

## *Internet Appendix*

### **Can Bank Boards Prevent Misconduct?**

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This appendix contains information and tabulated results of additional tests on the relationship between effective board monitoring and advising and bank misconduct.

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Table A.I. Is Monitoring Quality driven by CEO tenure?

*Residual Monitoring Quality* is the residual from a regression of *Monitoring Quality* on  $\ln(\text{CEO tenure})$ . Column (1) reports the estimated relations between *Residual Monitoring Quality* and the commission of misconduct ( $M=1$ ), and Column (2) reports the relations between *Residual Monitoring Quality* and detection, given misconduct ( $D=1|M=1$ ). Standard errors are clustered at the bank level. The sample covers the period 1999–2012. Definitions of all variables are provided in Appendix I. *t*-Statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1, 5 and 10% level, respectively.

	P(M=1)	P(D=1 M=1)
	(1)	(2)
Residual Monitoring Quality	-1.162*** (-3.194)	2.154** (2.016)
Other controls	Yes	Yes
Observations	3004	3004
Log likelihood	-497	-497
Prob>Chi <sup>2</sup>	0.000	0.000

Table A.II. Does Monitoring Quality capture director experience?

$\ln(\text{Board tenure})$  is the natural logarithm of the average tenure of board members. Panel A reports the results when *Monitoring Quality* and  $\ln(\text{Board tenure})$  are both included in the model. Panel B reports the residual regression results. *Board-tenure adjusted monitoring quality* is the residual from a regression of *Monitoring Quality* on  $\ln(\text{Board tenure})$ . Standard errors are clustered at the bank level. The sample covers the period 1999–2012. Definitions of all variables are provided in Appendix 1. *t*-Statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1, 5 and 10% level, respectively.

<b>Panel A: Controlling for average board tenure</b>		
	<b>P(M=1)</b>	<b>P(D=1 M=1)</b>
	<b>(1)</b>	<b>(2)</b>
Monitoring Quality	-1.244*** (-3.292)	2.478** (2.129)
Ln (Board tenure)	0.017 (0.784)	-0.035 (-0.530)
Other controls	Yes	Yes
Observations	3004	3004
Log likelihood	-497	-497
Prob>Chi <sup>2</sup>	0.000	0.000
<b>Panel B: Residual regression</b>		
	<b>P(M=1)</b>	<b>P(D=1 M=1)</b>
	<b>(1)</b>	<b>(2)</b>
Board-tenure adjusted monitoring quality	-2.143*** (-6.267)	0.440* (1.845)
Other controls	Yes	Yes
Observations	3004	3004
Log likelihood	-497	-497
Prob>Chi <sup>2</sup>	0.000	0.000

Table A.III. Is Monitoring Quality capturing director's career concerns?

This table controls for alternative measures of director's career concerns. *Age<65* is the fraction of board members whose age is below 65. *First and only directorship* is the fraction of board members whose current appointment at the bank is their first and only directorship. Panel A reports the results when *Monitoring Quality* and *Age<65* are both included in the model. Panel B reports the results when *Monitoring Quality* and *First and only directorship* are both included in the model. Standard errors are clustered at the bank level. The sample covers the period 1999–2012. Definitions of all variables are provided in Appendix 1. *t*-Statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1, 5 and 10% level, respectively.

<b>Panel A: % of board members &lt;65</b>		
	<b>P(M=1)</b>	<b>P(D=1 M=1)</b>
	<b>(1)</b>	<b>(2)</b>
Monitoring Quality	-1.170*** (-3.183)	2.242** (2.092)
Age <65	-0.108 (-0.175)	0.975 (0.564)
Other controls	Yes	Yes
Observations	3004	3004
Log likelihood	-497	-497
Prob>Chi <sup>2</sup>	0.000	0.000
<b>Panel B: % first and only directorship</b>		
	<b>P(M=1)</b>	<b>P(D=1 M=1)</b>
	<b>(1)</b>	<b>(2)</b>
Monitoring Quality	-0.961*** (-2.901)	1.708* (1.714)
First and only directorship	0.277 (0.703)	-0.599 (-0.570)
Other controls	Yes	Yes
Observations	3004	3004
Log likelihood	-497	-497
Prob>Chi <sup>2</sup>	0.000	0.000

Table A.IV. Does Advising Quality capture Board busyness?

*Board busyness* is a dummy that equals 1 when the majority of board members hold three or more directorships and 0 otherwise. Panel A reports the results when *Advising Quality* and *Board busyness* are both included in the analysis. Panel B reports the results when only *Board busyness* is included. Standard errors are clustered at the bank level. The sample covers the period 1999–2012. Definitions of all variables are provided in Appendix 1. *t-Statistics* are reported in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1, 5 and 10% level, respectively.

