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GOVERNMENT POLICY AND THE FINANCIAL SECTOR: DEALING WITH MORAL HAZARD AND "TOO-BIG-TO-FAIL"

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Abstract

The large-scale interventions by Western governments in 2008 aimed at underpinning the banking system have confirmed the extent of state support for the financial sector. The explicit backing of the "lender of last resort" has reemphasised the moral hazard problem. Without further reform of the markets, the current infrastructure has become one in which private sector profits are privatised, but losses are socialised at taxpayer expense. This paper assesses the extent of moral hazard risk now inherent in the banking system, and makes recommendations that will help to mitigate this risk. We provide policy suggestions in the areas of central bank communications, systemic risk, and dealing with the too-big-to-fail bank.

Keywords: Banking sector, moral hazard, systemic risk

JEL Classification: G01; G21; G28

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1. Introduction

Terms such as too-big-to-fail (TBTF), lender-of-last-resort (LoLR) and moral hazard are closely related. They are all connected with the overall objective of safeguarding the public's deposit money should a financial institution collapse. In essence they refer to how the government, or more specifically its central bank, would come to the rescue of a bank in financial crisis, because a bank on the brink of bankruptcy would have a destabilising effect on the entire financial system. Spill-over effects are closely related to systemic risk. Hence this kind of protection afforded to a bank may make it TBTF for the system.

In this article we consider the new reality of the role of government in the financial system in the post-credit crunch era. We describe how moral hazard will remain in the system, and provide recommendations for how to mitigate this risk exposure, as well as dealing with the issue of the TBTF bank.

2. Living with moral hazard

One result of the 2007-08 financial crisis is that governments and central banks are now playing a pivotal role in maintaining moral hazard. A reaffirmation of their position as LoLR creates a dual principle. First of all it gives a strong signal to deposit holders not to withdraw their money from banks, as they should expect that the central bank will place unlimited resources at the disposal of private banks to keep the credit process going. Secondly it encourages deposit holders to place their money at the bank with the highest deposit interest rate.

Banks in turn compete against each other to attract deposits. The bank that is able to pay the highest deposit rate will, all else being equal, attract most deposits. This is only sustainable from a bottom-line viewpoint by taking on more risk on the asset side of the balance sheet.

This happened with the UK bank Northern Rock plc. In part due to its more aggressive credit portfolio, the bank was able to pay out a higher rate on its clients deposit accounts compared to that paid by the big "high street" banks (Cooper 2008). At the US Federal Reserve, this moral hazard principle was emphasised by a number of unfortunate comments from Alan Greenspan. On occasion he gave the market the impression that the Federal Reserve would put a floor under financial markets in general. During a speech at the Economic Club of NY in December 2002, he stated: "Asset bubbles cannot be detected and monetary policy ought not to be in any case used to offset them. The collapse of bubbles can be detected, however, and monetary policy ought to be used to offset the fallout." This and other similar utterances became known as the "Greenspan Put."

The latter has come under severe criticism as this safety net gives the impression that profits within the banking industry will remain privatised, but any losses will be socialised at taxpayers' expense. Protecting the public's money is a noble objective, however bailing out banks comes with a cost that the taxpayer has to pay for. The cost post-credit crunch is now in the trillions. The total bill, for bailing out the banking sector and injecting stimulus packages into the global economy, has risen to just below $20 trillion, the majority in the US (see Figure 1). These numbers are unprecedented, even compared to inflation-adjusted levels seen during the 1930s.

