

An Empirical Analysis of Director Turnover in US Banks During the Financial Crisis

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We examine the impact of bank risk-taking and performance on the director labor market outcomes of 3,263 bank directors associated with 279 publicly listed US banks during the financial crisis and subsequently. We find that risk-taking before the financial crisis increases the likelihood of turnover during the financial crisis for bank directors, particularly if the bank does not perform well relative to its peers. Consistent with the evidence for directors of non-financial firms, we find that directors of banks that performed relatively well during the financial crisis were less likely to experience turnover on the bank board. Surprisingly, the directors leaving the board before turning 70 years of age held fewer committee assignments, were less busy, had smaller networks, were less likely to be independent, and with larger banks and boards. Overall, we find evidence of bank performance influencing director turnover during and after the financial crisis.

Keywords: corporate governance, banks, financial crisis, director turnover

INTRODUCTION

The financial crisis of the late 2000s highlighted the importance of sound corporate governance in banks, but little is known about the incentives facing individual bank directors.¹ Like all directors, bank directors are charged with representing the interests of shareholders, but the unique nature of banks may complicate their incentives.² As Levine (2004) and Laeven (2013) point out, banks are systemically important, opaque, highly leveraged, and subject to government regulation. In addition, although shareholder interests might encourage banks to take more risks, bank directors may be subject to a duty of care that goes beyond what is expected of non-financial directors. Therefore, these additional considerations may mitigate some risk-taking incentives and emphasize performance less.³ Further, assessing the quality of bank assets is difficult and bank creditors tend to be atomistic and government-insured. Consequently, external monitoring may be less effective in banks than in non-financial firms, suggesting that directors may play an especially important role in bank corporate governance and bank directors may not be subject to turnover as much as directors of non-financial firms.⁴ Our purpose is to gain a better understanding of the role of bank directors in bank risk taking and performance and the extent to which the incentives faced by individual directors influence that role.⁵

There is a large body of literature examining the role of corporate governance in bank risk taking and performance. Still, there is little evidence on the consequences of bank director labor market. By examining

the personal consequences of risk taking and performance for bank directors in the years leading up to, including, and following the 2008-2010 financial crisis, we shed light on the incentives they face.⁶ For example, suppose directors are rewarded by shareholders and the director labor market for a bank's risk-taking. In that case, we expect to observe a lower (or at least unchanged) probability of departure from the current board for the directors of banks that take on additional risk. On the other hand, if directors suffer adverse consequences for risk-taking, we expect to observe a higher probability of departure from the current board for directors of risk-taking banks.

The varying performance of the banking industry since 2005 offers a unique opportunity to study this issue. The industry experienced a crisis in 2008-2010 followed by a relatively good performance period. This allows us to contrast the consequences of risk taking during a period of good performance to the consequences of risk taking during a period of poor performance, thus we can comment on whether the consequences of risk-taking are due to risk-taking or performance.

Using a sample of 3,263 directors of 279 publicly traded U.S. banks in 2005, we examine the relations between risk-taking, performance, and the likelihood that directors leave the board during the financial crisis and the years immediately afterward. We measure risk-taking primarily during the pre-crisis period, 2005-2007. We measure performance using a variety of measures in the pre-crisis period and the crisis period, 2008-2010, and we measure consequences over the subsequent 3-year windows (2008-2010 and 2011-2013). We focus on three-year windows as it allows for director turnover on staggered boards with up to three-year appointments.

Using a sample of 2,231 directors of 236 publicly traded banks in 2010, we also examine the relations between risk-taking, performance, and director turnover during the years after the financial crisis, a period of relatively good performance by banks.⁷ By examining these relations during two distinctly different periods of bank performance, we hope to gain a more thorough understanding of the risk-taking and performance-related incentives of bank directors.

Our approach to inferring incentives based on consequences follows the corporate governance literature that examines the director labor market consequences of bank performance. Fama (1980) and Fama and Jensen (1983) argue that outside directors have an incentive to be effective so that they signal to shareholders and director labor markets their value as directors. Empirical evidence in support of this reputational capital argument exists in numerous circumstances, including directors that fire their CEOs (Farrell and Whidbee, 2003) directors of firms that perform well (Ferris et al., 2003; Fich, 2005; Yermack, 2004), directors that experience financial distress (Gilson, 1990), directors that reduce dividends (Kaplan & Reishus, 1990), and CEO claims of corporate social responsibility (Cai, Gao, Garrett, and Xu 2020).

In addition to exploring whether directors experience consequences for engaging in risk-taking, we investigate whether the reputational effects for bank directors depend on the bank's performance in subsequent years. Did shareholders and the director labor market reward directors of banks that survived and performed well during the financial crisis? Did they punish directors of banks that failed during the financial crisis? We also consider the possibility that some directors proactively left bank boards before the financial crisis began to protect their reputations. We consider this possibility by identifying directors who left their banks' boards during the 2005 to 2007 period.

Our results suggest that directors of banks that took on additional risk in the three years leading up to the financial crisis were ultimately more likely to leave the bank board during the financial crisis, particularly if the bank did not perform well relative to its peers. If a bank performed well leading up to and including the financial crisis, its directors were less likely to experience turnover during the crisis and in the three years after the crisis. These results suggest that directors of banks that performed well were ultimately less likely to experience turnover, consistent with the evidence for directors of non-financial firms.

The next section reviews the literature on bank boards of directors and develops its implications for director incentives. Sections after the literature review are the data and sample and the empirical results. Lastly, the paper presents the conclusion and suggests the next steps for future researchers.

