

Are bank capital requirements optimally set?

Evidence from researchers' views

Gene Ambrocio

Bank of Finland

Iftekhar Hasan

Fordham University

Bank of Finland

Esa Jokivuolle

Bank of Finland

Kim Ristolainen

University of Turku

The views and opinions expressed in this paper are those of the authors and do not necessarily reflect the views of the Bank of Finland

Purpose of the survey

- Survey of 149 leading academic researchers on
 - bank capital requirements
 - related bank regulation
- To the best of our knowledge, this has not been done before
- Key questions
 - What are the effects of capital requirements?
 - How should bank (capital) regulation be designed?
 - What should the optimal level of minimum bank capital requirements be?
- Aims
 - Help form an aggregated view of results in the literature
 - Provide an assessment of the state of bank capital regulation
 - Identify areas of consensus and disagreement to help focus future research

Motivation

- Helping to draw together results from the large literature
 - Expert survey is a way to aggregate research knowledge
 - Expert judgement can complement meta-analyses
- Limits of current quantitative models
 - Capturing a large set of potential trade-offs and channels remains a challenge for formal models
 - Expert judgement can provide complementary information to current models

Motivation

- Impartiality of academic experts
- Notable academic initiatives proposing fundamental reforms of bank capital requirements
 - Important to know how commonly these views are shared within the academic community

Survey design

- Academic experts: IDEAS/RepEc database: Top 10% authors in Banking, Finance, and Macroeconomics
 - Notable experts and editorial boards of Journals which publish papers in banking regulation
 - Experts: not necessarily on personal research but regularly exposed to bank capital research and equipped with necessary tools to digest info
- Non-exhaustive but representative list
 - 1,383 names and email addresses
- Online, voluntary, and anonymous
 - Invitation by email with two follow-up emails over four week period
- Questionnaire
 - 18 Questions pre-tested on sub-sample of experts
 - Guidance from Advisory Board
 - Simple, easy to accomplish, and relatively short (5-15 mins)

Bank of Finland Survey on Bank Capital Requirements

Instructions:

- Please do not forget to click the **Submit** button at the bottom of the page.
- Please note that, unless explicitly stated, the survey pertains to issues in banking regulation in general and not specifically on the Basel III reform.
- We understand that bank capital regulation is multi-dimensional and deeply connected to other aspects of banking regulation and it may be difficult to provide answers to the questions below without further qualifications. We encourage you to pick the options which best reflect your views and to use the Feedback section at the end of the survey to expand on your answers.

1. Please indicate in which demographic group(s) you belong to

	Age	Gender
Group	Please choose... <input type="button" value="v"/>	Please choose... <input type="button" value="v"/>

2. Please indicate in which region you currently reside in

Choose one of the following answers

Please choose...

3. Please indicate your primary field of research and expertise

Choose one of the following answers

Please choose...

Common equity as percentage of Risk-weighted Assets:

Common equity as percentage of Total Assets:

10. Is there a need for systemically important banks to hold additional capital as part of minimum requirements?

Choose one of the following answers

Please choose... ▼

Please choose...

Yes

No

No opinion

11. Is there a need for systemically important banks to hold additional capital as part of minimum requirements in response to the business cycle component (e.g. credit cycle) to bank

Choose one of the following answers

Please choose... ▼

Survey design

- Implementation
 - February 14 to March 10, 2019
 - 149 respondents (11% response rate)
- Results available online:
 - <https://www.suomenpankki.fi/en/research/survey-on-bank-capital-requirements/>
- Caveats
 - Strategic motives unlikely
 - Anonymity limits information collected
 - Views are largely qualitative in nature
 - Sample size limits scope of statistical analyses
- What follows: Preliminary results

Preview of results

- **Survey-based estimates of desirable (“optimal”) level of bank capital requirements:**
 - Higher than current with some dispersion
- **Providing expert “approval ratings” for new elements of Basel III recommendations**
 - General support
- **Shedding further light on channels through which bank capital requirements work in determining the trade-off between bank safety and economic activity**
 - Trade-off operating through cost of bank lending

Outline

- Background characteristics
- What do capital requirements do?
- Preferred minimum capital requirements
- Forms of minimum capital requirements
- General views and consistency
- Concluding Remarks

