceSave's relative deposit rate fell after December 2007, balances likewise declined. Furthermore, IceSave deposits were obligations of a Landsbanki branch office, and were therefore insured by the Icelandic Deposit Insurance Guarantee Fund (DIGF). British news stories began to identify differences between Icelandic and British deposit insurance provisions, and IceSave's UK balances ran off quickly.[8]

Figure 6
IceSave deposit balances and interest rate ranking



Source: Commission Staff calculations.

7. Indeed, when Moody's placed Landsbanki on review for possible downgrade on January 30, 2008 its reasons included "the bank's growing reliance on short-term Internet-based deposits (IceSave) from overseas sources for funding the bank's loan book."

8. Kaupthing collected its EDGE account balances through its British subsidiary bank Kaupthing Singer and Friedlander. EDGE accounts were also offered through local subsidiaries in the Netherlands and Germany. Although deposits provided through separately-capitalized subsidiaries were protected by the local deposit insurance schemes, depositors still ran when negative news began to emerge about the other Icelandic banks in September 2008. The Times Online had identified the relative weakness of IceSave's deposit insurance backing a few months earlier (Hoskings (2008)).

Although purchasing interest-sensitive deposits in the UK helped Landsbanki obtain sterling-denominated funding, but the strategy proved both expensive and credit sensitive. In the end, this sort of retail deposit could not save Landsbanki for the same reason that wholesale funding was an unreliable funding source: the market lost confidence in the bank's ability to survive.

While the move to internet banking may have been well intentioned, other actions suggest that at least some of the banks resorted to subterfuge in responding to outside restrictions. Recall that the CBI oversaw banks' liquidity conditions, and required them to have enough liquid assets to pay off the liabilities that were coming due over the ensuing three months. In early 2008, at least two of the largest banks reported substantial liquidity in the form of "credit lines with no MAC clause".[9] At one point, CBI staff asked Glitnir to see copies of its credit line agreements. Glitnir refused and the CBI felt it had no legal basis to mandate disclosure. The Commission subpoenaed those documents in June 2009 and determined that the two lines (one from Deutsche Bank and the other from a Citicorp subsidiary) in fact could not be relied upon if Glitnir encountered serious funding problems in the wholesale market.

During a deposition at the Commission's offices on August 27, 2009, Sigurjón Árnason described the "lines of credit" offered to Landsbanki by Deutsche Bank: "they were offering us liquidity lines of credit, but they were not real liquidity lines of credit." We will return to the regulatory issues raised by this event in a second report. For now, the important thing to note is that some banks were mis-representing their liquidity positions to regulators – inadvertently or purposefully – in early 2008.

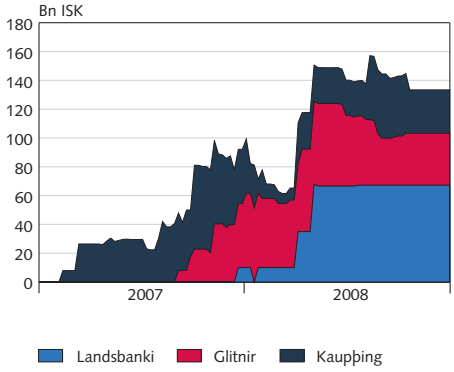
Another method used by some of the banks to obtain liquidity in 2008 concerned the Central Bank of Luxembourg (CBL). Landsbanki owned a subsidiary operating in Luxembourg and therefore had the right to borrow, through the CBL, from the European System of Central Banks (ESCB). Some of the Icelandic banks had exchanged mutual liabilities ("love letters") and Landsbanki Luxembourg SA was posting these notes as collateral at the CBL. By late April, the ESCB had become uncomfortable with its credit exposure to Icelandic institutions. The three Icelandic banks were called called to Luxembourg on April 28th-29th to discuss the reductions in this borrowing. They were accompanied by representatives from the FME and the CBI.