EXISTING LITERATURE

Recent literature documents significant differences between bank boards of directors and their nonfinancial counterparts. Further, evidence indicates that the director characteristics most valued in nonfinancial firms may not be the same characteristics valued in the banking industry. Therefore, the evidence documenting the performance-related incentives faced by nonfinancial directors, within the firm and in the director labor market may not apply to bank directors. Overall, the literature suggests that the role of bank boards and the incentives faced by bank directors may differ from nonfinancial boards of directors. The literature on bank corporate governance and the incentives facing directors suggests that bank directors have an incentive to be effective at monitoring and advising their banks before, during, and after the financial crisis. Still, the incentives are complicated by a variety of factors that might weaken the overall effectiveness of bank boards. The varying prestige, risk, and demands of advising a bank in the years surrounding the financial crisis may have affected the incentives and motivations of individual directors. To the extent effective bank governance relies on effective directors, understanding how these complicating factors affect bank director incentives is critical. The remainder of this section reviews this literature and develops its implications for director turnover.

Bank Boards Versus Other Boards

Banks differ from nonfinancial firms in various ways, and these differences have implications for bank corporate governance (see Caprio and Levine, 2002; Levine, 2004; Laeven, 2013). Bank loan portfolios are opaque and complex, thus there are greater information asymmetries between insiders and outside investors. This makes it difficult for outside investors to monitor managers. Also, banks are highly leveraged, and their liabilities are either explicitly or implicitly federally insured. Therefore, there is little incentive for creditors to monitor managers. Finally, banks are systemically important and heavily regulated. These regulations limit entry, constrain some lending and investing activities, and prioritize financial stability over industry profit. Therefore, these limitations may constrain banks' profit-making opportunities and limit shareholder value.

Just as banks differ from other business organizations, bank boards tend to have different structures. In particular, bank boards tend to be larger and have more outside directors. Booth, Cornett, and Tehranian (2002) document that boards of large banks are larger, on average, and have more outside directors than the boards of similarly large industrial firms. Adams and Mehran (2003) find similar results when they compare a sample of 35 large banks to large manufacturing firms over 15 years ending in 1999. Examining trends in bank boards between 1997 and 2004 for 212 bank holding companies, Pathan and Skully (2010) show that, although board size has shrunk for some banks, larger banks tend to have larger, more independent boards, and they tend to combine the CEO and Chair positions.

One explanation for differences in board structure is that, on average, the differences are an efficient response to tradeoffs in the costs and benefits of each board's monitoring and advising functions (Linck et al., 2008). Outside directors are perceived as being better at monitoring because their interests are more closely aligned with the interests of shareholders than managers (B. Hermalin & Weisbach, 2003). However, if information asymmetry is high, monitoring costs will be higher and outsiders may be less effective (Adams & Ferreira, 2007; Coles et al., 2008). Board size is similarly subject to tradeoffs. In general, smaller boards are perceived as being better at monitoring management (Yermack, 1996), but complexity adds advising costs and may require additional board members (Adams & Mehran, 2012; Coles et al., 2008).

Overall, the literature on bank boards of directors is largely consistent with these arguments and suggests that, although bank boards are different from nonfinancial boards, the differences might be explained by the characteristics of banks. Nevertheless, bank governance has been heavily criticized and many argue that it was ineffective in the years leading up to the financial crisis.

Bank Director Incentives Before the Financial Crisis

Fama (1980) and Fama and Jensen (1983) argue that outside directors have an incentive to be effective so that they signal to shareholders and the director labor market their value as directors. Empirical evidence in support of this reputational capital argument exists in numerous circumstances, including directors that fire their CEOs (Farrell & Whidbee, 2003), directors of firms that perform well (Ferris et al., 2003; Fich, 2005; Yermack, 2004), directors of firms that experience financial distress (Gilson, 1990), directors that reduce dividends (Kaplan & Reishus, 1990), and CEO claims of corporate social responsibility (Cai et al., 2020). However, evidence on reputational capital incentives for directors in the banking industry is limited.

We expect bank directors to be rewarded for performing well in their monitoring and advising roles and penalized for performing poorly. Absent other considerations, we expect directors of banks that performed relatively well to face a reduced likelihood of leaving the board. However, it is difficult to distinguish between effective and ineffective director performance in the years prior to the financial crisis. On one hand, directors have a fiduciary responsibility to shareholders that might encourage aggressive asset growth and risk-taking in the years before the financial crisis. On the other hand, the duty of care, safety, and soundness concerns expected by bank regulators might have encouraged more prudence and caution. Ultimately, it is an empirical question as to what behaviors and decisions during the years leading up to the financial crisis are ultimately rewarded and which behaviors are penalized.

An additional consideration for directors before the financial crisis is that, if outside directors are motivated by reputational capital concerns, they may abandon a directorship if the perceived costs of continuing outweigh the perceived benefits. Fahlenbrach, Low, and Stulz (2017) find that unexpected director departures are associated with poor subsequent firm performance and bad events, suggesting that directors tend to leave boards when they expect bad information to be revealed or if they expect the personal costs of remaining on the board to exceed the benefits. Consistent with this argument, Gao, Kim, and Tsang (2016) find an increased likelihood of director turnover in firms that commit fraud when the fraud occurred. Suppose bank directors were aware of the risks and challenges facing their banks in the years prior to the financial crisis. In that case, we expect to observe an increased incidence of unexpected director departures before the financial crisis, particularly for those banks that subsequently experience the worst performance during the crisis.

Further, to the extent bank directors voluntarily leave the board in anticipation of poor performance, their decisions may be influenced by the opportunity costs associated with their service on other boards. Elyasiani and Zhang (2015) find evidence that bank performance (risk) is positively (inversely) related to directory busyness. They argue that busy directors offer better advising because they have better connections and broader expertise. However, if a troubled bank requires more advising, busy directors may be more inclined to abandon a directorship in favor of their other commitments. We consider these pre-crisis possibilities in the empirical analysis that follows.

