

Figure 1. Foreign Claims by Nationality of Reporting Banks

As percentage of GDP at end of year 2006

Note: Dark solid bars denote systemic banking crises and light solid bars ceres be denote cases. Figures denote foreign claims by nationality on the United States at end 2005 as a centage of home country GDP. Source: BIS

Liquidity support was used intersively as a first line or response to this shock emanating from the United State Not only was liquidity provision large, as illustrated in Figure 2, but it was also male available more book of through a larger set of instruments and institutions (including nonbank institutions), and under weaker collateral requirements. Examples of unconventional liquidity measures include the Federal Reserve's decision to grant primary broker-dealers access to the discount window, the widening of collateral accepted by the Federal Reserve and many other central banks, and the purchase of asset-backed securities by the Federal Reserve. These actions were also accompanied in some cases by the introduction of nonconventional facilities to fund non-financial companies directly, such as the Federal Reserve's Commercial Paper Facility and the Bank of England's Asset Purchase Facility.

This significant liquidity provision is reflected in a large increase in central bank claims against the financial sector. The median change from the pre-crisis level to its peak in the ratio of central bank claims against the financial sector to deposits and foreign liabilities amounts to 5.5 percent.¹¹ This is about half its median in past crisis episodes. For comparison

¹¹ For Germany and Luxembourg, while at the peak this variable reached 9.4 and 14.7 percent respectively, the increments look small because banks in these countries already maintained high balances prior to the crisis due to cross-border settlements. Liquidity support is computed as the ratio of Central Bank Claims on deposit money banks (line 12 in IFS) to total deposits and liabilities to non-residents. Total deposits are computed as the sum of demand deposits (line 24), other deposits (line 25), and liabilities to non-residents (line 26).

purposes, Figure 2 also reports the historical median of liquidity support among high-income countries only, since most recent crises occurred in high-income economies (all crisis countries except Mongolia, Latvia, and Ukraine).¹²



Figure 2. Emergency Central Bank Liquidity Support Over the period 2007 to 2009

Note: The shaded figures represent the enange in the range of tertral bank claims on the financial sector over total deposits and for 2 m available between the pear of this ratio and the average for the year before the crisis. The neuroflexed eigures represent the set I an ent of liquidity support funded directly by the Treasury (between 2001 and 2009) over total deposits and rough liabilities. Dark-shaded bars denote systemic crisis cases, while light-shaded bars denote non-systemic crises. For Iceland, liquidity data was available only up to March 2008. Horizontal lines denote the medians classified by countries' income level for historical data. All (old): all previous countries; High income (old): high-income previous episodes. Source: Laeven and Valencia (2008), IFS, and authors' calculations.

In some cases, liquidity was also provided directly by the treasury, as indicated in Figure 2. Slovenia shows the largest increase in liquidity funded by the treasury, amounting to close to 5 percent of deposits and foreign liabilities. Similarly, government deposits at Parex Bank in Latvia constituted an important source of liquidity assistance for this bank.¹³ Liquidity injected in countries labeled as borderline has also been significant, in particular for Greece, Russia, and Sweden. For Greece, liquidity support increased steadily starting in September

¹² It is worth clarifying that there are only 5 historical (pre-2007) crisis episodes among high-income countries in our historical sample.

¹³ In the case of Latvia, the threshold used in our definition of extensive liquidity support is satisfied once government deposits at Parex are counted as liquidity support.

sample—we find that output losses are similar compared to the past, increases in public debt somewhat lower, but direct fiscal outlays higher (Table 4).

The median direct fiscal costs associated with financial sector restructuring for the 2007-2009 systemic banking crises amounts to almost 5 percent of GDP, about half its historical median of 10 percent.²² Figure 9 plots the direct fiscal costs for the recent systemic crises, as well as for the borderline cases. Two horizontal lines indicate the median of fiscal costs in all previous crises and that among previous high-income crisis episodes. Greece, Kazakhstan, Russia, and Slovenia show the highest figures among the borderline cases, although for Slovenia all of it corresponds to liquidity support from the treasury in the form of bank deposits. For Greece and Kazakhstan, at least half of it is also liquidity assistance from the treasury, while only for Russia the entire amount corresponds to recapitalization. As one would expect, on average, direct fiscal costs for borderline cases are lower than those for the systemic crises. Iceland shows up with the highest fiscal outlays, at 13 percent of GDP.²³



Note: Dark-shaded bars denote systemic banking crises episodes, and light-shaded bars borderline cases. The horizontal lines represent the medians across crises prior to 2007. Income groups are based on the World Bank country classification. All (old): all old episodes; High income (old): all old crises in high-income countries. Source: Laeven and Valencia (2008) and Authors' calculations

²² These higher fiscal costs in part reflect an increase in average banking system size.

²³ These costs exclude the obligations (mostly to the United Kingdom and the Netherlands) arising from the Icesave crisis, which in net present value terms IMF staff estimates to be around 16 percent of GDP.

We regard the lower direct fiscal outlays associated with high income countries, relative to all past crises, a consequence of the greater flexibility these countries have in supporting their financial system indirectly through expansionary monetary and fiscal policy and direct purchases of assets that help sustain asset prices. Additionally, some high income countries opted for sizable contingent liabilities to complement direct fiscal outlays (see Table A.3).

Given that countries can also indirectly support their financial sector at times of crisis through expansionary fiscal policies that support output and employment, it is useful to also consider the overall increase in public debt as a broader estimate of the fiscal cost of the crisis. The median debt increase among recent crises is 24 percent of GDP, about 8 percentage points higher than its historical median of 16 percent. Thus, public debt burdens have increased significantly as a consequence of policy measures taken during the crisis.



