



Seðlabanki Íslands

# Við höfum séð þetta allt áður Saga fjármálakreppa á Íslandi 1875-2013

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Málstofa við Seðlabanka Íslands

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Bjarni G. Einarsson, Kristófer Gunnlaugsson,  
Þorvarður Tjörvi Ólafsson og Þórarinn G. Pétursson  
Hagfræði- og peningastefnusviði Seðlabanka Íslands

Efni þessarar kynningar byggir á rannsóknarverkefni höfunda sem kallast:

„The long history of financial boom-bust cycles in Iceland – Part I: Financial crises“

Stefnt er að því klára rannsóknina fljótlega og gefa hana út í rannsóknarritröð Seðlabanka Íslands.

Vinna við seinni hluta rannsóknarinnar (Part II: Financial cycles) er hafin og stefnt er að því að henni ljúki á þessu ári

Skoðanir sem koma fram í erindinu þurfa ekki að endurspegla skoðanir Seðlabanka Íslands eða peningastefnunefndar bankans

„There is nothing new except what has been forgotten“

Marie-Jeanne Rose Bertin

(fatahönnuður Marie Antoinette fv. Frakklandsdrottningar)

„This time is different“

Ótrúlegur fjöldi eftirlitsaðila og stjórnálamanna í aðdraganda  
fjármálakreppa

# Inngangur



- Fjármálakreppan 2008 var gríðarlega umfangsmikil í alþjóðlegu samhengi og afleiðingar hennar voru verulegar
  - Gengi krónunnar lækkaði um liðlega 50% og ríflega 90% af fjármálakerfinu féll
  - Landsframleiðslan dróst saman um næstum 12%, innlend eftirspurn um 30% og atvinnuleysi jókst um 7 prósentur

# Inngangur



- Þessi fjármálakreppa er hins vegar ekki sú fyrsta sem skellur á hér á landi
- Í ljós kemur að á næstum 150 ára tímabili hafa orðið yfir 20 gjaldeyris-, verðbólgu- og bankakreppur á Íslandi
- Út frá þeim greinum við 6 stórar og „fjölpættar“ fjármálakreppur sem skolið hafa á hér á landi á u.þ.b. 15 ára fresti
- Markmið rannsóknar okkar er að fjalla um meginþekki þessara kreppa og greina þróun helstu fjármála- og þjóðhagsstærða í aðdraganda og kjölfar þeirra

# Gögnin



- **Gagnasafn sem nær yfir næstum 1½ öld**
  - Nauðsynlegt til að skoða fjármálaáföll sem gerast sjaldan og eiga sér oft langan undirliggjandi aðdraganda
- **Gagnasafnið nær yfir fjölda þjóðhagsstærða**
  - Endurspegla m.a. eiginleika íslensks þjóðarbúskapar (mjög lítið, opið og auðlindadrifið hagkerfi)
- **Nær einnig yfir fjölda fjármálastærða**
  - Bæði hefðbundnar (húsnæðisverð, útlán og peningamagn) en einnig stærð og samsetningu efnahagsreiknings bankakerfisins

Þjóðhagsstærðir		Fjármálastærðir	
Verg landsframleiðsla	1875	Húsnæðisverð	1900
Innlend eftirspurn	1875	Útlán	1886
Halli á utanríkisviðskiptum	1875	Breitt peningamagn (M3)	1886
Nafngengi ISK gagnvart US\$	1875	Stærð bankakerfis	1875
Raungengi	1875	Skuldahlutfall bankakerfis	1875
Viðskiptakjör	1875	Erlend fjármögnun bankakerfis	1886
Verðbólga	1875	Fjármögnun banka utan innlána	1886

# Gögnin: efnahagssveiflur



- Byrjum á að skilgreina hefðbundnar hagsveiflur: notum snúningspunkta-algrími Hardings og Pagans (2002): fáum 11 niðursveiflur þar sem VLF dregst að meðaltali saman um 7,6%
- Skilgreinum einnig „eftirspurnarvoða“ þar sem innlend eftirspurn á mann dregst saman um meira en 10%: fáum 9 slík tímabil þar sem eftirspurn á mann dregst að meðaltali saman um 18,4%

**Table 2** Economic downturns in Iceland

Business cycle downturns			Demand disasters		
Date	GDP contraction	Duration (in years)	Date	Per capita domestic demand contraction	Duration (in years)
1882-83	0.161	2			
1887	0.027	1			
1898	0.020	1			
1914-18	0.179	5	1914-15	0.192	2
			1918	0.166	1
1920	0.140	1	1923-24	0.137	2
1931-32	0.034	2	1931-32	0.179	2
1935	0.027	1			
1949-52	0.071	4	1948-51	0.309	4
1967-68	0.067	2	1968-69	0.155	2
			1975-76	0.106	2
1991-92	0.036	2	1988-93	0.136	6
2009-10	0.079	2	2007-10	0.276	4
Average	0.076	2.1		0.184	2.8

The table gives the dates of economic downturns identified by the Harding and Pagan (2002) turning point algorithm and the dates of domestic demand disasters based on the criteria suggested by Barro and Ursúa (2008) for consumption disasters. The table reports the duration of the given episode in years and the contraction in GDP for business cycle downturns and per capita domestic demand for demand disaster dates between the start and end of the crisis.