Bank Director Incentives During the Financial Crisis

Once the financial crisis started, banks faced enormous challenges and it seems reasonable to expect that the advising role of directors increased in importance and became more demanding. Consistent with the advising role being more important, Francis, Hasan, and Wu (2012) find that, during the financial crisis, there was a stronger relation between firm performance and outside financial expertise than between firm performance and director independence.

Another consideration is the degree of prestige associated with membership on a given board. Using market capitalization as a proxy for prestige, Masulis and Mobbs (2014) find evidence that directors devote more energy (as measured by meeting attendance and firm performance) to their prestigious directorships. They also find that directors are more likely to depart from their less prestigious directorships when performance declines, but they are reluctant to depart from their more prestigious directorships. This suggests that directors of smaller banks were more likely to experience turnover during the financial crisis.

Bank Director Incentives After the Financial Crisis

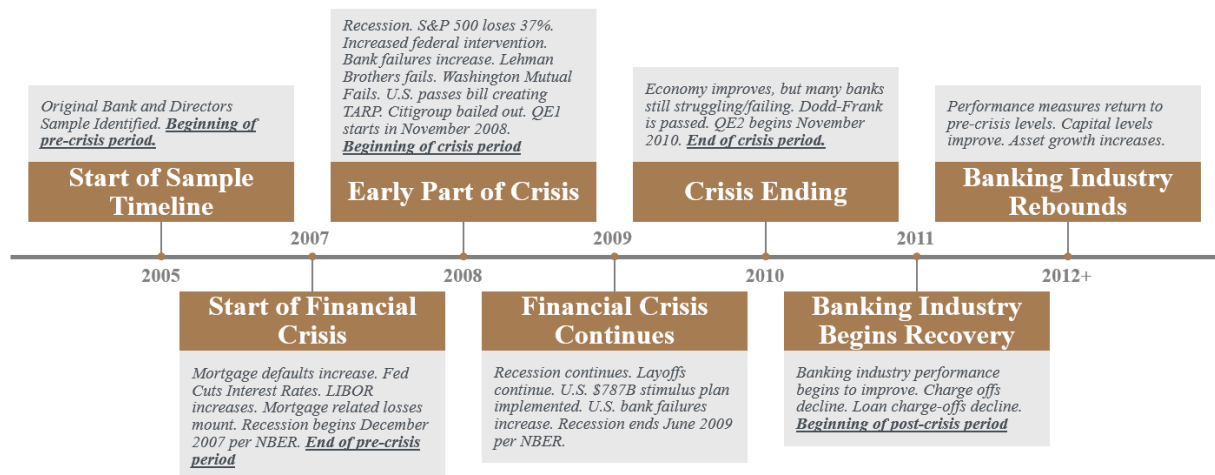
Banks that survived the financial crisis began to see improvements in performance in 2010 and 2011, and overall performance continued to improve in subsequent years. Ormazabal (2018) finds that director turnover is greater among riskier firms, and the relation is stronger following the financial crisis consistent with a higher cost and greater demands of serving on the board of a riskier and more volatile firm. This evidence suggests that directors of banks that are exposed to greater risk will be more likely to leave those boards during the financial crisis and subsequently. This period offers an opportunity to examine the determinants of director turnover to identify whether the consequences of risk-taking and performance for bank directors are the same during relatively good performance as during periods of poor performance.

SAMPLE AND DATA

We restrict our pre-crisis sample to US banks and bank holding companies publicly traded at the end of December 2004 and not delisted before the crisis period. That is, our bank and bank holding companies were publicly listed for at least three complete years before the beginning of 2008. We obtained the sample by matching the listed US banks and bank holding companies in BoardEx, our source for board and director information, with the Y-9C statements from the Federal Reserve Bank of Chicago. The data of stock return and market capitalization are from Center for Research on Security Prices (CRSP). We focus on bank directors who were members of sample bank and bank holding company boards at the beginning of 2005 and track their departures and committee memberships in subsequent years. The final pre-crisis sample consists of 3,263 directors of 279 publicly traded bank holding companies (BHCs) over the period 2005-2016.

Figure 1 illustrates the financial crisis timeline. For simplicity and ease of interpretation, we measure risk taking over three-year windows (2005-2007 and 2008-2010) and consequences over subsequent three-year windows (2008-2010 and 2011-2013). The risk-taking windows are the approximate three years preceding the financial crisis, the three years comprising the financial crisis, and the three years of post-crisis recovery. Although the financial crisis began before 2008, we suggest a time lag involved such that the crisis' impact on banks' financial statements and governance was not becoming fully observable until 2008. We focus on three-year windows as it allows for director turnover on staggered boards with up to three-year appointments.

FIGURE 1
FINANCIAL CRISIS TIMELINE: SAMPLE TIME HORIZON



We rely on the Federal Deposit Insurance Corporation (FDIC) to identify sample banks that failed and were acquired during the 2008 to 2010 period. As a first step, we categorize the banks in our sample based on whether they failed, survived, or were acquired during the 2008-2010 period. Of the banks that survived to the end of 2010, we further categorize them into good-performing and bad-performing based on whether their average return on assets during the 2008-2010 period was above or below the median. Finally, we also identified those banks that received Capital Purchase Program (CPP) funds.⁸

Table 1 reports summary statistics on our sample banks' financial and board characteristics at the beginning of our sample period, 2005. The first two sets of columns show the mean and median of the characteristics for 279 banks included in the all-sample-banks group. Of these, 21 banks ultimately failed during 2008-2010. The second set of columns are the mean and median for the 21 failed banks in our sample. The asterisks indicate whether the mean or median significantly differs from other banks in the sample. Excluding failed banks and 22 banks (not shown) acquired between 2008 and 2010 from our sample banks, 236 banks survived the financial crisis and were still in existence at the end of 2010 as shown in the next set of columns. The next two sets of mean and median columns show statistics for banks that performed well and those that performed poorly. The 120 good-performing banks are those that earned an average ROA during 2008-2010 that was above the median for all surviving banks. The asterisks in the bad-performing banks columns indicate whether the means and medians for the good-performing banks differ significantly from the bad-performing banks. Finally, 135 surviving banks received CPP funds while 101 did not receive CPP funds, and the asterisks indicate whether the means or medians for these two subsamples differ significantly.

