Banks and the crisis

SUMMARY

We examine evidence for a systematic underperformance of Germany's state-owned banks in the current financial crisis and study if the bank losses can be traced to the quality of bank governance. For this purpose, we examine the biographical background of 592 supervisory board members in the 29 largest banks and find a pronounced difference in the finance and management experience of board representatives across private and state-owned banks. Measures of 'boardroom competence' are then related directly to the magnitude of bank losses in the recent financial crisis. Our data confirm that supervisory board (in-)competence in finance is related to losses in the financial crisis. Improved bank governance is therefore a suitable policy objective to reduce bank fragility.

— *Harald Hau and Marcel Thum*

Economic Policy October 2009 Printed in Great Britain

Subprime crisis and board (in-) competence: private versus public banks in Germany

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1. INTRODUCTION

The US subprime crisis had a dramatic effect on the solvency of state-owned German banks. Four fully or partly state-owned banks had to be rescued at the expense of the tax payer: WestLB, IKB Deutsche Industriebank, Sachsen LB, and Bayern LB. In this context, Wolfgang Münchau, a leading business journalist, commented:

> 'The more interesting point is whether it is accidental that all the German banks in trouble are essentially publicly owned. . . . The episode tells us, once again, that Germany has too many banks, and in fact, too many bankers. Most of the supervisory board members of these institutions are themselves financially illiterate and do not fully understand the ins and out of investments in new financial instruments, such as CDOs or CDS. They have failed to implement proper risk management systems – something which a private bank could ill afford.' (Münchau, 2008)

We thank Madlen Arnhold, Frank Kapol and Johannes Steinbrecher for their comprehensive research assistance. We thank Oliver Burkart, Jean Dermine, Marcus Dittrich, Denis Gromb, Sebastian Lavezzolo, Christian Lessmann, Gunther Markwardt, Myron Slovin, Marie Sushka, David Thesmar, Alfons Weichenrieder, Frank Westermann and two anonymous referees for helpful comments on a first draft.
The Managing Editor in charge of this paper was Philippe Martin.

Economic Policy October 2009 pp. 701–752 Printed in Great Britain

The objective of our study is to examine both assertions, namely whether German state-owned banks indeed suffered disproportionally higher subprime-related losses than private banks and whether this could reflect differences in board competence between state-owned and private sector banks.

The answers to these questions hold importance far beyond the specific context of German banking. Worldwide, a large proportion of bank assets are still effectively stateowned. Estimates by La Porta *et al.* (2002) suggest that on average 42% of the equity of the 10 largest banks in each country was stateowned in 1995. The German banking sector with its large share of state-owned banks is in some ways typical of the worldwide distribution of control rights in banks. State ownership in Germany and elsewhere comes with a specific governance structure in which high-level state employees and politicians exercise the monitoring function otherwise played by private shareholders or their representatives. This raises some important questions: What is the quality of such bank supervision? Does public ownership come at the price of a deficient bank management control? The economic significance of this question far transcends the German economic context analysed here.

As a consequence of recent government sponsored bank recapitalization plans, state ownership in banks is likely to experience a dramatic increase. Even countries like the US and the UK, where state ownership in banks was never important, now feature a partially state-owned banking sector. Will the government seek the shareholder representation which comes with its ownership share and delegate treasury representatives and politicians to the respective bank boards? Again, a close look at the monitoring effectiveness of such state delegates seems warranted and the German experience offers an instructive case study.

The banking crisis certainly led to financial distress among many private banks also. First, we do not claim that private ownership is a sufficient condition for a bank's crisis resilience. Indeed, private bank institutions may also suffer from severe corporate governance problems. Their failure in risk control does not invalidate the hypothesis that bank governance matters. Second, equity owners generally do not have optimal incentives when it comes to risk choices. The corporate finance literature highlights that the option character of private equity may give the equity owners an incentive for excessive risk taking. In particular, equity owners profit from a mean preserving increase in the dispersion of payoffs due to their limited liability. But short of actual bankruptcy, equity owners are certainly most exposed to any decrease in long-run expected payoffs. Hence, any misalignment of social and shareholder objectives may well be a second order problem compared to the corporate governance problems related, for example, to badly designed compensation systems and/or a breakdown of management monitoring related to state ownership.

The recent financial crisis has revived the interest in issues of the stability of the banking sector. There is general agreement now – even by supervisors and standard setters themselves – that bank supervision was often too lenient and ineffective. But it is also worth recalling that such leniency may have been the result

of political lobbying of the financial industry itself. Last, but not least, the general extension of credit and leveraged finance served powerful political interests which are likely to persist in the future.[1] This raises the question as to whether tough banking regulation can withstand opportunistic political behaviour in the long run. The political exposure of bank supervision then calls for a more general approach to banking stability which explores additional policy measures by which banking stability can be enhanced in the presence of imperfect bank supervision.[2]

One such policy dimension which we examine in this article is the role of bank governance. Formally, state-owned and private banks in Germany are subject to the same governance laws, which prescribe a dual board structure with separation of the management board and the supervisory board. Moreover, both state-owned and private banks pursued a profit-oriented business model in the international banking market. Nevertheless, a closer look at the data reveals that there is high variance in bank performance during the crisis. What can we learn from these performance differences? Can they be explained by the *quality* of bank governance? The empirical study in this paper sheds some light on these questions. Five findings can be highlighted:

1 The 29 largest German banks show a systematic underperformance of state-owned banks in the recent banking crisis. Adjusted for size, asset write-downs and losses from the first quarter of 2007 to the third quarter of 2008 are on average three times as large for state-owned banks compared to privately-owned banks.
2 A close examination of the biographical background of 592 supervisory board members in the largest German banks reveals that measures of management and financial experience of the board members are systematically higher in privately-owned banks compared to state-owned banks. This difference in boardroom competence is statistically highly significant and qualitatively large.
3 Bank losses during the financial crisis correlate with the financial (in-)competence of supervisory boards. A lack of competent board monitoring is therefore our leading explanation for underperformance of state banks. A causal linkage between board competence and crisis performance is confirmed by using the exogenous number of politically appointed board members as a statistical instrument for financial board competence.
4 We find no evidence for other managerial constraints related to state ownership which can account for the underperformance of state banks. For example, executive compensation is only slightly lower (by 9.5%) compared to private banks.
5 Higher average executive board compensation is positively correlated with bank losses contrary to what can be expected in an efficient market for managerial

[1] Reinhart and Rogoff (2008) remark that the list of leading contributors to the presidential and congressional candidates in the US election is dominated by financial companies. They conclude: 'Thus it is no surprise that, during the boom, all the supposed market watchdogs were neutered. This is an international problem, not just a U.S. one.'

[2] The most widely endorsed policy measure in this context is the transfer of interbank trading in the OTC markets to organized exchanges with centralized guaranteed clearing. This highly sensible measure is not the focus of the current article.

pay. Investment in executive monitoring and/or selection appears to have a higher return than more generous pay packages.

The paper is organized as follows: Section 2 provides a brief description of the German banking system, reviews the historic performance of state-owned banks and examines their performance in the recent financial crisis relative to the privately-owned banks. Different hypotheses about the role of governance and crisis performance are formulated in Section 3. Section 4 undertakes a detailed study of corporate governance quality across state-owned and private banks. Here we use biographical data on 592 supervisory board members to measure supervisory board competence and monitoring ability. Section 5 examines the linkage between board quality and a bank's crisis performance. In Section 6, we explore alternative explanations for performance differences such as managerial constraints for state-owned banks and the role of executive pay in general. A summary with policy conclusions is provided in Section 7.

2. THE GERMAN BANKING SYSTEM AND ITS PERFORMANCE IN THE SUBPRIME CRISIS

In this section, we briefly describe the basic features of the German banking system and discuss how it fared during the financial crisis. We argue that the coexistence of a private banking system and a state-owned system makes the German banking system an ideal laboratory to study the role of different governance systems for a bank's crisis performance.

2.1. An overview of the German banking sector

German banking is characterized by the coexistence of three types of banks – commercial banks, cooperatives and public sector banks.[3]

First, commercial banks are corporations and operate as universal banks. In terms of total assets, domestic commercial banks account for 28.6% of the German banking sector (see Figure 1). Commercial banks are privately owned and private shareholder representatives sit on their supervisory boards. The German banking statistics separately lists real estate banks which are also privately owned (with a few minor exceptions) and which account for another 11.1% of the banking sector.

Second, cooperative banks feature a different governance structure. The equity holders – usually customers of the cooperative banks – have equal voting rights independent of their equity shares. Traditionally, the 1,200 cooperative banks have a strong regional focus. To overcome the disadvantages of such a fragmented structure, the cooperative banks have founded two cooperative central banks (DZ Bank and WGZ Bank) which, among other things, carry out the investment banking for

[3] For a comprehensive survey of the German banking system, see Brunner *et al.* (2004) and Krahnen and Schmidt (2004).

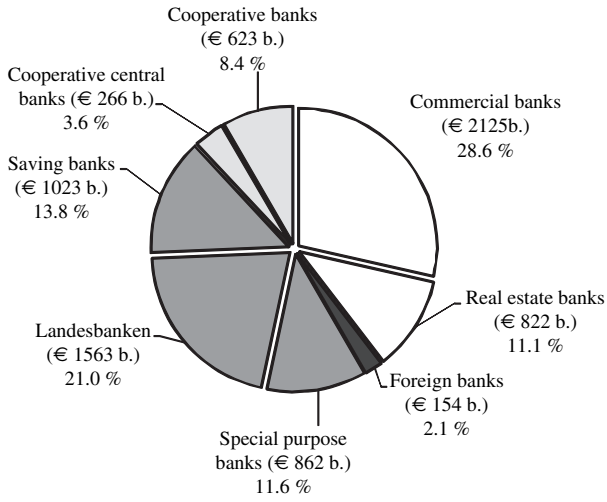

Figure 1. Asset shares in German banking

Note: Asset shares are measured by total assets. Savings and loans are excluded as the bank statistic allows no attribution to public and private ownership. All data refer to January 2008.
Source: Deutsche Bundesbank, Bank Statistics 3/08.

the individual and often small cooperative banks. Overall, the segment of cooperative banks has an asset share of 12%.

Third, German banking also comprises a large state-owned or public banking sector. It can be further divided into two types of banks according to their geographical scope. The savings banks are organized locally or regionally. These banks are owned by their respective municipalities or counties.[4] The savings banks account for 13.8% of banking assets and typically do not engage in any international banking activities.[5] For this reason, we ignore these public sector institutions in our analysis. More important for our study are the 11 major publicly-owned banks that operate nationwide and engage in international banking activities. Most of these banks belong to the so-called Landesbanken which were originally founded for providing development financing in their regions and for acting as central banking institutions for the local savings banks. In spite of occasional references in the mission statements of Landesbanken, regional development objectives effectively no longer play any particular role in the business activities of these banks. Sinn (1999, p. 56) comments on the role of German state banks: 'Yes, Landesbanks are also clearing banks and principal bankers to government bodies but primarily they are just like other large banks and operate in the same areas of business as these do. If there is anything at all special about them it is their high level of internationalization'. The IMF (2006, p. 77) comes to a similar conclusion: 'Since the 1960s, LBs have become increasingly involved in large-scale

[4] Vins (2008) analyses the political influence on the state-owned savings banks in Germany.

[5] By law, the 'regional principle' constrains the activities of savings banks to their home regions. Hence, regulation rather than managerial choice partly determines the allocation of financial resources.

commercial lending and foreign business, to generate earnings as their main source for new funding. For some LBs, investment banking overseas thus became a major component of their activities, even though this implied substantial new risks and went well beyond fostering their own region's development.' Landesbanken thus have developed into universal banks and pursue a profit-oriented business model in direct competition with private banks. Their combined size amounts to 21% of all banking assets. In addition to the Landesbanken, there are several special purpose banks (among others, KfW and IKB[6]) which are directly or indirectly owned by the federal or state governments (with a few minor exceptions). Overall, the public sector banks account for 46% of all assets in German banking.

Foreign banks play only a minor role in German banking. In Figure 1, the 2.1% asset share of foreign banks captures only those banks that operate with legally non-autonomous branches in Germany. Legally autonomous subsidiaries are counted among the domestic banks. However, even if the subsidiaries of foreign banks are included, Germany is among the countries with the lowest share of foreign banks in Europe. The foreign asset share – measured by the ratio of total assets of foreign banks to total assets of all banks in a country – amounts to little more than 10%. Among the EU countries, only Sweden has a lower foreign asset share (see ECB, 2008, Tables 2, 11 and 13). This aspect makes our study in bank performance across governance structures a relatively clean experiment as confounding effects of foreign ownership are largely irrelevant.

Apart from a very low market penetration by foreign banks, the German banking sector also stands out with a large market share of state-owned banks. The latter aspect provides us with a relatively large sample of public sector banks for our performance study. Several countries such as Austria, France and Italy have significantly reduced public ownerships in their banking systems in recent years. Figure 2 provides some information on the market share of publicly-owned banks in selected European countries. The data taken from La Porta *et al.* (2002) refer to the year 1995 and describe the share of the assets of the top 10 banks in a given country that is owned by the government. The World Bank data use a different classification. Here the market share is loosely defined as the ratio of assets of publicly-owned banks to total assets in the banking sector. The data refer to the years 1999 and 2005. Compared to other highly industrialized economies, the exceptionally large involvement of the public sector in German banking has become particularly evident in recent years.

2.2. Public bank performance prior to the current banking crisis

Do public banks in Germany show signs of poor financial performance even prior to the current banking crisis? The history of financial turmoil surrounding these

[6] IKB's largest shareholder is the state-owned bank KfW. After major losses in international financial markets, the KfW first had to increase its share from 38 to 91% and later sold the IKB to Lone Star in October 2008.