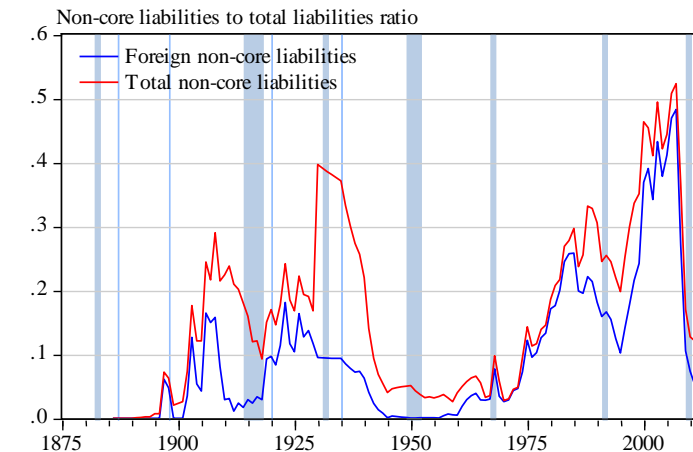
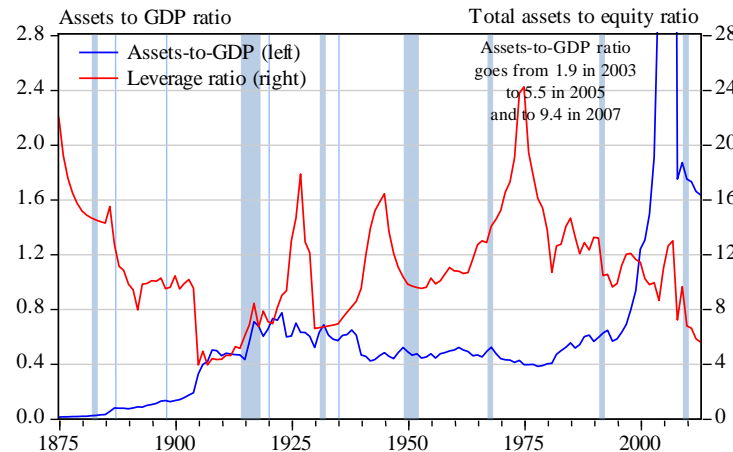
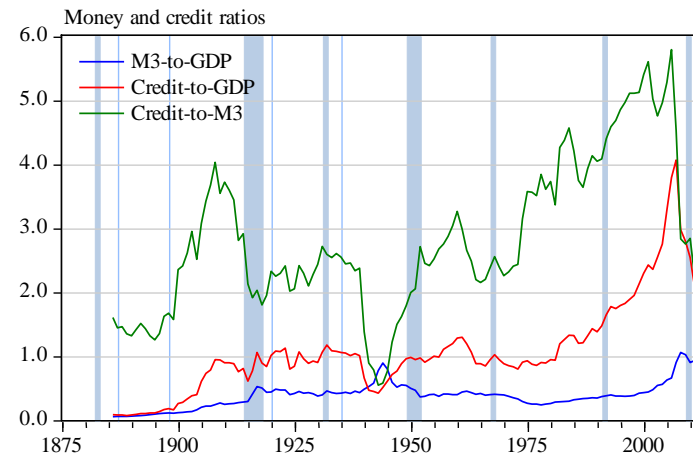
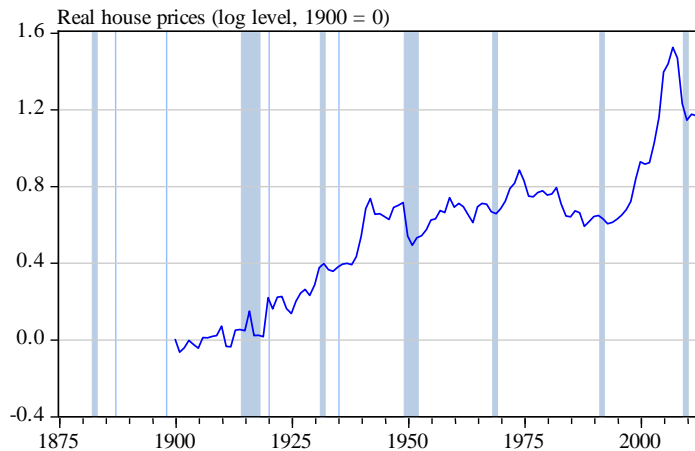
# Gögnin: fjármálastærðir yfir hagsveifluna



- Sjáum hvernig fjármálastærðirnar fylgja jafnan hagsveiflunni en einnig ólík þróunarskeið fjármálakerfisins: t.d. aukna fjármálalega dýpt í upphafi 20. aldar og ólík skeið alþjóðlegrar samþættingar
- Sömuleiðis langvarandi stöðnun fjármálakerfis fram til loka 8. áratugarins og aukna erlendra lántöku ...
- ... og ótrúlega stækkun innlends fjármálakerfis í aðdraganda fjármálakreppunnar 2008

## Financial variables

Business cycle downturns shown as shaded areas





# Gjaldeyris- og verðbólgukreppur



- Gjaldeyris- og verðbólgukreppur skilgreindar út frá hefðbundnum tölulegum viðmiðunum
- 11 gjaldeyriskreppur: flestar stuttar – en þó ein mjög löng – og misalvarlegar ... og allar nema sú síðasta átti sér stað þegar að fastgengisstefna var við lýði
- 5 verðbólgukreppur: nátengdar gjaldeyriskreppum og koma jafnan í kjölfar þeirra

**Table 3** Currency and inflation crises in Iceland

Currency crises				Inflation crises		
Date	Duration (in years)	Cumulative depreciation	Average depreciation per year	Date	Duration (in years)	Average inflation per year
1919-20	2	0.526	0.263	1916-18	3	0.383
1932	1	0.219	0.219			
1939	1	0.211	0.211	1940-43	4	0.291
1950	1	0.508	0.508	1950-51	2	0.335
1960	1	0.535	0.535			
1968-69	2	0.497	0.248	1969	1	0.241
1974-85	12	0.978	0.082	1973-89	17	0.392
1988-89	2	0.324	0.162			
1993	1	0.151	0.151			
2001	1	0.194	0.194			
2008-9	2	0.482	0.241			
<i>Averages</i>						
11 episodes	2.4	0.420	0.256	5 episodes	5.4	0.328

The table reports the dates of currency and inflation crises as identified by the numerical thresholds suggested by Reinhart and Rogoff (2009, 2011): exchange rate crises are defined as episodes where annual depreciations is greater than 15% per annum and inflation crises as episodes where annual inflation is in excess of 20% per annum (there are a few exceptions though explained in the main text).