Despite this meeting, the Icelandic banks' borrowings did not decline sufficiently. The CBL therefore wrote to Landsbanki on June 30 cutting back their credit:

> With the full backing of the Governing Council of the ECB, I have to inform you that as of 15.7.2008 your bank may no longer hold as collateral, an amount of unsecured Icelandic bank bonds which exceeds 25% of all assets deposited with the BCL. Furthermore, this practice must be phased out as soon as possible. Your efforts in this respect will be monitored on an ongoing basis. *These exceptional measures are taken in view of your specific situation which revealed the cross-use of certain debt instruments among Icelandic banks*. The strong interconnection among these banks raises

9. A "material adverse change" (MAC) clause permits the lender to demur if the borrower's financial condition has deteriorated. A MAC clause therefore makes a credit line a much weaker source of liquid funds in case of a funding emergency.

Figure 7
IceBank advances collateralized by three large banks' notes



Bank bonds and bills from Landsbanki, Glitnir and Kaupþing as collateral at the Central Bank of Iceland, nominal value.
Source: Commission staff calculations.

> major concerns from a risk management perspective. *In the event of difficulties encountered by any of the involved banks, there would be significant likelihood that the other banks would also be impacted, thereby rendering the risks which the Eurosystem faces, substantially higher than usual.* (quoted in Consultative Group[10] minutes from their meeting of July 7, 2008, emphasis added)[11]

Clearly, the Icelandic banks were having trouble obtaining liquid funds well before Lehman's failure in September. Closer to home, the large banks were indirectly borrowing from the CBI, where aggregated bank borrowing rose tenfold during this period (from 50 to 500 billion ISK). A substantial part of this increase reflected advances to IceBank, which was pledging notes ("love letters") from the three largest banks as collateral. (The large banks also pursued similar funding strategies with some of the smaller Icelandic banks.) Figure 7 indicates that IceBank pledged an increasing volume of the other banks' notes as collateral starting in early 2007. Notes from each of the three banks pledged to CBI jumped sharply in April 2008: Landsbanki from 10 bn ISK to 67 bn, Kaupthing from 8 to 25, and Glitnir from 47 to 57.

Loan Opaqueness and Credit Quality

The nature of banking makes it difficult for any bank to address investors' concerns about the quality of its loan portfolio. However, the questions raised about Icelandic banks' portfolios were quite specific, dealing with the extent of lending to related parties and credit risk concentrations. After the funding mini-crisis, the banks made some efforts in this direction, primarily by divesting some holdings of their borrowers' shares. They also reported some additional information about loan concentrations in their Annual Reports (and perhaps elsewhere). However, the CBI's May 2008 Financial Stability Report reported that the percentage of loans to "holding companies" had grown rapidly, continuing a trend of the prior few years. Holding companies were potentially questionable creditors because many were thought to be closely related to bank ownership and because many were primarily funding paper portfolios of shares.

When the FME visited the largest six Icelandic banks in the autumn of 2007 to assess their "credit risk and internal credit controls and procedures," they concluded that some of the banks were under-reporting the extent to which their borrowers were inter-related (Jannari (2009, page 29)). The same on-site visits lead FME to criticize the way that some of the large banks were handling collateral and margin calls. With an increasing proportion of total business loans secured by shares, a poor system in this regard threatened the integrity of the entire loan portfolio. Jannari himself (2009) criticizes the number of large loan concentrations in banks' portfolios:

10. The Consultative Group was a committee including representatives of the Office of the Prime Minister, Ministry of Finance, Ministry of Commerce, Financial Supervisory Authority and Central Bank of Iceland. A MoU signed on Feb 21, 2006 created the new consultative group, designed to formalize consultations in the area "concerning financial stability and contingency plans" and "to sharpen the division of responsibilities, prevent work duplication and increase transparency." (MoU, page 1).
11. Minutes from the Consultative Group meeting of April 28, 2008 indicate that the ECB and the Banque Centrale de Luxembourg already felt at that time that this liquidity provision had become excessive.