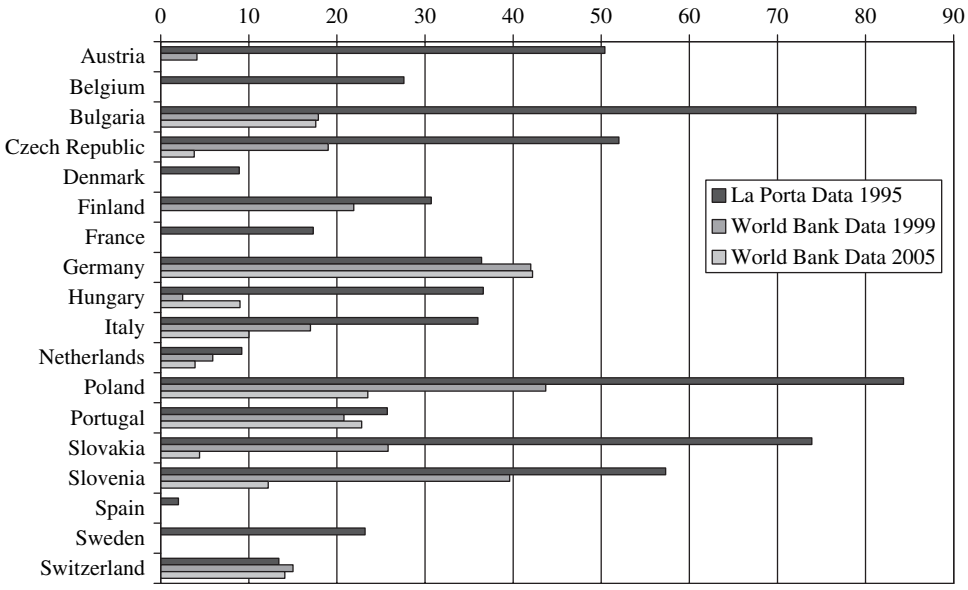

Figure 2. Asset shares of publicly-owned banks in selected European countries

Note: The figures for Germany are not directly comparable with the public sector share in Figure 1. Figure 1 excludes savings and loans and counts all assets of special purpose banks as publicly owned.
Sources: La Porta *et al.* (2002), World Bank – Bank Regulation and Supervision Database (2000 and 2007), http://econ.worldbank.org/

banks suggests so. The IMF (2006) calculates that the Landesbanken received capital injections of almost €9 billion from 1991 to 2005 from their public owners (Table 1). Many of these capital injections were needed to replenish the capital base after large losses.[7]

The West LB, which is owned by the state, the municipalities and the savings banks of North Rhine-Westphalia, provides an illustration. Soon after its foundation in 1973, the bank lost DM 300 million in foreign exchange trading. During the Russian crisis of 1998, the bank made headlines again due to massive losses from non-collateralized investments. In 2003, the West LB faced its most severe crisis so far when it lost almost €4 billion. During the current financial crisis, the West LB initially announced (moderate) write-downs. In November 2007, the bank was no longer able to get short-run financing for its long-run real estate loans. The owners had to agree on a capital injection of €2 billion. A few weeks later, the capital needs turned out to be even larger and the owners had to increase their capital guarantees to €5 billion so that the West LB could transfer its risky business of €23 billion to a special purpose vehicle. Another example involved the LB Berlin, which was merged into the holding company Bankgesellschaft Berlin in 1994. Bankgesell-

[7] Sinn (1999) delivers a critical analysis prior to the abolishment of some special privileges ('Gewährträgerhaftung' and 'Anstaltslast') for German state banks.

Table 1. Capital injections to state-owned banks (Landesbanken) from 1991 to 2005

State-owned bank	Capital injections (in € millions)
Bayern LB	660
Hamburgische LB	90
Helaba	406
HSH Nordbank	400
LB Berlin	2,560
LB Kiel	432
Norddeutsche LB	472
West LB	3,729
Total	8,749

Source: IMF (2006, p. 91).

schaft Berlin engaged in large-scale real estate speculation over the period 1994 to 2001 and had to be saved by a capital injection of €1.7 billion and a loan guarantee amounting to €21.6 billion.

2.3. Public and private bank performance in the current banking crisis

The most recent banking crisis provides a controlled experiment which allows a more systematic performance comparison of state-owned and privately-owned banks.

The German Council of Economic Experts (Sachverständigenrat, 2008) calculates a total write-down of $48.8 billion for German banks. These data were collected from press articles on the interim reports of major German banks (January 2007 until May 2008). The breakdown according to bank type paints a striking picture. Even though the asset share of the Landesbanken is only 21%, these state-owned banks account for 43% of the total write-downs. Including other state-owned banks does not change the picture. The share of all public banks in total assets amounts to 42% according to the World Bank Statistics. In the financial crisis, however, they account for 64% of all write-downs in the German banking system.

The current paper extends the study undertaken by the Council of Economic Experts both in the sample size and the time period covered. We select all German banks with total assets above €40 billion in January 2007. This sample consists of the 29 largest German banks, of which 13 are state-owned (for the majority of shares) and 16 are private banks. For every bank, we investigate crisis-related losses for the period from the first quarter of 2007 to the third quarter of 2008 that were published until 31 December 2008. For this purpose we study the news wires and press releases about asset write-downs and about losses from operating and investment activity. Furthermore, all income statements over the 7 quarters were separately examined as a cross-check and to capture losses not reported in press releases. Typically, quarterly income statements reported crisis related bank losses in the footnotes and/or appendices. For 4 of the 29 banks, documentation of bank losses and asset write-downs was missing or

so incomplete that we could not establish a quantitative performance measure. These banks were excluded from any performance regression.[8] Table 2 reports the bank losses for the 25 banks for which we could calculate losses in the financial crisis of 2007–8. Quarterly losses were simply added up without discounting. We would have preferred to rely solely on annual reports which are audited by certified accountants. However, due to the time constraints of this study and the delay in the publication of annual reports, we use quarterly statements complemented by press releases. Interviews with accounting experts confirmed that some banks may not promptly update the entire accounting data. Some risk evaluations are too complex to be carried out on a quarterly basis. In times of a crisis, this can lead to delayed information about losses. Banks may also concentrate their write-downs in one quarter for reasons of strategic news management. However, interviews with accounting experts reassured us about the second-order magnitude of these shortcomings: private banks tend to dispose of more timely and more comprehensive accounting data. Any reporting bias due to delayed reporting should tend to underestimate the losses of state banks.

Unfortunately it is also not possible to disaggregate the losses further into specific sub-categories such as US-mortgage related losses or losses related to bank failure (Lehman Brothers, Icelandic banks, etc.). Also a more detailed use of balance sheet positions is prevented by two factors. First, some banks in the sample use 'mark to market' accounting for most of 2007 and 2008, while others continued to publish income statements under the 'historic value accounting'. Second, in the course of the banking crisis in the fall of 2008, 'mark to market' was suspended by some institutions, which further complicates the picture.

Table 2 summarizes the key financial statistics for each of the 29 sample banks. Three measures of bank size are reported. The total asset value [column (3) in Table 2] and the tier 1 capital [column (5)] of each bank at the end of 2006 and 2007 are averaged to obtain size proxies. Similarly, we average the book value of equity [column (4)] at the end of 2006 and 2007 to obtain a measure of equity capital. This allows us to calculate a leverage proxy [column (7)] as the ratio of total asset to book equity. Some of the regressions use (log of) leverage as a control variable in the performance regressions. To control for bank size, we normalize the losses by total assets and by equity capital [columns (8) and (9)]. The last rows in columns (8) and (9) illustrate the significantly higher losses in state-owned banks compared to private banks. The Spearman rank test shows that their respective performance difference is significant at the 1% level. This is an exact test (valid for small samples) which makes no distributional assumptions.

Next, we report OLS regressions to examine further whether state-owned banks had a disproportional share of the bank losses in the recent financial crisis. Summary statistics on all regression variables are provided in Table 3. Regression

[8] These banks are Depfa Deutsche Pfandbrief Bank, Essenhyp, NRW Bank and WL Bank.

Table 2. Financial statistics for the 29 banks in the sample

Bank	Acc. Standards[a]	Dummy (State owned = 1)[b]	Total assets (b. €, 2006/7)	Equity capital (b. € 2006/7)	Tier 1 capital (b. € 2007/8)	Total losses (b. €)	Leverage	Losses /total assets (%)	Losses /equity capital (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7) = (3)/(4)	(8) = (6) *100 /(3)	(9) = (6) *100 /(4)
Deutsche Bank	hv/mv	0	2005.5	36.07	25.9	8.45	55.6	0.42	23.43
Commerzbank	mv	0	615.8	15.77	6.90	2.95	39.1	0.48	18.70
Dresdner Bank	mv	0	489.4	11.36	11.85	3.40	43.1	0.69	29.93
LBBW	hv/mv	1	471.9	21.35	11.55	3.27	22.1	0.69	15.07
HVB Group	mv	0	435.7	23.90	11.55	1.16	18.2	0.27	4.87
DZ Bank	hv/mv	0 (co)	430.6	10.55	9.35	2.30	40.8	0.53	21.77
Bayern LB	hv/mv	1	415.6	12.22	6.40	5.81	34.0	1.40	47.58
Hypo Real Estate[d]	mv	0	397.8	7.95	5.90	1.41	50.0	0.35	17.74
KfW Group	hv/mv	1	361.0	14.94	9.64	3.77	24.2	1.04	25.21
WestLB	hv/mv	1	277.2	4.80	6.50	4.04	57.8	1.46	84.06
Nord LB	hv/mv	1	220.2	6.13	6.60	0.92	35.9	0.42	15.07
Postbank	mv	0	215.8	4.79	5.10	1.15	45.1	0.53	23.97
Eurohypo	hv/mv	0	207.1	5.28	5.15	0.39	39.2	0.19	7.40
HSH Nordbank	mv	1	204.6	4.44	7.55	2.60	46.0	1.27	58.50
Helaba	hv/mv	1	174.2	4.86	4.90	0.69	35.9	0.4	14.29
NRW Bank	hv	1	145.4	19.58	3.10	–	7.4	–	–
Landesbank Berlin	hv/mv	1	144.4	2.55	3.85	1.41	56.7	0.97	55.20
Dekabank	hv/mv	1	121.8	3.32	2.10	0.58	36.6	0.42	15.35
WGZ Bank AG	hv/mv	0 (co)	90.0	2.83	2.20	0.25	31.8	0.28	8.86
Essenhyp	hv	0	89.9	0.72	0.80	–	124.6	–	–
DG-Hypothekenbank	hv	0 (co)	80.5	1.92	1.40	0.16	41.9	0.20	8.44
LRP Landesbank Rheinland-Pfalz	hv/mv	1	77.9	0.99	2.10	0.30	79.0	0.38	30.40

Continued

Table 2. Continued

Bank	Acc. Standards[a]	Dummy (State owned = 1)[b]	Total assets (b. €, 2006/7)	Equity capital (b. € 2006/7)	Tier 1 capital (b. € 2007/8)	Total losses (b. €)	Leverage	Losses /total assets (%)	Losses /equity capital (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7) = (3)/(4)	(8) = (6) *100 /(3)	(9) = (6) *100 /(4)
Sachsen LB	hv	1	62.1	1.42	1.30	1.80	43.8	2.90	127.03
Depfa Deutsche Pfandbrief Bank AG	hv	0	53.6	0.82	0.84	–	65.2	–	–
IKB	hv/mv	1[c]	50.2	1.18	2.15	5.13	42.4	10.22	433.53
Dexia Deutschland AG	hv	0	48.3	0.29	0.28	0.02	164.7	0.04	5.8
Berlin-Hannoversche Hypothekenbank AG	hv	0	42.5	0.72	0.64	0.06	58.8	0.14	8.04
WL Bank AG	hv	0 (co)	41.0	0.32	0.51	–	126.5	–	–
Sal. Oppenheim jr. & Cie. KGaA	hv/mv	0	40.1	2.00	1.80	0.57	20.0	1.41	28.19
Average overall			276.2	7.69	5.44	2.10	51.3	1.08	45.15
Av. Private banks			330.2	7.83	5.64	1.71	60.3	0.43	15.9
Av. State-owned banks			209.7	7.52	5.20	2.52	40.1	1.80	76.8
Spearman Rank Test			0.865	0.493	0.453	0.117	0.209	0.006	0.006

Notes: [a]We distinguish historical value accounting (hv) and market value accounting (mv). Historical value accounting follows the German GAAP (HGB). Market value based accounting standards include US-GAAP, IFRS, IAS. Several banks have changed their accounting standards in the period under consideration (hv/mv).

[b]Cooperative banks are labelled '(co)' in column (2).

[c]In January 2008, IKB was formally a private bank but the state-owned bank KfW was the largest shareholder.

[d]Additional goodwill losses of the HRE in 2008 were related to the M&A activities (Depfa) and were excluded from the dataset as we focus on operating profits and losses.

Table 3. Summary statistics

	Obs.	Mean	Min	Max	Median	Std. Dev.
	(1)	(2)	(3)	(4)	(5)	(6)
Bank variables:						
Dummy (State-owned = 1)	29	0.448	0	1	1	0.506
Log of total assets	29	5.101	3.691	7.604	5.160	0.996
Log of leverage	29	3.760	2.005	5.104	3.748	0.611
Log of tier 1 capital	29	1.552	0.247	3.292	1.677	0.767
Log of loss/assets	25	0.011	0.000	0.097	0.005	0.019
Log of loss	25	0.933	0.017	2.246	0.878	0.634
Board variables:						
Education (AIE)	29	0.223	0	0.593	0.201	0.158
Mgmt. experience (AIM)	29	0.562	0.095	1.386	0.511	0.322
Finance experience (AIF)	29	0.511	0	1.504	0.405	0.428
Total experience (AIT)	29	0.953	0.182	2.058	0.871	0.506
Political affiliations	29	0.182	0	0.722	0.125	0.209
Operating performance measures:						
Return on book assets	266	0.002	−0.017	0.021	0.002	0.004
Return on book equity	266	0.069	−2.715	0.737	0.096	0.219
Per capita profits	266	0.131	−1.993	4.637	0.078	0.429
Executive board variable:						
Log of executive pay	26	0.735	0.231	2.121	0.620	0.383

Notes: Reported are summary statistics for (the log of) total assets, leverage (as the ratio of total assets to book equity) and tier 1 capital averaged in each case over 2006 and 2007. Losses include the operating profits for the 7 quarters from 2007:1 to 2008:3 and all public announcements of losses until the end of 2008. Biographical information on 592 supervisory board members is aggregated into four measures of supervisory board competence, namely the educational index (AIE), the average management experience (AIM), the average finance experience (AIF) and the aggregate total experience measure (AIT); for details see Section 4. Operating performance measures for the period 1998–2006 are taken from Bankscope. Per capita profits refer to operating profits per employee in each year. Executive pay represents the average annual salary in 2006 of the executive board members (see Section 6).
Source: Authors' calculation.

specification (1) in Table 4 uses the (log of the) bank losses normalized by bank assets as the dependent variable. Regression models (2) to (5) consider the (log of the) bank loss as the dependent variable. Regression controls here are bank size proxied by the log of total assets or by the log of tier 1 capital. We have also included bank leverage defined as the log ratio of bank book equity to total assets. The coefficient of interest concerns the dummy variable which marks state ownership with one and which is zero for privately-owned banks. In each of the five specifications, the dummy variable marking the state-owned banks shows a positive value significant at the 3% level. As a robustness check, we calculated (but do not report) *t*-values in Table 4 and all following regressions under bootstrapping and find that the results remain unchanged. The magnitude of the coefficient of 0.842 to 1.208 implies that the losses of the state-owned banks are 132% to 235% $(=100 \times \exp(0.842) - 100$ to $100 \times \exp(1.208) - 100)$ higher than for their private counterparts. This constitutes an economically large difference in the crisis performance between private and state-owned banks.