Background characteristics

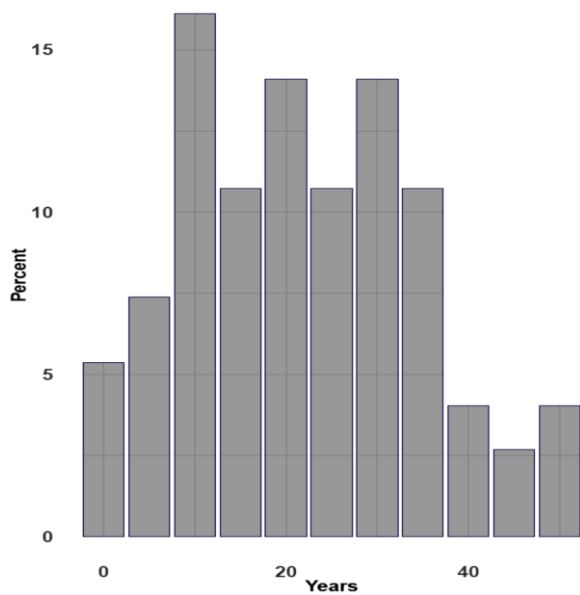
Respondents overview

	Invited		Gender			Region		
	No response	Response	Female	Male	No answer	North America	Europe	Other
Obs.	1234	149	17	126	6	67	72	10
%	89.2	10.8	11.4	84.6	4.0	45.0	48.3	6.7
	Self-Assesment		Field			Experience ²		
	Expert	Non-expert ¹	Macro-Finance	Banking and Finance	Other	Academia	Public	Private
Obs.	64	85	57	80	12	144	90	73
%	43.0	57.0	38.3	53.7	8.1	96.6	60.4	49.0

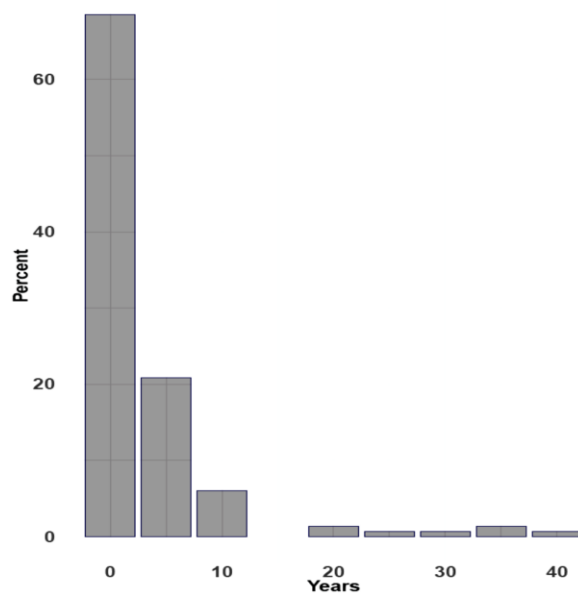
Note: ¹The respondents who are unaware, aware or knowledgeable on issues related to bank capital requirements are labelled as non-experts.

²Each respondent with atleast one year of experience in a given sector is counted in the respected experience group.

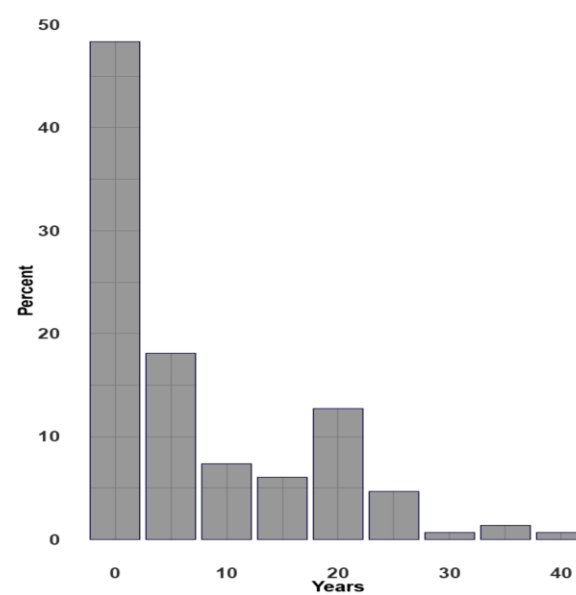
Years of experience



Academia
22.67 (20)*



Private
11.94 (10)