Looking at the director retention and turnover for our sample banks, Table 2 summarizes outcomes for directors of the various categories of banks. For the sample as a whole, 18.7% of directors who were on one of the sample bank boards in 2005 left the board before the end of 2007. Another 28.6% left during the 2008-2010 financial crisis. Interestingly, of the 248 directors of banks that failed during the 2008-2010 period, only 17.3% who were on these banks' boards in 2005 left the board before 2008. Similarly, 18.7% of the directors of banks that survived the financial crisis were still on the board at the beginning of the financial crisis, and only another 19.1% of surviving bank directors left these boards by the end of the financial crisis. Not surprisingly, the directors of banks that performed well during the 2008-2010 period seem to experience lower turnover than directors of banks that performed poorly over the same period. Directors of surviving banks that received CPP funds seemed to experience slightly higher turnover than directors of surviving banks that did not receive bailout funds.

TABLE 1
SUMMARY STATISTICS

	All banks		Failed banks		Surviving banks		Good-performing banks		Bad-performing banks		CPP banks		Not-CPP banks	
	Mean	Med.	Mean	Med.	Mean	Med.	Mean	Med.	Mean	Med.	Mean	Med.	Mean	Med.
Bank and board characteristics:														
Market capitalization (mil.)	3,915	287	1,391	176	4,451	296	3,855	364	5,068	229***	6,934	368	1,132*	239***
Total assets (mil.)	24,838	1,701	9,666	1,335	28,158	1,718	22,192	2,107	34,331	1,407*	43,147	2,022	7,718*	1,408***
Board size	11.80	11.00	12.05	12.00	11.97**	11.00**	12.21	11.50	11.72	11.00	12.17	11.00	11.70	11.00
ROA	1.11	1.07	0.99	0.99	1.13	1.08*	1.29	1.21	0.98***	1.01***	1.09	1.04	1.20	1.16
CEO turnover 2005~2007	0.21	0.00	0.29	0.00	0.20	0.00	0.16	0.00	0.25*	0.00*	0.21	0.00	0.19	0.00
CEO turnover 2008~2010	0.40	0.00	0.90***	1.00	0.30***	0.00***	0.18	0.00	0.43***	0.00***	0.34	0.00	0.25	0.00
CEO turnover 2011~2013	0.35	0.00	0.43	0.00	0.29***	0.00***	0.15	0.00	0.44***	0.00***	0.30	0.00	0.28	0.00
Stock return	2.36	0.08	(5.70)*	(6.62)***	2.29	0.38***	2.14	-1.20	2.44	1.16	0.48	0.23	4.70*	0.52
Return volatility	5.26	5.15	4.85	4.92	5.21	4.99*	5.22	4.99	5.20	5.02	4.98	4.77	5.52**	5.35*

TABLE 2
DIRECTOR RETENTION AND TURNOVER PERCENTAGE BY BANK OUTCOME

	All sample	Failed	Surviving	Good-performing	Bad-performing	Bailed out	Not bailed out
Panel A: director departure							
Director departure 2005~2007	18.7%	17.3%	18.7%	20.0%	19.7%	19.0%	21.0%
Director departure 2008~2010	28.6%	82.7%***	19.1%***	15.5%	23.2%***	20.5%	17.3%**
Director departure 2011~2013	16.3%	n.a.	19.3%***	14.3%	24.9%***	20.2%	18.2%
Director remain on the board in 2013	36.4%	n.a.	42.9%***	50.2%	32.2%***	40.2%	43.5%*
# of directors	3,263	248	2,805	1,462	1,343	1,620	1,185
# of director sample	100%	7.6%	86.0%	44.8%	41.2%	49.6%	36.3%
Memo: bank performance							
Stock Return 2005~2007	-11.46	-4.93**	-10.99**	-0.94	-20.68***	-14.64	-4.58***
Stock Volatility 2005~2007	1.40	3.64***	1.18***	0.96	1.53***	1.49	0.89***
Indicator of top ROA 2008~2010	0.43	0.48***	0.51***			0.43	0.65***
# of banks	279	21	236	120	116	135	101
# of bank sample	100%	7.5%	85.7%	43.0%	41.6%	48.4%	36.2%

This table reports the average consequences for directors in terms of departure for the sample directors by bank outcome as described in Table 1. The sample consists of 3,263 bank directors in 2005. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively, for differences in the results of t-tests for differences in means between subsamples (failed vs non-failed; surviving vs non-surviving; good-performing vs bad-performing; and bailed-out vs not-bailed out banks).

EMPIRICAL RESULTS

Director Turnover Before the Financial Crisis

If directors are motivated by reputational capital concerns and are aware of their bank's risk exposures, we would expect to see a greater incidence of director turnover before the financial crisis. That is, directors may vote with their feet and abandon directorships of banks engaging in risky activities or that made bad decisions. If this is the case, we would expect to see more director turnover in banks that subsequently failed compared to banks that survived. Inconsistent with this expectation, however, Table 2 indicates that director turnover was no higher before the financial crisis in banks that subsequently failed than in banks that survived.

Nevertheless, we further analyze the characteristics of directors who unexpectedly departed their banks' boards in the years before the financial crisis to understand their motivations for leaving their boards. We define a surprise departure as a director leaving the board prior to turning 70 years of age. Of the 647 directors that left a sample bank's board before 2008, 440 were younger than 70. The mean and median director and firm characteristics for these surprise departures are shown in the third and fourth columns of Table 3. The mean and median for directors who remained on the board until 2008 are shown in the first two columns.