Figure 1 Global Bailout Bill

Global Overview	
Country	$ bln
US*	14,499.00
EU**	1,972.80
Japan	375
UK***	2,888.20
IMF	140.20
Total	19,875.20

* excluding Fannie Mae and Fre
** EURUSD rate 1.40
*** GBPUSD rate 1.60

Source: US Treasury, Federal Reserve, FDIC, IMF

Figure 2 Overview of bank bailouts

Date	Event
16/03/2008	Bear Stearns bailed out by a joint effort from JP Morgan and the US Federal Reserve, which provides a credit line of USD 30 bln
07/09/2008	Fannie Mae and Freddie Mac are bailed out by the US government for an amount of USD 200 bln in preferred stock and credit lines
15/09/2008	Lehman Brothers: Allowed to fail by US Treasury Secretary, creates bank liquidity crisis
16/09/2008	AIG receives a rescue package of USD 85 bln from the US government
25/09/2008	Washington Mutual comes under control of the US government, the majority of its assets are sold to JP Morgan
29/09/2008	Glitnir Bank is nationalised by the Icelandic government
	Mortgage lender Bradford & Bingley is nationalised by the UK government
30/09/2008	Dexia Bank receives support from the Belgian government via a capital injection
	Irish government guarantees all deposits, and the senior and subordinated debt of all six Irish banks
03/10/2008	Fortis Bank is split into in three parts by the Benelux governements
	US Congress approves TARP plan for USD 750 bln to buy toxic assets from banks
06/10/2008	Hypo Real Estate receives a government facilitated credit line from the Federal German government
13/10/2008	RBS, HBOS and Lloyds receive USD 64 bln from UK government
	EU commits EUR 1.3 trillion to support banks
16/10/2008	Hungary receives a EUR 5 billion credit line from the ECB
28/10/2008	IMF offers a USD 25 billion support package to Hungary
16/01/2009	BoA receives suport package from US government under the form of preferred equity injection
19/01/2009	UK government raises its stake in RBS to 70%
10/02/2009	US government announces the Public-Private Investment Programme of up to $ 1 trillion to purchase troubled assets

Source: BIS 2009, www.creditwritedowns.com

Figure 2 gives a (non-exhaustive) overview of the bailouts undertaken since the start of the crisis. This excludes the coordinated measures taken by central banks, such as the establishment of USD swap lines, to ease short term pressures in the money market. Figure 2 gives an idea of the extent of the moral hazard.

There is no doubt that the existence of a safety net creates an unconscious reflex in bank senior management to take on more risk. Perhaps not currently, because in the immediate post-crisis environment investors remain risk averse; but as the economy recovers the issue will become more problematic. Due to competitive pressures in banking a higher risk-reward profile becomes a self-fulfilling prophecy, as banks seek to generate more customer business and attract deposits.

This appears to be what happened when Goldman Sachs (along with Morgan Stanley) converted into a commercial bank in September 2008. It forced to make this change because of the interbank market implosion created by the Lehman Brothers collapse. It was a blunt acknowledgment that its "investment bank" model of finance had become unsustainable, and that it needed the cushion of bank deposits, as well as the LoLR backing, to stay afloat amidst the market turmoil.

Goldmans received a rescue package of $10 billion from the US government Troubled Asset Relief Program (TARP). With this explicit guarantee, it proceeded to take on even bigger risks during Q1 2009, a period when other financial market participants were scaling back their risk exposures. During Q1 and Q2 of 2009 Goldmans extended its value-at-risk (VaR) limits to record highs, on risks led by equity trading (see Figure 3).

Figure 3 Goldman Sachs VaR exposure(USD mm)

Quarter End	Value-at Risk (daily average)
Jun-09	$ 245
Mar-09	$ 240
Nov-08	$ 197
Aug-08	$ 181
May-08	$ 184
Feb-08	$ 157
Nov-07	$ 151
Aug-07	$ 139
May-07	$ 133
Feb-07	$ 127

Source: Bloomberg L.P.

If one takes a closer look at the results it is striking that the revenues are pure investment banking and trading related (see Figure 4). In other words, the revenues are unrelated to any form of commercial banking business. This is despite the fact that the firm applied for a banking license in September

2008, in order to be able to access TARP funds. In other words, Goldmans is a licensed commercial bank, with all the implicit LoLR backing that this implies, but which carries out very little conventional commercial banking business.