Table 4. Bank losses of private and state-owned banks in the financial crisis

Independent variables	Dependent variables				
	log(loss/total assets)	log(loss)	log(loss)	log(loss)	log(loss)
	(1)	(2)	(3)	(4)	(5)
Constant	−5.768***	−6.176***	−2.612	−1.988***	−1.504
	[−22.34]	[−5.74]	[−1.25]	[−6.57]	[−0.88]
Dummy (State-owned = 1)	1.194***	1.208***	1.146***	0.845***	0.842***
	[3.20]	[3.17]	[3.18]	[2.68]	[2.61]
Log of total assets		1.077***	0.983***		
		[5.50]	[5.16]		
Log of leverage			−0.817*		−0.120
			[−1.95]		[−0.29]
Log of tier 1 capital				1.157***	1.132***
				[7.36]	[6.17]
Obs.	25	25	25	25	25
Adj. R^2	0.279	0.596	0.641	0.723	0.711

Note: Reported are OLS regressions for the (log of the) bank losses in the period 2007–8 for 25 German banks. Specification (1) uses the bank losses normalized by total assets as the dependent variable, while specifications (2) to (5) use absolute bank losses (in logs) as the dependent variable. The regressions controls are bank size measured by the log of total assets, log of tier 1 capital and leverage defined as the log ratio of total assets over bank equity capital at book value. The *t*-values of the coefficients are reported in brackets. We mark statistical significance at the 10% level (*), the 5% level (**) and 3% level (***).

Source: Authors' calculation.

What accounts for the poor historic performance of state-owned banks and their statistically significant underperformance in the recent financial crisis? The following section develops some plausible hypotheses about the performance differences.

3. HYPOTHESES ABOUT BANK GOVERNANCE AND CRISIS PERFORMANCE

The systematic performance shortfall of state-controlled banks in the current financial crisis calls for an explanation. Given that all state banks share by definition a common type of owner, corporate governance is a natural starting point.

A common argument in the economic literature against state ownership is that the state is a very weak and ineffective principal. But what is the linkage between state ownership and crisis performance? To clarify causal relationships, it is helpful to conjecture different channels. We highlight five different hypotheses:

H1: Strong Monitoring Hypothesis

Board competence matters for the quality of a bank's investment strategy. Poorly monitored CEOs and management teams can pursue investment strategies of higher risk and low risk-adjusted return. The high risk strategies get exposed during a financial crisis and generate higher losses.

H2: Gambling for Profitability Hypothesis
Banks with a business model reflected in poorer operating performances pursue riskier investment strategies. These improve profits in normal times at the risk of higher losses during a crisis.
H3: Weak Monitoring Hypothesis
Board competence matters indirectly through the selection and appointment of a capable CEO and his top management team. Competent supervisory boards choose more competent management teams, which leads to better operating performance.
H4: Managerial Constraints Hypothesis
State-owned banks operate under pay constraints for the CEO and top management. In a competitive labour market for talent, they end up with the worst managers and therefore have worse operating and crisis performance.
H5: Efficient Executive Pay Hypothesis
Even in the absence of pay constraints, better paying institutions might be able to attract better managers. Hence, higher executive pay for a bank's top management comes along with better risk management and better crisis performance.

The strong monitoring hypothesis H1 assumes a direct role of the supervisory board in constraining and/or improving the risk choices of management. A competent supervisory board may have required the implementation of better risk management systems. But H1 seems at odds with the widely held view that bank supervisory boards are generally quite passive and operate as rubber stamping boards rather than as independent monitoring boards. Poor competitiveness has recently been evoked as a motivation for excessive risk taking by state-owned banks as expressed in hypothesis H2. Hellwig (2008) reports that state banks were 'caught up in a yield panic' in a time when their intermediation and interest rate margins were low. Industry observers point out that state-owned banks did not have a viable business model based on some competitive advantage (Münchau, 2008). This might have put greater pressure on state banks to seek higher yields in higher risk. But it is important to note that the 'gambling for profitability hypothesis' as such cannot explain the underperformance of state banks. The hypothesis only explains underperformance during the crisis with previous underperformance in operational activity without specifying where the latter originates in. While plausible, it needs to be combined with the 'weak monitoring hypothesis' to provide a full explanation. H2 and H3 are therefore complementary. The weak monitoring hypothesis does not require the same level of supervisory board involvement as its 'strong' counterpart H1 and therefore seems more in line with anecdotal evidence about actual governance practices. Such anecdotal evidence suggests that supervisory boards typically do not scrutinize the investment strategy of the executive board.

Both H1 and the combination of H2 and H3 imply a correlation between supervisory board competence and state ownership on the one hand and between

board competence and crisis performance on the other hand. We investigate both issues empirically in Sections 4 and 5, respectively. H2 presupposes operational underperformance of state-owned banks. This issue is further investigated in Section 6.1.

Hypothesis H4 presents an alternative (board independent) explanation for underperformance of state-owned banks. Here it is state ownership itself rather than governance deficiencies which account for the poor crisis performance of state-owned banks. The hypothesis claims that state-owned banks are constrained in the remuneration of their executives and, therefore, attract less competent managers. We test this alternative hypothesis by examining top executive salaries in state banks relative to private banks in Section 6.2.

Finally, we examine the role of executive pay levels in the crisis. The efficient executive pay hypothesis states that executive compensation simply reflects the value of scarce competencies. Higher paid executive management teams should then be able to undertake better investment strategies. This will pay off in particular in the moment of reckoning which is the financial crisis. The respective evidence is discussed in Section 6.3.

4. SUPERVISORY BOARD COMPETENCE ACROSS STATE-OWNED AND PRIVATE BANKS

Both the weak and the strong monitoring hypothesis conjecture that supervisory board competence matters. The selection of talented executives and/or their effective monitoring requires that the relevant competencies are available in the supervisory board. In particular, the members of the supervisory board may need a comprehensive understanding of modern financial markets. Testing such a proposition requires us to produce proxy variables for board competence. Secondly, we need to document that these measures indeed show a competence gap between the boards of state-owned and private banks.

4.1. Related research

Much of the corporate finance literature has focused on formal rather than qualitative measures of boardroom composition, mostly board independence, board size and directors' stock ownership. The evidence on the role of board independence as measured by the number of outside directors remains mixed. Some studies show no performance effect for board independence (Bhagat and Black, 2002; Hermalin and Weisbach, 1991; Klein, 1995; MacAvoy *et al.*, 1983; Mehran, 1995), while others identify a significant positive performance effect of board independence (Baysinger and Butler, 1985; Schellinger *et al.*, 1989). Board size on the other hand is generally found to be negatively correlated with performance measures (Brown and Maloney, 1999; Yermack, 1996). With a large supervisory

board, the free-riding of individual board members may lead to a low monitoring effort. There is also evidence that director ownership in a firm correlates with better performance measured by Tobin's Q (Hermalin and Weisbach, 1991; Morck *et al.*, 1988).

Two recent papers look at more qualitative measures with respect to board composition. Güner *et al.* (2008) examine the role of financial board expertise and find that it matters in the presence of conflicts of interest between contracting parties. In contrast to our paper, they analyse the role of financial expertise in the boards of non-financial firms. Another important qualitative dimension of supervisory competencies is the industry experience of board members. Papakonstantinou (2008) shows that industry experience correlates positively with abnormal stock returns and negatively with earnings manipulation. A particularly original approach to identifying causal links between monitoring and corporate performance is taken by Becker *et al.* (2008). They show that the presence of rich individual shareholders on US company boards improves the operating and financial performance of the firms. The authors use the density of high-wealth individuals in the proximity of the company headquarters as an exogenous instrument to eliminate reverse causality and also control for self-selection effects.

Finally, we highlight a related paper by Illueca Muñoz *et al.* (2008). They examine the role of bank governance for the credit expansion of Spanish banks after the market liberalization. The authors document that savings banks with more politicians on the bank boards took larger *ex-ante* credit risks with respect to their expanding loan portfolio.

4.2. Measures of supervisory board competence

Our own study takes a further step towards qualitative measurement of boardroom competence by focusing on a single industry – the banking sector – and by collecting an entire set of competence indicators. We focus on the 29 largest banks in Germany which exceed €40 billion in total assets (see Table 2).

To obtain a measure of the monitoring potential in the supervisory boards of these 29 banks, we define 14 different biographical criteria which proxy for boardroom competence in the context of the financial crisis. The variables capture a board member's educational background (three indicator variables), finance experience (six indicator variables) and management experience (five indicator variables).

For each member of the supervisory boards of 29 banks, we collected the relevant data from publicly available sources. Most of the information could be retrieved from the annual statements and the websites of the banks. In many cases, board members hold other prominent positions (e.g. as top executives in other firms or as politicians) enabling us to use information provided by their main affiliation. The dataset was supplemented with material from biographical encyclopaedia or

news reports about the board members. The reference date for board memberships was 1 January 2008.[9] In cases where deputy members are allowed on supervisory boards, we included data on both the regular member and the deputy, for example, the prime minister of a state and the undersecretary of state.

4.2.1. Educational background. We conjecture here that educational background matters for the monitoring ability of supervisory board members. This may be particularly the case in banking where judgement on a particular investment strategy often requires a high degree of financial literacy. We define three levels of educational achievement by the following three criteria:

- *E1*: Does the board member hold a *Business/Economics Degree*? If the answer is yes, the criterion E1 is marked as 1 and 0 otherwise. It is conjectured that extensive training in economics and finance may improve the monitoring ability of supervisory board members.
- *E2*: Does the board member hold a *MBA Degree*? Some executives hold MBA degrees and these also confer on the holder a more extensive knowledge of accounting, finance and economics.
- *E3:* Does the board member hold a *PhD Degree in Business/Economics*? A PhD degree signals advanced knowledge and a capacity for abstract economic thought, provides an easier access to the scientific literature and enables a broader judgement on financial instruments and their risks.[10]

4.2.2. Finance experience. Effective monitoring of bank managers may involve industry-specific knowledge which depends on experience. We distinguish six criteria:

- *F1:* Does the board member have *Banking Experience*? The person is considered to have banking experience if he or she has ever worked in a bank.
- *F2:* Does the board member have *Financial Market Experience?* As financial market experience we record any previous occupation related to asset market trading or investment. Financial market experience should make the board member a better monitor of investment risks.[11]

[9] For this early stage of the crisis, we do not expect any reverse effect of crisis performance on board composition. Note that board composition is highly persistent. We compared the boards in our sample (1 January 2008) with the board compositions in 2005. In most banks, around 80% of the board members in 2008 were already on the board three years prior to the crisis. Most of the fluctuation comes through exogenous events such as elections in the case of state banks.

[10] In cases where the exact type of doctoral degree could not be extracted from the available biographical information, we assume that every person with studies in business or economics and a doctoral degree has achieved this doctoral degree in business or economics.

[11] Gilian Tett (2008) suggests that the background of CEO and top management is crucial for crisis performance: '[The most successful CEOs]… have had direct career experience of trading and managing market risk. This has given them an obvious advantage in navigating the credit cycle, since they presumably know what a derivative is. Furthermore, men such as Lloyd Blankfein at Goldman Sachs or Anshu Jain at Deutsche, who have risen through trading desks, instinctively tend to view everything in terms of probabilities and risk. That is a different mindset from somebody who has previously worked as a salesman, adviser – or lawyer, such as Mr Prince [from Citybank].'

- *F3:* Does the board member have *Financial Market Experience after 1990*? As the human capital in financial markets depreciates over time, we also collect the information, whether the financial market experience is fairly recent, that is, was gained after 1990.
- *F4:* Does the board member have *Financial Market Experience in the Same Bank?* A past employment in the trading or investment division of the monitored bank might procure the board member a particular information advantage and make him a more effective monitor.[12]
- *F5:* Does the board member have *US Financial Market Experience*? A managerial experience in overseas markets might provide the board member with better information access and possibly a better judgement on the institutional risks of the US subprime market.
- *F6:* Does the board member have *US Financial Market Experience after 1990*? This is the same as criterion F5, only with the additional requirement that the experience needs to have occurred after 1990.

4.2.3. Management experience. A professional corporate management background may provide a board member with many skills which make him more effective in supervising the activities of other corporate managers. Here we define five criteria which could correlate with generic monitoring ability:

- *M1:* Does the board member have *Consulting Experience*? Board members with a consulting background can typically account for a wide range of corporate experiences including financial distress. That may make them better monitors.
- *M2:* Does the board member have *Mid-level Management Experience*? This variable captures whether a board member has ever worked as an executive independent of the management level.
- *M3:* Does the board member have *Top-level Financial Management Experience?* It is registered whether a board member has ever worked in a top-level finance position.
- *M4:* Does the board member have a *Top-level Financial Management Experience in the Same Bank?* This is the same criterion as M3, but restricts the experience to the same bank the board member is monitoring.
- *M5:* Does the board member have *Multiple Board Memberships*? Board members who are appointed to several supervisory boards may be more experienced in monitoring the executives.[13]

[12] We concede that past employment links to the same bank might also compromise the independence of the board member. Unfortunately, board member independence is not readily measurable for the German supervisory board members.

[13] We just capture whether a board member has additional appointments but we do not count the number of board memberships.