Figure 10. Increase in Public Debt In percent of GDP and over the period 2007-2011 (estimated)

Note: Dark-shaded bars denote systemic banking crises episodes, and light-shaded bars denote borderline cases. Increase in public debt is the increase in gross general government debt (central government debt if not available) over GDP, estimated over the 3 year period following the start of the crisis using WEO debt forecasts. Horizontal lines denote medians across past crises, classified by income level. All (old): all past crises in emerging and high-income countries; High income (old): all past crises in high-income countries. Source: Laeven and Valencia (2008), WEO and authors' calculations.

Figure 10 shows the increase in the public debt burden for each crisis and also reports the historical median of the increase in public debt at crisis times. We approximate the increase in public debt that can be attributed to the crisis by computing the difference between preand post-crisis debt projections. For the 2007-2009 crises, we use the fall WEO debt projections from the year before the crisis year as pre-crisis debt figures (i.e., September 2006 WEO for the UK and US and October 2007 WEO for all other recent crises) and the

United Kingdom	5.5	5.1	Purchases: 13.4 Guarantees: 14.5	DI raised from $\pounds 35,000$ to 50,000. Guarantee on short- to medium-term debt (capped at $\pounds 250$ billion). Blanket guarantee on Northern Rock and Bradford & Fingley wholesale deposits.	Northern Rock (2008); RBS (2008).
United States	4.6	3.5	Purebases P. C	Money market funds (capped at 50 billion). Full guarantee on transaction deposits. Newly issued senior unsecured debt.	Fannie Mae, Freddie Mac, AIG (all 2008).
		from	Bortome Cases		
France P	eview	page 320		DI already higher than EU new limit. €360 billion in guarantees for refinancing credit institutions. €55 billions Dexia's debt	
Greece	18.3	1.7		DI raised from \notin 20,000 to \notin 100,000. Funding guarantees up to \notin 15 billion.	
Hungary	1.3	0.1		Unlimited protection to depositors of small banks.	
Kazakhstan	4.6	2.4		DI raised from T0.7 million to T5 million.	
Portugal	5.5			DI raised from €25,000 to €100,000. Debt securities issued by credit institutions (up to 12 percent of GDP)	Banco Portugues de Negócios (small bank) (2008)
Russia	22.2	1.0		DI raised from R400,000 to R700,000. Interbank lending for qualifying banks.	
Slovenia	9.3			Unlimited protection for all deposits by individuals and small enterprises until end-2010. New debt issued by financial institutions until end-2010.	
Spain	4.1			DI raised from €20,000 to €100,000. Credit Institutions New Debt Issues (capped at €200 billion).	
Sweden	13.1	0.7		DI raised from SEK 250,000 to SEK 500,000. Medium-term debt of banks and mortgage institutions (up to SEK 1.5 trillion).	
Switzerland	2.8	1.1	Purchases: 6.7	DI raised from SFr 30,000 to SFr 100,000 until 12/31/11.	

Source: IMF Staff Reports, Mayer Brown, Official websites, and IFS

Table A.3. Direct Fiscal Outlays, Recoveries to Date, and Asset GuaranteesDuring the years 2007 to 2009

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		Gross	Recoveries 1/	Net
Austria				
Recapitalizations	Capital Injection Program	2.1		
Asset Purchases	impaired assets and liquidity	2.0		
	Total Fiscal Outlays	4.1		4.1
Asset Guarantees	Asset guarantee program	0.6		
Belgium				
Recapitalization	Ethias, Fortis, KBC, and Dexia	4.7		
Other	Capital for Fortis SPV	0.2		
	Total Fiscal Outlays	5.0		5.0
Asset Guarantees	Asset relief facility	6.0		
	Fortis SPV	1.3		
	Fortis portfolio	0.4		
	Total Asset Guarantees	7.7		7.7
Denmark				
Recapitalization	Capital Assistance Program	2.7		
-	Capital injection in Fionia Bank	0.1		
Other	Loan to Fionia Bank	0.3		
	Total Fiscal Outlays	3.1	A 1K	3.1
France	·	~0		
Recapitalization	SPPE acquisition of subordinated bonds	0.5		
1	Second stage recapitalization (BNP, SG, Dexia)	0.5		
	Total Fiscal Outlays	1.0		1.0
Asset Guarantees	Financial Security Assurance Inco	0.3		
Germany		Ö		
Recapitalization	Capital Injection Program	1.2		1.2
Asset Purchases	Les pue fluse program	0.2		
	Total Fiscal Outlins	1.4		1.4
Asserguatintees	Bad Bank Act ²	6.1		
Greece				
Recapitalization	Capital injection package	1.7		
Other	Liquidity	1.9		
	Total Fiscal Outlays	3.6		3.6
Hungary				
Recapitalization	Capital injection in FHB (mortgage lender)	0.1		
Other	FX loans to large banks	2.6		
	Total Fiscal Outlays	2.7	1.6	1.1
Iceland ^{3/}	·			
Recapitalization	Landsbanki, Kaupthing, and Islandsbanki	13.0		13.0
Ireland	· · · ·			
Recapitalization	Bank of Ireland, Allied Irish Bank, and Anglo Irish	7.6		7.6
Kazakhstan				
Recapitalization	BTA, Halyk, Alliance, and KKB	2.4		
Other	Liquidity through deposits of the development agency	1.3		
	Total Fiscal Outlays	3.8		3.8
Latvia	v	-		
Recapitalization	Parex and MLBN	2.5		
Other	Liquidity	2.5		
	Total Fiscal Outlays	4.9		4.9
Luxembourg	v			
Recapitalization	Fortis and Dexia	7.7		7.7
Netherlands				