Figure 4 Goldman Sachs net revenue, Q2 2009

Division	Net Revenue	Change (YOY)
Equity underwriting	$ 736 mio	19%
Debt underwriting	$ 336 mio	25%
Fixed Income, Currency and Commodities	$ 6.8 bio	186%
Investment Banking Advisory, mergers and acquisitions	$ 368 mio	-54%
Total Trading and Principle Investments	$ 10.8 bio	93%

Source: Bloomberg L.P.

The question remains then whether the US government was justified in offering Goldman Sachs this lifeline. Once it received government assistance, Goldmans had access to cheap credit lines from the Federal Reserve, and proceeded to increase its risk exposure and further distance itself from competitors.

Continuing moral hazard is an issue that needs to be solved sooner rather than later if we are to avoid a re-occurrence of the crisis. However this is not an easy task. The principle of LoLR has merit. The Great Depression in the 1930s could have been more contained if the central bank had played a more dominant role. In essence we have a conundrum that is not easily solved.

For the foreseeable future the LoLR concept will not disappear. It is necessary for the safe operation of the financial system. We observed during the Lehman collapse the effects when a government and central bank lets market forces act freely: at one stage in October 2008 it appeared as if the entire Western banking system might collapse, with disastrous consequences for the entire economy, if governments had not stepped in to guarantee liabilities. It is an economic law that in this case the fall in asset prices relative to current output prices would have been greater but for state intervention. Furthermore the drop in investments and consumption would be substantial and the decline in income and employment would be larger as well. So the public sector must step in for the "greater good", in a way that does not apply to other industrial sectors.

3. Mitigating moral hazard risk

Thus, moral hazard has seemingly become an inescapable fact of life. The ultimate solution to the problem may be no more ambitious than reducing (rather than attempting to eliminate) moral hazard, without curtailing risk taking. To that end, we require new regulations. Three major issues around moral hazard and the TBTF issue need to be addressed:

- Transparent communication by central banks about moral hazard;
- The interconnection of financial markets and the systemic risk related to it;
- Consolidation trends and the risks of “too-big-to-fail”.

We discuss each of these points individually.

3.1 Transparent communication by central banks about moral hazard

As we noted above the crisis was underpinned by a false perception that unsecured institutions, for example those that do not fall under US FDIC protection, would nevertheless be regarded as TBTF by the US government. This perception was first created by frequent interventions by central banks during the past four decades, and exacerbated by the dubious rhetoric of Fed Chairman Alan Greenspan. Current Fed Chairman Ben Bernanke recognises this issue however, stating “market discipline may erode further if market participants believe that, to avoid the risk of a financial crisis, the government will step in to prevent the failure of any very large institution – the ‘too-big-to-fail problem”(Bernanke 2007).

As a first step, the Federal Reserve and other central banks need to modify their rhetoric and start informing the market that there is no absolute floor under the markets, and that their expectations of being rescued must be diminished. If not, market discipline, as we have seen from Goldman Sachs, will not change. Of course this is not a short-term solution, but something that can only take place over time. Perceptions built up over 20 years do not evaporate overnight. It is important however that governments act now, rather than wait until the next crisis. The opportunity should be taken on a regular basis when communicating monetary policy, for example during the press conference after Bank of England, ECB or Federal Open Market Committee meetings, and at the Humphrey Hawkins testimonies.

In addition to the frequency of communication, its quality needs to be raised as well. General comments along the lines of “banks are at risk of losses due to excessive risk taking” are not going to change market mentality. Central banks and other institutions such as the FDIC must disclose more information on the research they are conducting on how to maintain financial stability. For example, the FDIC is doing research on procedures and methodologies in identifying which depositors it must protect and which it can impose losses on. This type of research needs a wide readership.

The most important aspect of increased communication towards the market should be in explaining how central banks undertake market stabilisation efforts, and estimate future losses that have to be taken by creditors.

3.2 The interconnection of financial markets and systemic risk

We accept that more transparent communication on its own will not solve the problem. Stronger measures are needed to reduce the frequency with which central banks and governments bail out banks.