Table 5. Summary statistics of competencies in supervisory boards

		Board members of private banks						Board members of state banks						Fisher/Spearman Tests		
		All members		Owner rep.		Worker rep.		All members		Owner rep.		Worker rep.		All members	Owner rep.	Worker rep.
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	H0: (2) = (8)	H0: (4) = (10)	H0: (6) = (12)
								Biographical data								
A1	Age	103	57.73	86	59.08	17	50.88	185	56.20	176	56.10	9	58.22	0.134	0.005	0.010
A2	Foreign nationality	215	0.047	139	0.072	76	0.0	377	0.005	267	0.007	110	0.0	0.001	0.001	—
A3	Politically connected board members	215	0.037	139	0.058	76	0.0	377	0.350	267	0.479	110	0.036	0.000	0.000	0.120
								Education								
E1	Business/econ degree	215	0.191	139	0.273	76	0.039	377	0.149	267	0.202	110	0.018	0.112	0.068	0.331
E2	MBA	215	0.037	139	0.058	76	0.0	377	0.005	267	0.007	110	0.0	0.006	0.004	—
E3	PhD	215	0.102	139	0.158	76	0.0	377	0.050	267	0.071	110	0.0	0.014	0.006	—
								Finance experience								
F1	Banking experience	215	0.316	139	0.367	76	0.224	377	0.111	267	0.142	110	0.036	0.000	0.000	0.000
F2	Financial market experience	215	0.274	139	0.374	76	0.092	377	0.071	267	0.101	110	0.0	0.000	0.000	0.002
F3	… since 1990	215	0.270	139	0.367	76	0.092	377	0.069	267	0.097	110	0.0	0.000	0.000	0.002
F4	… in the same bank	215	0.102	139	0.108	76	0.092	377	0.003	267	0.004	110	0.0	0.000	0.000	0.002
F5	US financial market experience	215	0.070	139	0.108	76	0.0	377	0.019	267	0.026	110	0.0	0.002	0.001	—
F6	… since 1990	215	0.060	139	0.094	76	0.0	377	0.016	267	0.022	110	0.0	0.004	0.002	—
								Management experience								
M1	Consulting experience	215	0.056	139	0.079	76	0.013	377	0.027	267	0.037	110	0.0	0.059	0.062	0.409

Continued

Table 5. Continued

	Board members of private banks						Board members of state banks						Fisher/Spearman Tests		
	All members		Owner rep.		Worker rep.		All members		Owner rep.		Worker rep.		All members	Owner rep.	Worker rep.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	Obs.	Mean	H0: (2) = (8)	H0: (4) = (10)	H0: (6) = (12)
M2 Mid-level management	215	0.358	139	0.532	76	0.039	377	0.167	267	0.232	110	0.009	0.000	0.000	0.187
M3 Top-level management finance	215	0.237	139	0.338	76	0.053	377	0.085	267	0.120	110	0.0	0.000	0.000	0.027
M4 … in the same bank	215	0.060	139	0.094	76	0.0	377	0.003	267	0.004	110	0.0	0.000	0.000	—
M5 Multiple board memberships	215	0.298	139	0.417	76	0.079	377	0.225	267	0.311	110	0.018	0.033	0.022	0.051
Competence indices															
IE Education (SUM)	215	0.330	139	0.489	76	0.039	377	0.204	267	0.281	110	0.018	0.128	0.048	0.380
IF Finance exp. (SUM)	215	1.093	139	1.417	76	0..500	377	0.289	267	0.393	110	0.036	0.000	0.000	0.000
IM Mgmt experience (SUM)	215	1.009	139	1.460	76	0.184	377	0.507	267	0.704	110	0.027	0.000	0.000	0.002
IT Total (SUM)	215	2.432	139	3.367	76	0.724	377	1.000	267	1.378	110	0.082	0.000	0.000	0.000

Source: Authors' calculation.

4.2.4. Summary statistics. Table 5 provides summary statistics for the 14 competence proxies for 592 board members in the 29 largest German banks. As we focus on qualitative differences in the boardroom composition of private and state-owned banks, the summary statistics are reported separately for the two types of banks. There are 215 board members in private banks and 377 board members in state-owned banks. Columns (1) to (6) concern the private sector banks and columns (7) to (12) the state-owned banks.

According to German law, a firm size dependent number of board members are worker representatives for which we report separately in columns (5), (6), (11) and (12).[14] However, detailed biographical information on worker representatives on the bank board is often unavailable. Therefore, we will mostly focus on the analysis of the owner representatives. This leaves us with 139 board members of private banks and 267 board members of state-owned banks.

All competence proxies are binomial variables, where a 'one' implies that the criterion is fulfilled and 'zero' otherwise. It is useful to aggregate these binomial variables to indices of supervisory board competence. We define four aggregate indices of board competence:

- *IE*: Sum of a board member's educational indicators *E1* to *E3*.
- *IF*: Sum of a board member's financial competence indicators *F1* to *F6*.
- *IM*: Sum of a board member's managerial competence indicators *M1* to *M5*.
- *IT*: Sum of all competence indicators of a board member.

Summary statistics on these four aggregate measures of board competence are reported in the last four rows of Table 5.

In addition to the 14 competence indicators and the 4 aggregate indices, we also report some statistics on the biographical background of board members. Age provides the average age of the board members. Foreign Nationality is the percentage of board members born in a non-German speaking country. Politically Appointed Board Members captures the case that high-ranking bureaucrats and politicians holding a party and/or government office become representatives in a supervisory board.

4.3. Supervisory board competence in comparison

The difference in board competence is pronounced as is evident from a comparison of proxy means in Table 5. For example, almost 37% of owner representative's board members in private sector banks feature some banking experience (F1) in their curriculum vitae. In the state-owned sector this criterion is fulfilled only by

[14] According to the so called 'Drittelbeteiligungsgesetz', a third of the board members need to be worker representatives for corporations with less than 2,000 employees. Beyond this threshold, the so-called 'Mitbestimmungsgesetz' applies, which requires that half of the board members are worker representatives.

14.2% of the corresponding board members. The difference in financial market experience (F2) is even more pronounced at 37.4% versus 10.1%. A similar qualitative difference is registered if one focuses on experience in US financial markets (F5) – arguably particularly relevant with respect to the subprime crisis. We find US financial market experience for 10.8% of the owner representatives on the board of private banks compared to only 2.6% for the owner representatives in state-owned banks.

Also in the categories of education and management experience, the private banks have a lead over the state-owned banks. The board members in private banks have 30% more academic degrees in business and economics (E1) and twice as many doctoral degrees (E3). More than a third of the board members in private banks had a top level management position in finance in comparison to 12% in public banks (M3). The management experience in the same bank (M4) is almost non-existent in supervisory boards of state-owned banks.

Columns (13) to (15) report the one-sided Fisher tests for the hypothesis that the competence proxies are the same for private and state-owned banks, where column (13) concerns all board members, column (14) the owner representatives and column (15) the worker representatives. The hypothesis that board competence is equal across private and state-owned banks can be rejected for 13 of the 14 board competence proxies. The hypothesis is rejected at the 1% level for 10 of the 13 criteria; for the remaining criteria (PhD, Consulting Experience, Multiple Board Memberships) a false rejection of the hypothesis still has a probability of less than 10%. Only the hypothesis that the criteria Business/econ degree is equal across private and state-owned banks cannot be rejected at the 10% level. Moreover, differences are also qualitatively large. The aggregate measure of finance experience

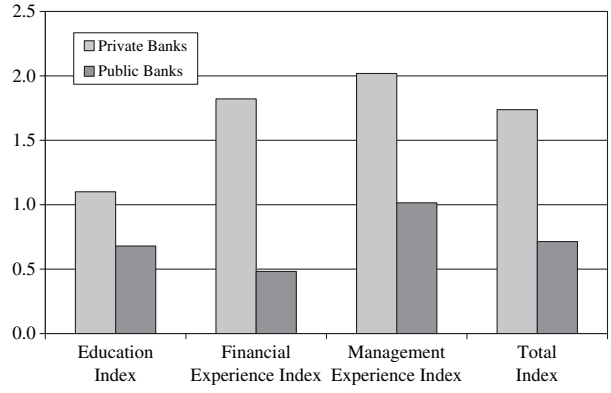

Figure 3. Supervisory board members in private and public banks

Note: The figure shows the means for the competence indices of all private and public bank supervisory board members, respectively. To obtain better comparability across indices, each index is scaled so that values can vary over the range 0 to 10.
Source: Authors' calculation.

(IF) summing the six indicator variables F1 to F6 has a mean value of 1.42 and 0.39 for private and state-owned banks, respectively. By this simple linear metric, a board member in a private bank had on average a 3 times higher competence measure than his colleague in a state-owned institution.

Figure 3 illustrates the difference between private and state-owned banks for the three competence indices plus the total index which sums all 14 criteria. To allow for a better comparison across the 4 indices, we have scaled them to a range from 0 to 10, where 0 implies that none of the index criteria are fulfilled by a board member and 10 means he fulfils all of them. The difference between private and state-owned banks is particularly strong with respect to management and finance experience of the supervisory board members.

Table 6. Competencies of politically-connected members in supervisory boards

		Board members of private and state banks						
		All members		Politically connected members		Other members		Fisher/ Spearman Tests
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
		Obs.	Mean	Obs.	Mean	Obs.	Mean	H0: (4) = (6)
		Biographical data						
A1	Age	262	57.08	135	56.04	127	58.18	0.073
A2	Foreign nationality	406	0.030	136	0.000	270	0.044	0.007
		Education						
E1	Business/econ degree	406	0.227	136	0.243	270	0.219	0.334
E2	MBA	406	0.025	136	0.022	270	0.026	0.555
E3	PhD	406	0.101	136	0.066	270	0.119	0.067
		Finance experience						
F1	Banking experience	406	0.219	136	0.088	270	0.285	0.000
F2	Financial market experience	406	0.195	136	0.029	270	0.278	0.000
F3	… since 1990	406	0.190	136	0.029	270	0.270	0.000
F4	… in the same bank	406	0.039	136	0.007	270	0.056	0.012
F5	US financial market experience	406	0.054	136	0.000	270	0.081	0.000
F6	… since 1990	406	0.047	136	0.000	270	0.070	0.000
		Management experience						
M1	Consulting experience	406	0.052	136	0.066	270	0.044	0.240
M2	Mid-level management	406	0.335	136	0.191	270	0.407	0.000
M3	Top-level management finance	406	0.195	136	0.088	270	0.248	0.000
M4	… in the same bank	406	0.034	136	0.007	270	0.048	0.025
M5	Multiple board memberships	406	0.347	136	0.382	270	0.330	0.173
		Competence indices						
IE	Education (SUM)	406	0.352	136	0.330	270	0.363	0.855
IF	Finance experience (SUM)	406	0.744	136	0.154	270	1.040	0.000
IM	Mgmt experience (SUM)	406	0.963	136	0.735	270	1.078	0.191
IT	Total (SUM)	406	2.059	136	1.221	270	2.481	0.297

Note: The data refer to owner representatives only.
Source: Authors' calculation.

One of the potential sources of fewer competencies in state-owned banks could be the practice of having politicians and politically-appointed bureaucrats as owner representatives in the supervisory boards. Most of the politically-connected board members made their career in politics and in administration but have little experience in banking and financial markets. Therefore, we also test whether the competencies of politically-connected board members significantly differ from other board members. Table 6 provides the respective evidence broken down into the 14 competence criteria. Column (4) states the percentage of politically-connected board members who fulfil a criterion and column (6) the same percentage for all other supervisory board members. Column (7) reports *p*-values for the hypothesis that both groups feature the same distribution for a given criterion. For 5 out of the 6 financial experience measures we can reject equality at the 1% level. Politically connected board members fare relatively well in terms of education, but less so for the management criteria. They almost completely lack financial experience.

Overall, the evidence on supervisory board composition of German banks shows a large competence gap between private and state-owned banks with respect to the management experience and financial market competence. The competence gap can largely be attributed to an appointment practice for state-owned banks which stacks the board with politicians and government employees as the shareholder representatives.

5. THE LINK BETWEEN SUPERVISORY COMPETENCE AND FINANCIAL LOSSES

5.1. Evidence on the monitoring-performance linkage

This section explores if the relative underperformance of state-owned compared to private banks in the recent financial crisis can be related to weak governance structures as suggested by our monitoring hypotheses (H1 and H3). Executives in state-owned banks may not face any effective monitoring by supervisory boards and are therefore more prone to choose bad investments or to compensate low profitability by investing in high risk assets (H2).

As a performance measure, we use the write-downs and losses reported by the banks during 2007 and 2008 (see Section 2.3 for a detailed description of the data). To construct explanatory variables we use the board members' competence indices (IE, IF, IM and IT) as defined in Section 3.2.4. For simplicity, we assume that the quality of a bank supervisory board and its monitoring ability are equal to the mean competence level of its members. To allow for a better comparison across the four aggregate board indices, we scale them to a range from 0 to 10, where 0 implies that no board member fulfils any of the index criteria and 10 implies that all board members fulfil all index criteria. While board quality need not be equal to the average skill of its member, we cannot entertain any non-linear hypothesis

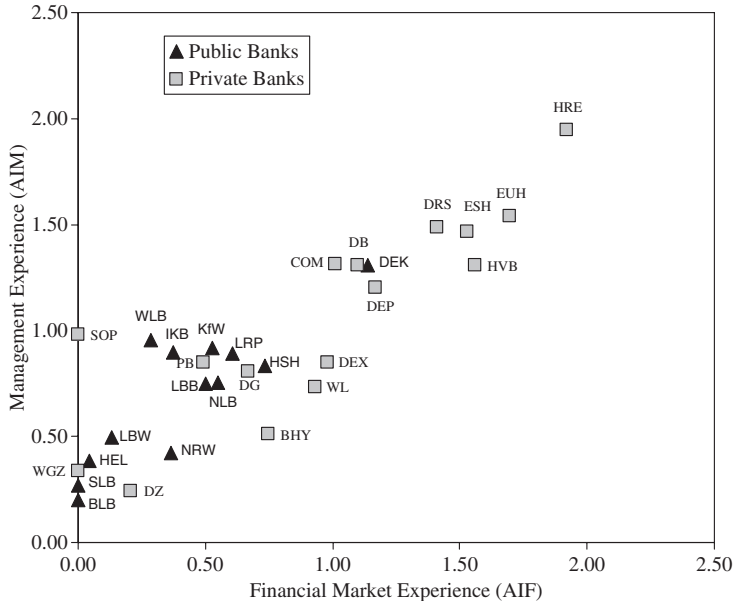

Figure 4. Financial market and management experience in the supervisory board

Note: BHY = Berlin-Hannoversche Hypothekenbank, BLB = Bayern LB, COM = Commerzbank, DB = Deutsche Bank, DEK = Dekabank, DEP = Depfa Deutsche Pfandbrief Bank, DEX = Dexia Kommunalbank Deutschland, DG = Deutsche Genossenschafts-Hypothekenbank, DRS = Dresdner Bank, DZ = DZ Bank, ESH = Essenhyp, EUH = Eurohypo, HEL = Helaba, HRE = Hypo Real Estate, HSH = HSH Nordbank, HVB = HVB Group, IKB = IKB, KfW = KfW Bankengruppe, LBB = Landesbank Berlin, LBW = LBBW, LRP = LRP Landesbank Rheinland-Pfalz, NLB = Nord LB, NRW = NRW Bank, PB = Postbank, SLB = Sachsen LB, SOP = Sal. Oppenheim jr. & Cie., WGZ = WGZ Bank AG Westdeutsche Genossenschafts-Zentralbank, WL = Westfälische Landschaft Bodenkreditbank, WLB = WestLB.
Source: Authors' calculation.

here for a lack of statistical power. We therefore settle for the most straightforward definition of board competence as the average competence of the board members.