Public
6.16 (5)

*Mean (median) years

Experience and expertise

Correlations

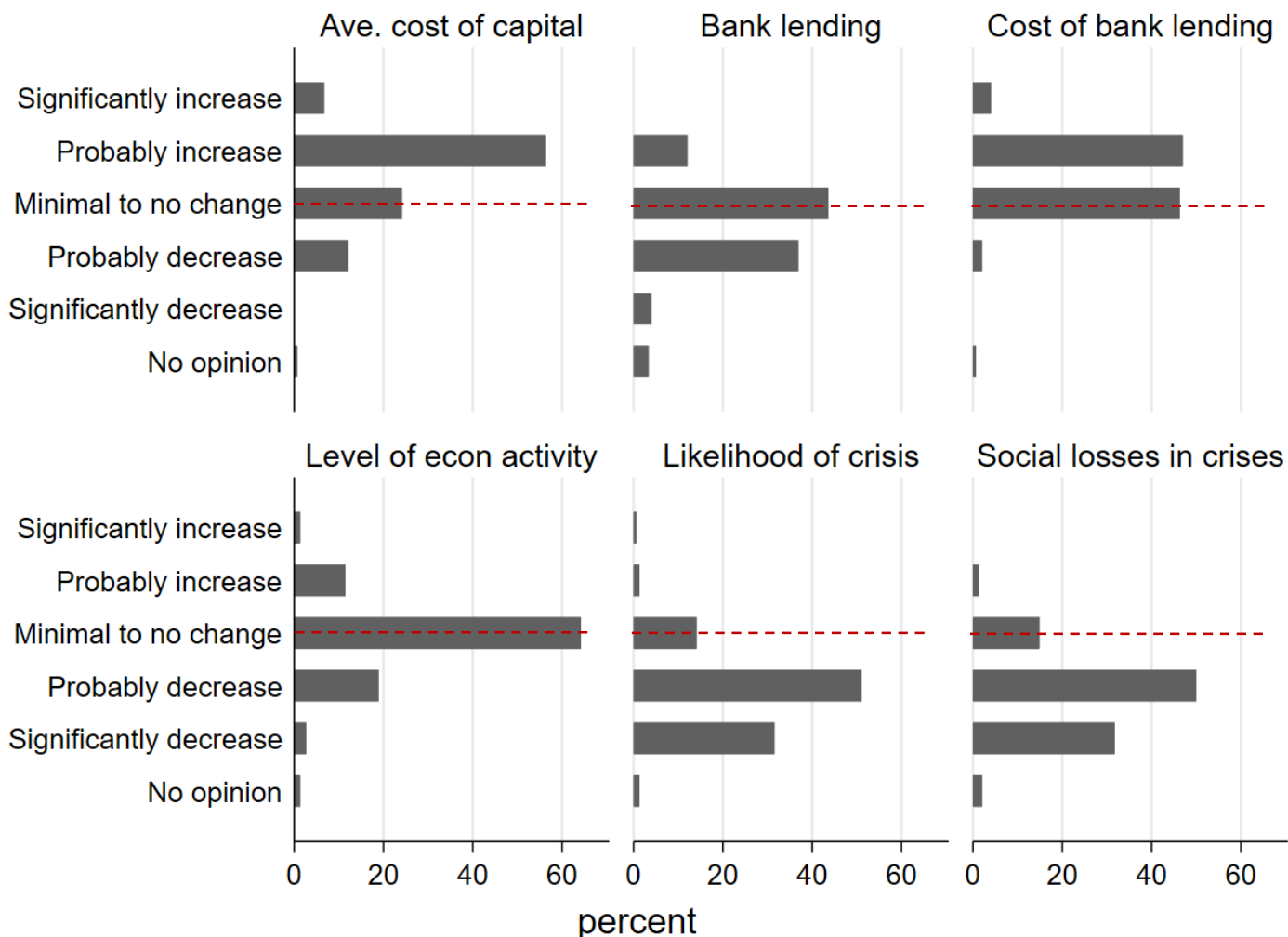
	Expert (0/1)	ACADEMIA (years)	PRIVATE (years)	PUBLIC (years)	TOTAL* (years)	Share ACADEMIA	Share PUBLIC
Expert (0/1)	1						
ACADEMIA (years)	-0.035	1					
PRIVATE (years)	0.268**	0.292**	1				
PUBLIC (years)	0.212**	-0.424***	0.319**	1			
TOTAL* (years)	0.205**	0.674***	0.713***	0.296**	1		
Share ACADEMIA	-0.307***	0.558***	-0.245**	-0.786***	-0.07	1	
Share PUBLIC	0.217**	-0.611***	-0.183	0.764***	-0.09	-0.919***	1
Mean	0.43	22.67	6.16	11.94	32.15	0.69	0.24