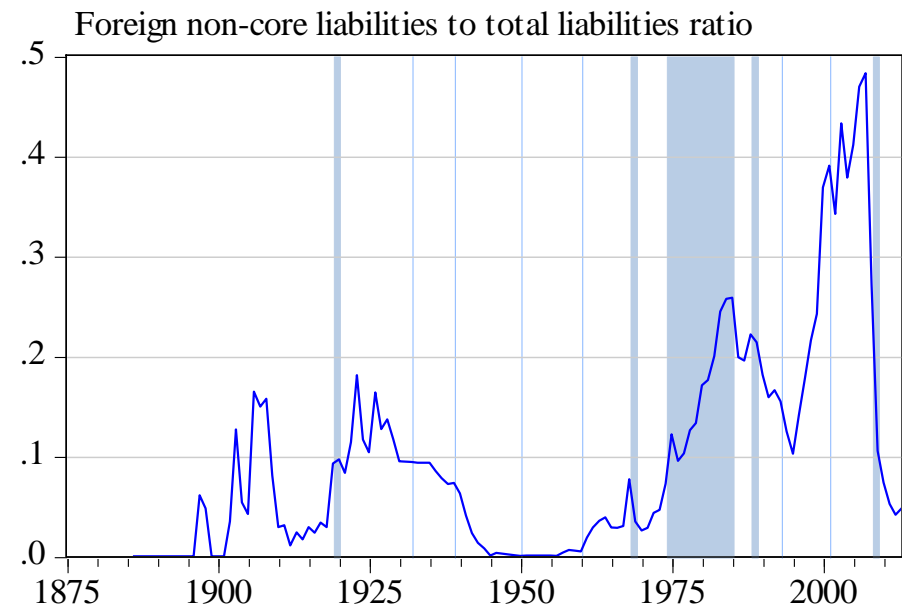
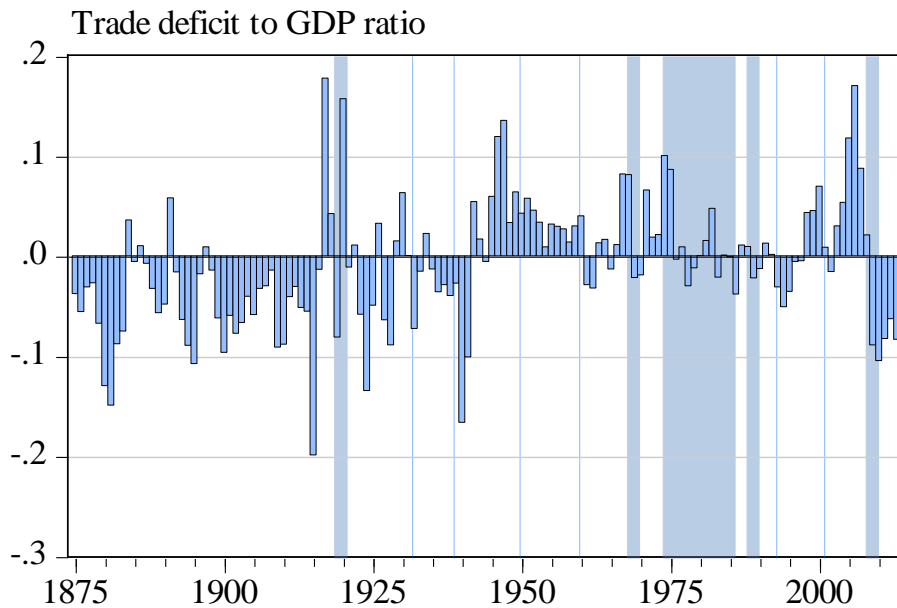
# Gjaldeyriskreppur, „sudden stops“ og höft



- Flestar gjaldeyriskreppurnar eiga sér stað um leið og viðsnúningur verður í jöfnuði í viðskiptum við útlönd: bendir til náinna tengsla vandamála við að fjármagna viðskiptahalla og gjaldeyriskreppa
- 2 gjaldeyriskreppur uppfylla hefðbundna skilgreiningu á „sudden stop“ kreppu: 1919 og 2008 og kreppan 1932 kemst nálægt því ... allar þrjár leiddu til innleiðingar fjármagnshafta
- Sést einnig í erlendri fjármögnun banka í síðustu kreppunni (en síður í öðrum, m.a. vegna inngripa ríkis)

**Figure 8** Trade balance and foreign funding of domestic banks

Currency crises shown as shaded areas



# Bankakreppur



- 2 minni bankakreppur: Útvegsbankinn 1985 og Landsbankinn 1993
- 3 kerfislægar bankakreppur: 1920 þegar Íslandsbanki og Landsbanki þurfa lausafjáraðstoð, 1930 þegar Íslandsbanki fer í þrot og Landsbanki þarf lausafjáraðstoð og 2008 þegar yfir 90% af fjármálakerfinu fellur
- Tíðni bankakreppa, lengd, umfang og áhrif á ríkissjóð er svipað að meðaltali og meðal annarra iðnríkja ...
- ... en sú síðasta stendur uppúr: einungis 6 tilvik frá 1970 þar sem meira en 90% af fjármálakerfinu fellur

**Table 4** Banking crises in Iceland

Date	Type	Duration (in years)	Market share of distressed institutions <sup>1</sup>	Change in real credit <sup>2</sup>	Change in fiscal balance <sup>3</sup>	Increase in government debt <sup>4</sup>
1920-21	Systemic	2	0.798	-0.172	-0.033	0.136
1930-31	Systemic	2	0.664	-0.097	-0.028	0.115
1985-86	Non-systemic	2	0.074	0.091	-0.053	0.039
1993	Non-systemic	1	0.172	0.015	-0.009	0.088
2008-10	Systemic	3	0.935	-0.813	-0.160	0.640
Average		2.0	0.529	-0.195	-0.057	0.204

The table reports the dates of banking crises used in this study. The dates identified for the 1985-86 and 1993 crises are obtained from Caprio and Klingebiel (2003) (also used by Reinhart and Rogoff, 2009, 2011), while we use Laeven and Valencia (2013) to date the start of the latest crisis. To date the two pre-WWII crises we used archived documentation (see the main text). 1. Share of distressed financial institutions in total credit by deposit money banks and other lending institutions in year  $T - 1$ , where  $T$  is the starting year of the banking crisis. 2. Change in total real credit between year  $T - 1$  and  $T$ . 3. Change in central government fiscal balance between year  $T - 1$  and the post-crisis trough in years  $T$  and  $T + 3$  (ratio to GDP). 4. Change in central government debt between year  $T - 1$  and the post-crisis peak in years  $T$  and  $T + 3$  (ratio to GDP).

# Fjölbættar fjármálakreppur



- Mismunandi tegundir fjármálakreppa hafa tilhneigingu til að koma hver á fætur annarri
- Notum algrími Hardings og Pagans (2006) til að bera kennsl á „fjölbættar“ fjármálakreppur: fáum 6 slík tilvik ...
- ... sem bresta á á u.þ.b. 15 ára fresti og vara í tæplega 4 ár í senn þar sem VLF dregst að meðaltali saman um 5% og innlend eftirspurn á mann um 19%

**Table 6** Multiple financial crises in Iceland

Multiple financial crises		Cumulative contraction in demand and output		Coinciding crises and economic downturns				
Dates	Duration (in years)	Per capita demand	GDP	Currency crises	Inflation crises	Banking crises	Demand disasters	Cyclical downturns
1914-21	8	0.127	0.086	1919-20	1916-18	1920-21	1914-15 1918 1923-24	1914-18 1920
1931-32	2	0.179	0.034	1932		1930-31	1931-32	1931-32
1948-51	4	0.309	0.043	1950	1950-51		1948-51	1949-52
1968-69	3	0.155	0.045	1968-69	1969		1968-69	1967-68
1991-93	3	0.075	0.023	1993	1973-89	1993	1988-93	1991-92
2008-10	3	0.266	0.069	2008-9		2008-10	2007-10	2009-10