The four measures of average board competence in their rescaled version are still not ideal regressors because of the (right-)skewedness of their distribution. In order to obtain a more normally distributed measure, we also undertake a log transformation given by $AIX = \log[1 + \textit{scaled board mean } (IX)]$.

We thus obtain the (log) average board competence levels denoted as AIE, AIF, AIM, and AIT, respectively. Figure 4 shows the board competence with respect to financial experience (AIF) and management experience (AIM) in the 29 sample banks. Private banks are marked by squares, and state-owned banks by triangles. Based on the competence gap of individual board members documented in Table 5, it is no surprise that private bank boards exhibit higher average financial and management competence. We also note that the board indices for management and financial market experience are correlated across the 29 banks. Supervisory boards with higher financial competence generally feature more management experience.

5.1.1. Explaining relative bank losses. Any comparison of losses related to the financial crisis has to account for the size of a bank and its balance sheet. This suggests that write-offs need to be standardized to make them comparable. As a suitable measure of normalization we use banks' total assets. The baseline regression, therefore, consists of a simple OLS specification:

$$\log \frac{Losses_i}{Total\ Assets_i} = \alpha_0 + \alpha_1 AIX_i + \mu_i$$

where AIX_i denotes one of the four board competence indices. Table 7 reports the OLS coefficients for the four aggregate indices, namely the board's average educational achievement (*AIE*), its average financial experience (*AIF*), its management experience (*AIM*) and its total experience measure (*AIT*). The average educational achievement, the management experience and the total experience measure do not show a statistically significant correlation with bank losses. However, a board's average finance experience is significant at the 5% level. We also note that the estimated coefficient has a large economic significance. The standard deviation for finance competence (*AIF*) across banks is 0.428. Hence, a one standard deviation deterioration in a board's finance competence implies 59% ($=100 \times \exp(1.08 \times 0.428) - 100$) increase in the ratio of bank losses to total assets.

Figure 5 illustrates this linkage between financial board competence and bank losses by plotting the latter against the former. Banks with financially competent supervisory boards exhibit lower losses. Figure 5 also shows again the pronounced

Table 7. Relative bank losses and supervisory board competence

Independent variables	Dependent variable: log (loss/total assets)			
	(1)	(2)	(3)	(4)
Constant	−5.49***	−4.87***	−4.68***	−4.66***
	[−13.88]	[−10.88]	[−15.33]	[−10.37]
Education (AIE)	1.33			
	[0.89]			
Mgmt. experience (AIM)		−0.58		
		[−0.83]		
Finance experience (AIF)			−1.08**	
			[−2.27]	
Total experience (AIT)				−0.58
				[−1.35]
Obs.	25	25	25	25
Adj. R-squared	0.000	0.000	0.147	0.033

Note: Reported are OLS regressions for the (log of the) bank losses in the period 2007–8 relative to total assets (at the end of 2007) for 25 German banks. As the independent variable we use four measures of supervisory board competence, namely the educational index (AIE), the average management experience (AIM), the average financial experience (AIF) and the aggregate total experience measure (AIT). The *t*-values of the coefficients are reported in brackets. We mark statistical significance at the 10% level (*), the 5% level (**) and the 3% level (***).

Source: Authors' calculation.

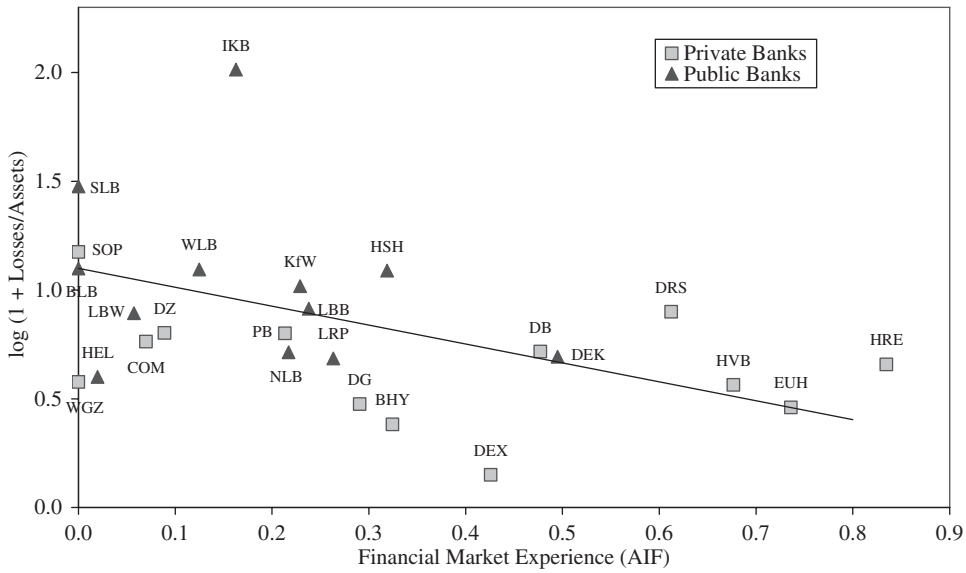

Figure 5. Losses during the subprime crisis and board competence in finance

Note: BHY = Berlin-Hannoversche Hypothekenbank, BLB = Bayern LB, COM = Commerzbank, DB = Deutsche Bank, DEK = Dekabank, DEX = Dexia Kommunalbank Deutschland, DG = Deutsche Genossenschafts-Hypothekenbank, DRS = Dresdner Bank, DZ = DZ Bank, EUH = Eurohypo, HEL = Helaba, HRE = Hypo Real Estate, HSH = HSH Nordbank, HVB = HVB Group, IKB = IKB, KfW = KfW Bankengruppe, LBB = Landesbank Berlin, LBW = LBBW, LRP = LRP Landesbank Rheinland-Pfalz, NLB = Nord LB, PB = Postbank, SLB = Sachsen LB, SOP = Sal. Oppenheim jr. & Cie., WGZ = WGZ Bank AG Westdeutsche Genossenschafts-Zentralbank, WLB = WestLB.
Source: Authors' calculation.

differences between private and state-owned banks. The higher financial competence in private banks' boards goes along with lower losses. Differences in board competence are therefore a very coherent explanation for the pronounced underperformance of state-owned banks documented in Section 2.3.

5.1.2. Explaining absolute bank losses using size controls. An alternative regression specification consists in taking (the log of) the bank losses as the dependent variable. In this case, we need to control for bank size with a separate independent variable which controls for bank size. We use the log of the total assets at the end of 2006 and 2007 and the log of tier 1 capital as alternative size controls. Table 8 reports the OLS regression results for the extended specification

$$\log(Losses_i) = \alpha_0 + \alpha_1 AIX_i + \alpha_2 \log(Bank\ Size_i) + \mu_i,$$

where we control for the banks size instead of scaling by it. The results are qualitatively similar to those obtained in the baseline specification. The index for finance competence (AIF) is statistically significant at the 5% level; the other indices are insignificant at the standard levels. The coefficients are again qualitatively large: In the case of total assets as a size control [column (3)], a one standard deviation

Table 8. Absolute bank losses with size controls

Independent variables	Dependent variable: log(loss)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Constant	−5.19***	−5. 30***	−5.61***	−5.27***	−6.17***	−7.49***	−1.69***	−1.36***	−1.30***	−1.22***	−1.72***	−1.95***
	[−4.20]	[−4.30]	[−5.00]	[−4.40]	[−5.83]	[−6.98]	[−4.71]	[−3.43]	[−4.09]	[−3.07]	[−4.52]	[−7.70]
State ownership (Public = 1)					0.96**						0.65*	
					[2.27]						[1.81]	
Education (AIE)	1.48						0.51					
	[0.91]						[0.38]					
Mgmt. experience (AIM)		−0.67						−0.60				
		[−0.89]						[−1.03]				
Finance experience (AIF)			−1.22***		−0.68	−0.89			−0.87**		−0.50	−0.48
			[−2.41]		[−1.31]	[−1.66]			[−2.21]		[−1.16]	[−1.56]
Total experience (AIT)				−0.66						−0.53		
				[−1.43]						[−1.50]		
Log of total assets	0.94***	1.09***	1.19***	1.13***	1.16***	1.43***						
	[3.77]	[4.46]	[5.39]	[4.75]	[5.72]	[6.58]						
Log of tier 1 capital							1.16***	1.24***	1.25***	1.25***	1.20***	1.37***
							[5.85]	[6.77]	[7.55]	[7.07]	[7.49]	[11.54]
Obs.	25	25	25	25	25	13	25	25	25	25	25	13
Adj. R-squared	0.433	0.432	0.535	0.462	0.608	0.784	0.635	0.649	0.699	0.667	0.727	0.920

Note: Reported are OLS regressions for the (log of the) bank losses in the period 2007–8 for 25 German banks. Columns (6) and (12) report regressions restricted to the 13 private banks. As the independent variable we use four measures of supervisory board competence, namely the educational index (AIE), the average management experience (AIM), the average finance experience (AIF) and the aggregate total experience measure (AIT). Each regression controls for the bank size by using either (the log of) the total bank assets or (the log of) tier 1 capital. The *t*-values of the coefficients are reported in brackets. We mark statistical significance at the 10% level (*), the 5% level (**) and the 3% level (***).

Source: Authors' calculation.

decrease in financial competence of the supervisory board implies a 69% (= $100 \times \exp(1.22 \times 0.428) - 100$) increase in bank losses.

As expected, bank size measured by (log) total assets is also highly significant for explaining absolute (log) bank losses with an estimated coefficient around 1. Bank losses are therefore approximately linear in bank size. The tier 1 capital as alternative size control is also highly significant and exhibits a coefficient slightly above 1 indicating that losses increase more than proportionally with bank size. We also verified that the above regressions are robust to the inclusion of leverage as an additional control variable. These results are not reported in Table 8. Additional leverage controls did not qualitatively change the results. The extended specification features a much higher adjusted R-squared of 54% for specifications (3) and of 70% for specification (9) compared to only 15% in the corresponding specification reported in Table 7. However, the considerably higher explanatory power in Table 8 is largely due to the size variables (log of) total assets, which was previously used to scale the dependent variable, and (log of) tier 1 capital.[15]

In columns (5) and (10), we simultaneously consider state ownership and financial experience. The state ownership dummy remains significant. The financial experience measure for boards still correlates negatively with bank losses, but misses the standard levels of statistical significance. The lower level of significance is not surprising given that the financial board experience proxy now picks up performance differences among only 13 private banks and the generally low financial competence of state bank boards is captured by the fixed effect of the state ownership dummy. The high correlation of 0.51 between the state ownership dummy and the AIF variable make a separate control for the effect of state ownership problematic in our small sample. We note that the subsample of the 13 private banks features a negative correlation between bank losses and financial board experience as shown in columns (6) and (12).

We also asked which of the six financial experience indicators for board members matters most for a bank's crisis performance. Such disaggregation did not produce any clear insights. We were not able to reject the null hypothesis that all six indicators matter equally. A more disaggregate approach requires a larger bank sample and more statistical power.

5.2. Endogeneity in the monitoring-performance linkage

The statistically and economically significant linkage between measures of supervisory board competence in finance and bank losses reported in Tables 7 and 8 represent a correlation and not necessarily a causal relationship. So-called endogeneity of the board composition is a major issue for any corporate governance

[15] We also ran the regressions without 'IKB', which is the outlier in the top left corner of Figure 5. The qualitative results remain the same. In particular, the significance of the financial experience measure is not affected by the outlier.

study. Performance difference between corporations may be driven by other factors which also drive board composition. For example, a bank CEO may pursue an investment policy without a proper risk control. Such a high-risk investment strategy may be in line with his pay incentive, or serve to disguise deficient operating performance in other areas of the bank's business. Such a CEO has a particular interest in the appointment of supervisory board members who do not scrutinize his investment policy. If the CEO can influence board appointments, as is generally the case, a supervisory board with low monitoring ability should result endogenously. The implied correlation between bank losses and a low competence index then reflects the CEO's ability to manipulate board composition.

Recent research on board composition also shows that corporate boards are often dominated by particular networks related to the educational or professional background of the network members (Bertrand *et al.*, 2008; Kramarz and Thesmar, 2008). The large representation of politicians and bureaucrats on the state-owned bank boards may therefore have indirect effects on the choice of co-opted board members. Unlike in studies on the board composition of private sector corporations, we can clearly identify state ownership as an exogenous determinant of board composition and board competence. Important exogenous drivers of board composition should mitigate the relative importance of endogenous determination and also generate more sample heterogeneity with respect to board composition.

A statistical strategy of controlling for endogeneity is to use instrumental variables which capture exogenous aspects of board composition. As shown in Section 4 of the paper, board composition of state-owned banks is largely conditioned by ownership structure. State-owned banks feature a large number of politically-appointed board members and we can assume that the percentage of political representatives may be outside the influence of the CEO. At the same time, the percentage of political board appointments correlates (negatively) with board competence, making it a good 'instrument'. Also the public ownership status itself cannot be influenced by the CEO. This suggests two instruments, namely the percentage of political representatives and a dummy for state ownership.

Table 9 reports the same regressions as Table 8, except that the competence index is now instrumented. This should eliminate any reverse causality which may result from the CEO's ability to manipulate board composition. The point estimates for the IV coefficients are again negative, and according to a Hausman test statistically not different from the corresponding OLS coefficients. The statistical significance level of the financial competence index in specifications (3) and (7) is now 5%.