The reason why a LoLR facility is put in place is to avoid spill-over effects towards other banks and ultimately prevent a bank run. Banking is ultimately a business based on confidence. The instant that customers start withdrawing their deposits on a large scale, banks are in trouble and will need to be bailed out (either by takeover or merger with another bank or buy outright support from the LoLR). The basic bank business model relies on leverage, with only a small fraction of a bank's liabilities held in reserve at the central bank. As bank funding is based on borrowing in the interbank market, systemic risk is inherent in the model.

Therefore the authorities must place more focus on the following:

- Setting strict liquidity ratio limits, imposed by the regulator, as well as requirements to diversify funding sources, reduce reliance on single funding sources, and increase the average tenor of liabilities; the UK's FSA has already started the process to implement a much stricter liquidity regime for banks (FSA 2008);
- The establishment of a global central clearing agency for OTC derivatives; efforts are already underway to set this up for credit derivatives, and such a system would help to reduce bilateral counterparty risk. An alternative is for regional clearing centres based on currency;
- The establishment of a clearing house for the money markets, a so-called "International Money Exchange" for the interbank market that would work similarly to an exchange clearing house (Choudhry 2009); such a facility would serve to make the interbank market more robust during times of crisis or illiquidity, because it is at these times that banks withdraw credit lines with other banks. A central clearing mechanism that eliminated bilateral counterparty risk would make it less likely that banks would withdraw lines;
- Reducing leverage, if necessary by regulatory fiat, through the imposition of leverage limits on banks;
- Imposing higher capital ratios than currently in place under Basel II, tailored according to the bank's size, its extent of risk exposure and the amount if systemic risk it represents;
- Developing new capital instruments which absorb losses in distressed situations. Our recommendation is that banks promote a product which has similar features to a classic reverse convertible bond. Banks would issue so-called reverse convertible debentures, which would automatically convert into equity once the minimum capital ratio level of a bank is breached.

The above measures once implemented would reduce the likelihood that a central bank or government would have to bail out the banks during the next economic downturn.

3.3 Consolidation trends and the risk of "too-big-to-fail"

The current debate on TBTF raises the issue that such banks should be made smaller. This does appear at first sight to be a reasonable idea.

The case for this is strong when considering the Icelandic banks, which could not be rescued by their government since they had outgrown their own country's GDP. In this decade these banks grew from being domestic lenders to major international players. During the expansion they acquired foreign assets of almost ten times the country's GDP (this from almost two times GDP in 2003). Furthermore almost 80% of these assets were in foreign currency, making them extremely vulnerable to foreign exchange volatility. When the bubble burst the government had to ask the IMF for an emergency loan or risk the total collapse of the banking system and thereby the economy.

However, these banks were not a major threat to the international banking system. European banks did make writedowns on the collapse of Kaupthing, Glitnir and Landsbanki; nevertheless the impact was not on the scale of the Lehman collapse.

The case of Ireland, which is a member of the euro-zone, provides stronger backing for advocates of making banks smaller. Unlike the Icelandic banks, who decided to become international players, the Irish banks focused mainly on their home market and the UK. The Irish banking industry grew hand-in-hand with the domestic real estate boom. Between 1998 and 2007 house prices in real terms quadrupled on a national level. When the housing bubble burst, Irish banks were heavily exposed and as Figure 5 shows their capital ratios were not robust enough to survive the shock. The Irish government was forced to provide explicit backing for its banks; one impact of this was that the Ireland sovereign rating was cut from AAA, on fears that the public sector debt liability created by the guarantees would become unsustainable. Ultimately the majority of Irish banks were effectively nationalised. The Irish situation was not that dramatic compared to the Icelandic one for a simple reason: Ireland had the safety net of the euro-zone. This in itself exposed euro-zone taxpayers to potential losses if the government itself had needed to be bailed out.