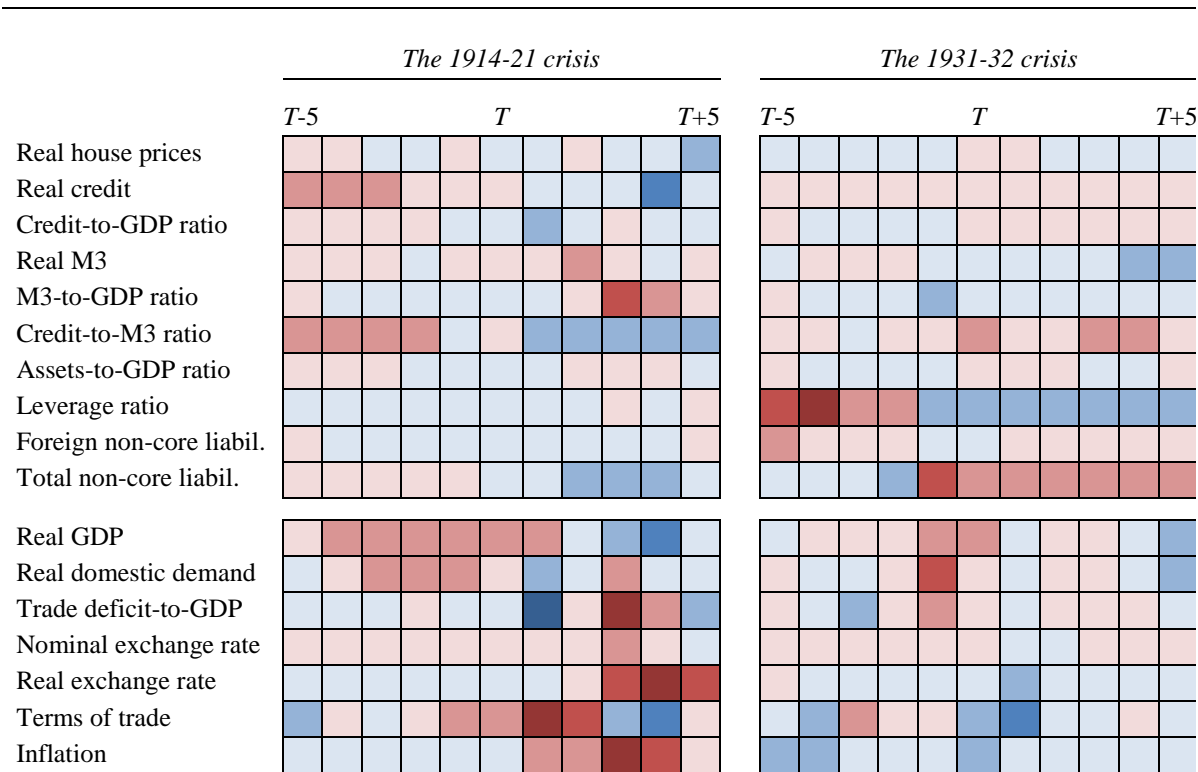
The table reports the dates of multiple financial crises identified and the currency, inflation and banking crises, and demand disasters and cyclical downturns previously identified around these financial crisis episodes (see Tables 2-4). Also reported is the duration of these financial crises and the cumulative loss in per capita domestic demand and output in these episodes.

# Fjármálakreppurnar 1914-21 og 1931-32



- 1914-21 kreppan hefst með efnahagssamdrætti í kjölfar stríðsins og leiðir síðan til verðbólgukreppu 1916 og gjaldeyriskreppu 1919 og endar með bankakreppu 1920 – einhver merki ójafnvægis í aðdragandanum í innlendri eftirspurn og útlánum og kannski erlendri fjármögnun
- 1931-32 kreppan hefst með efnahagssamdrætti í kjölfar kreppunnar miklu sem leiðir til bankakreppu og síðan gjaldeyriskreppu í kjölfarið – ójafnvægið í aðdraganda skýrast í þjóðhagsstærðum en einnig skuldsetningu, einkum fjármálastofnana

**Table 7.a** Financial and macroeconomic variables in the 1914-21 and 1931-32 crises



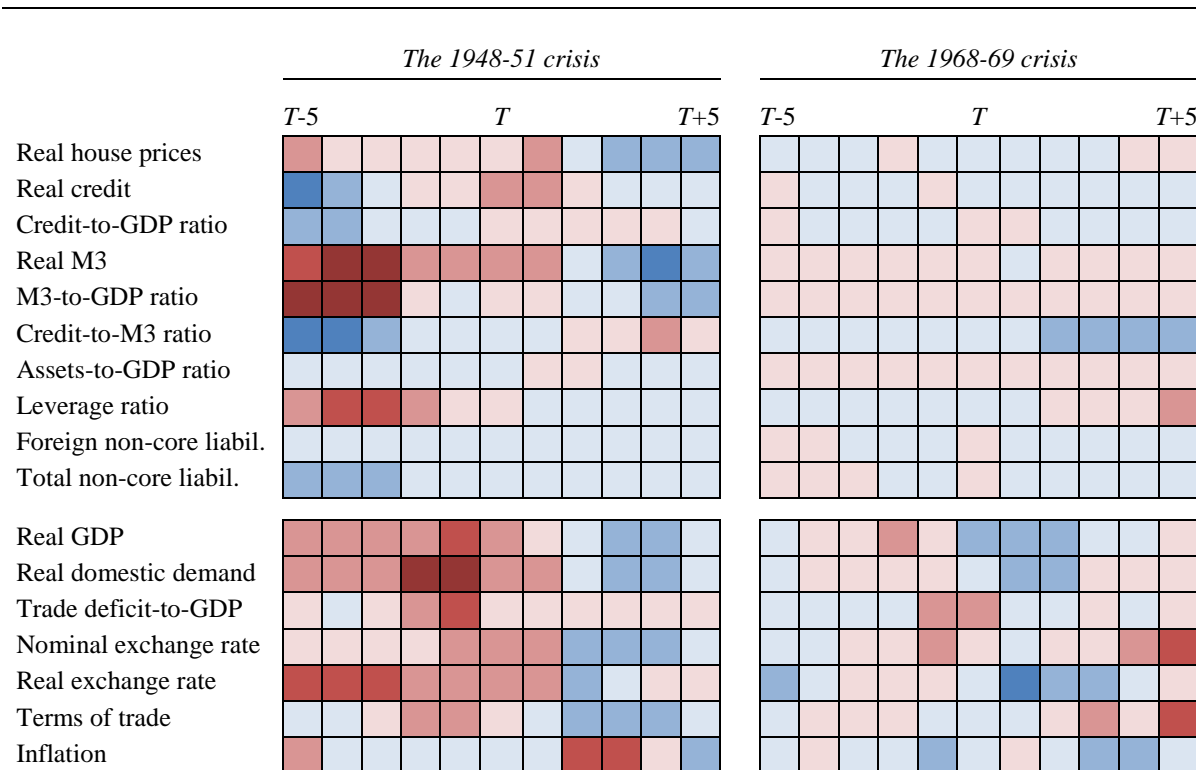
The table shows the development of each variable compared to its long-term trend for the five years in the run-up to and in the aftermath of a financial crisis, where  $T$  indicates the first year of the crisis. The long-term trend is estimated for the whole sample period using the Hodrick-Prescott filter with a smoothing parameter equal to 1,563 (see the main text for explanation). Red cells indicate that a variable was above trend in a given year with darker red cells indicating ever larger deviations above trend (■ indicates more than 1 standard deviation above trend, ■ more than 2 standard deviations above trend, and ■ more than 3 standard deviations above trend). Blue cells indicate that a variable was below trend in a given year with darker blue cells indicating ever larger deviations below trend (■ indicates more than 1 standard deviation below trend, ■ more than 2 standard deviations below trend, and ■ more than 3 standard deviations below trend).