A concern about the results in Table 9 are the low *F*-statistics for the first stage regression. They suggest that our instrumental variables are weak and this implies a potential bias for the IV coefficients in a finite sample as well as incorrect standard errors. According to Murray (2006) the state of the art for hypothesis testing under weak instruments is the 'conditional likelihood ratio' (CLR) test. It is implemented

Table 9. IV regressions for absolute bank losses with size controls

Independent variables	Dependent variable: log(loss)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	−6.36*	−5.32***	−5.91***	−5.21***	0.01	−0.32	−0.92**	−0.31
	[−2.01]	[−3.26]	[−4.63]	[−3.51]	[0.01]	[−0.37]	[−2.05]	[−0.41]
Education (AIE)	−14.79				−12.16			
	[−0.85]				[−1.02]			
Mgmt. experience (AIM)		−3.76				−2.98*		
		[−1.63]				[−1.75]		
Finance experience (AIF)			−2.41**				−1.88**	
			[−2.23]				[−2.22]	
Total experience (AIT)				−2.22*				−1.73*
				[−1.86]				[−1.94]
Log of total assets	1.84	1.42***	1.36***	1.39***				
	[1.61]	[3.61]	[4.87]	[4.06]				
Log of tier 1 capital					1.93***	1.44***	1.33***	1.39***
					[2.32]	[5.25]	[6.75]	[5.87]
Obs.	25	25	25	25	25	25	25	25
Adj. R-squared	0.000	0.002	0.418	0.178	0.000	0.382	0.608	0.490
First stage regression								
F statistics	1.47	2.71	3.78	3.10	2.02	2.50	3.04	2.73
Adj. R-squared	0.056	0.176	0.258	0.208	0.113	0.158	0.203	0.178
Robustness of IV inference								
LILM estimate	−24.86	−5.04	−2.93	−2.80	−12.27	−3.12	−1.93	−1.79
CLR – 95% confidence interval			[−17.97, −0.78]	[−115.9, −0.69]			[−7.50, −0.40]	[−11.59, −0.33]
CLR p-value			0.012	0.009			0.018	0.017

Note: Reported are instrumental variable (IV) regressions for the (log of the) bank losses in the period 2007–8 for 25 German banks. As the independent variable we use four measures of supervisory board competence, namely the educational index (AIE), the average management experience (AIM), the average financial experience (AIF) and the aggregate total experience measure (AIT). As instruments for board competence we use a dummy variable for state-owned banks and the percentage of politically-appointed board members. Each regression controls for the bank size by using either (the log of) the total bank assets or (the log of) tier 1 capital. The *t*-values of the IV coefficients are reported in brackets. We mark statistical significance at the 10% level (*), the 5% level (**) and the 3% level (***).
Source: Authors' calculations.

in recent versions of STATA and yields robust confidence intervals if there is only one (possibly) endogenous variable. Table 9, columns (3) and (7) report (at the bottom) the CLR confidence intervals for the financial board competence variable at the 5% level. The IV coefficient is situated within this confidence interval which clearly excludes the zero value. As an additional robustness check we also report the limited-information maximum likelihood (LIML) estimator for the respective board competence variables. The latter represents an unbiased median estimator suited for weak instruments (Stock *et al.*, 2002). The LIML estimates are very close to the previous IV coefficients, which should alleviate concerns about instrument weakness. Overall, these results imply that the negative association of bank losses and supervisory board competence reflects causality running from board competence to bank performance and not in the reverse direction.

Does state ownership induce other endogenous differences in the bank loan policies relative to private sector banks? Two effects are particularly plausible: First, research on Italian state-owned banks has shown a loan preference towards local investment projects where the political party of the board representative had strong election results (Sapienza, 2004). This effect is hardly surprising if politicians on a bank board influence a bank's investment policy. However, such a 'home or voter bias' can hardly explain excessive investments by German banks in the US mortgage market. The endogenous home bias effect should induce *ceteris paribus* lower subprime related losses for state-owned banks.

A second plausible investment bias of state-owned banks concerns their risk aversion. Political board representatives may see employees as part of their constituency. The interest of the employees is to avoid excessive risk taking similar to bond holders. A greater concern of state-owned banks for employee interests should bias their investment policy against any strategy which may 'wreck the ship'.[16] In summary, endogenous differences in the loan policy of state-owned banks are plausible, but they should bias results against finding financial losses concentrated in the state-controlled part of the banking sector.

6. DISTINGUISHING ALTERNATIVE HYPOTHESES ABOUT PERFORMANCE DIFFERENCES

6.1. Bank governance channels

The evidence presented so far suggests that supervisory boards stacked with political appointees could not effectively exercise their monitoring role. Deficient governance could have had dramatic consequences through two different channels. First, deficient bank governance implied that CEOs and bank managers were free to pursue

[16] The executives of state banks may also pursue an excessively risky strategy to disguise low operating profits. Such excessive risk-taking, however, is part of the 'gambling for profitability' hypothesis and is discussed in Section 6.1.

bad investment strategies in line with short-term pay incentives. We called this the strong monitoring hypothesis (H1). It assumes that board quality matters directly for the quality of a bank's investment strategy. It requires a relatively high influence of board members on the corporate decision process. A second channel might operate more indirectly. Competent supervisory boards select a competent bank leadership which improves operating performance (H3). Improved competitiveness avoids 'gambling for profitability' strategies which underlie disastrous performance during a financial crisis. Both governance channels are not mutually exclusive. The gambling for profitability hypothesis (H2) provides a plausible explanation for the relative larger losses of state banks if we find evidence for a corresponding shortfall in operating performance prior to the crisis. It is therefore interesting to compare the operating performance across state and private banks and also relate them to our measures of board competence.

Table 10 reports regression results for three different measures of operating performance. We examine alternatively the annual return on book assets, the return on book equity, and the per capita profits defined as the ratio of annual operating profits and the number of bank employees.[17] Whenever available, these operating data were collected for the pre-crisis period 1998–2006. By all three measures, the private banks show on average a better operating performance as shown in columns (1), (4) and (7). The performance difference is economically large as a comparison of the dummy variable (capturing the lower performance of state banks) and the constant term shows. State-owned banks have on average a 36% lower return on book assets, and a 27% lower return on book equity. However, the annual profit variability is very high so that these differences are not statistically significant at conventional confidence levels.[18]

Per capita profits reported in columns (7) to (9) may represent the most accurate measure of operating performance. For private banks the operating profits per bank employee averaged €200,000 for 1998–2006. By contrast, average profitability in the state banks is only €40,000 per employee (see column (7)).[19] The negative correlation between state ownership and operating profitability is again economically large, but statistically not significant. Column (8) relates operating performance directly to financial board competence (AIF). Here we find a statistically significant relationship in spite of the small sample size. An improvement of financial board competence by one standard deviation (0.428) is related to improvement in per capita profits of €0.181 million (0.423 × 0.428).

[17] Return to equity (if measured at market values) and per capita profits are both sensitive to financial leverage, which (according to book values) in Table 2, column (7) is higher for private banks. This could go some way towards explaining higher relative profitability for these two measures.

[18] We also examined the variability of operating profits similar to Laeven and Levine (2008), but could not find any systematic difference between private and state-owned banks.

[19] Of course, per capita profits depend on the labour intensity of a business. However, as the state banks do not operate in the particularly labour-intensive market segment of consumer retail business, they should *ceteris paribus* have higher rather than lower per capita profits than their private counterparts.

Table 10. Operating performance prior to the crisis

Independent variables	Dependent variables								
	Return on book assets			Return on book equity			Per capita profits (€m)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Constant	0.241***	0.245***	0.200**	7.984***	5.710***	4.244	0.202***	0.012	−0.028
	[4.09]	[3.42]	[2.00]	[3.69]	[2.18]	[1.17]	[3.16]	[0.17]	[−0.27]
Dummy (state-owned = 1)	−0.087			−2.152			−0.163		
	[−0.94]			[−0.64]			[−1.64]		
Finance experience (AIF)		−0.098*			2.774			0.240**	
		[−0.72]			[0.68]			[2.10]	
Total experience (AIT)			0.006			3.022			0.171*
			[0.06]			[0.89]			[1.72]
Number of banks	29	29	29	29	29	29	29	29	29
Obs.	266	266	266	266	266	266	260	260	266
ρ	0.365	0.370	0.374	0.069	0.069	0.067	0.316	0301	0.314
Overall R^2	0.011	0.012	0.000	0.002	0.003	0.005	0.032	0.051	0.035

Note: Reported are panel regressions for three measures of operating performance over the period 1998–2006. Return on book assets is defined as the ratio of annual operating profits before taxes and a bank's book assets, return on book equity is calculated as the ratio of annual operating profits before taxes and book equity, and per capita profit measures annual operating profits (in €m) relative to the number of bank employees. The explanatory variables are a dummy coded 1 for private banks and 0 for state banks, the average finance experience (AIF) measure of the supervisory board and its aggregate total experience measure (AIT). The regressions allow for random effects for each year and each bank. Fixed time effects yield similar results. The *t*-values of the coefficients are reported in brackets. We mark statistical significance at the 10% level (*), the 5% level (**) and the 3% level (***).
Source: Authors' calculation.

The statistical nexus between financial board competence, operating performance and crisis losses underlines the plausibility of the gambling for profitability hypothesis (H2). The banks with the least competent supervisory boards show the weakest operating performance and this might have created a pressure to compensate operational underperformance with higher levels of risk taking. In an efficient financial market, higher levels of market risk are systematically compensated by higher expected returns. But bank investment in illiquid mortgage securities may be far from this efficient market benchmark and could therefore combine high levels of market risk and low expected returns due to default risk.

Better executive monitoring in private banks can be facilitated not only by more competent boards, but also by public trading of their equity as well as other marketable bank assets. Asset trading by informed investors can provide the supervisory board with valuable signals which alert supervisory board members to undesirable investment strategies. A declining stock price allows supervisory board members to challenge a CEO and/or request further explanations about the bank's investment policy.[20] However, such external monitoring (due to public trading) may require a high degree of bank transparency beyond current accounting standards. This may explain why we find only a weak negative correlation between public trading of bank equity and bank losses in our sample.[21]

6.2. State ownership as managerial constraint

An alternative interpretation of the larger losses during the crisis is that state-owned banks face constraints not shared by their private sector competitors. Such a 'managerial constraint hypothesis' (H4) may apply particularly to salary limits for CEOs and top managers. The hypothesis could be relevant in a highly competitive managerial labour market, in which the most competent bank managers seek and obtain higher paid jobs in private banks. The poor financial performance of the state-owned banks in the current banking crisis could be a reflection of such 'suboptimal' managerial constraints. The low competence of the supervisory boards in this explanation would be accidental and irrelevant to the observed underperformance of state-owned banks.

The role of executive salaries is examined in Table 11. We use data on the executive board compensation of the 29 banks from the accounting statements in 2006. To avoid a possible bias due to different accounting standards (historic value vs. market value), we eliminate all (pension related) deferred compensation from the data. The total compensation of an executive board is then divided by the number of board members to obtain the average salary of an executive board member. We use the (log

[20] Dahiya *et al.* (2009) provide evidence that bank equity prices are informative of the solvency of bank lenders. See also Flannery and Sorescu (1996) and Berger *et al.* (2000).

[21] In our sample, 6 of the 16 private banks and 2 of the 13 state-owned banks are publicly traded.

Table 11. Determinants of executive pay

Independent variables	Dependent variable: Log of executive pay			
	(1)	(2)	(3)	(4)
Constant	−3.099***	−2.954***	−3.156***	−3.226***
	[−4.24]	[−4.46]	[−4.48]	[−4.59]
Log of total assets	0.580***	0.308***	0.577***	0.562***
	[4.37]	[5.19]	[4.34]	[4.24]
Dummy (state-owned = 1)	−0.039			
	[−0.16]			
Political affiliations		−1.014*		
		[−1.87]		
Finance experience (AIF)			0.099	
			[0.33]	
Total experience (AIT)				0.204
				[0.82]
Obs.	26	26	26	26
Adj. R^2	0.412	0.489	0.414	0.428

Note: The dependent variable in the OLS regressions is the log of the average compensation of 25 German bank executive boards in 2006. The explanatory variables are a dummy coded 1 for private banks and 0 for state banks, the percentage of politically appointed supervisory board members (political affiliations), the average finance experience (AIF) measure of the supervisory board and its aggregate total experience measure (AIT). The *t*-values of the coefficients are reported in brackets. We mark statistical significance at the 10% level (*), the 5% level (**) and the 3% level (***).

Source: Authors' calculation.

of the) average compensation as the dependent variable. The bank size measured by the log of total assets represents a highly significant control variable in all specifications. Larger banks pay higher salaries to their top level executives. This finding corresponds to very similar results for CEO salaries in the US (Landier and Gabaix, 2008). The negative sign for the state bank dummy in column (1) reveals that executive board members earn on average less in state banks. But the average pay difference of 10% (= 100 × exp(0.96) − 100) is economically and statistically insignificant. It is rather implausible that such a small pay differential amounts to a managerial constraint in state banks to hire talented executive board members. Column (2) reveals that banks with a larger share of board members with political affiliations pay less to their executives. A decrease of politically affiliated board representatives by one standard deviation (0.21) increases executive compensation by 24% (= 100 × exp(1.014 × 0.21) − 100). We also note that the most competent supervisory boards did not approve considerably higher executive pay as is evident in column (3). An increase in financial board competence by one standard deviation increased executive pay only by 5%. To the extent that the quality of the appointed executive boards drive operating and crisis performance, higher executive board quality appears to be available through better manager selection and/or board supervision rather than higher salaries.

We do not find any evidence for other managerial constraints which differentiate private and state-owned banks in Germany. Both private sector and state-owned banks operate in the same labour market for managerial talent; hence, it is hard to

come up with any competitive disadvantage faced by the state-owned banks. The only difference is a historic public guarantee of state bank debt. The latter amounts to a competitive advantage not enjoyed by the private sector banks. The public guarantee ('Gewährträgerhaftung') for the Landesbanken was revoked under EU competition law in 2001. This eliminated differences between public and private banks rather than being an additional constraint on public banks. There exists a generous interim arrangement, whereby the public guarantee is still valid for all liabilities which were incurred until 2005 and which become mature before 2015. It is occasionally argued that this interim arrangement could have created an incentive for cheap additional bank borrowing before July 2005. But accounting measures for leverage in Table 2, column (7), show in fact a lower leverage for state-owned banks than for private banks in 2006/7. For a lack of evidence, we discard hypothesis H4.