Despite the deleveraging process that has been going on since the start of the crisis, some major international banks are still bigger than their own country's GDP. This is certainly the case for the Swiss banks UBS and Credit Suisse. At the end of 2008 Credit Suisse balance sheet was 2.72 times and UBS's 4.18 times the GDP of Switzerland (see Figures 5 and 6).

Figure 5 also proves that (contrary to popular belief) European banks were and still are more leveraged than American banks, and that no UK or German bank outgrew its country's GDP.

However in countries such as the Netherlands and Belgium one can notice a similar pattern to that in Switzerland. The Dutch bank ING clearly became TBTF for the government as its total assets were 1.53 times the GDP of the Netherlands. This was also the reason why, in the case of Fortis Bank, the Benelux countries implemented a joint rescue plan to save it.

Figure 5 Bank overview of leverage and total assets

Bank	2000	2001	2002	2003	2004	2005	2006	2007	2008
JPMorgan Chase & Co									
Total Assets	715,345	693,575	758,800	770,912	1,157,248	1,198,942	1,351,520	1,562,147	2,175,052
Financial Leverage	18.62	17.41	17.85	17.7	12.82	11.09	11.44	12.19	14.48
Tier 1 / Core	8.50	8.29	8.24	8.50	8.70	8.50	8.70	8.40	10.90
Bank of America Corp									
Total Assets	642,191	621,764	660,951	719,483	1,110,432	1,291,803	1,459,737	1,715,746	1,817,943
Financial Leverage	13.87	13.16	12.99	14.06	12.37	11.94	11.77	11.55	12.54
Tier 1 / Core	7.50	8.30	8.22	7.85	8.20	8.25	8.64	6.87	9.15
Citigroup									
Total Assets	902,210	1,051,450	1,097,190	1,264,032	1,484,101	1,494,037	1,884,318	2,187,480	1,938,470
Financial Leverage	14.05	13.55	13.02	12.96	13.4	13.56	14.68	17.53	22.37
Tier 1 / Core	8.38	8.42	8.47	8.91	8.74	8.79	8.59	7.12	11.92
Royal Bank of Scotland									
Total Assets	320,004	368,859	412,000	454,428	588,122	776,827	871,432	1,840,829	2,401,652
Financial Leverage	18.64	16.65	17.04	18.55	18.26	19.68	21.78	29.08	37.91
Tier 1 / Core	6.90	7.10	7.30	7.40	7.00	7.60	7.50	7.30	10.00
HSBC Holdings									
Total Assets	674,129.90	696,079.60	758,605	1,034,216	1,279,974	1,501,970	1,860,758	2,354,266	2,527,465
Financial Leverage	15.69	14.9	14.82	14.2	14.46	15.63	16.75	17.82	22.01
Tier 1 / Core	9.00	9.00	9.00	8.90	8.90	9.00	9.40	9.30	8.30
Wells Fargo & Co									
Total Assets	272,426	307,569	349,197	387,798	427,849	481,741	481,996	575,442	1,309,639
Financial Leverage	10.31	10.87	11.44	11.38	11.27	11.63	11.23	11.41	16.4
Tier 1 / Core	7.29	6.99	7.70	8.42	8.41	8.26	8.95	7.59	7.84
Mitsubishi UFJ Fin Group									
Total Assets	No data	No data	99,489.26	99,175.32	106,615.50	110,285.50	187,046.80	187,281	192,993.20
Financial Leverage	No data	No data	No data	No data	31.07	25.74	26.62	25.05	24.18
Tier 1 / Core	No data	No data	5.27	5.68	7.15	7.62	6.80	7.59	7.60
antander Central Hispano									