Table 3 shows several significant differences between directors who remained on the boards of our sample banks by the end of 2007 and directors who unexpectedly left their bank boards, but there is no evidence that the unexpected departures were an effort by these departing directors to protect their reputational capital. These simple univariate statistics suggest that the departing directors were contributing less to their banks than their remaining colleagues. On average, the departing directors held fewer committee assignments, were less busy, had smaller networks, and were less likely to be independent. Further, the banks these departing directors left tend to be larger and have larger boards. Given the results found by Fahlenbrach, Low, and Stulz (2017) that early director departures are more likely to be followed by bad events, our results suggest that bank directors may not have been aware of the challenges facing their banks or, if they were aware, they did not abandon their roles.

TABLE 3
SUMMARY STATISTICS FOR DIRECTORS YOUNGER THAN 70

	Non-departing directors by 2007		Surprise departing directors between 2005 and 2007	
	Mean	Median	Mean	Median
Director characteristics:				
Age	59.83	60.00	61.96***	64.00***
Independent	0.77	1.00	0.56***	1.00***
No. of other directorships	1.68	1.00	1.24***	1.00***
Audit committee member	0.40		0.33***	
Major committee member	0.54		0.44***	
Multiple committee member	0.42		0.31***	
Compensation committee member	0.38		0.28***	
Governance committee member	0.26		0.23*	
Nominating committee member	0.36		0.26***	
Busy director	0.19		0.13***	
Female	0.093		0.086	
Tenure	9.65	7.80	10.25*	8.30**
Executive	0.16		0.14	
Individual network size	625.03	151.50	574.46	120.50***
No. of directorships gained 2005~2007	0.183		0.241**	

	Non-departing directors by 2007		Surprise departing directors between 2005 and 2007	
	Mean	Median	Mean	Median
No. of other directorships lost 2005~2007	0.197		0.777***	
Net change of directorships 2005~2007	-0.014		(0.536)***	
Bank and board characteristics:				
Bank size (market cap. in millions)	4,533.82	343.16	7,861.90***	372.70***
Board size (# of directors on the board)	12.62	12.00	13.34***	13.00***
ROA	1.11	1.07	1.15	1.10**
CEO turnover during 2005~2007	0.21		0.32***	
Stock return	2.46	0.64	1.73	0.59
Return volatility	5.19	5.11	4.97**	4.89**
Stock return during 2005~2007	-11.01	-13.05	(11.83)	(16.06)
Return volatility during 2005~2007	1.51	1.39	1.49	1.38
Failed bank dummy	0.077		0.075	
Good-performing bank dummy	0.450		0.439	
CPP bank dummy	0.519		0.522	
# of bank	2,622		440	
% of director sample	80.2%		13.50%	

Empirical Results for the Likelihood of Director Departure

The summary statistics shown in Table 2 suggest that directors experience at least some consequences from their banks' performance. The directors of banks that survived and performed relatively well during the financial crisis seem to experience less turnover than directors of banks that performed relatively poorly. To more formally analyze the determinants of director turnover, we estimate a probit model with a dependent variable equal to one if the director leaves the board during a specific time and zero if the director remains on the board.

The results of this analysis are shown in Table 4. In addition to estimating the model as a standard probit model, we estimate the model as a panel with random effects to control for firm effects shown in the second column. The explanatory variables include variables identifying the bank outcomes during the financial crisis, variables intended to capture the effects of bank performance and risk (average monthly stock return between 2003 and 2005, average monthly stock return between 2005 and 2007, stock return standard deviation in 2005, increase in stock return standard deviation between 2005 and 2007, depending on the director departure window), and those variables most commonly associated with director turnover: bank size (the natural log of the total market capitalization in millions), director age (natural log of director's age), director independence (1 if yes, 0 if no), the number of other directorships held, whether the director is a member of the audit committee (1 if yes, 0 if no), whether the director is a member of another major committee (1 if the director serves on the compensation, nominating, or governance committee), board size, and whether the bank experienced CEO turnover in the previous year. Director age, independence, number of directorships, committee memberships, CEO turnover, board size and market capitalization are measured in the year immediately preceding the year in the which the director left the board for those that leave the board. For the directors who remain on the board, these variables are measured in the last year of the director turnover window. For example, if a director departed the board in 2006, these variables are measured in 2005. If the director remained on the board through 2007, these variables are measured in 2007.

The first two columns of Table 4 show the probit results for director departure between 2005 and 2007. Director turnover between 2005 and 2007 seems unrelated to their banks' performance in the 2003 to 2005 period, nor is it related to banks' level of risk-taking at the beginning of the 2005-2007 period as measured by return volatility in 2005. This suggests that bank directors were not fully aware of their banks' financial condition or, if they were aware of the potential problems associated with higher-risk banks, they did not voluntarily leave their boards to protect their reputations.⁹

The probit results for director departure between 2008-2010 and 2011-2013 are shown in columns 3 & 4 and 5 & 6, respectively. In the 2005-2007 and 2011-2013 model specifications, the coefficient associated with director age is positive and statistically significant. This is expected, given that older directors are more likely to retire. In the 2008-2010 crisis period, however, the director age seems unrelated to the director departure. Being an independent outside director does not seem to impact the likelihood of director departure between 2005 and 2007, but it reduces the likelihood of turnover between 2008 and 2010. One potential interpretation of this result is that insiders serving as directors were more likely to leave the board during the crisis period due to the board taking disciplinary action against bank officers.

Interestingly, directors are more likely to leave the board if the firm experiences CEO turnover in the 2005-2007 and 2011-2013 periods, consistent with empirical evidence on the relation between CEO turnover and director turnover (e.g., Farrell and Whidbee, 2000; Hermalin and Weisbach, 1988), but CEO turnover has no significant impact on director turnover in the 2008-2010 period. This result combined with the other results, suggests that the causes of director turnover may be different during a crisis than during more normal times.

