Does Lending Bank Undercapitalization Affect Borrowers' Accounting Conservatism?

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Outline

Introduction

- Bank capital plays crucial role for stability of financial system and monetary policy transmission (Berger Bouwman, 2013; Diamond Rajan, 2000; Kishan and Opiela, 2000)
- Bank capital level also affects the economy and borrowing firms (Gorton and Winton, 2003; Chopra et al., 2021; Blattner et al., 2023)
- It affect the incentive to monitor, risk-shifting and lending behavior (Thakor, 1996; Mehran and Thakor, 2011; Acharya et al., 2022; Admati and Hellwig, 2014)
- What if banks show high capital in accounting terms but not in economic terms?

Idea

Idea

Bank Balance sheet before AQR	
Equity	Assets
Borrowing	NPA

Idea

AQR by RBI

Bank Balance sheet before AQR	
Equity	Assets
Borrowing	NPA

Idea

AQR by RBI

Bank Balance sheet before AQR	
Equity	Assets
Borrowing	NPA

Bank Balance sheet after AQR	
Equity	Assets
Borrowing	

Idea

AQR by RBI

Bank Balance sheet before AQR	
Equity	Assets
Borrowing	NPA

Bank Balance sheet after AQR	
Equity	Assets
Borrowing	

Idea

AQR by RBI

Bank Balance sheet before AQR	
Equity	Assets
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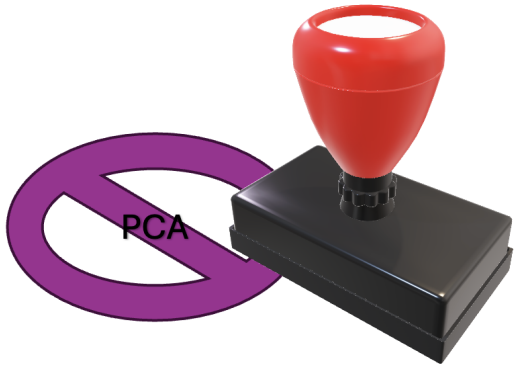
Bank Balance sheet after AQR	
Equity	Assets
Borrowing	



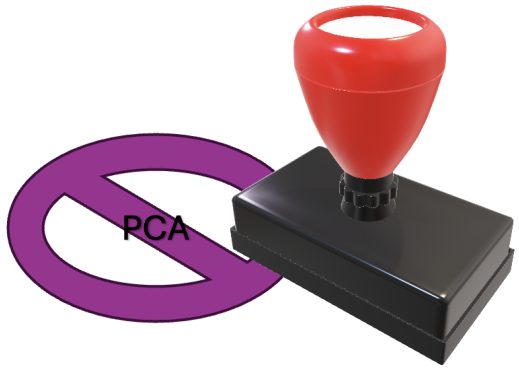
Affected Borrowers

Idea

AQR by RBI

Bank Balance sheet before AQR	
Equity	Assets
Borrowing	NPA

Bank Balance sheet after AQR	
Equity	Assets
Borrowing	



Affected Borrowers

Idea

AQR by RBI

Bank Balance sheet before AQR

Equity	Assets
Borrowing	NPA

Bank Balance sheet after AQR

Equity	Assets
Borrowing	

Affected Borrowers

What if stop reporting losses timely

AQR –Surgery of Bank Balance Sheet

"Forbearance is ostrich-like behavior, hoping the problem will go away. It is not realism but naiveté, for the lesson from across the world is that the problems only worsen as one buries one's head in the sand... As we found banks reluctant to recognize problems, we decided not just to end forbearance but also to force them to clean up their balance sheets. The Asset Quality Review, initiated in 2015, was the first major exercise of this nature in India" (Rajan, 2017, pp. 115).

How AQR affected Banks?