6.3. Executive pay and crisis performance

Even in the absence of significant pay difference between private and state banks, salary levels may still relate to managerial quality and therefore crisis performance. Does investment in a more expensive executive board pay off in times of crisis? According to the 'efficient executive pay hypothesis' (H5), higher executive salaries should be correlated with better crisis performance. But an inverse relationship between executive pay and crisis performance is also plausible. In this case higher

Table 12. Absolute bank losses and executive pay

Independent variables	Dependent variable: log(loss)				
	(1)	(2)	(3)	(4)	(5)
Constant	−3.904**	−5.606***	−3.359***	−5.27***	−2.915***
	[−2.30]	[−5.00]	[−2.38]	[−4.40]	[−3.21]
Log of executive pay	0.654		0.888***		0.974***
	[1.57]		[2.53]		[2.52]
Finance experience (AIF)		−1.224***	−1.545***		
		[−2.41]	[−3.22]		
Total experience (AIT)				−0.66	−1.161***
				[−1.43]	[−2.60]
Log of total assets	0.750***	1.190***	−0.796***	1.130***	0.771***
	[2.37]	[5.39]	[−3.04]	[4.75]	[2.76]
Obs.	23	25	23	25	23
Adj. R^2	0.472	0.535	0.641	0.462	0.590

Notes: Reported are OLS regressions for the (log of the) bank losses in the period 2007–8 for 25 German banks. As the independent variables we use the log of the average compensation of a bank's management board member, as well as supervisory board competence measures, namely its average financial experience (AIF) and the aggregate total experience measure (AIT). Each regression controls for the bank size by using (the log of) the total bank assets. The *t*-values of the coefficients are reported in brackets. We mark statistical significance at the 10% level (*), the 5% level (**) and the 3% level (***).
Source: Authors' calculation.

salaries for the executive board members may just reflect a lack of effective supervisory board control and other agency problems.[22]

Table 12 revisits the crisis performance regressions with executive pay as an additional control variable. The bank losses positively correlate with the level of executive pay. This positive relationship is statistically significant at the 3% level once we also control for differences in financial supervisory board competence in column (3). Hence, the investment return to higher executive pay was *ceteris paribus* negative for German banks as better paid executives suffered larger losses, not smaller ones. This allows us to discredit the 'efficient executive pay' hypothesis. Underinvestment in executive pay packages is certainly not what explains the crisis performance of German banks.

7. SUMMARY WITH POLICY CONCLUSIONS

Economists have long recognized the fragility of bank institutions and the systemic risk that they pose to the real economy. Unlike most other limited liability companies, banks feature high leverage and their maturity transformation exposes them to additional liquidity risks more than any other industry sector. Their pivotal role in financing the investment activity of small and medium-sized companies implies that financial distress by banks carries large macroeconomic costs. Banks should therefore be subject to a particular regulatory framework, which imposes minimum capital requirements, and requires effective systems of internal risk management and appropriate disclosure policies.

The current financial crisis confirms these conventional views (IMF, 2008), but also provides some new lessons. The regulatory system did not sufficiently constrain the risk choices of many financial institutions. Particularly in the US, financial institutions such as investment banks were allowed to operate as a 'shadow banking system' outside of traditional banking supervision. The lenient regulation allowed the banks to reduce equity as far as possible in order to benefit from the higher returns which come with higher leverage. Moreover, political lobbying by the financial industry itself may have contributed to the lenient regulatory regime which rendered bank supervision less effective.

In the light of the recent experience, bank regulation needs to be strengthened. However, it is less clear how to shield national bank supervision from the very political interference which has weakened it in the past. More political independence of bank supervision similar to central bank independence seems desirable (Rochet, 2008). Some have even called for an international financial regulator to provide political insulation from national politics (Reinhart and Rogoff, 2008).

[22] High-powered incentives for the top management (e.g. through stock options) may influence managerial risk-taking and therefore a bank's crisis performance. For instance, Mehran and Rosenberg (2007) show that CEO stock option holdings increase asset volatility. Unfortunately, there are no suitable data on performance pay for the 29 German banks under consideration.

Nevertheless, tougher banking regulation will have to face up to future political challenges which may again undermine its very effectiveness.

It is therefore important to explore parallel policy measures which may strengthen bank stability even further. Here, our performance and governance analysis of German banks in the recent financial crisis offers interesting insights. The large role played by state-owned banks in the German banking sector implies that corporate governance is extremely heterogeneous in an otherwise identical regulatory environment. Moreover, state-owned banks have pursued profit objectives just like their private sector counterparts which is mirrored by their expansion into international banking.[23] Studying the biographies of 592 board members in the 29 largest German banks reveals that the financial and managerial competence of supervisory board members is systematically lower in state-owned banks compared to private banks. This statistically significant result should in itself raise concerns about the state ownership of banks unless one negates the monitoring role of supervisory boards altogether.

A performance comparison of state-owned and private banks in the 2007/8 banking crisis reveals that state-owned banks performed significantly worse. Controlling for bank size, the losses of state-owned banks are on average three times as large as those of their private competitors. The small sample of 25 observations may raise robustness concerns. However, abundant anecdotal evidence on many previous large-scale investment failures by German state-owned banks is certainly not in contradiction to the statistical findings.

We then relate bank crisis performance directly to measures of supervisory board competence. The evidence suggests that the monitoring ability of the supervisory board matters for the financial fragility of banks. Financial expertise of the supervisory board correlates with crisis performance at a 5% statistical significance level even in our small sample. We interpret this correlation as a causal linkage from governance to crisis performance because the instrumented version of the same regression produces very similar regression coefficients. Assuming that CEOs of state-owned companies cannot alter the percentage of political representatives in their supervisory board, we can use this percentage as an exogenous instrument, which is nevertheless strongly correlated with financial board competence. Equal coefficients for the instrumented and ordinary regressions are evidence against the reverse causality, whereby particularly reckless bank CEOs co-opt incompetent board members as their monitors.

The analysis also undertakes some tentative steps in exploring the channel through which supervisory board competence could matter. For this, we distinguish between a strong and a weak monitoring hypothesis. The former assumes that

[23] The assertion that state-owned Landesbanken suffered high losses because of public policy objectives seems untenable in this context. Alleged regional development objectives are at odds with an expansion into international banking and should bias the regression results towards lower crisis losses for Landesbanken.

supervisory board monitoring directly influences the quality of the key investment decisions by the executive board. The latter concedes that such a high level of supervisory board involvement may not be realistic. Instead, supervisory board competence matters through the selection of the executive board. Better executive selection improves operating performance and the latter avoids a 'gambling for profitability' which allegedly characterized the investment behaviour of state-owned banks. We check if state-owned banks indeed suffered from lower operating profitability and find supportive evidence. Moreover, higher financial board competence also correlates with better operating performance. Risky investment choices might therefore have been the flipside to poor operating performance.

Finally, we explore the role of executive pay for the crisis performance. There is no evidence for the 'efficient executive pay hypothesis' whereby the return to higher executives' compensation consists in better investment strategies and less bank fragility. We rather find evidence to the contrary. Higher executive pay correlates with higher crisis losses, which suggests that particularly large executive pay packages signal not better management but rather more severe agency problems.

These findings about the role of governance for crisis performance have broader ramifications beyond the dual board structure found in continental Europe. There is a widely held view that US bank boards are also very passive and generally do not play any proactive monitoring role. The strong position of the CEO in US corporate governance makes boardroom challenges rare. In addition, the conglomerate nature of many international banks may render them 'too large to monitor'. Issues of bank governance therefore deserve more policy attention in the new regulatory debate. A narrower interpretation of the evidence suggests that state ownership comes at the costs of weaker monitoring of bank managers, possibly higher risk exposure and higher bank losses in a financial crisis. This aspect is important given that state ownership has increased in the wake of the current crisis.

We highlight five specific policy conclusions. First, state ownership in the banking sector should be reduced as far as possible.[24] Second, whenever state ownership is unavoidable, the financial competences of the supervisory boards have to be strengthened. Instead of installing politically-connected board members, the state should delegate financial experts to the supervisory boards. Third, private institutions may similarly benefit from a more competent supervisory board.[25] Enhanced shareholder rights and better shareholder representation can also pave the way for more bank board quality and more effective monitoring. Fourth, the quality of bank monitoring may increase if supervisory board members dispose of market sig-

[24] Note that the German public banks, which are under consideration in this study, simply compete with private banks and hardly fulfil any public service function. There may be some limited role for public development banks which hand out subsidized loans to municipalities and public institutions. Such development banks, however, are beyond the scope of our study.

[25] Governance failure can also be severe in private companies as the spectacular collapse of Enron and WorldCom shows. The Sarbanes–Oxley Act of 2002 was passed as a consequence. Its scope is limited to the US and it focuses on formal aspects of governance rather than its qualitative dimensions.

nals indicative of bank risk. This calls for stock market quotation of bank equity as well as exchange trading of marketable bank assets. We note that more information from market prices under enhanced bank transparency can also improve regulatory supervision. Fifth, it seems worth exploring whether prudential bank regulations should explicitly encompass criteria for board competence and quality. These measures offer a promising path towards more financial stability because at the heart of any financial crisis are large bank losses.

Discussion

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Summary

This paper studies the performance of 25 banks in Germany, where performance is measured as (self-reported) write-downs and losses from operating and investment activity from the first quarter of 2007 to the third quarter of 2008. The paper finds that the write-downs and losses of state-owned banks were almost twice the losses of the (14) private banks in the sample. The paper then examines the education and occupational background of supervisory board members in 29 banks (including the 25 banks with data on losses); it finds that measures of management and financial experience of board members are systematically higher in privately-owned banks compared to state-owned banks. Furthermore, the paper finds that financial experience is negatively correlated with losses and it contends that the relation is causal: Board members with less experience in finance (over-represented in state-owned banks) pave the way for higher losses.

One policy implication drawn by the authors is that 'privatizing state-owned banks is therefore likely to make a positive contribution to global banking stability'. More generally, the paper argues in favour of policies that improve bank governance (whether privately or state owned) through prudential bank regulations that encompass criteria for board competence and through stronger shareholders' rights.

Comments

This is a highly informative paper on a timely and policy-relevant topic. When one reads the paper, it all makes a lot of sense. And for someone like me, who knows

nothing about board supervision in German banks, sense is it. Or most of it. There is, however, a rush to draw causal links and to derive policy conclusions that do not necessarily follow from the premises. The paper's logical thread of findings (not quite a syllogism) is as follows: (1) State-owned banks report higher losses. (2) Board members in state-owned banks lack competence. Thus (3) Lack of competence (in state-owned banks) leads to higher losses. The policy implications drawn by the authors are: privatize, improve board competence, strengthen shareholders' rights. I would like to comment on the first three findings in turn, then briefly discuss the implementation, and finally comment on the policy implications.

State-owned banks reported higher losses

There are three points that I think are important to qualify the conclusions: (1) self-reporting of losses (timing and valuation); (2) mandate of private versus public banks; and (3) sample-selection and size.

As concerns the first point, the paper shows that in 25 state-owned German banks, *self-reported*-losses were higher in the period 2007:Q1 to 2008:Q3. Given that losses are self-reported, my first question is: Is it not conceivable that privately owned banks have a bigger incentive to hide losses (temporarily at least) in the hope of better performance in the near future? State-owned banks, by their less aggressively profit-seeking nature, may have less to lose from revealing losses or for doing so more swiftly than privately-owned ones. (More concretely, board members and managers of private banks may be more accountable than their state-owned counterparts and hence more wary about shareholder reaction to the losses.)

A second issue that concerns self-reporting is that not all banks use the same accounting method, not a minor detail amid a crisis of this nature, when massive revaluations are taking place. A group of banks in the sample used market-value accounting; another used historical-value accounting, and yet a third group, including Deutsche Bank, switched from market- to historical-value accounting in the midst of the crisis. How exactly the self-reported losses were computed by the banks is not entirely clear, as important judgement calls need to be made in the valuation. This, at least to some extent, undermines the quality of the losses data, the key dependent variable.

To support the case that self-reporting is the cause of the difference, the authors argue that the bad performance of state-owned banks is not just a one-time accident: state-owned banks performed poorly in the previous decade. Specifically, the paper lists the millions in capital injections received by state-owned banks from 1991 to 2005.[26]

[26] It would be interesting to also know how badly they performed when compared to private banks, taking into account the presumably higher attrition in the private banking sector.

This brings me to my next point: Do public banks have the same mandate as private ones? Or are they masked instruments of public policy? A cursory search on the web suggests that these two types of banks have different missions. The quotes below refer, respectively, to a public (Bayerische Landesbank) and a private bank (Deutsche Bank).

> 'The mission of Bayerische Landesbank is improving the welfare of society at large. The Group is committed to furthering public causes in various ways – from promoting the economy through donations to charitable organizations, to actively protecting the environment, and to fostering the arts, culture and sciences...'

> 'Deutsche Bank's Mission: We compete to be the leading global provider of financial solutions for demanding clients, creating exceptional value for our shareholders and people. Identity: Deutsche Bank is a leading global investment bank with a strong and profitable private clients franchise. Its businesses are mutually reinforcing.'

Perhaps the poor performance of public banks in Germany is due to a broader mandate (more do-good projects of low profitability).

The third point that qualifies the conclusions is that the paper excludes from the analysis state-owned savings banks, typically owned by their respective municipalities or counties and accounting for about 14% of banking assets. The paper explains the exclusion on the grounds that these state-owned banks did not engage in international banking activities. But this means that some state-owned banks indeed performed very well in the current crisis, perhaps even better than private banks. In other words, we should be more cautious when drawing general distinctions between private and state-owned banks. This is particularly relevant here because the paper seems to suggest that state-owned banks deliberately undertook excessive risk.

Related to the previous point, the paper argues that excessive risk-taking by managers may be motivated by incentive schemes which provide bonuses and option-like payoffs based on short-term performance and, moreover, that higher risks may be chosen by managers to generate higher investment returns in periods of financial stability in order to offset poor operating performance. I would have thought that this was much more problematic in privately-owned banks, where high-powered monetary incentives are more prominent and managers tend to be more career concerned (and wary of greedy private shareholders).

My last point on this is the number 25. Can we draw general inferences from such a small sample, in such a short period, in such a special crisis?

Board members in state-owned banks lack competence

The paper very adamantly argues that 'monitoring by the supervisory board can counterbalance [two] incentive problems [namely, risk-taking by managers who are rewarded with bonuses based on short-term performance and risk-taking chosen to

generate higher investment returns in periods of financial stability to offset poor operating performance]'.

As expressed before, I would have thought that the mandate of state-owned banks was not simply profit-seeking and that managers' incentive schemes were accordingly less high-powered. The very fact that some board members respond to political appointments should be evidence of this. While I agree that there seems to have been wide spread incompetence (and lack of understanding of the risks entailed by new financial instruments), it is not at all clear from the evidence that the root problem in this context was ill-designed high-powered monetary incentives, as contended. So, the paper's take on the root cause is, at best, a conjecture.

A related question is whether better financial credentials of board members in state-owned banks would have helped here. In this particular crisis financial credentials are not necessarily reassuring – and almost less so if they come from the US. AIG certainly had a most impressive board of directors.

Lack of competence (in state-owned banks) leads to higher losses

Financial experience correlates negatively with self-reported losses. Does it cause it? As suggested before, it might be that privately-owned banks tend to both appoint people with more experience in finance and are less prone to at least temporarily acknowledge losses, wary of shareholders. State-owned banks, in contrast, given their potentially broader mandate, both make more political appointments and are more open about losses. Given the data available, I think causal identification is not really possible here.[27]

More specific comments about the implementation

Sample size (25 observations) and sample selection (exclusion of saving banks) are the main two limitations in the empirical implementation. I am equally concerned by the generality of the specification. Losses can take positive and negative values (in good times, which were not too far in the past, they were negative indeed). A logarithmic model is hence not appropriate for this dependent variable. Nor is it clear why the indices of competence should be transformed with the function $\ln(1 + mean(x))$; the paper argues that this step is done to obtain a more normally distributed measure. But it leaves the reader wondering to what extent the identification is coming off this artificially built non-linearity.