The coefficient on the number of other directorships held is negative and statistically significant in the 2005-2007 and 2008-2010 director departure model specifications, suggesting that banks may be reluctant to remove a board member that sits on several other boards consistent with the number of directorships held being linked to director reputation (Ferris et al., 2003) and their effectiveness in their advising roles (Elyasiani & Zhang, 2015).

The coefficients associated with stock returns over the 2005 to 2007 period are not statistically significant in any of the model specifications except the 2011-2013 model, which seems spurious. This may be because we include other variables that measure performance (the dummy variable indicating whether the bank performed well between 2008-2010). When we include the standard deviation of stock returns as a proxy for risk, the results suggest that risk-taking during the three years leading up to the financial crisis affects the likelihood of bank director turnover, but not in a straightforward way. The coefficient on stock return standard deviation in 2005 is not significant in the 2005 to 2007 director departure regressions but positive and significant in the 2008-2010 director departure regressions. The coefficient on the change in standard deviation between 2005 and 2007 is positive and significant in the 2008 to 2010 departure regressions, and it is marginally significant in the 2011 to 2013 regressions. One interpretation of these results is that, consistent with arguments that ineffective bank governance encouraged risk taking in the years leading up to the financial crisis, banks that were already relatively risky and that increased their riskiness in the years leading up to the financial crisis were more likely to remove these directors. Following the financial crisis, director departures in the 2011-2013 period are marginally influenced by the increase in stock return volatility between 2005 and 2007. Directors of banks that received CPP funds during the financial crisis were no more or less likely to experience turnover in the subsequent 2011 to 2013 period.

Importantly, if a bank performed relatively well during 2005-2007, its directors were less likely to leave the board during 2008-2010. Further, banks that performed well during the 2008-2010 period were less likely to leave the board during the subsequent 2011-2013 period as indicated by the negative and significant coefficients on the associated dummy variables. This is consistent with a positive association between firm performance and director retention. Put differently, directors of banks that performed poorly were more likely to experience turnover, thus providing evidence of disciplinary consequences for directors who performed poorly in their monitoring and advising roles.

Overall, the results shown in Table 4 indicate the bank directors do experience consequences for their performance, at least within the board. Good performance seems to be rewarded with an increased likelihood of staying on the board. Further, during the financial crisis, when the adverse results of risk taking became known, the directors of banks that took on additional risk leading up to the crisis were more likely to leave the boards of their banks.

TABLE 4
LIKELIHOOD OF DIRECTORS LEAVING THE BOARD

Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)
	Director's departure during 2005 - 2007	Director's departure during 2005 - 2007	Director's departure during 2008 - 2010	Director's departure during 2008 - 2010	Director's departure during 2011 - 2013	Director's departure during 2011 - 2013
Constant	-8.990*** (-10.94)	-1.997*** (-9.82)	-1.317 (-1.44)	0.069 (0.26)	-9.509*** (-7.42)	-2.085*** (-6.00)
Bank received CPP funds (1 if yes, 0 if no)					0.023 (0.30)	0.005 (0.23)
Bank performed well during 2005 and 2007 (1 if yes, 0 if no)			-0.201*** (-3.24)	-0.059*** (-3.27)		
Bank performed well during 2008 and 2010 (1 if yes, 0 if no)					-0.240*** (-2.94)	-0.071*** (-3.06)
Natural log of director's age	1.842*** (9.34)	0.497*** (10.06)	0.204 (0.93)	0.058 (0.88)	2.108*** (6.95)	0.570*** (6.92)
Director is an independent outsider (1 if yes, 0 if no)	-0.113 (-1.47)	-0.027 (-1.33)	-0.465*** (-6.91)	-0.145*** (-6.96)	0.156* (1.65)	0.038 (1.51)
Number of other directorships held	-0.174*** (-7.64)	-0.033*** (-7.53)	-0.056*** (-2.96)	-0.016*** (-3.06)	-0.027 (-1.18)	-0.005 (-0.96)
Audit committee member (1 if yes, 0 if no)	-0.017 (-0.28)	-0.004 (-0.29)	1.606*** (10.77)	0.401*** (11.80)	-0.444 (-1.33)	-0.117 (-1.40)
Major committee member (1 if yes, 0 if no)	-0.075 (-1.23)	-0.023 (-1.45)	1.326*** (15.08)	0.419*** (16.48)	-0.701*** (-3.53)	-0.184*** (-3.74)
Bank size (Natural log of market capitalization)	0.054*** (3.12)	0.012** (2.54)	-0.084*** (-5.00)	-0.023*** (-4.84)	-0.171*** (-7.96)	-0.051*** (-8.67)
Board size (# of directors on the board)	0.038*** (4.75)	0.011*** (5.39)	0.026** (2.55)	0.009*** (2.92)	0.054*** (4.08)	0.014*** (3.99)
CEO turnover (1 if yes, 0 if no)	0.183** (2.12)	0.050** (2.11)	0.055 (0.64)	0.018 (0.70)	0.968*** (13.02)	0.316*** (14.57)
Stock return during 2003 and 2005	-0.0001 (-0.23)	-0.00002 (-0.20)				
Stock return during 2005 and 2007			0.001 (0.62)	0.0002 (0.46)	-0.003** (-2.22)	-0.001*** (-2.70)
Return volatility of 2005	0.002 (0.15)	0.001 (0.21)	0.071*** (4.16)	0.021*** (4.25)	0.024 (1.10)	0.006 (1.07)
Increased return volatility from 2005 to 2007			0.064*** (5.95)	0.020*** (6.12)	0.030* (1.85)	0.008* (1.80)