- Asset Quality Review by Indian Central Bank caused undercapitalization of banks (Chopra et al., 2021)
- AQR revealed the true picture of Indian banking system and reduce the information asymmetry
- AQR decreased the loan supply and incentivize the zombie lending (Chopra et al., 2021)
- To meet the regulatory capital requirement, banks devised various strategies for example, raising equity (Admati et al., 2012; Berger et al., 2008; Dahl Shrieves, 1990; Erkens et al., 2012), reducing risk weighted assets (Gropp et al., 2019), zombie lending (Acharya et al., 2022) and letting go income due to capital requirement (Plosser and Santos, 2024)

NPA Trajectory

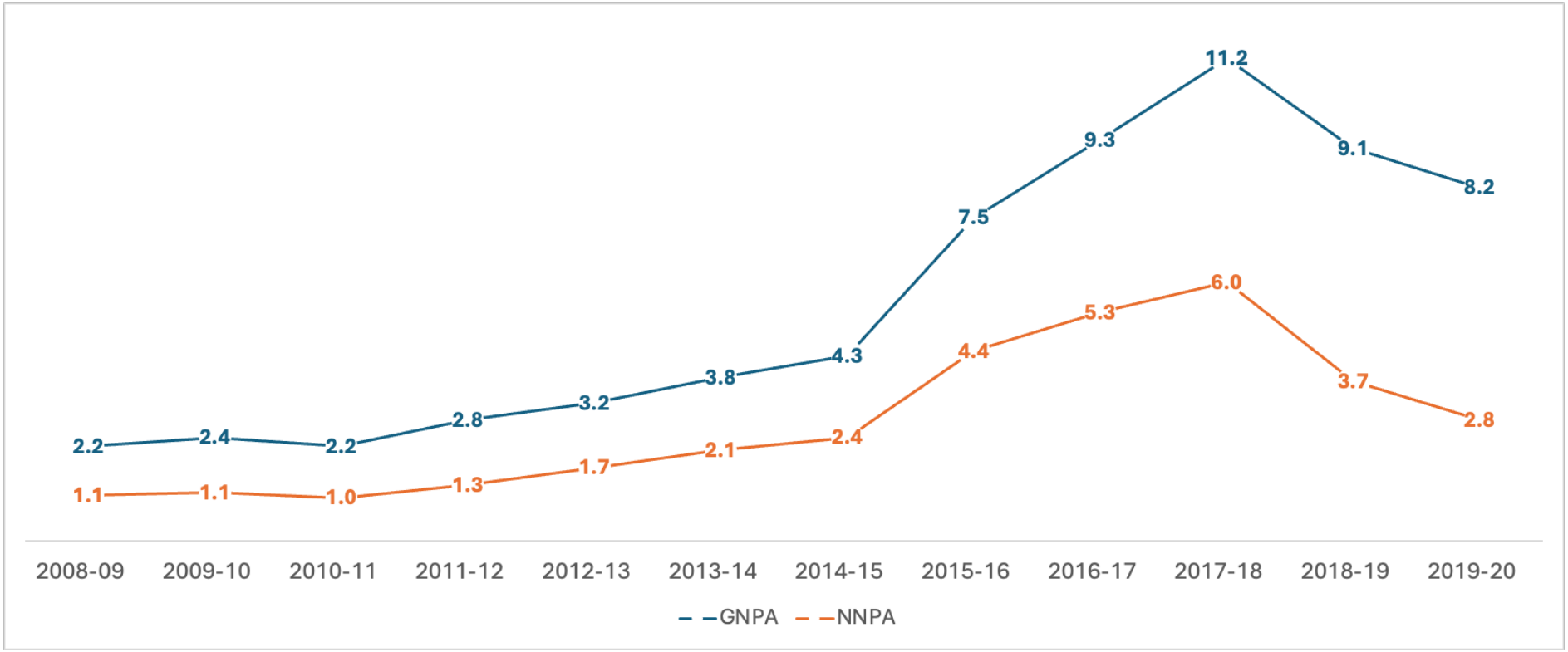


Figure 1: Non-Performing Assets

CRAR

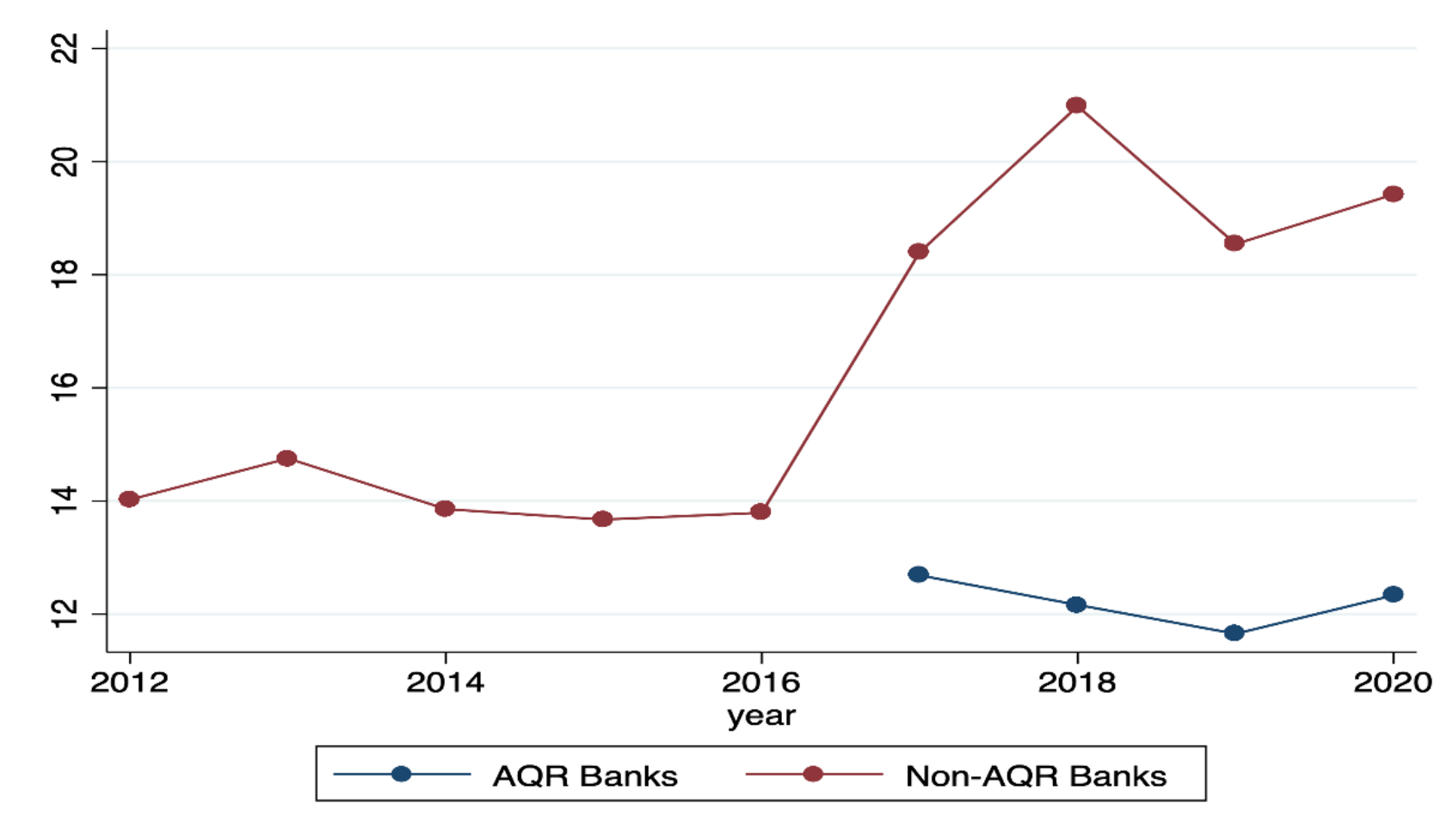


Figure 2: Capital to Risk Weighted Assets Ratio

How AQR of banks will affect borrowing firm?

- Such undercapitalization affect the corporate and accounting policies of the borrowing firms such as capital structure, investment, growth, financial reporting (Gropp et al., 2019; Khan and Lo, 2019; Lo, 2014; Chava and Purnandam, 2011; Chopra et al., 2021)
- Bank crisis and capital loss also affect the accounting conservatism (timely loss recognition) of borrowing firms (Martin and Roychowdhary, 2015; Murfin, 2012; Lo, 2014; Khan and Lo, 2019)
- However, there are dearth of studies on how AQR induced undercapitalization in normal times affect the borrowing firms' accounting policies

Accounting Conservatism

- Accounting Conservatism or timely loss recognition is defined as recognition of bad news more timely than good news (Basu, 1997)
- Accounting Conservatism is highly valued by the banks because it provides early warning signal and help assessing the repayment capabilities
- Asymmetric timely loss recognition than profits facilitate the role of 'trip wires' or signaling. (Nikolaev, 2010)
- It also increases the efficiency of covenants used in debt contracts (Nikolaev, 2010)
- Borrowers' conservatism can also affect the provisions of lending banks thereby capital as well

Research Question

How undercapitalization of banks due to AQR affected the borrowing firms' accounting conservatism?