Total Assets	348,871.90	358,116.20	324,193.30	351,780.40	664,486.30	809,106.90	833,872.70	912,915	1,049,632
Financial Leverage	19.43	16.51	14.86	13.8	17.09	19.86	19.41	17.46	17.4
Tier 1 / Core	7.64	8.44	8.01	8.26	7.16	7.88	7.42	7.71	9.10
Goldman Sachs									
Total Assets	289,760	312,218	355,574	403,799	531,379	706,804	838,201	1,119,796	884,547
Financial Leverage	20.25	17.32	17.94	18.69	20.02	24.12	26.21	27.05	22.88
Tier 1 / Core	No data	No data	No data	No data	No data	No data	No data	No data	15.60
BNP Paribas									
Total Assets	693,315	825,288	710,305	782,996	1,002,503	1,258,079	1,440,343	1,694,454	2,075,551
Financial Leverage	33.62	32.86	30.09	27.31	29.49	30.95	31.46	34.03	42
Tier 1 / Core	7.10	7.30	8.10	9.40	7.50	7.60	7.40	7.30	7.80
Barclays Bank									
Total Assets	316,190	356,612	403,062	443,262	538,181	924,357	996,787	1,227,361	2,052,980
Financial Leverage	26.35	24.31	25.59	26.8	30.44	43.93	51.61	51.62	54.76
Tier 1 / Core	7.20	7.80	8.20	7.90	7.60	6.90	7.70	7.80	8.60
Mizuho Financial Group									
Total Assets	N/A	N/A	N/A	134,007.20	137,750.10	143,076.20	149,612.80	149,880	154,412.10
Financial Leverage	N/A	N/A	N/A	N/A	503.63	129.51	62.49	36.81	38.85
Tier 1 / Core	No data	No data	No data	4.87	5.76	6.20	5.89	6.96	7.40
Morgan Stanley									
Total Assets	426,794	482,628	529,499	602,843	747,334	898,523	1,121,192	1,045,409	658,812
Financial Leverage	22.6	23.26	23.95	24.22	25.44	28.68	31.83	33.63	27.56
Tier 1 / Core	No data	No data	No data	No data	No data	No data	No data	No data	17.90
Uncredit									
Total Assets	202,655.50	208,388.10	213,349.30	238,255.60	265,406.20	787,000.30	823,284.20	1,021,835	1,045,612
Financial Leverage	23.45	22.77	19.53	18.06	18.81	21.44	21.86	19.19	18.35
Tier 1 / Core	6.37	6.79	7.21	6.96	7.94	6.89	5.82	6.55	6.66
umitomo Mitsui Fin Group									
Total Assets	N/A	N/A	N/A	104,586.80	102,215.20	99,731.86	107,010.60	100,858.30	111,955.90
Financial Leverage	N/A	N/A	N/A	N/A	108.7	89.01	51.84	31.7	31.38
Tier 1 / Core	No data	No data	No data	5.50	6.03	5.39	7.11	6.44	65.73
ING Bank									
Total Assets	650,172	705,119	716,370	778,771	876,391	1,158,639	1,226,307	1,312,510	1,331,663
Financial Leverage	19.1	28.97	35.74	37.77	36.46	33.47	31.8	33.64	40.97
Tier 1 / Core	No data	7.03	7.31	7.59	7.30	7.32	7.63	7.39	9.32
Deutsche Bank									
Total Assets	928,994	918,222	758,355	803,614	840,068	992,161	1,584,493	2,020,349	2,202,423
Financial Leverage	26.29	22.02	23.89	26.84	30.38	32.81	41.1	51.64	62.33
Tier 1 / Core	7.80	8.10	9.60	10.00	8.60	8.70	8.50	8.60	10.10
Societe Generale									
Total Assets	455,881	512,499	501,265	539,224	601,355	835,134	956,841	1,071,762	1,130,003
Financial Leverage	33.7	32.9	32.2	32.07	32.46	34.64	34.4	36.04	34.77
Tier 1 / Core	8.91	8.36	8.14	8.66	7.69	7.57	7.82	6.62	7.88
Credit Suisse Group									
Total Assets	979,121	1,016,078	1,027,158	1,004,308	1,089,485	1,339,052	1,255,956	1,360,680	1,170,350