[27] The paper shows concern for endogeneity (although slightly different from the one expressed above) and argues that the board composition of state-owned banks, which has a large number of politically appointed board members, can act as an instrument. I am just not convinced by the fitness of this instrument. If state-owned banks have a broader mandate, reflected in the number of political appointments, then, it seems that this variable should be controlled for in the main equation. In other words, the number of political representatives should enter directly in the 'losses' equation. Because this variable presumably affects losses directly, then, it cannot be used as an instrument.

Policy implications

In view of all the data constraints and the challenges of identification, I think the policy conclusions should be qualified. I would also like to make some remarks on the policy recommendations.

'Privatizing state-owned banks is therefore likely to make a positive contribution to global banking stability.' While I generally agree with this principle, this does not obviously follow from the analysis in the paper. And is especially unwarranted today, given that to a large extent the current crisis was (accidentally or not) initiated by problems of asymmetric information and moral hazard in the private financial sector.

Improving bank governance is unquestionably a great suggestion. The question is how. The paper's first suggestion is to introduce bank regulations that encompass criteria for board competence, which, again, is a great suggestion. But the criteria depend crucially on the type of institutions considered and their mandate. If a state-owned institution has a mandate to provide student loans in order to foster science or arts, etc., then it is not entirely clear that the main or only competence for board members should be experience in finance. Perhaps banks should have a critical mass of people specialized in finance to follow investment decisions, while other groups in the board, with different qualifications, could undertake other functions.

A second suggestion is to strengthen private shareholders' rights, which also sounds good, though does not obviously follow from the paper. This was an uncontested ideal among economists until the current crisis, when there has been quite heated discussion on whether shareholders should be helped by taxpayers (especially given that they had benefited from high returns in previous years). One should clarify whose rights should be 'weakened' when strengthening private shareholders' rights.

In sum, this is a great paper, which I am sure will become an obligatory reference in the debate over the causes and effects of the crisis.

David Thesmar

HEC School of Management

It was a pleasure to read this topical paper. I think the authors make a good case that German banks really made bad investments in the period that led to the crisis, and that most of these bad investments were made by public banks, whose boards are financially less competent. Whether incompetence was the driving force behind these bad investments is still an open question, however.

As a preliminary note, the figures presented in the paper got me to think about the magnitude of the real effects of the financial crisis. In the sample of large banks studied here, total tier 1 capital was about €150 billion; subprime crisis-related losses in 2008 were €53 billion, so approximately one third of bank capital was wiped out in 2008. The impact is huge: assuming a leverage of about 50 (this is

very big, but this is the leverage in the sample studied; in France it would be lower), the reduction in lending ability would be $50 \times 53 \sim €2650$ billion, a reduction of an order of magnitude similar to Germany's GDP. Obviously, the true impact will be lower, but the impact on investment has to be very important. The numbers gathered in this paper make it very clear.

German banks were not the only ones to make huge losses in 2008. Supposedly competent banks in the US also did very badly last year. Hence, before we try to understand why German banks made such bad investments (the authors claim it is because of their board's incompetence), let us review briefly why economists and commentators think similar mistakes were made at US banks. I think this relevant for this paper because people rarely talk about incompetence in the US, so this suggests alternative explanations.

The first view is the "honest mistake view". Under this view, banks overinvested in subprime mortgages and other risky securities because it looked like a good idea at the time. Put differently, given the information available at the time, it was a project with positive NPV. Such a view is well summarized by Robert Rubin, who was a close advisor to Chuck Prince, the CEO of Citigroup, from 2005 to 2007. At the time, Robert Rubin led Citigroup's expansion into fixed income trading and securitization. When asked by journalists of the *New York Times* about his past decisions, Rubin replies:

> 'I've thought a lot about that, I honestly don't know. In hindsight, there are a lot of things we'd do differently. But in the context of the facts as I knew them and my role, I'm inclined to think probably not . . . There is no way you would know what was going on with a risk book unless you're directly involved with the trading arena. We had highly experienced, highly qualified people running the operation.' (Dash and Creswell, 2008)

The second view, the 'bad governance view' is more cynical about human nature. According to this view, banks' executives and traders had the incentives to 'look the other way'. Incentive schemes such as bonuses and stock options do not expose agents to losses. In a world of very low interest rates and new securities (credit derivatives), they were so badly calibrated that they encouraged traders to take risk, and CEOs to back them in order to boost earnings and please analysts. Risk managers tried to warn the top managements, but they were not listened to. It was in nobody's interest to be careful.

The third view is the 'bad regulation view'. According to this view, we know that bankers and traders are badly incentivized (after all this is a second best contract), and that systemic risk is always a problem. The only way to prevent financial failures is through regulation. But regulators made mistakes: they did not look at securitized loans in banks' balance sheets, so in effect let banks become too leveraged. They left credit derivatives markets totally non-regulated, while, for instance, futures or options tend to be heavily regulated. And also, part of the

regulation problem was a problem of macroeconomic imbalances, with central banks of major emerging economies and developed economies flooding world markets with abundant and cheap liquidity for too long.

None of these views, all of them fairly popular among commentators, rests on financial incompetence. So why should Germany be an exception? One reason to believe it is that the paper shows that, in Germany, most of the losses were made by banks that were state owned, that happened to have relatively incompetent boards.

But this does not necessarily mean that incompetence itself led to the losses. One possibility is that the owners of these banks (the civil servants and politicians) did not have the right incentives to monitor their managers. Perhaps also the managers knew that these banks could not fail, so that risk taking was not really costly. If they had been more competent, they might have taken even more risk to take advantage of this bailout option. So in this case, the problem is not board incompetence, but soft budget constraint.

Another explanation is related to regulation. Perhaps regulation required that these state banks held AAA securities with their excess cash. So these banks bought securitized loans to make a regulatory arbitrage. If they had not been forced to do this, they would have gone into some other line of business that was less risky. At the same time, state banks care mostly about being able to lend to the local community, and this requires little expertise about financial markets. This could explain why state-owned banks made losses and had incompetent boards at the same time. In this case the problem is the regulation of state banks, not bank incompetence *per se*. Hence, increasing requirements for competence would not solve the problem.

Overall, I think the paper addresses a very important subject ('why did banks make the bad investments that led to the crisis?') and proposes a provocative and interesting answer ('because boards of directors were incompetent'). Although I agree this must be part of the answer (and perhaps more so in semi-sophisticated state banks in Germany than at Lehman or Goldman Sachs), I am not so sure the paper demonstrates it beyond doubt. However, the authors document another important fact: the non-executive directors of these banks are financially illiterate: it surely would not hurt to raise the level a little bit.

Panel discussion

A number of the panel members echoed Silvana Tenreyro's point regarding potential differences in public and private bank mandates and emphasized the importance of establishing that both private and public banks pursue the same mandate, namely that of profit maximization. Fabrizio Perri suggested there could be other information in the bank's balance sheets which would enable the authors to investigate whether public banks pursue other objectives which they may not

admit openly. Stijn Claessens commented it would have been very interesting to analyse the differences in the nature of losses across both types of bank if that information had been available; one could then have identified differences in losses due to investments in subprime mortgage markets or investments of a public good nature for example.

Luis Pistaferri was intrigued by the 'gambling for profit hypothesis' put forward by the authors. He also proposed an alternative explanation for public bank underperformance. He argued the boards of public banks may face a moral hazard problem; in the belief that the government will intervene as a lender of last resort, public banks may pursue riskier investments as any serious losses which could result in bankruptcy would be absorbed by the state. Ayhan Kose suggested there is a possible bias in the competency data used. As the data are obtained from public sources it may contain more information on private bankers as private banks may have more of an incentive to advertise or inform potential investors of the competency of their board. Roel Beetsma contended that diversification in experience could generate a more rounded and productive bank board. He suggested the inclusion of a dummy variable for boards which have members with no financial experience to try capturing this effect. George de Ménil, Ayhan Kose and others questioned the negative sign on the leverage variable when the opposite sign is expected in a financial crisis.

Hans-Werner Sinn wondered how much of the losses in public banks were due to risk-taking and to stupidity. Referring to a book he wrote a number of years ago he found that public banks had a return 50% below private banks and suspected that in recent times many public banks undertook inappropriate risk taking strategies.

REFERENCES

Baysinger, B. and H. Butler (1985). 'Corporate governance and board of directors: Performance effects of changes in board composition', *Journal of Law, Economics and Organization*, 1, 101–24.

Becker, B., H. Cronqvist and R. Fahlenbrach (2008). 'Estimating the effect of large shareholders using a geographic instrument', Working Paper, Ohio State University.

Berger, A., S. Davies and M. J. Flannery (2000). 'Comparing market and regulatory assessments of bank performance: Who knows what when?' *Journal of Money, Credit and Banking*, 32, 641–67.

Bertrand, M., F. Kramarz, A. Schoar and D. Thesmar (2008). 'Political connections and corporate performance: An analysis on French CEOs', Working Paper, HEC, Paris.

Bhagat, S. and B. Black (2002). 'The non-correlation between board independence and long-term performance', *Journal of Corporation Law*, 27, 231–73.

Brown, W. O. and M. T. Maloney (1999). 'Exit, voice, and the role of corporate directors: Evidence from acquisition performance', Unpublished Manuscript, Claremont McKenna College.

Brunner, A., J. Decressin, D. Hardy and B. Kudela (2004). 'Germany's three-pillar banking system: Cross-country perspectives in Europe', IMF Occasional Paper No. 233, Washington, DC.

Dahiya, S., A. Saunders and A. Srinivasan (2009). 'Financial distress and bank lending relationships', *Journal of Finance*, forthcoming.

Dash, E. and J. Creswell (2008). 'Citigroup saw no red flags even as it made bolder bets', *New York Times*, 23 November.
ECB (2008). *EU Banking Structures 2008*, October, Frankfurt.
Flannery, M. and S. Sorescu (1996). 'Evidence of bank market discipline in subordinated debenture yields: 1983–1991', *Journal of Finance*, 51, 1347–77.
Güner, A.B., U. Malmendier and G. Tate (2008). 'Financial expertise of directors', *Journal of Financial Economics*, 88, 323–54.
Hellwig, M. (2008). 'The causes of the financial crisis', *CESifo Forum*, 9(4), 12–21.
Hermalin, B. and M. Weisbach (1991). 'The effects of board composition and direct incentives on firm performance', *Financial Management*, 20, 101–12.
Illueca Muñoz, M., L. Norden and G.F. Udell (2008). 'Liberalization, corporate governance, and savings banks', Working Paper available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1101591
IMF (2006). *Germany: Selected Issues*, IMF Country Report No. 06/436, December 2006, Washington, DC.
IMF (2008). *Global Financial Stability Report – Containing Systemic Risks and Restoring Financial Soundness*, April, Washington, DC.
Klein, A. (1995). 'Firm performance and board committee structure', *Journal of Law and Economics*, 41, 275–303.
Krahnen, J. P. and R. H. Schmidt (2004). *The German Financial System*, Oxford University Press, Oxford.
Kramarz, F. and D. Thesmar (2008). 'Beyond independence: Social networks in the boardroom', Working Paper, HEC, Paris.
La Porta, R., F. Lopez-de-Silanes and A. Shleifer (2002). 'Government ownership of banks', *Journal of Finance*, 57, 256–301.
Laeven, L. and R. Levine (2008). 'Bank governance, regulation, and risk taking', NBER Working Paper 14113, National Bureau of Economic Research.
Landier, A. and X. Gabaix (2008). 'Why has CEO pay increased so much?' *Quarterly Journal of Economics*, 123, 49–100.
MacAvoy, P.W., S. Cantor, J. Dana and S. Peck (1983). 'ALI proposals for increased control of the corporation by the board of directors: an economic analysis', in *Statement of the Business Roundtable on the American Law Institute's proposed 'Principles of Corporate Governance and Structure: Restatement and Recommendations'*.
Mehran, H. (1995). 'Executive compensation structure, ownership, and firm performance', *Journal of Financial Economics*, 38, 163–84.
Mehran, H. and J. V. Rosenberg (2007). *The Effect of Employee Stock Options on Bank Investment Choice, Borrowing, and Capital*, FRB of New York Staff Report No. 305.
Morck, R., A. Shleifer and R. Vishny (1988). 'Management ownership and market valuation: an empirical analysis', *Journal of Financial Economics*, 20, 293–316.
Münchau, W. (2008). *Another Landesbank Bites the Dust*, available at the Eurointelligence website: http://www.eurointelligence.com/Article3.1018+M50fcec22186.0.html.
Murray, M. P. (2006). 'Avoiding invalid instruments and coping with weak instruments', *Journal of Economic Perspective*, 20(4), 111–32.
Papakonstantinou, F. (2008). 'Boards of directors: The value of industry experience', *mimeo*, Princeton University.
Reinhart, C. and K. Rogoff (2008). 'Regulation should be international', *Financial Times*, 18 November.
Rochet, J-Ch. (2008). *Why Are There So Many Banking Crises? The Politics and Policy of Bank Regulation*, Princeton University Press, Princeton, NJ.
Sachverständigenrat (2008). *Das deutsche Finanzsystem. Effizienz steigern – Stabilität erhöhen*, Report of the Council of Economic Advisors to the German Federal Government, Wiesbaden, June.
Sapienza, P. (2004). 'The effects of government ownership on bank lending', *Journal of Financial Economics*, 72, 357–84.
Schellinger, M., D. Wood and A. Tashakori (1989). 'Board of director composition, shareholder wealth, and dividend policy', *Journal of Management*, 15, 457–67.
Sinn, H.-W. (1999). *The German State Banks: Global Players in the International Financial Markets*, Edward Elgar, Cheltenham.

Stock, J. H., J. H. Wright and M. Yogo (2002). 'A survey of weak instruments and weak identification in generalized method of moments', *Journal of Business and Economic Statistics*, 20(4), 518–29.

Tett, G. (2008). 'Insight: anthropological insights into banking behaviour', *Financial Times*, 17 January.

Vins, O. (2008). 'How politics influence state-owned banks – the case of German savings banks', Working Paper No. 191, Johann Wolfgang Goethe University, Frankfurt.

Yermack, D. (1996). 'Higher market valuation of companies with a small board of directors', *Journal of Financial Economics*, 40, 185–211.