Proactive Strategy

- Bank as "Burnt Child, Dreads the Fire" faced capital loss due to AQR will scrutinize more and ask for more accounting conservatism (Khan and Lo, 2019)
- Bank which suffer capital loss will become less risk tolerant and inspect borrower more closely.
- More frequent and thorough inspections and scrutiny are expected in AQR period, might force the borrowers to provide more conservative statements.
- Any overstatements of profit and understatement of loss also hurt the borrower reputation and reduce credit access(Chen, 2016)

Defensive Strategy

- Undercapitalized banks have low incentive to monitor and screen the borrowers (Thakor, 1996; Holmstrom and Tirole, 1997; Acharya et al., 2022)
- If banks are intransigent to renegotiation or restructuring of loans, borrowing firms will do less conservative reporting to avoid covenant violation (Martin and Roychowdhary, 2015)
- Undercapitalized banks will also avoid recognizing more losses to maintain the costly regulatory capital. Therefore, will demand optimistic financial statements from borrowing firms (Caballero et al., 2008; Plosser and Santos, 2024)
- Application of enhanced Prompt Corrective Action (PCA) restrictions also increased the cost of recognizing more losses and capital deterioration

Defensive Strategy

- Firms will also benefit by avoiding covenant related restrictions (Martin and Roychowdhary, 2015)
- Banks reduce the lending and involved in zombie lending due to AQR (Chopra et al., 2021), which decrease incentive for firms to provide more conservative financial statement
- Firms will also reduce accounting conservatism because the strict regulatory audit of lender will increase the probability of liquidation and loss of compensation and private benefits. Optimistic financial statement will provide opportunity to "Firefight" such actions.

Hypothesis Statement

Hypothesis

H1: Undercapitalization of banks due to AQR changes the accounting conservatism of borrowing firms compared to other firms.

Identification Strategy

- We used Accrual based measure for measuring accounting conservatism following Ball and Shivkumar (2005)

$$ACC_{it} = \beta_0 + \beta_1 DCFO_{it} + \beta_2 CFO_{it} + \beta_3 DCFO_{it} \times CFO_{it} + \epsilon_{it} \quad (1)$$

- Staggered Difference in Difference

$$\begin{aligned} ACC_{it} = {} & \beta_0 + \beta_1 DCFO_{it} + \beta_2 CFO_{it} + \beta_3 DCFO_{it} \times CFO_{it} + \\ & \beta_4 AQR\_EXP_{it} + \beta_5 DCFO_{it} \times AQR\_EXP_{it} + \beta_6 CFO_{it} \times AQR\_EXP_{it} + \\ & \beta_7 DCFO_{it} \times CFO_{it} \times AQR\_EXP_{it} + \beta X_{it} + \beta X_{it} \times DCFO_{it} + \beta X_{it} \times \\ & CFO_{it} + \beta X_{it} \times DCFO_{it} \times CFO_{it} + \delta_i + \eta_t + \gamma_{jt} + \epsilon_{it} \quad (2) \end{aligned}$$

Data Overview

Variables	Description	Source
AQR_EXP	The dummy variable equals one if the firm's exposure to AQR is above the median and zero otherwise. It will remain one for subsequent years of exposure for the firm once exposed. The firm's exposure to AQR is the weighted average of lenders' exposure using weights of pre-AQR average outstanding loan amount of the firm with the lender. Lender exposure is the divergence in the lender's annual provisioning divided by total assets.	MCA
ACC	(Net profit-Net operating cash flow)/Average Total Assets	CMIE
CFO	Net Operating Cash Flow/ Average Total Assets	CMIE
DCFO	The dummy variable equals to 1 if the CFO is negative and 0 otherwise	CMIE
Size	Natural Log of Average Total Assets	CMIE
Leverage	Borrowing/Average Total Assets	CMIE
Growth	Sales Growth	CMIE