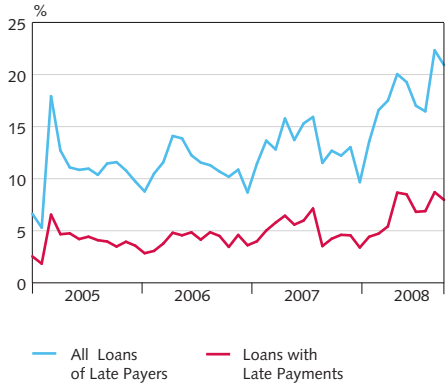
> Even if the number of large exposures in these banks was small, it is still *very unusual that banks* as *large* as these *should have so many large exposures of this nature*. My judgment is that their *behavior* in this regard *has been very imprudent*. (page 30, emphases in the original)[12]

As we have seen in Table 6, the Icelandic banks reported very high credit quality through the end of 2007. Given the stock market's sharp decline (see Figure 4) and widespread expectations that the Icelandic economy was heading for a relatively serious recession, why did the banks' financial statements not recognize increasing loan repayment problems? One explanation is that IFRS standards (which applied to Icelandic banks from 2005) required that loan losses be projected on the basis of recent past performance. Another possibility is that the banks were systematically re-negotiating larger loans that would have become delinquent. Although we have no pervasive evidence that this occurred, Commission accountants expressed their strong impression that such re-negotiations were common for large loans, and in particular for loans to closely-affiliated borrowers.

Some evidence of increasing loan problems comes from an increase in delinquent loans that began in early 2008. The Commission requested one-day-per-month data on all three parent companies' loans with a principal amount above ISK 10 million.[13] The lower line in Figure 8 measures the principal amount of those large loans with at least one delinquent payment, as a proportion of all loans in the portfolio.[14] The second (higher) line includes the balances due on all loans to the same obligor when that obligor has at least one delinquent payment on any of its loans. Of course, brief payment delinquencies do not necessarily imply that a loan will not be repaid in a timely way. However, the increase in this measure of late repayment suggests that the three banks' loan portfolios were starting to show signs of strain by early 2008.

In short, it appears that the banks did not adequately address the questions outside analysts had raised in early 2006 about the quality of their loans.

Figure 8
Three large Icelandic Banks' Loans with at least one late payment[1]



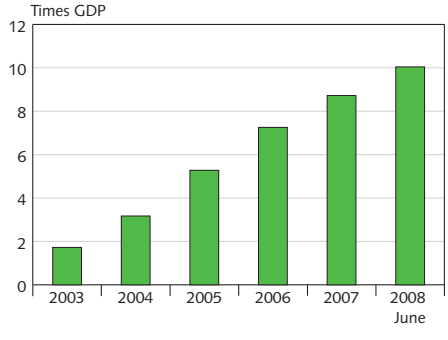
1. At the first day of each month, these data show the proportion of total loans with at least one late payment (lower line). The upper line shows the total obligations to a bank at which one or more of its loans are delinquent.
Source: Commission staff calculations.

Liquidity and Solvency Backstops

From early 2006, outside analysts had expressed concerns about the limited ability of Iceland's Central Bank or Treasury to provide liquidity or solvency support to its large banks. Figure 9 plots the three large banks' total assets relative to Iceland's GDP. At yearend 2005, the three banks' total assets stood at 5.28 times Iceland's 2005 GDP. The banks as a group continued to expand relative to the economy – to nearly ten times GDP by the middle of 2008. Clearly, the banks did not heed the macro-related warnings from 2006. An un-answered question is why Iceland's financial supervisors did not force the banks to recognize the importance of these warnings.

Another disparity became recognized in September 2008: the banks' deposit liabilities in overseas branches were extremely large compared to

Figure 9
Three Largest Banks' end-of-year assets, relative to Icelandic GDP



Source: Statistics Iceland and banks' annual reports.

12. Note that Jannari's report was completed (March 30, 2009) before the Deloitte report, and hence he was not likely influenced by the latter report's conclusions.

13. In September 2009, it was learned that Kaupthing and Landsbanki had provided on only 70-75% of their parent companies' large loans. Figure 8 describes delinquencies in the large subset of loans that were *initially* reported to the Commission.