Explanatory variables	Director's departure during 2005 - 2007		Director's departure during 2008 - 2010		Director's departure during 2011 - 2013	
	(1)	(2)	(3)	(4)	(5)	(6)
Random effect	No	Yes	No	Yes	No	Yes
Log likelihood	-1492		-1350		-836	
# of observations		3,258		2,613		1,712

This table shows probit regression results (and t-statistics) of the likelihood of a director leaving the board of a sample of 279 banks during 2005-2007, 2008-2010, and 2011-2013. The observations used in models 1-2, 3-4, and 5-6 consist of directors of sample banks in 2004, 2007, and 2010, respectively. Regressions are estimated using standard probit regressions with clustering at the bank level. In addition to estimating a standard probit model, a random-effects probit model was estimated in an effort to control for firm effects. Variables are defined in the Appendix. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. All continuous variables are winsorized at the 1% level in both tails

Director Turnover After the Financial Crisis

The evidence suggests that directors of banks that performed relatively well during the financial crisis were less likely to experience turnover during the crisis and the years immediately after the crisis. It is unclear, however, whether these consequences are unique to the years surrounding the financial crisis or if they apply to other, less challenging, periods. To assess this, we create a post-crisis sample of bank directors as of 2010. The sample selection process is the same as our 2005 sample selection process except that the 2010 sample is limited to banks in the 2005 sample and survived the financial crisis. This allows us to consider whether a director's presence in the earlier sample influences their post-crisis experience. With this sample, we conduct a similar turnover analysis as shown in Table 4 but for director departures in the 2011-2013 and 2014-2016 periods.

Table 5 shows the results of this analysis. Interestingly, performing better than the median, as measured by ROA, during the 2008-2010 period is not significantly related to director departure during 2011-2013, but performing well during the 2011-2013 period reduces the likelihood of departure in the subsequent 2014-2016 period. We suggest that, as an ex-post measure of performance, the impact of ROA on director turnover is likely to lag the impact of more forward-looking indicators of performance. Note that stock returns during the 2008-2010 period are associated with a reduced the likelihood of director departures during 2011-2013 but that stock returns during the 2011-2013 period are associated with an increased likelihood of departure during the 2014-2016 period. Stock return volatility in 2010 is associated with an increased likelihood of director departure in the 2011-2013. Overall, the results shown in Table 5 suggest that bank directors tend to be retained if their banks perform relatively well according to ROA or are perceived to perform well according to concurrent stock returns during relatively good industry performance periods. To the extent there is uncertainty about a bank's performance as measured by stock return volatility, however, directors face an increased likelihood of leaving the board.

TABLE 5
LIKELIHOOD OF DIRECTORS LEAVING THE BOARD DURING THE
POST-CRISIS PERIOD

Explanatory variables	New sample directors (Directors with banks in 2010)		
	Director's departure during 2011 - 2013	Director's departure during 2014 - 2016	Director's departure during 2014 - 2016
Constant	-6.521*** (-6.89)	-1.403*** (-5.14)	-8.340*** (-6.67)
Crisis director dummy (1 if joining before 2008)	0.135 (1.61)	0.040* (1.68)	0.110 (1.15)
Bank received CPP funds (1 if yes, 0 if no)	-0.087 (-1.38)	-0.031* (1.69)	0.173** (2.36)
Bank performed well during 2008 and 2010 (1 if yes, 0 if no)	-0.102 (-1.16)	-0.031 (-1.19)	
Bank performed well during 2011 and 2013 (1 if yes, 0 if no)			-0.145** (-2.06)
Natural log of director's age	1.301*** (5.73)	0.366*** (5.55)	1.662*** (5.58)
Director is an independent outsider (1 if yes, 0 if no)	0.150 (1.56)	0.044 (1.54)	0.128 (1.07)
Number of other directorships held	-0.058*** (-3.29)	-0.014*** (-3.16)	-0.023 (-1.28)
Audit committee member (1 if yes, 0 if no)	-0.217*** (-2.59)	-0.064** (-2.55)	-0.077 (-0.78)
Major committee member (1 if yes, 0 if no)	-0.189** (-2.15)	-0.057** (-2.19)	-0.011 (-0.11)
Bank size (Natural log of market capitalization)	0.002 (1.37)	0.0005 (1.21)	-0.003** (-2.67)
Board size (# of directors on the board)	0.004 (0.36)	0.001 (0.33)	0.030** (2.19)
CEO turnover (1 if yes, 0 if no)	0.171* (1.78)	0.059** (1.99)	0.618*** (5.12)
Stock return during 2008 and 2010	-0.326*** (-2.68)	-0.084** (-2.43)	
Stock return during 2011 and 2013			0.213*** (3.18)
			0.073*** (3.31)

Explanatory variables	New sample directors (Directors with banks in 2010)		
	Director's departure during 2011 - 2013	Director's departure during 2014 - 2016	Director's departure during 2014 - 2016
Return volatility of 2010	2.725*** (5.12)	0.974*** (5.95)	0.011 (1.58)
Increased return volatility from 2011 to 2013			-0.001 (-0.14)
Random effect	No	Yes	No
Log likelihood	-1231		-904
# of observations		2,286	1,587

This table shows probit regression results (and t-statistics) of the likelihood of a director leaving the board of a sample of 236 banks during 2011-2013 and 2014-2016. The observations used in models 1-2 and 3-4 consist of directors of sample banks in 2010 and 2013, respectively. Regressions are estimated using standard probit regressions with clustering at the bank level. In addition to estimating a standard probit model, a random-effects probit model was estimated in an effort to control for firm effects. Variables are defined in the Appendix. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. All continuous variables are winsorized at the 1% level in both tails.