Descriptive Statistics

Table 1: Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
	Panel A: Full Sample					Panel B: AQR Firms					Panel C: Firms Without AQR				
Size	19105	7.641	2.007	3.264	13.024	5256	7.757	1.964	3.264	13.024	13849	7.598	2.022	3.264	13.024
Leverage	19105	0.371	0.351	0.001	2.438	5256	0.343	0.333	0.001	2.438	13849	0.382	0.357	0.001	2.438
Growth	19105	0.156	0.712	-0.879	5.334	5256	0.144	0.65	-0.879	5.334	13849	0.16	0.734	-0.879	5.334
CFO	19105	0.05	0.11	-0.364	0.368	5256	0.05	0.106	-0.364	0.368	13849	0.051	0.111	-0.364	0.368
ACC	19105	-0.034	0.127	-0.523	0.406	5256	-0.029	0.126	-0.523	0.406	13849	-0.036	0.127	-0.523	0.406
PD_12	13542	0.042	0.06	0	0.365	3826	0.047	0.069	0	0.365	9716	0.04	0.056	0	0.365
PD_24	13542	0.021	0.033	0	0.205	3826	0.024	0.038	0	0.205	9716	0.02	0.031	0	0.205
Opportunistic RPT	17693	0.035	0.1	0	0.714	4964	0.041	0.109	0	0.714	12729	0.033	0.096	0	0.714
Business RPT	17693	0.184	0.339	0	2.111	4964	0.168	0.316	0	2.111	12729	0.19	0.347	0	2.111
Total RPT	17693	0.228	0.394	0	2.495	4964	0.219	0.376	0	2.495	12729	0.231	0.401	0	2.495
Profitability	19105	0.068	0.102	-0.358	0.369	5256	0.07	0.107	-0.358	0.369	13849	0.067	0.101	-0.358	0.369
Age	19105	3.321	0.592	0.693	5.056	5256	3.389	0.562	1.099	5.056	13849	3.295	0.601	0.693	5.037
Interest Cost	18249	0.129	0.196	0.001	1.714	5043	0.135	0.215	0.001	1.714	13206	0.126	0.189	0.001	1.714

Results

Table 2: Baseline Regression Result

VARIABLES	(1) ACC	(2) ACC	(3) ACC
CFO	-0.915***	-1.149***	-1.147***
	(0.017)	(0.072)	(0.073)
DCFO	-0.000	-0.014	-0.012
	(0.003)	(0.012)	(0.012)
DCFO*CFO	-0.059*	0.154	0.145
	(0.032)	(0.134)	(0.131)
AQR_EXP	-0.021***	-0.018***	-0.019***
	(0.004)	(0.004)	(0.004)
AQR_EXP*CFO	0.205***	0.167***	0.173***
	(0.033)	(0.033)	(0.034)
AQR_EXP*DCFO	0.008	0.008	0.009
	(0.006)	(0.006)	(0.006)
AQR_EXP*DCFO*CFO	-0.196***	-0.173**	-0.189***
	(0.073)	(0.070)	(0.069)
Constant	0.013***	0.017	0.019
	(0.002)	(0.031)	(0.031)
Control Variables and Interactions	No	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes
Industry*Year Fixed Effect	No	No	Yes
Observations	19,105	19,105	19,063
R-squared	0.738	0.751	0.759