14. Similar patterns emerged in 2008 for each of the three banks individually.

the resources of the DIGF. This disparity would play an important role in the banks' ultimate funding problems.

Summary

The proximate cause of the Icelandic banks' demise in October 2008 was their inability to access funds in wholesale debt markets. This was a problem shared by many major financial institutions in the wake of Lehman Brothers' collapse. However, the Icelandic banks were particularly vulnerable to such a market disruption because of issues first raised by outside analysts in early 2006. Even with such clear warnings, the banks had not managed or communicated their situations very effectively to world financial markets.

Probably their most serious omission was their inability to convince outside investors that they were following conservative loan underwriting standards. (Perhaps they were not.) Although their accounting statements showed high asset quality, high earnings, and high capitalization, all three of these characteristics depended on an important managerial judgment: the accuracy of the banks' loan loss allowance. As the Icelandic economy deteriorated (and later as the European economies also weakened), the three big Icelandic banks reported no increase in their expected loan losses. This reflected either extraordinary underwriting standards or a reluctance to admit that problems were building up. Which was it? The answer to this question was particularly important for banks relying so heavily on wholesale debt markets. It seemed very likely that the banks would suffer some losses after their rapid loan growth, but the books reflected nothing. Fixed income investors can deal with most uncertainties provided they know the potential risks. Nevertheless, the Icelandic banks left investors to wonder: "How bad is the situation, really?"

V. Were the Banks Solvent?

By the summer of 2008, the Icelandic banks were clearly in trouble. Late loan payments had begun to rise in the spring, and the banks were apparently "re-financing" some of their large loans to avoid the need to report them as nonperforming. Credit markets were tightening and the banks' loan books remained difficult for outsiders to understand. The banks had been forced to borrow from the CBI and the Banque Centrale de Luxembourg, presumably because private lenders were unwilling to lend. Information collected by the IMF in August, 2008 indicated that

> the quality of bank capital is uncertain and a large share of the banks' liquidity is held in assets that, under current conditions, are primarily used for repos with central banks. Going forward, the banks would face even more serious challenges if the external environment continues to deteriorate. (IMF (2008), pp. 11-12).

Lehman's failure on September 15 sent financial markets into a panic and inter-bank lending collapsed in the U.S. and in Europe. While many banks could obtain liquidity from their national central bank, the CBI's limited foreign reserves left the Icelandic banks without a backstop source of foreign currency.

The Althingi's Act No. 125/2008 (October 6, 2008) empowered the FME to seize insolvent banks and to commit government money to support them.

The three banks were quickly taken over, and each was split into two parts:

- A "New" domestic bank comprising all deposits owed to Icelandic addresses and all assets related to the domestic banking business.
- An "Old" bank containing all the remaining assets and liabilities.

Given the distribution of business, each New bank's allotted assets exceeded its liabilities.[15] Each New bank would therefore provide a note (debt obligation) to its corresponding Old bank, equal to the value of the excess assets transferred.

The values of these notes might indicate whether the banks had been over-valuing their loan books. For the first time, book asset values that had underlain the past years' glowing reports would be subject to an external evaluation. The New banks' managements estimated recovery values on the loans transferred to them at the Carve-out dates (October 15 for Glitnir, October 8 for Landsbanki, and October 22 for Kaupthing). The FME also hired an international accounting firm (Deloitte) overseen by an international consulting firm (Oliver Wyman) to value the assets "as of" the Carve-out dates.[16] The Deloitte Reports' estimated values for domestic loans transferred to the New banks were far below their book valuations. Table 9 indicates that a majority of Deloitte's estimated loan writedowns were associated with loans to holding companies and to the banks' largest credits. This result is consistent with nagging market analyst uncertainties. The Deloitte asset valuations included such large estimated losses that all three banks were insolvent at their Carve-out dates - unless the overseas assets were worth substantially more than their book values.

Table 9: Summary information from Deloitte Reports valuing domestic bank assets as their "Carve-out" dates.