*TOTAL = ACADEMIA+PUBLIC+PRIVATE

What do capital requirements do?

Effect of capital requirements

- "How are the following likely to be different (in the steady state) if capital requirements were higher by approximately 5 percentage points across the board and relative to Basel III recommendations?"* differences across demog groups not that large



Effect of capital requirements

- *"How are the following likely to be different (in the steady state) if capital requirements were higher by approximately 5 percentage points across the board and relative to Basel III recommendations?"*
- Quantify responses:
 - Significantly increase (+1.0) Probably increase (+0.5)
 - Minimal to no change (0.0)
 - Significantly decrease (-1.0) Probably decrease (-0.5)

	Likelihood crises	Crisis social losses	Lending	Cost of lending	Econ activity	WACC
Likelihood crises	1.000					
Crisis social losses	0.648***	1.000				
Lending	-0.092	0.034	1.000			
Cost of lending	0.165**	0.115	-0.433***	1.000		
Econ activity	-0.244***	-0.118	0.596***	-0.462***	1.000	
WACC	0.174**	0.066	-0.344***	0.353***	-0.262***	1.000
Mean	-0.56	-0.57	-0.17	0.26	-0.05	0.29

*p<0.1; **p<0.05; ***p<0.01

Takeaways

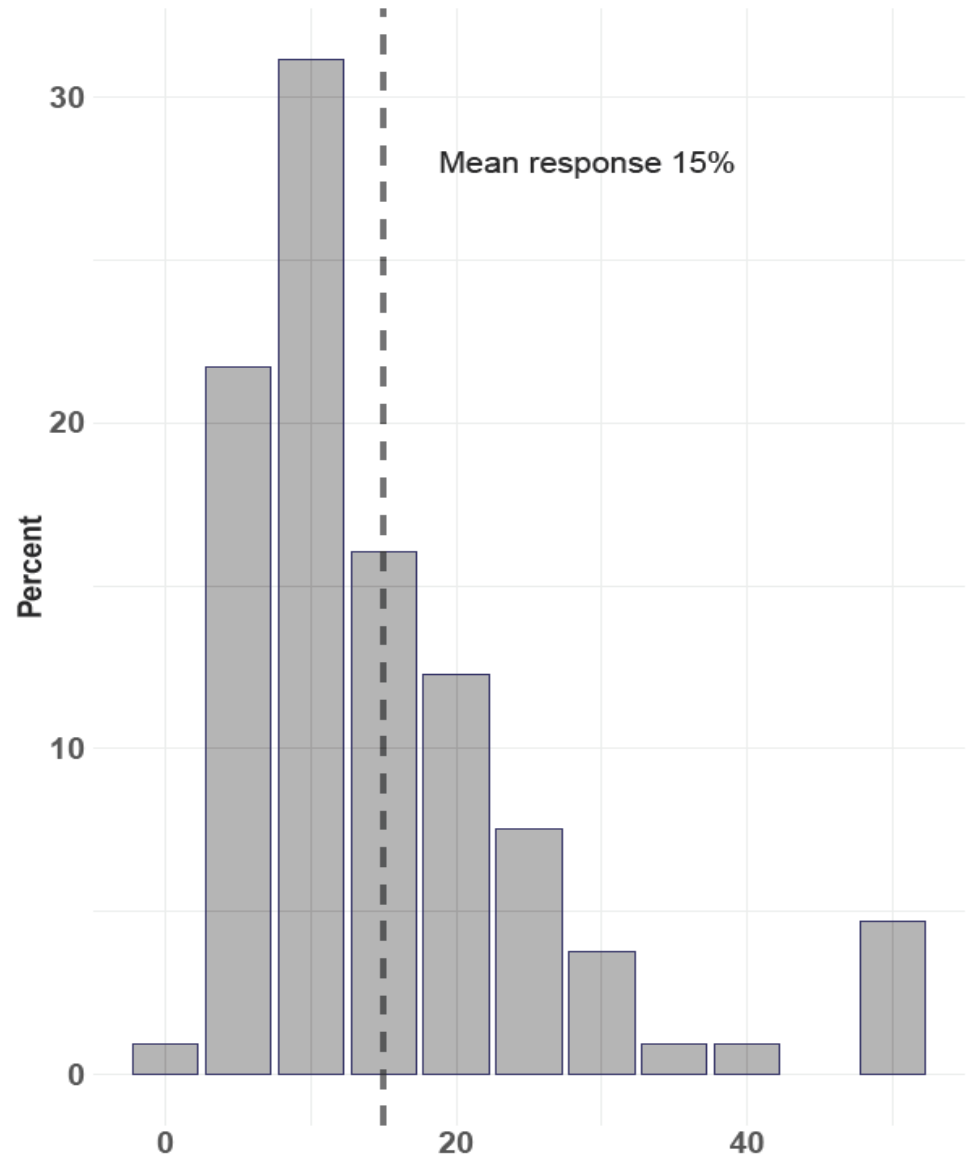
- **Clear consensus that higher requirements lowers the likelihood of and social costs associated with crises but may also raise the cost of bank lending**
- Some disagreement on effects of requirements on the provision of bank lending, the average cost of bank capital, and on the level of economic activity
- Median respondent views higher requirements as improving financial stability whilst generating a negative "loan supply shock" - raising bank lending costs and lowering loan volumes but minimal to no effect on the level of economic activity
- **Correlations of views indicate trade-off is present and linked to bank funding costs**
- Compares well with BIS FRAME (Boissay et al., 2019) which provides quantitative assessments from a repository of studies
- Demographic differences may shed light on sources of disagreement (?)
 - Self-rated Experts have more muted views on effects of capital requirements but with similar (if not more) disagreement
 - North American residents expect stronger effects on bank capital costs and weaker effects on social costs in a crisis relative to European residents
 - Macro-finance focused experts perceive stronger effects on crises and weaker on economic activity relative to Banking and Finance focused experts

Preferred minimum capital requirements

"Leverage ratio" requirement

- *"What approximate values of the following capital ratios (in terms of book-value equity and in percent) is closest to your view of the level of capital that all banks should have as a minimum at all times?"*
- a) *common equity as percentage of total assets"*
- Options given were 0%, 5%, 10%...>=50%
- Substantially higher than current
 - Mean (median) is 15.14% (10%)
- Dispersion is large
 - Inter-quartile range is 10-20%