<b>Panel A: Advising Quality and Board busyness are included</b>		
	<b>P(M=1)</b>	<b>P(D=1 M=1)</b>
	<b>(1)</b>	<b>(2)</b>
Advising Quality	-0.065**	0.966***
	(-2.496)	(3.391)
Board busyness	0.162	-1.354
	(0.430)	(-0.119)
Other controls	Yes	Yes
Observations	1019	1019
Log likelihood	-177	-177
Prob>Chi <sup>2</sup>	0.000	0.000
<b>Panel B: Only Board busyness is included</b>		
	<b>P(M=1)</b>	<b>P(D=1 M=1)</b>
	<b>(1)</b>	<b>(2)</b>
Board busyness	0.091	-0.542
	(0.137)	(-0.247)
Other controls	Yes	Yes
Observations	945	945
Log likelihood	-195	-195
Prob>Chi <sup>2</sup>	0.000	0.000

Table A.V. Alternative measure of director network quality

This table uses an alternative source of fraud data for the quality director's network. We use the Private International Cartels Data Set (Connor, 2010), provided by John Connor, which includes more than 2,115 companies involving in price-fixing cartels. *Exposure to Cartel Networks* is the number of connections that board members of a given bank have with firms that used to be involved in a price-fixing cartel. The sample covers the period 1999–2012. Definitions of all variables are provided in Appendix 1. *t-Statistics* are reported in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1, 5 and 10% level, respectively.

	P(M=1) (1)	P(D=1 M=1) (2)
Advising Quality	-0.059** (-2.056)	0.123*** (3.549)
Exposure to Cartel Networks	0.148* (1.693)	-0.302** (-2.367)
Other controls	Yes	Yes
Observations	3004	3004
Log likelihood	-497	-497
Prob>Chi <sup>2</sup>	0.000	0.000

Table A.VI. Probit model estimation for board effectiveness and bank misconduct

This table reports standard probit model estimation results. The dependent variable equals 1 if an enforcement action is issued during the year. Standard errors are clustered at the bank level. The sample covers the period 1999–2012. Definitions of all variables are provided in Appendix 1. *t*-Statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1, 5 and 10% level, respectively.

	Probit P(M=1) (1)	Probit P(M=1) (2)	Probit P(M=1) (3)
Monitoring Quality	-0.468** (-2.409)		-0.476** (-2.448)
Advising Quality		-0.034* (-1.665)	-0.035* (-1.706)
ROA	-0.136*** (-4.871)	-0.139*** (-4.975)	-0.139*** (-4.982)
Leverage	4.886** (2.522)	4.984** (2.570)	4.766** (2.470)
Ln(Assets)	0.242*** (3.004)	0.279*** (3.378)	0.296*** (3.564)
Asset growth	-0.567* (-1.869)	-0.541* (-1.746)	-0.563* (-1.844)
Portfolio risk	0.643 (1.230)	0.616 (1.139)	0.818 (1.558)
Charter value	-0.132 (-1.558)	-0.129 (-1.473)	-0.132 (-1.549)
Loans	-0.173 (-0.354)	-0.200 (-0.403)	-0.313 (-0.641)
Non-performing loans	6.917 (1.273)	8.065 (1.440)	6.971 (1.282)
Tier-1 Capital	-1.058 (-0.413)	-0.982 (-0.375)	-1.197 (-0.470)
Board size	-0.030** (-2.082)	-0.063 (-0.206)	-0.030** (-2.074)
Board independence	-0.151 (-0.492)	0.155 (0.328)	-0.118 (-0.378)
Board financial expertise	-0.116 (-0.238)	1.421* (1.922)	-0.096 (-0.198)
Exposure to misconduct	-0.131 (-1.353)	0.149 (1.407)	-0.082 (-0.768)
Ln (Board age)	1.570** (2.166)	0.018*** (3.298)	1.581** (2.182)
Ln (CEO tenure)	0.004 (0.435)	-0.059 (-0.704)	0.003 (0.297)
CEO is chair	-0.053 (-0.622)	0.376*** (3.802)	-0.043 (-0.511)
Observations	4066	4066	4066
Prob>Chi <sup>2</sup>	0.000	0.000	0.000
Log likelihood	-682	-687	-680

Table A.VII. Alternative specification of bivariate probit model

Columns (1) and (3) report the estimated relations between *Monitoring Quality* and *Advising Quality* and the commission of misconduct (M=1), and Columns (2) and (4) report the relations between *Monitoring Quality* and *Advising Quality* and detection, given misconduct (D=1|M=1). Standard errors are clustered at the bank level. The sample covers the period 1999–2012. Definitions of all variables are provided in Appendix 1. *t*-Statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1, 5 and 10% level, respectively.