Dynamic Trend

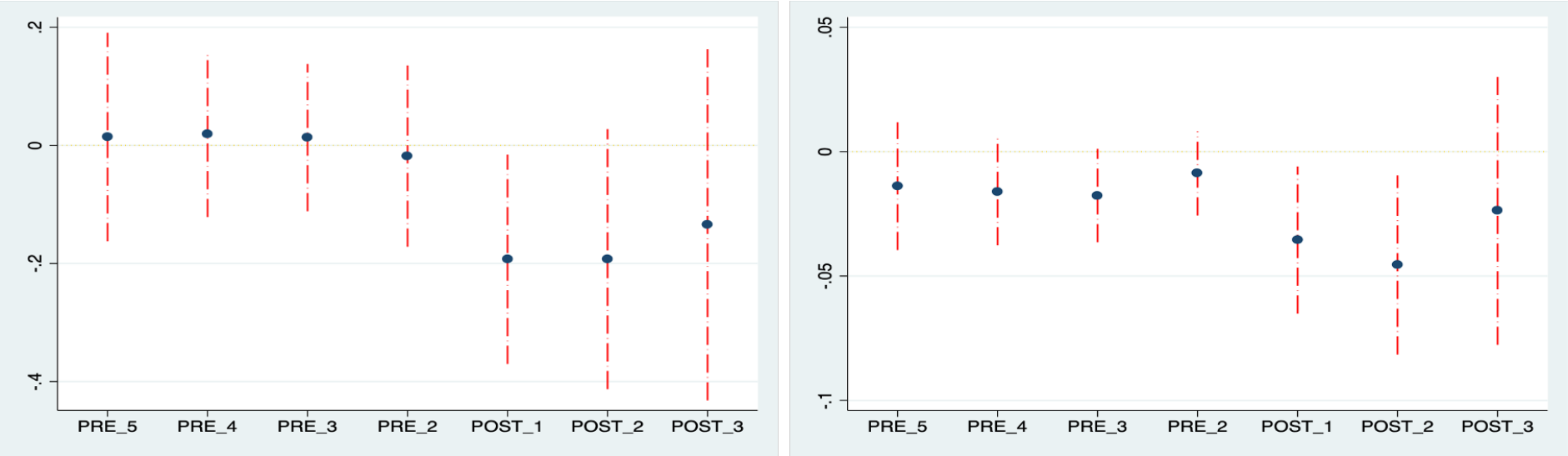


Figure 3: Dynamic Trend

Role of Bank Capital

Table 3: Regression Result Based on Lending Bank Capital

	(1)	(2)	(3)	(4)
	Low CRAR		High CRAR	
VARIABLES	ACC	ACC	ACC	ACC
CFO	-1.188***	-1.179***	-1.181***	-1.177***
	(0.087)	(0.089)	(0.117)	(0.119)
DCFO	-0.004	-0.001	-0.027	-0.023
	(0.016)	(0.016)	(0.020)	(0.020)
DCFO*CFO	0.287*	0.275*	0.112	0.106
	(0.164)	(0.164)	(0.224)	(0.212)
AQR_EXP	-0.021***	-0.023***	-0.011**	-0.013***
	(0.006)	(0.006)	(0.005)	(0.005)
AQR_EXP*CFO	0.213***	0.215***	0.112***	0.125***
	(0.049)	(0.050)	(0.042)	(0.042)
AQR_EXP*DCFO	0.016**	0.016**	0.001	0.004
	(0.008)	(0.008)	(0.009)	(0.009)
AQR_EXP*DCFO*CFO	-0.231**	-0.238**	-0.098	-0.135
	(0.097)	(0.098)	(0.102)	(0.100)
Constant	0.041	0.040	0.029	0.033
	(0.048)	(0.048)	(0.041)	(0.041)
Control Variables and Interactions	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes
Industry*Year Fixed Effect	No	Yes	Yes	Yes
Observations	8,832	8,771	8,812	8,758
R-squared	0.745	0.756	0.755	0.771

Firms near to Covenant Violation

Table 4: Firms Covenant Violation Based Result

	(1)	(2)	(3)	(4)
	ICR<1		ICR>1	
VARIABLES	ACC	ACC	ACC	ACC
CFO	-1.257***	-1.283***	-1.167***	-1.158***
	(0.157)	(0.165)	(0.075)	(0.076)
DCFO	-0.003	0.006	-0.022*	-0.020
	(0.028)	(0.030)	(0.013)	(0.012)
DCFO*CFO	0.490	0.462	0.023	0.024
	(0.340)	(0.337)	(0.139)	(0.128)
AQR_EXP	-0.047***	-0.057***	-0.008**	-0.008**
	(0.011)	(0.011)	(0.003)	(0.003)
AQR_EXP*CFO	0.412***	0.481***	0.113***	0.119***
	(0.104)	(0.106)	(0.029)	(0.029)
AQR_EXP*DCFO	0.009	0.012	0.010	0.010
	(0.014)	(0.015)	(0.006)	(0.006)
AQR_EXP*DCFO*CFO	-0.496***	-0.645***	-0.039	-0.049
	(0.181)	(0.180)	(0.074)	(0.074)
Constant	-0.084	-0.102	0.075**	0.079***
	(0.091)	(0.093)	(0.029)	(0.030)
Control Variables and Interactions	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes
Industry*Year Fixed Effect	No	Yes	Yes	Yes
Observations	3,881	3,800	12,936	12,893
R-squared	0.614	0.652	0.816	0.824