# Fjármálakreppurnar 1948-51 og 1968-69



- 1948-51 kreppan hefst með samdrætti í kjölfar viðskiptakjaraskells sem leiðir til gjaldeyris- og verðbólgukreppu og enn meiri samdráttar – skýr merki ofvaxtar peningamagns og skuldsetningar í aðdraganda; einnig ofris þjóðarbúskapar og raungengis
- 1968-69 kreppan byrjar með efnahagssamdrætti í kjölfar aflasamdráttar sem leiðir til gjaldeyriskreppu og enn meiri samdráttar og síðan verðbólgukreppu: en engin skýr merki ójafnvægis í aðdraganda kreppunnar

**Table 7.b** Financial and macroeconomic variables in the 1948-51 and 1968-69 crises



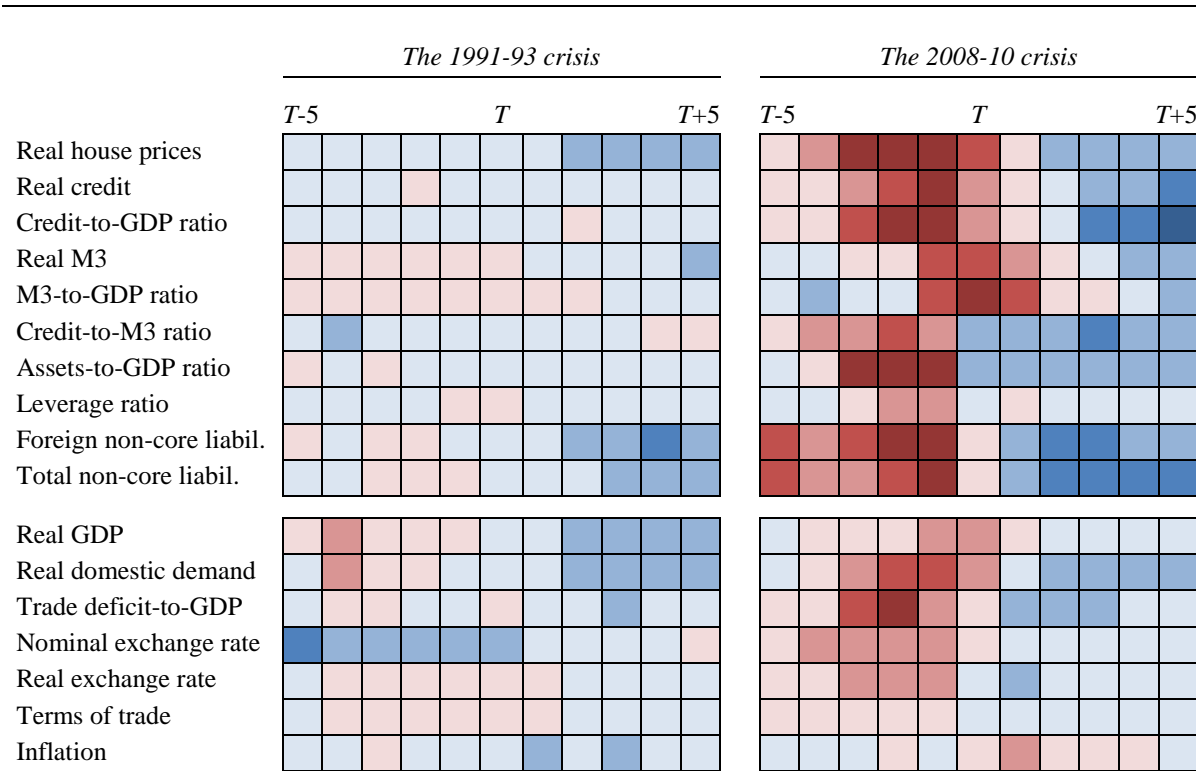
The table shows the development of each variable compared to its long-term trend for the five years in the run-up to and in the aftermath of a financial crisis, where  $T$  indicates the first year of the crisis. The long-term trend is estimated for the whole sample period using the Hodrick-Prescott filter with a smoothing parameter equal to 1,563 (see the main text for explanation). Red cells indicate that a variable was above trend in a given year with darker red cells indicating ever larger deviations above trend (■ indicates more than 1 standard deviation above trend, ■ more than 2 standard deviations above trend, and ■ more than 3 standard deviations above trend). Blue cells indicate that a variable was below trend in a given year with darker blue cells indicating ever larger deviations below trend (■ indicates more than 1 standard deviation below trend, ■ more than 2 standard deviations below trend, and ■ more than 3 standard deviations below trend).