Bank	2000	2001	2002	2003	2004	2005	2006	2007	2008
UBS									
Total Assets	1,087,552	1,253,297	1,181,118	1,386,000	1,737,118	2,058,348	2,396,511	2,274,891	2,014,815
Financial Leverage	27.49	26.49	29.5	34.49	45.01	48.69	47.54	53.97	61.81
Tier 1 / Core	No data	11.60	11.30	11.80	11.90	12.80	11.90	9.10	11.00
Commerzbank									
Total Assets	454,904	501,312	422,134	381,585	424,877	444,861	608,278	616,474	625,196
Financial Leverage	34.85	39.38	44.9	44.9	42.79	38.73	39.09	41.7	36.11
Tier 1 / Core	6.50	6.20	7.30	7.30	7.50	8.10	6.70	7.00	10.10
Fortis Bank									
Total Assets	438,082.70	482,875.10	485,668	523,364.20	614,085.30	728,994.50	775,229	871,179	92,870
Financial Leverage	29.41	31.82	39.49	44.68	41.9	39.2	38.01	30.66	24.2
Tier 1 / Core	7.30	8.50	8.20	7.90	8.30	7.40	7.10	No data	No data
HBOS									
Total Assets	N/A	312,071	355,030	408,413	448,165	540,873	591,813	666,947	689,917
Financial Leverage	N/A	N/A	27.42	26.99	26.91	28.92	29.94	29.87	40.08
Tier 1 / Core	No data	7.90	7.90	7.60	7.90	8.10	8.10	7.70	6.00
Dexia									
Total Assets	257,726	351,250	350,692	349,463	388,787	508,761	566,743	604,564	651,006
Financial Leverage	42.6	41.28	40.82	38.42	33.46	32.98	37.15	40.29	67.66
Tier 1 / Core	9.30	9.30	9.30	9.90	10.00	10.30	9.80	9.10	10.60
Lloyds TSB Group									
Total Assets	219,113	235,793	252,561	252,012	284,422	309,754	343,598	353,346	436,033
Financial Leverage	21.24	22.32	26.69	28.72	25.95	27.97	30.6	29.92	36.66
Tier 1 / Core	8.20	8.40	7.70	9.50	8.20	7.90	8.20	8.10	8.00
KBC Group									
Total Assets	187,658	227,759.20	221,730.50	225,586.80	285,163	325,801	325,400	355,597	355,317
Financial Leverage	34.42	31.21	28.16	25.45	23.78	21.76	19.86	19.81	22.53
Tier 1 / Core	9.50	8.80	8.83	9.54	10.07	9.40	8.70	7.40	7.20
Allied Irish Bank									
Total Assets	80,250	89,359	85,821	80,960	101,109	133,214	158,526	177,862	182,143
Financial Leverage	17.14	17.27	19.34	18.28	17.04	18.87	19.74	19.29	20.26
Tier 1 / Core	6.30	6.50	6.90	7.10	8.20	7.20	8.20	7.50	7.40
Anglo Irish Bank									
Total Assets	11,047.30	15,776	19,417.80	25,520.10	34,339.80	48,413	73,290	96,652	101,321
Financial Leverage	32.27	32.75	29.29	27.73	21.32	20.56	25.29	25.23	24.21
Tier 1 / Core	32.27	32.75	29.29	27.73	21.32	20.56	25.29	25.23	24.21
Bank Of Ireland									
Total Assets	68,017	78,875	87,298	89,303	106,431	127,780	162,212	188,813	197,434
Financial Leverage	20.09	20.79	20.84	21.56	23.58	27.41	30.67	29.47	29.24
Tier 1 / Core	7.40	7.80	7.60	8.00	7.20	7.90	7.50	8.20	8.10
h Nationwide Building Soc									
Total Assets	No data	No data	5,574.75	5,953.20	8,554.10	10,994.50	14,629	16,099.10	14,429.30
Financial Leverage	No data	No data	12.29	11.01	10.97	11.60	11.61	11.18	11.31
Tier 1 / Core	No data	No data	11.00	11.59	10.07	13.71	No data	8.60	7.40

Source: Bloomberg L.P.