	P(M=1) (1)	P(D=1 M=1) (2)	P(M=1) (3)	P(D=1 M=1) (4)
Monitoring Quality	-1.150** (-2.208)	1.373** (2.085)		
Advising Quality			-0.094*** (-4.003)	0.092*** (4.159)
Ln(Assets)	-0.207** (-2.329)	0.422*** (3.524)	0.084 (1.353)	0.147*** (3.056)
Asset growth	-0.198 (-0.203)	-0.772 (-0.640)	0.914 (1.394)	-1.738*** (-4.053)
Portfolio risk	0.665 (0.753)	-0.390 (-0.348)	0.537 (0.907)	0.955* (1.765)
Charter value	-0.351*** (-3.226)	0.342** (2.385)	-0.381*** (-5.865)	-0.040 (-0.569)
Loans	-1.648 (-1.471)	2.446* (1.808)	-0.440 (-0.653)	0.066 (0.124)
Non-performing loans	16.012 (1.366)	-24.116 (-1.624)	37.403*** (4.395)	-12.232** (-2.109)
Tier-1 capital	-8.192* (-1.913)	8.493 (1.322)	-12.299*** (-4.448)	0.398 (0.155)
Board size	0.034 (0.974)	-0.074 (-1.514)	-0.032 (-1.471)	-0.030* (-1.824)
Board independence	0.282 (0.257)	-0.354 (-0.239)	1.020* (1.824)	-0.252 (-0.580)
Board financial expertise	0.701 (0.777)	-1.055 (-0.876)	0.577 (0.735)	-0.195 (-0.348)
Exposure to misconduct	2.022 (1.284)	-1.422 (-0.666)	0.220 (0.212)	2.092*** (2.612)
Ln (Board age)	0.534** (2.442)	-0.792*** (-2.999)	0.467*** (3.166)	-0.453*** (-3.835)
Ln (CEO tenure)	-0.076 (-0.419)	0.117 (0.491)	0.516*** (5.544)	-0.009 (-0.141)
CEO is chair	0.522** (2.324)	-0.783*** (-2.739)	0.349*** (2.860)	-0.191* (-1.777)
Abnormal ROA		-0.193** (-2.258)		-0.333*** (-6.926)
Adverse stock return		0.249 (1.508)		0.315* (1.909)
Abnormal stock volatility		1.845** (2.175)		4.030*** (5.204)
Abnormal stock turnover		-0.053 (-0.911)		-0.130** (-2.087)
Observations	3004	3004	3004	3004
Prob>Chi <sup>2</sup>	0.000	0.000	0.000	0.000
Log likelihood	-513	-513	-505	-505



Table A.VIII. Are our results driven by the 2008 crisis?

Odd-numbered columns report the estimated relations between *Monitoring Quality* and *Advising Quality* and the commission of misconduct (M=1), and even-numbered columns report the relations between *Monitoring Quality* and *Advising Quality* and detection, given misconduct (D=1|M=1). Standard errors are clustered at the bank level. The sample covers the period 1999–2012. Definitions of all variables are provided in Appendix 1. *t*-Statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1, 5 and 10% level, respectively.

	P(M=1)	P(D=1 M=1)	P(M=1)	P(D=1 M=1)	P(M=1)	P(D=1 M=1)	P(M=1)	P(D=1 M=1)
	1999–2007				2008–2012			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Monitoring Quality	-1.042*	1.293*			-0.367*	5.278***		
	(-1.828)	(1.754)			(1.753)	(-4.440)		
Advising Quality			-0.175***	0.900***			-0.094***	0.127***
			(-2.936)	(3.664)			(-2.792)	(4.309)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1416	1416	1416	1416	1588	1588	1588	1588
Log likelihood	-109	-109	-95	-95	-349	-349	-348	-348
Prob > Chi <sup>2</sup>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table A.IX. Monitoring and Advising Quality for independent directors

*Monitoring Quality of independent directors* is the fraction of independent directors who are appointed before the current CEO. *Advising Quality of independent directors* is the number of directors to whom independent directors on the board are collectively connected, scaled by the total number of independent directors sitting on the board. Columns (1) and (3) report the estimated relations between *Monitoring Quality of independent directors* and *Advising Quality of independent directors* and the commission of misconduct (M=1), and Columns (2) and (4) report the relations between *Monitoring Quality of independent directors* and *Advising Quality of independent directors* and detection, given misconduct (D=1|M=1). Standard errors are clustered at the bank level. The sample covers the period 1999–2012. Definitions of all variables are provided in Appendix 1. *t*-Statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance at the 1, 5 and 10% level, respectively.

	P(M=1) (1)	P(D=1 M=1) (2)	P(M=1) (3)	P(D=1 M=1) (4)
Monitoring Quality of independent directors	-0.913*** (-2.964)	2.119* (1.802)		
Advising Quality of independent directors			-0.118*** (-4.306)	0.080*** (3.573)
Other controls	Yes	Yes	Yes	Yes
Observations	3004	3004	3004	3004
Log likelihood	-497	-497	-491	-491
Prob>Chi <sup>2</sup>	0.000	0.000	0.000	0.000