# Fjármálakreppurnar 1991-93 og 2008-10



- 1991-93 kreppan hefst 1991 með efnahagssamdrætti í kjölfar mikillar hækkunar raunvaxta þegar tókum var náð á verðbólgu og leiðir til gjaldeyriskreppu og minniháttar bankakreppu
- 2008-10 kreppan hefst með stöðvun fjármagnsinnflæðis og tvíburakreppu: öll rauð ljós blikka vel fyrir kreppuna: t.d. húsnæðisverð og útlán um 4-6 staðalfrávikum yfir leitnivexti og stærð bankakerfisins heilum 8 staðalfrávikum yfir leitni og skýr merki um verulegt ytri og innra ójafnvægi í þjóðarbúskapnum

**Table 7.c** Financial and macroeconomic variables in the 1991-93 and 2008-10 crises



The table shows the development of each variable compared to its long-term trend for the five years in the run-up to and in the aftermath of a financial crisis, where  $T$  indicates the first year of the crisis. The long-term trend is estimated for the whole sample period using the Hodrick-Prescott filter with a smoothing parameter equal to 1,563 (see the main text for explanation). Red cells indicate that a variable was above trend in a given year with darker red cells indicating ever larger deviations above trend (■ indicates more than 1 standard deviation above trend, ■ more than 2 standard deviations above trend, and ■ more than 3 standard deviations above trend). Blue cells indicate that a variable was below trend in a given year with darker blue cells indicating ever larger deviations below trend (■ indicates more than 1 standard deviation below trend, ■ more than 2 standard deviations below trend, and ■ more than 3 standard deviations below trend).

# Kerfisbundnir fyrirboðar fjármálakreppa?



- Engin ein fjármálastærð sem varar kerfisbundið við öllum fjármálakreppunum
- Þjóðhagsstærðirnar standa sig hins vegar aðeins betur
  - Sérstaklega báðir mælikvarðar á efnahagsumsvif, viðskiptahallinn og kannski raungengi

**Table 8** Signalling properties of financial and macroeconomic variables

	Fraction of crises called	Fraction of good signals	Fraction of false signals	Noise-to-signal ratio	Difference between conditional and unconditional crisis probabilities
Real house prices	0.167	0.167	0.031	0.188	0.342
Real credit	0.167	0.167	0.063	0.375	0.175
Credit-to-GDP ratio	0.167	0.167	0.000	0.000	0.842
Real M3	0.333	0.167	0.031	0.188	0.342
M3-to-GDP ratio	0.333	0.111	0.021	0.188	0.342
Credit-to-M3 ratio	0.167	0.111	0.052	0.469	0.128
Assets-to-GDP ratio	0.167	0.167	0.000	0.000	0.842
Leverage ratio	0.500	0.222	0.083	0.375	0.175
Foreign non-core liabilities	0.167	0.167	0.063	0.375	0.175
Total non-core liabilities	0.333	0.222	0.073	0.328	0.206
Real GDP	0.667	0.333	0.010	0.031	0.699
Real domestic demand	0.500	0.389	0.010	0.027	0.717
Trade deficit-to-GDP	0.500	0.333	0.000	0.000	0.842
Nominal exchange rate	0.167	0.111	0.083	0.750	0.042
Real exchange rate	0.333	0.278	0.052	0.188	0.342
Terms of trade	0.500	0.167	0.031	0.188	0.342
Inflation	0.000	0.000	0.073	–	-0.158
Average financial variables	0.250	0.167	0.042	0.248	0.357
Average macro variables	0.381	0.230	0.037	0.197	0.404
Average total	0.304	0.193	0.040	0.229	0.376

The table reports the signalling properties of each variable based on deviations from its Hodrick-Prescott trend that are larger than a threshold value of 1.5 standard deviations and a three-year window in the run-up to each of the six financial crises identified. The second column gives the fraction of crisis episodes correctly signalled by each variable. The third column reports the number of correct crisis signals as a fraction of years in which a crisis signal could have been issued (1 – Type 1 errors). The fourth column reports the number of false crisis signals as a fraction of years in which a no-crisis signal could have been issued (Type 2 errors). The fifth column reports the ratio between the fractions of good and false signals (the third column divided by the second column). The sixth column gives the difference between the conditional probability of a crisis (the fraction of signals issued that were followed by a crisis in the subsequent three years) and the unconditional probability of a crisis (i.e. the relative number of crisis years in our sample).



# Raunáhrif fjármálakreppa



- Eru samdráttaráhrif fjármálakreppa meiri en hefðbundinna niðursveifla?
- Já: hvort sem horft er til samdráttarskeiða (hefðbundinna niðursveifla og eftirspurnarvoða) eða allra samdráttarára eru niðursveiflur sem fara saman við fjármálakreppur að jafnaði tvöfalt dýpri og vara hátt í tvöfalt lengur ... í takt við alþjóðlegar rannsóknir

**Table 9** Comparison of recessions with and without financial crises

	<i>Business cycle downturns and demand disasters</i>					
	GDP			Per capita domestic demand		
	All	With financial crisis	Without financial crisis	All	With financial crisis	Without financial crisis
Cumulative contraction	0.076	0.087	0.059	0.184	0.202	0.121
Average duration	2.1	2.6	1.3	2.8	3.0	2.0
Frequency	11	7	4	9	7	2

	<i>Yearly contractions</i>					
	GDP			Per capita domestic demand		
	All	With financial crisis	Without financial crisis	All	With financial crisis	Without financial crisis
Average contraction	0.032	0.037	0.025	0.057	0.094	0.039
Cumulative contraction	0.052	0.084	0.027	0.092	0.162	0.060
Average duration	1.7	2.3	1.3	1.7	1.9	1.6
Frequency	30	16	14	50	16	34