Figure 6 GDP per country

Country	GDP $ millions
US	14,264,600
Japan	4,923,761
Germany	3,667,513
France	2,865,737
UK	2,674,085
Italy	2,313,893
Spain	1,611,767
Netherlands	868,940
Belgium	506,392
Switzerland	492,595
Ireland	273,248

Source: IMF

While in principle we agree with the idea of breaking up banks that are too large, there are practical difficulties with so doing. First, what metric would be used to determine whether a bank is too big? A simplistic measure of looking at the total size of assets on the balance sheet is not the answer.

It is perfectly plausible that a bank's total assets increase via organic growth. In this case it would be unfair to penalise this development, certainly where the quality of assets are perfectly matched with outstanding liabilities. To make a comparison, one would not necessarily break up the US retail distributor Wallmart or the UK supermarket chain Tesco simply because either had a dominant market position. That said, neither of these corporate institutions is relying on the LoLR, and neither represents any kind of "systemic" risk to the economy.

But where regulators have a stronger case is in the area of growth through mergers and/or acquisition. When this takes place, regulators must look closely at how the transaction is funded. It is now obvious that Royal Bank of Scotland and Fortis suffered as a result of taking over ABN Amro without having a waterproof funding strategy in place behind the transaction.

Even a smaller bank is no guarantee that systemic risk would diminish. Some banks are small in assets but still impose a huge risk for a potential run on the banking system. Northern Rock and Bear Stearns were very good examples of that. So it becomes important that a range of quantitative and qualitative assessments need to be made before one can decide that a bank has become too big. Central banks, which have a considerable amount of private information at hand, are in a position to make that judgement call. However a policymaker who needs to streamline this into a simple metric legal framework is less capable of doing this.

There is also the issue of what to do with banks that are already too big. This would mean that they have to be broken up. The question then is who will buy the assets? At what price are they going to be

sold? These are not insurmountable problems, they simply need careful consideration. We recommend that as far as possible, viable business lines are hived off into stand-alone operations under existing management. This would be perfectly feasible in the case of most multinational banking groups, which often take over overseas banking chains as a complete whole.

When governments succeed in breaking up big banks, they will face substantial pressure not to allow these companies to grow too large again. There is precedent for this in other industries; for example the break-up of AT&T in the US. This triggered subsequent mergers among other telecommunication firms, which subsequently became large organisations. In the US there is legislation in place to block a merger or acquisition if the bank is left with more than 10% of the total deposit base of the market. We recommend a similar cap in other countries.

It is evident that certain banks became too big during the last 10 years, to the extent that the prosperity of a country and its citizens was placed in jeopardy. The best examples were Citigroup and RBOS. There was a side negative impact as well, as big banks lost focus on the relationship side. The banking sector is in theory still synonymous with being a financial *service* industry; however it appears that over the years the people in the business neglected "service" in their business model. Putting the clients' needs first should become a priority again, and to do this we will need a change in approach and emphasis among bank senior management.

Keeping the size of banks in check should be first achieved by keeping quantitative measures, such as liquidity and leverage ratios, under strict limits as we suggested above. However if regulators do not succeed in keeping banks in line using these restrictions, then downsizing the total asset size of a bank below a certain percentage of the GDP of its own country must become the solution of last resort.

4. Conclusions

The events of 2007-2008 have resulted in an unavoidable state of affairs that combines government guarantees of virtually the entire Western banking system alongside potentially significant moral hazard. This arrangement became necessary to prevent complete collapse in the global economy following the Lehman's default, when it appeared that many large Western banks were about to go bankrupt. Therefore in the foreseeable future we do not expect that the current market structure will change.

Given the risks that such moral hazard implies, which essentially allows banks to take as much risk exposure as they wish to maximise profit in the knowledge that should they incur large losses they will be bailed out, it becomes important for governments and regulators to act decisively to mitigate these

risks. We have proposed three areas in which policy makers should implement strict rules as part of a new bank business model, which will reduce the likelihood that the LoLR has to intervene during the next economic downturn.

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