Change in Debt

Table 5: Increasing vs. Decreasing Debt

	(1)	(2)	(3)	(4)
	Increase Debt		Decrease Debt	
VARIABLES	ACC	ACC	ACC	ACC
CFO	-1.111***	-1.118***	-1.177***	-1.167***
	(0.098)	(0.101)	(0.117)	(0.110)
DCFO	-0.008	-0.006	-0.065*	-0.070**
	(0.014)	(0.013)	(0.034)	(0.033)
DCFO*CFO	0.081	0.100	0.134	0.146
	(0.162)	(0.153)	(0.312)	(0.319)
AQR_EXP	-0.016***	-0.016***	-0.014**	-0.014**
	(0.005)	(0.005)	(0.006)	(0.006)
AQR_EXP*CFO	0.154***	0.159***	0.156***	0.155***
	(0.042)	(0.043)	(0.055)	(0.054)
AQR_EXP*DCFO	0.004	0.004	0.014	0.013
	(0.007)	(0.007)	(0.011)	(0.011)
AQR_EXP*DCFO*CFO	-0.161*	-0.186**	-0.093	-0.104
	(0.084)	(0.083)	(0.140)	(0.140)
Constant	-0.029	-0.024	0.113	0.109
	(0.038)	(0.038)	(0.073)	(0.074)
Control Variables and Interactions	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes
Industry*Year Fixed Effect	No	Yes	Yes	Yes
Observations	12,283	12,228	5,675	5,630
R-squared	0.783	0.792	0.786	0.808

Robustness-IV

Table 6: GOB vs. POB

	(1)	(2)	(3)	(4)
VARIABLES	High GOB ACC	Low GOB ACC	Exc. GOB ACC	Exc. POB ACC
CFO	-1.292***	-0.970***	-1.348***	-0.780***
	(0.082)	(0.140)	(0.096)	(0.178)
DCFO	-0.011	-0.028	-0.040**	-0.055*
	(0.015)	(0.019)	(0.018)	(0.031)
DCFO*CFO	0.430**	-0.349	0.336	-0.702**
	(0.167)	(0.229)	(0.231)	(0.316)
AQR_EXP	-0.021***	-0.016**	-0.013**	-0.005
	(0.005)	(0.007)	(0.006)	(0.008)
AQR_EXP*CFO	0.167***	0.166***	0.154***	0.138**
	(0.040)	(0.060)	(0.048)	(0.066)
AQR_EXP*DCFO	0.005	0.019**	0.008	0.019*
	(0.007)	(0.009)	(0.009)	(0.011)
AQR_EXP*DCFO*CFO	-0.214**	-0.006	-0.172*	-0.025
	(0.086)	(0.114)	(0.103)	(0.090)
Constant	0.015	0.013	-0.054	-0.044
	(0.042)	(0.053)	(0.045)	(0.075)
Control Variables and interactions	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes
Observations	11,161	7,651	5,643	3,684
R-squared	0.758	0.769	0.798	0.799

Small vs. Large firms

Table 7: Regression Result Based on Size of Firm

	(1)	(2)	(3)	(4)
	Small Firms		Large Firms	
VARIABLES	ACC	ACC	ACC	ACC
CFO	-1.062***	-1.045***	-1.121***	-1.133***
	(0.165)	(0.169)	(0.141)	(0.138)
DCFO	-0.056**	-0.054**	0.047	0.054*
	(0.023)	(0.023)	(0.029)	(0.031)
DCFO*CFO	-0.072	-0.107	0.756	0.819*
	(0.255)	(0.248)	(0.460)	(0.483)
AQR_EXP	-0.017***	-0.017***	-0.017***	-0.018***
	(0.006)	(0.006)	(0.005)	(0.005)
AQR_EXP*CFO	0.156***	0.169***	0.172***	0.169***
	(0.052)	(0.054)	(0.041)	(0.042)
AQR_EXP*DCFO	0.001	0.005	0.016*	0.016
	(0.008)	(0.008)	(0.009)	(0.010)
AQR_EXP*DCFO*CFO	-0.189**	-0.210**	0.032	-0.007
	(0.092)	(0.093)	(0.149)	(0.150)
Constant	0.010	0.029	0.069	0.053
	(0.038)	(0.039)	(0.048)	(0.048)
Control Variables and Interactions	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes
Industry*Year Fixed Effect	No	Yes	Yes	Yes
Observations	8,330	8,282	9,160	9,105
R-squared	0.774	0.785	0.700	0.717