	Loans to Holding Companies, as ratio of all New Bank loans	*Ratio of estimated losses due to holding companies*	*Estimated losses (specific provision) due to largest ten "risk groups" (ratio)*
Glitnir / Islandsbanki	~35	53	67
Landsbanki	~35	58	64
Kaupthing	~55	77	~ 80

Deloitte provided a "high" and a "low" value estimate for each loan to company or related group owing more than 2.5 billion ISK to the New bank. This table sums the loan losses implied by the "high" value estimate for each bank.
Source: Deloitte valuation reports.

Given the catastrophic economic conditions in Iceland after the banks' demise, one might argue that a post-collapse valuation would overstate the pre-failure asset values. However, the estimated gap between book loan values and their estimated recovery values were sometimes so great that it is

15. This implies that the banks had been funding their Icelandic assets partially with funds raised abroad.

16. The FME asked Deloitte to apply a valuation standard that avoided "fire sale" or pure liquidity effects on the assets' value. Specifically, Deloitte was asked to estimate
The value of new banks' assets and liabilities that could be realized on the assumption that each of the new banks continue to operate as a fully capitalized domestic Icelandic bank with no requirement to divest its assets (or settle its liabilities), in the short-term, or on a distressed basis. (Part 1 report, Paragraph 1.13)

hard to believe the loans could have been sound the prior month. Even before the Deloitte valuations were known, Jannari (2009, page 37) expressed his opinion of the banks' loan quality:

> There might – just might – have been a possibility for the Icelandic banks to survive if the almost total freezing of the international financial markets had not taken place and confidence in Iceland had not been lost. Even in that case, they probably would have needed government support to maintain their solvency, as credit losses would have risen due to the deterioration of their loan portfolios.

The Deloitte valuations were never accepted as legitimate by all parties concerned. Rather than establish a note value that the domestic banks must pay to their foreign associates (as initially planned), the FME ultimately agreed to re-capitalize the New banks and sell them back to the Old banks.

In the end, we cannot establish definitively whether one or all of the banks was in fact insolvent during that first week of October. However, their increasing loan delinquencies after March 2008 and the low recovery values implied by the FME's ultimate settlement with the Old (receivership) banks imply that insolvency was a good possibility even before the banks encountered their terminal funding crises. One is left with the strong suspicion that some or all of the banks were insolvent – and hence that the market's unwillingness to lend was rational.

VI. Summary and Conclusions

The three largest Icelandic banks pursued policies of rapid international growth and rapid domestic credit expansion. They applied relatively weak underwriting standards, particularly for loans to large holding companies, and relied too much on thinly-traded equity as collateral. In autumn 2007, the FME's on-site inspectors concluded that the banks' IT systems were inadequate for tracking loan collateral values, and that the banks were underreporting the extent of their loans to related entities. These are classic shortcomings, which have accompanied rapid bank expansion in many countries. Despite their unusually rapid loan growth, the banks' loan loss allowances never reflected credit problems that had likely emerged in 2007 or 2008, when the Icelandic economy and stock market turned downward. Outsiders had been noting the opaqueness of the banks' financial statements for some time, yet the managers were unable or unwilling to provide more detailed information about their credit risk exposures.

The banks also failed to secure reliable funding commensurate with their asset growth. The effort to diversify funding sources away from the wholesale Euromarkets met with very limited success, and their internet offerings in the UK and other European countries attracted mobile ("hot") retail deposits. Not only did the deposit volume fall off when the banks stopped offering best-in-market interest rates, but depositors' concerns about the reliability of IceSave's insurance protection (from DIGF) lead to a debilitating run in late September, 2008.

It is quite possible that the banks were insolvent when they were closed in October. Subsequent valuations of the domestic portion of the banks' asset portfolios uncovered large losses attributable to poor underwriting and over-reliance on equity shares as collateral.

The sub-prime financial crisis surely added pressure on the banks, particularly after Lehman Brothers failed in mid-September. However, the banks had ignored repeated warnings that their size and rapid expansion exposed them to great risks. It seems likely that they would have come to grief eventually, even without a worldwide financial crisis.

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