**Higher for North America 18 vs Europe 13,
Non-expert 16 vs Expert 14, MF 17 vs BF 14**



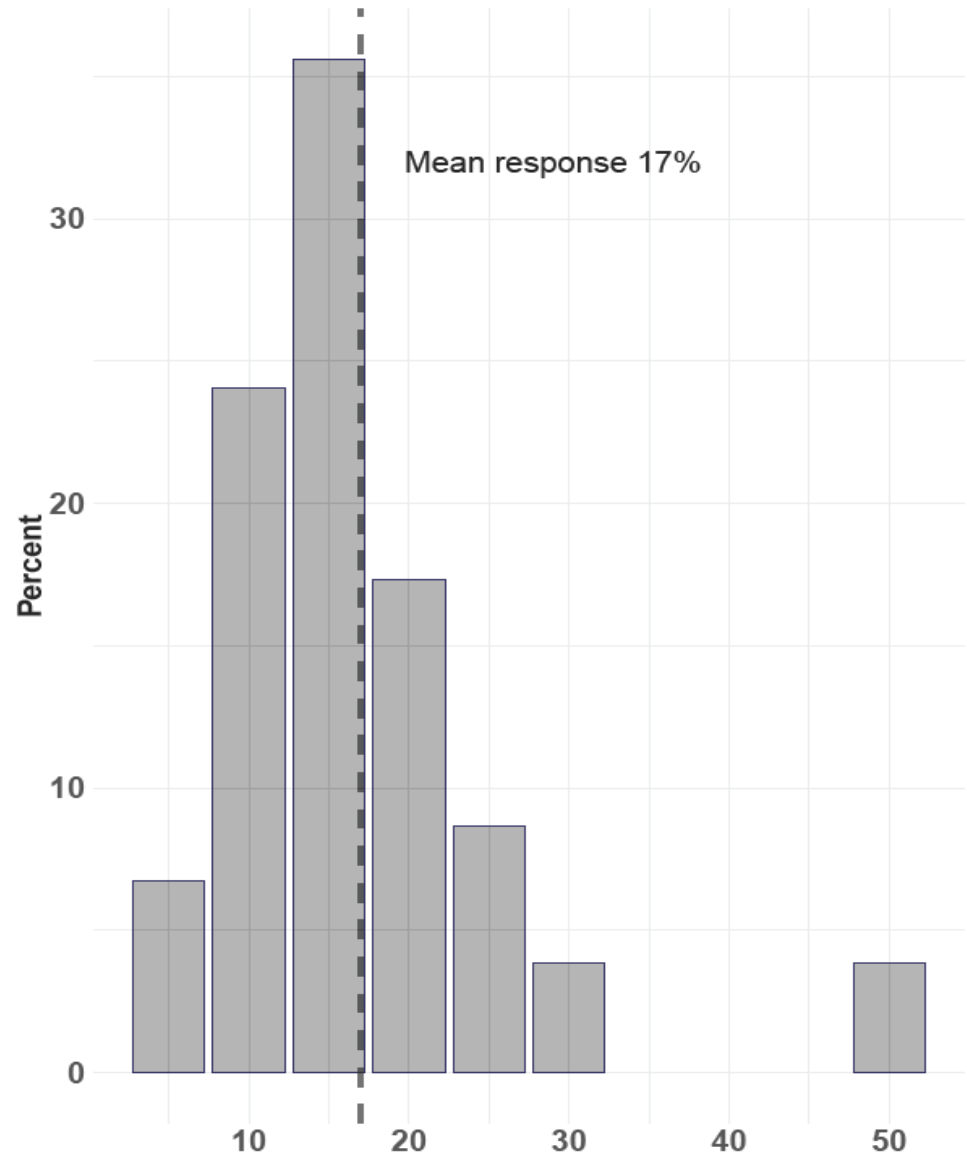
”Leverage ratio” requirement

	Minimum leverage ratio requirement							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
The likelihood of banking crises	3.090						0.904	
The social losses incurred		6.451*					7.618*	
The provision of bank lending			4.942*					2.245
The cost of bank lending				-7.937***				-6.142**
The level of economic activity					4.119		6.075*	
The WACC to banks						-4.442**		-2.034
Share acad experience	7.193***	7.674***	8.820***	8.075***	8.480***	7.758***	9.000***	8.844***
Total experience	0.102*	0.096	0.102*	0.099*	0.106*	0.090	0.101*	0.092
North America	4.345**	3.983*	4.355**	4.182**	4.550**	4.454**	3.890*	4.074*
R-squared	0.113	0.144	0.130	0.154	0.125	0.127	0.190	0.168
Observations	106	106	104	106	105	106	105	104

*p<0.1; **p<0.05; ***p<0.01

Risk-weighted capital requirement

- *”What approximate values of the following capital ratios (in terms of book value equity and in percent) is closest to your view of the level of capital that all banks should have as a minimum at all times?”*
- *b) common equity as percentage of risk-weighted assets?”*
- Options given were 0%, 5%, 10%...>=50%
- Higher than current
 - Mean (median) is 16.78% (15%)
- Dispersion is large
 - Inter-quartile range is 10-20%
- Higher for NA 18 vs EU 16, Exp 18 non-Exp 16, and Pub exp 18, no pub exp 16
- Average – 2% prior to Basle III, 9% now.