Alternative Measures

Table 8: Alternative Measures

VARIABLES	(1) C_Score	(2) Asset Writeoff	(3) Bad Debt Provision	(4) Depreciation
AQR_EXP	-0.032**	-0.001*	-0.020*	-0.005
	-0.014	(0.001)	(0.010)	(0.003)
Mcap	-0.046***	-0.000	-0.039***	-0.009***
	-0.007	(0.000)	(0.006)	(0.002)
MB	1.055***	-0.000	0.005***	0.001***
	-0.036	(0.000)	(0.002)	(0.000)
Leverage	-0.009***	0.000	0.026	-0.015
	-0.002	(0.002)	(0.037)	(0.012)
Constant	0.062	0.004	0.320***	0.188***
	-0.049	(0.003)	(0.044)	(0.015)
Year Fixed Effect	Yes	Yes	Yes	Yes
Firm fixed Effect	Yes	Yes	Yes	Yes
Observations	13060	13,762	13,762	13,762
R-squared	0.613	0.315	0.523	0.708

Cost-Benefit Trade-off

Table 9: Cost-Benefit Trade-off

VARIABLES	(1) PD_12	(2) PD_24	(3) Interest cost	(4) Div	(5) Opportunistic RPT
C_Score	0.000	0.000	-0.009	-0.001	-0.005
	(0.001)	(0.002)	(0.011)	(0.001)	(0.003)
AQR_EXP	0.001	0.002	-0.007	-0.000	0.000
	(0.001)	(0.001)	(0.007)	(0.001)	(0.003)
AQR_EXP*C_Score	0.003**	0.005**	-0.039***	0.002*	0.007*
	(0.001)	(0.002)	(0.014)	(0.001)	(0.004)
Mcap	-0.008***	-0.016***	-0.017***	0.001	-0.003**
	(0.001)	(0.001)	(0.004)	(0.000)	(0.001)
Leverage	0.011***	0.020***	-0.342***	-0.014***	0.025***
	(0.003)	(0.005)	(0.028)	(0.002)	(0.009)
MB	0.001***	0.001***	0.002***	0.000	0.000
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Profitability	-0.044***	-0.079***	0.057*	0.062***	0.042***
	(0.004)	(0.008)	(0.033)	(0.006)	(0.012)
Age	0.015**	0.027**	-0.048	-0.014***	-0.007
	(0.006)	(0.011)	(0.047)	(0.004)	(0.017)
Constant	0.026	0.057	0.514***	0.053***	0.058
	(0.020)	(0.037)	(0.165)	(0.015)	(0.060)
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes
Industry*Year Fixed Effect	No	No	No	No	No
Observations	12,381	12,381	12,686	5,960	12,502
R-squared	0.739	0.757	0.517	0.835	0.563

Robustness

Table 10: Robustness

	(1) Entropy based	(2) Exc. Never treated
VARIABLES	ACC	ACC
CFO	-1.193***	-1.220***
	(0.078)	(0.080)
DCFO	-0.017	-0.029*
	(0.014)	(0.015)
DCFO*CFO	0.174	0.132
	(0.153)	(0.165)
AQR_EXP	-0.015***	-0.017***
	(0.004)	(0.004)
AQR_EXP*CFO	0.135***	0.170***
	(0.032)	(0.033)
AQR_EXP*DCFO	0.006	0.009
	(0.006)	(0.006)
AQR_EXP*DCFO*CFO	-0.151**	-0.183**
	(0.069)	(0.072)
Constant	0.059*	0.066*
	(0.033)	(0.036)
Control Variables and Interactions	Yes	Yes
Year Fixed Effect	Yes	Yes
Firm Fixed Effect	Yes	Yes
Industry*Year Fixed Effect	No	No
Observations	19,105	13,854
R-squared	0.753	0.747

Conclusion

- We find that Banks used defensive strategy in time of undercapitalization due to AQR.
- Undercapitalization of banks decrease the accounting conservatism reporting from the borrowing firms
- Results are more pronounced for less capitalized banks before AQR and firms near to covenant violation
- It increases probability of survival for firms with increased cost of interest and reduction in cash outflow/personal benefits Banks provision requirement reduce with such decrease in undercapitalization

Conclusion

- Such optimistic firefighting can increase the hiding of losses in borrowers balance sheet
- Twin Balance sheet problem in different way can operationalize, where banks balance sheet is cleaned by example, but borrowers are hiding losses in fear of strict action
- It requires policy coordination among regulators to provide financial statements of entities that reflect true picture of assets
- Further, such loss accumulation, open scope for future researchers. For example, how decrease in conservatism affect stock price crash risk

Conclusion

Thank You