CONCLUSION

This paper examines the consequences of risk-taking and performance for directors of publicly traded banks in the years surrounding the financial crisis of 2008-2010. Beginning with a sample of directors on bank boards in 2005, we document their tenure and turnover on their banks' boards. We consider whether risk taking by their banks results in positive or negative consequences for the directors. We also consider whether banks' performance prior to or including the financial crisis influences these consequences.

The empirical analysis indicates that directors tend to remain on the boards of banks that perform well and leave the boards of banks that perform poorly. This is consistent with evidence concerning non-financial firm directors and suggests that shareholders reward directors for good performance. Overall, the evidence suggests that banks' risk-taking in the years before the financial crisis may have ultimately increased the likelihood of director turnover during the financial crisis. We find consistent evidence that the directors of banks that perform well are less likely to experience turnover than those of banks that perform poorly. We find similar evidence for a sample of bank directors in the years immediately after the financial crisis. Overall, our evidence indicates that bank directors have the incentive to perform well if they hope to remain on their banks' boards.

This study helps to better understand the impact of bank performance before, during, and after the financial crisis on the bank director labor market, which is little explored in the existing literature. While we find evidence that the consequences of the director labor market, using bank director turnovers, depend on the performance of banks and crisis/non-crisis periods, future research can further investigate whether director turnover within banks depends on the variation of director-level compensations, qualifications, or skills in determining the outcome of the labor market.

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ENDNOTES

1. Kirkpatrick (2009) argues that failures by bank boards were a major contributor to the problems that ultimately led to the financial crisis. More generally, there is substantial evidence that corporate governance structures influence bank risk taking. For example, Berger, Imbierowicz, and Rauch (2016) find that high levels of inside ownership, particularly by lower-level management, increased the likelihood of failure by banks during the financial crisis. The Financial Crisis Inquiry Commission (2011) concludes that governance systems contributed to the crisis.
2. An extensive literature documents that banks have different board and governance structures than non-financial firms. For example, bank boards tend to be larger and include fewer insiders (Adams, 2012; Adams & Mehran, 2003; Booth et al., 2002; Kroszner & Strahan, 2001).
3. During and after the financial crisis, it became increasingly common for the Federal Deposit Insurance Corporation to hold bank directors personally liable for the decisions they made in their official capacity (May, 2015).
4. Laeven and Levine (2009) document the importance of ownership structure in explaining bank risk taking. Their results highlight the importance of large equity holders in encouraging risk taking. Our interest is in the role of directors in encouraging risk taking.
5. For simplicity, we refer to the publicly traded banks and bank holding companies in our sample as "banks" recognizing that many of the bank holding companies in our sample have subsidiary banks with separate boards of directors.
6. Although the financial crisis began prior to 2008, we suggest that there was a time lag involved such that the crisis' impact on banks' financial statements and governance was not becoming fully observable until 2008.

7. 1,712 of the directors included in the 2010 sample were also included in the 2005 sample.
8. On October 28, 2008, the U.S. government implemented the Troubled Asset Relief Program (TARP). This provided funds for the Capital Purchase Program (CPP) to encourage U.S. financial institutions to build capital to increase the flow of financing to U.S. businesses and consumers. The Treasury invested \$204.9 billion in 707 banking organizations pursuant to the TARP CPP.
9. In unreported analysis, we estimate the director departure during 2005-2007 probit with the addition of the concurrent 2005-2007 stock returns and the increased return volatility from 2005 to 2007 variables. These results indicate that director departure was unrelated to stock returns that were measured over the same time window as the dependent variable. Interestingly, increased return volatility over the 2005-2007 period, however, is associated with a reduced likelihood of director turnover. Because these variables are not predetermined relative to our dependent variable, these additional results should be interpreted with caution and are not included here.

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APPENDIX

Variables	Description
Panel A: Main variables	
Director departure	An indicator variable equal to one if the director departed in the three-year windows: 2005-2007, 2008-2010, or 2011-2013, and zero otherwise. We define the director left the board if a director is no longer listed in the subsequent proxy statement in the BoardEx. We delete the observation if the director leaves the board and then returns the board after 360 days.
Panel B: Performance variables	
Failed bank	An indicator variable equal to one if the bank failed during 2008-2010, and zero otherwise. The bank failures are from FDIC.
CPP bank	An indicator variable equal to one if the bank received Capital Purchase Program funds during 2008 and 2009, and zero otherwise. A list of the banks participating in CPP are from Treasury's website.
Good-performing bank	An indicator variable equal to one if the banks' three year of average ROA during 2008 and 2010 were in the top 50% of all sample banks survived at the end of 2010, and zero otherwise.
Panel C: Director characteristics	
Log (director age)	We take the natural logarithm of the age of the sample director. The variable is measured in the year before the director departed in the regression analyses.
Independent	An indicator variable equal to one if the director qualifies as independent, and zero otherwise. We use the role name in the BoardEx including independent and is measured in the year before the director departed in the regression analyses.
No. of other directorships	Number of other boards that the director sits on. The variable is measured in the year before the director departed in the regression analyses.
Audit committee	An indicator variable equal to one if the director is a member of the audit committee, and zero otherwise. The variable is measured in the year before the director departed in the regression analyses.
Major committee	An indicator variable equal to one if the director is a member of the compensation, nominating, or governance committee, and zero otherwise. The variable is measured in the year before the director departed in the regression analyses.
Panel D: Board and financial characteristics	
Bank size	We take the natural logarithm of the market value of equity, or market capitalization in millions. The variable is measured in the year before the director departed in the regression analyses.
Board size	Number of directors on the board. The variable is measured in the year before the director departed in the regression analyses.
ROA	Net income/total assets
CEO turnover	An indicator variable equal to one if there is a change in the CEO in the year before the director departure, and zero otherwise.
Stock return	One-year by-and-hold monthly returns.
Return volatility	One-year average monthly standard deviation of stock returns.
Increased return volatility	Difference between the standard deviation of monthly stock returns in 2007 and that in 2005.