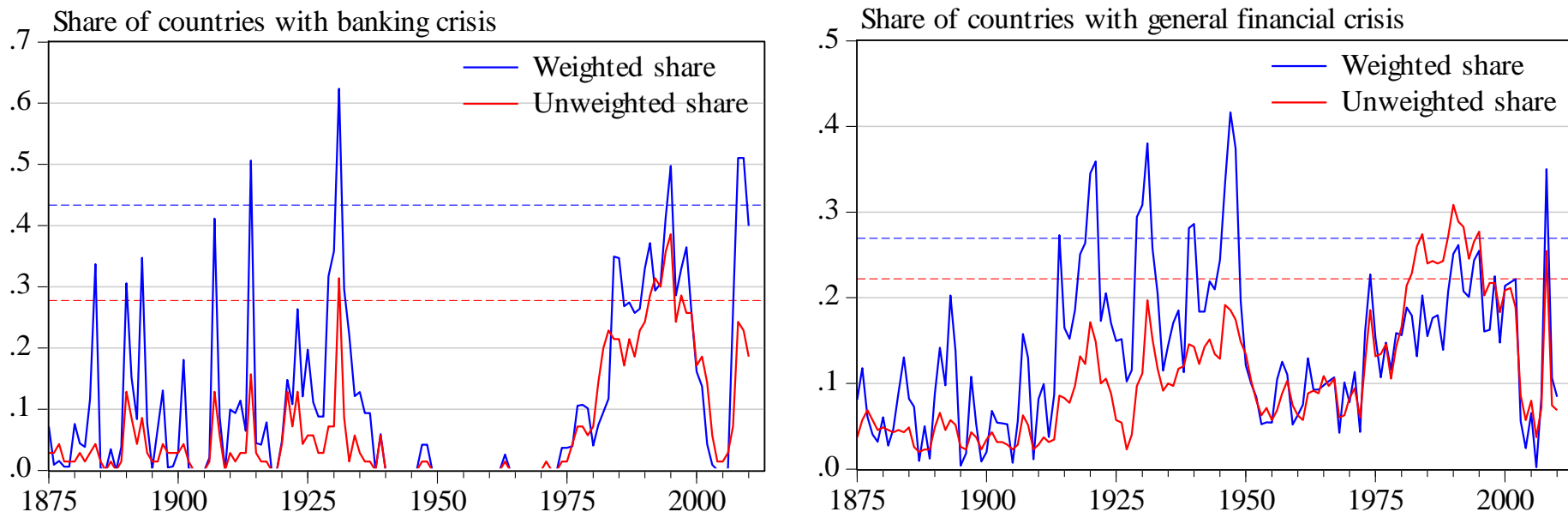
The first half of the table reports outcomes for the identified business cycle downturns and demand disaster episodes (see Table 2). Reported are the average cumulative contraction in GDP and per capita demand during these episodes, their average duration (in years) and the number of episodes. The table also compares episodes that coincide with multiple financial crises (see Table 6) and those that do not. The second half of the table similarly reports the outcomes for contractionary years in GDP and per capita demand. Reported are the average yearly contraction and the average cumulative contraction over years of subsequent contractions, the average duration of periods of subsequent contractions (in years) and the number of years of contraction for the whole sample and years that coincide with multiple financial crises and years that do not.

# Alþjóðlegar fjármálakreppur



- Fjármálakreppur geta smitast frá einu landi til annars í gegnum fjárhagsleg tengsl landa eða orðið alþjóðlegar vegna sameiginlegra uppspretta
- Notum hlutdeild landa í fjármálakreppum úr gagnagrunni Reinhart og Rogoff en vegum með stærð landa til að endurspeglar að fjármálakreppa í stóru landi er líklegri til að hafa meiri áhrif
- Skilgreinum alþjóðlegar fjármálakreppur þegar landahlutfallið fer meira en 3 staðalfrávikum yfir meðaltal

**Figure 12** International banking and general financial crises



Share of 70 countries in a given crisis from Reinhart and Rogoff (2011). The weighted series use each country's average 1950-2010 share in total GDP using PPP-adjusted nominal GDP in Geary-Khamis US dollars (from Penn World Tables). The multiple global financial crisis measure is obtained as the sum of currency, inflation, sovereign external debt, banking, and stock market crises indicators in Reinhart and Rogoff (2011). Horizontal broken lines denote 3 standard deviations from the whole-sample average share.

# Smitast alþjóðlegar fjármálakreppur hingað?



- Virðast vera sterk áhrif alþjóðlegra fjármálakreppa á innlendar bankakreppur og almennar fjármálakreppur ... en minni áhrif á innlendar gjaldeyris- og verðbólgukreppur
- Hækkun landahlutfallsins um 3 staðalfrávik tvö- til þrefaldar líkurnar á fjármálakreppu hér á landi

**Table 10** International financial crises and the probability of a financial crisis in Iceland

	<i>Different types of financial crises in Iceland</i>							
	Curr- ency	Infl- ation	Bank- ing	Mult- iple	Curr- ency	Infl- ation	Bank- ing	Mult- iple
	Using the share of countries in banking crises				Using the share of countries in general financial crises			
Constant	<i>-1.35</i> (0.19)	<i>-1.57</i> (0.26)	<i>-2.49</i> (0.37)	<i>-2.08</i> (0.31)	<i>-1.66</i> (0.27)	<i>-1.85</i> (0.30)	<i>-2.24</i> (0.37)	<i>-2.83</i> (0.60)
Lagged dependent variable	<i>1.44</i> (0.30)	<i>2.61</i> (0.36)	<i>0.96</i> (0.53)	<i>2.44</i> (0.42)	<i>1.41</i> (0.31)	<i>2.55</i> (0.35)	<i>1.66</i> (0.53)	<i>2.39</i> (0.42)
Share of countries in crises	<i>0.62</i> (0.94)	<i>-1.38</i> (1.17)	<i>4.48</i> (1.32)	<i>2.74</i> (1.22)	<i>2.54</i> (1.54)	<i>1.16</i> (1.64)	<i>3.07</i> (2.04)	<i>6.69</i> (2.51)
Marginal effect of 1 standard deviation increase in share of countries in crises	–	–	0.056	0.049	–	–	–	0.069
Pseudo $R^2$	0.197	0.516	0.394	0.482	0.214	0.511	0.271	0.528
LR test ( $p$ -value)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

The table reports the outcomes of probit regressions of different financial crisis indicators for Iceland (see dates in Tables 2-4, 6) on its own one-year lag and the GDP-weighted share of countries in banking crises and general financial crises, respectively, from Reinhart and Rogoff (2011) (see note to Figure 12). The estimation period is 1875-2010 (135 observations). Numbers in parenthesis are robust (Hubert-White) standard errors and parameters significant at the 5% critical level are in italics. The LR test reports the  $p$ -value for the null hypothesis that the parameters (except the constant) in the probit regression equal zero. The table also reports the marginal effect of increasing the share of countries in crises by one standard deviation, evaluating the regressors at their sample mean. The table only reports the marginal effects where the global share is found to be statistically significant.

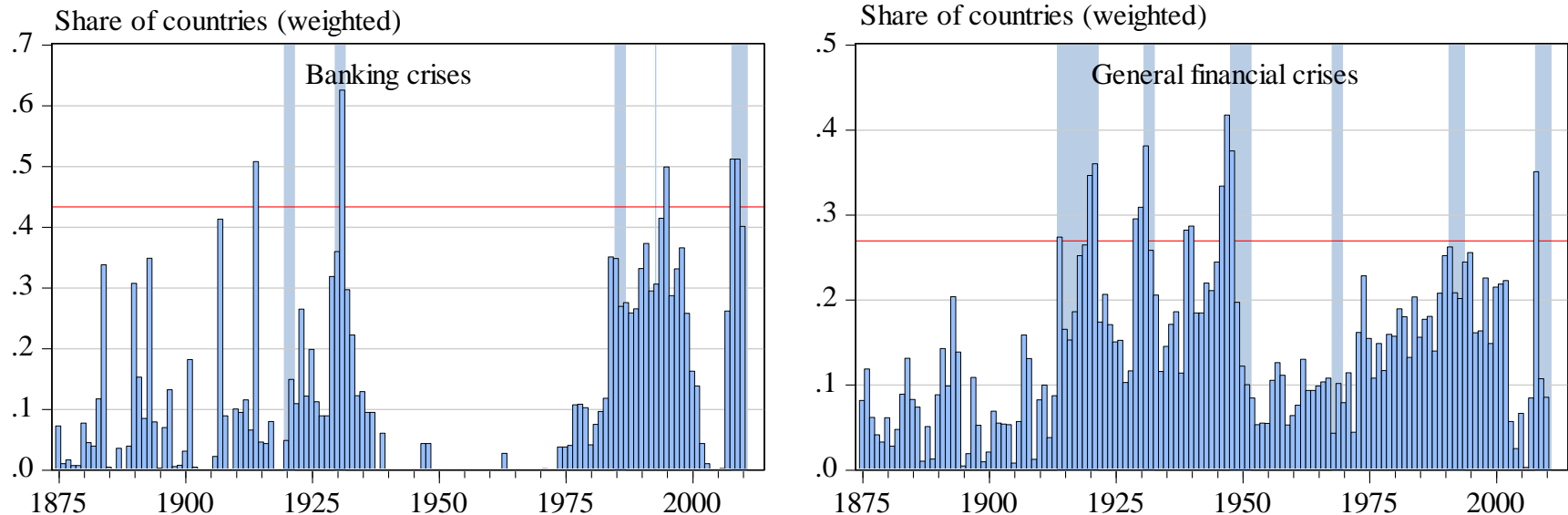
# Innlendar og alþjóðlegar fjármálakreppur



- Samhljómur með fjármálakreppum hér á landi og alþjóðlega: 1914-21 (fyrri heimsstyrjöldin og alþjóðlega fjármálakreppan 1920-21); 1931-32 (heimskreppan); 1948-51 (alþjóðlega fjármálakreppan eftir seinna stríð og síðan hrun alþjóðaviðskipta og Kóreu-stríðið); 1991-93 (norræna og japanska fjármálakreppan); 2008-10 (alþjóðlega fjármálakreppan)
- Það er í raun einungis kreppan 1968-69 sem virðist ekki eiga sér neina alþjóðlega samsvörun

**Figure 13** International spillover of global financial crises to Iceland

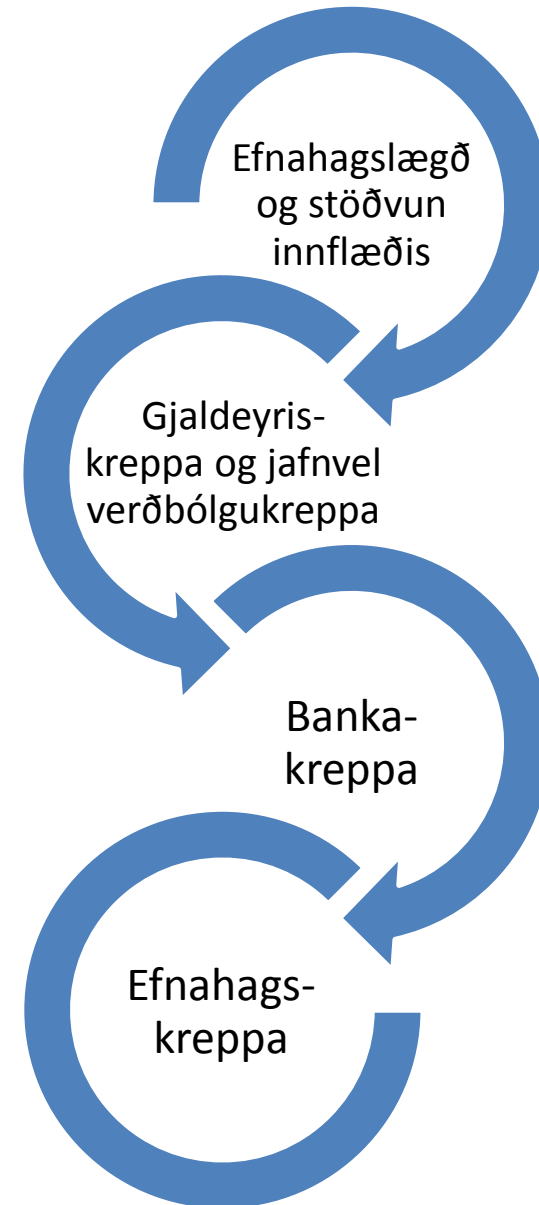
Banking crises (left) and multiple financial crises (right) in Iceland shown as shaded areas



Share of 70 countries in a given crisis from Reinhart and Rogoff (2011) weighted by their average 1950-2010 share in total GDP of these countries using PPP-adjusted nominal GDP in Geary-Khamis US dollars (from Penn World Tables). The multiple global financial crisis measure is obtained as the sum of currency, inflation, sovereign external debt, banking, and stock market crises indicators in Reinhart and Rogoff (2011). Horizontal lines denote 3 standard deviations from the whole-sample average share.

# Samantekt

- Alvarlegar fjármálakreppur hafa skolið á hér á landi á u.þ.b. 15 ára fresti
  - Algeng atburðarás er að verulegur samdráttur innlendar eftirspurnar komi fjármálakreppunni af stað
  - Gjaldeyriskreppa fylgir svo, sem oft kemur í kjölfar skyndilegra straumhvarfa á innflæði erlends gjaldeyris
    - Verðbólgukreppa fylgir stundum í kjölfarið
  - Að síðustu kemur gjarnan bankakreppa ...
  - ... sem dýpkar efnahagskreppuna enn frekar



Dæmigert ferli fjármálakreppu

# Samantekt



- Efnahagsleg áhrif fjármálakreppa eru veruleg
  - Tvöfalt dýpri og vara hátt í tvöfalt lengur en hefðbundnar niðursveiflur
- Náin tengsl við alþjóðlegar fjármálakreppur
  - Fimm af sex kreppum eiga sér sterka alþjóðlega samsvörun
- Í aðdragandanum má stundum sjá skýr hættumerki í þróun fjármálastærða – sérstaklega í þeirri síðustu – en ekki alltaf ...
- ... skýrustu merkin sjást gjarnan í vaxandi innra og ytra ójafnvægi í þjóðarbúskapnum: t.d. í óhóflegri eftirspurn og miklum halla á viðskiptum við útlönd