Risk-weighted capital requirement

Minimum book equity to RWA requirement

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
The likelihood of banking crises	-2.613						-3.043	
The social losses incurred		-0.300					2.512	
The provision of bank lending			5.804**					3.074
The cost of bank lending				-9.696***				-8.053***
The level of economic activity					5.848**		5.461**	
The WACC to banks						-3.451		-0.142
Share acad experience	0.478	0.098	0.852	0.618	1.049	0.764	1.380	0.971
Total experience	0.039	0.035	0.044	0.065	0.002	0.042	0.002	0.066
North America	2.365	2.597	2.605	2.011	2.481	2.992	2.348	2.121
R-squared	0.0362	0.0244	0.0795	0.127	0.0715	0.0474	0.0809	0.139
Observations	104	104	103	104	103	104	103	103

*p<0.1; **p<0.05; ***p<0.01

Takeaways

- **Average preferred ratios are higher than current recommendations**
- Consistent with meta-analyses and surveys of the literature
 - BCBS (2019) offer a range of 10-25% CET1/ RWA
- Still, substantial dispersion
- **What explains preferred minimum requirements?**
 - **Views on benefits and costs (primarily cost of bank lending)**
- Dispersion of views may not be an issue as contexts/environments to which requirements are applied may be different
 - Global spillovers (Franch et al., 2019; Takats Temesvary, 2019)?

Forms of minimum capital requirements

Net Approval rating: Yes (+1) / No (-1)

- Ex: "Should a leverage ratio form part of minimum bank capital requirements?"
 - Yes and would complement risk-weighted capital requirements (+1)
 - Yes and should replace risk-weighted capital requirements (+1)
 - No given risk-weighted capital requirements (-1)
 - No Opinion (0)

Liquidity coverage ratio, Net stable funding, counter cyclical buffer or component, market-based capital, if 50-50 then net approval is zero. **Leverage – 79% approval. All new elements in basle iii are supported. USA are lukewarm in supporting leverage . Experts are for more stricter...**

	Leverage	SIFI	LCR	NSF	CCyB	Market-based	Hybrid
Self rating							
Expert	91 %	72 %	55 %	33 %	52 %	31 %	23 %
Knowledgeable	77 %	85 %	63 %	48 %	57 %	50 %	19 %
Aware	54 %	42 %	71 %	42 %	29 %	46 %	13 %
Region							
Europe	92 %	81 %	75 %	46 %	65 %	35 %	28 %
North America	69 %	66 %	48 %	33 %	30 %	40 %	12 %
Other	60 %	60 %	50 %	60 %	60 %	80 %	22 %
Total	79 %	72 %	61 %	41 %	49 %	40 %	20 %

Linear Probit: Yes(+1)/No(0) What can explain why they support or do not support? 90% said yes, there should be leverage ratio. When people think higher WACC then they dilute and prefer hybrids. Public experience are less likely to support market based, or leverage, SSI yes!

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Leverage	Market-based	Hybrid	CCyB	NSFR	LCR	SIFI
Unconditional mean	0.904	0.705	0.612	0.755	0.740	0.827	0.870
The WACC to banks	-0.056	-0.087	0.188*	0.215**	-0.062	0.034	-0.014
Share pub experience	-0.168*	-0.617***	-0.154	-0.119	0.162	0.121	0.172**
Total experience	0.002	0.001	-0.005*	-0.004*	-0.000	0.002	0.001
North America	-0.083	0.014	-0.063	-0.177**	-0.040	-0.115*	-0.050
Expert	0.093	0.026	0.069	0.077	-0.129	-0.133**	-0.075
Banking and Finance	0.012	-0.128*	0.078	0.057	-0.024	0.060	0.139**
Constant	0.899***	0.911***	0.710***	0.878***	0.814***	0.785***	0.788***
R-squared	0.0862	0.189	0.0640	0.120	0.0377	0.0535	0.0612
Observations	146	145	134	142	127	139	145

*p<0.1; **p<0.05; ***p<0.01

Takeaways

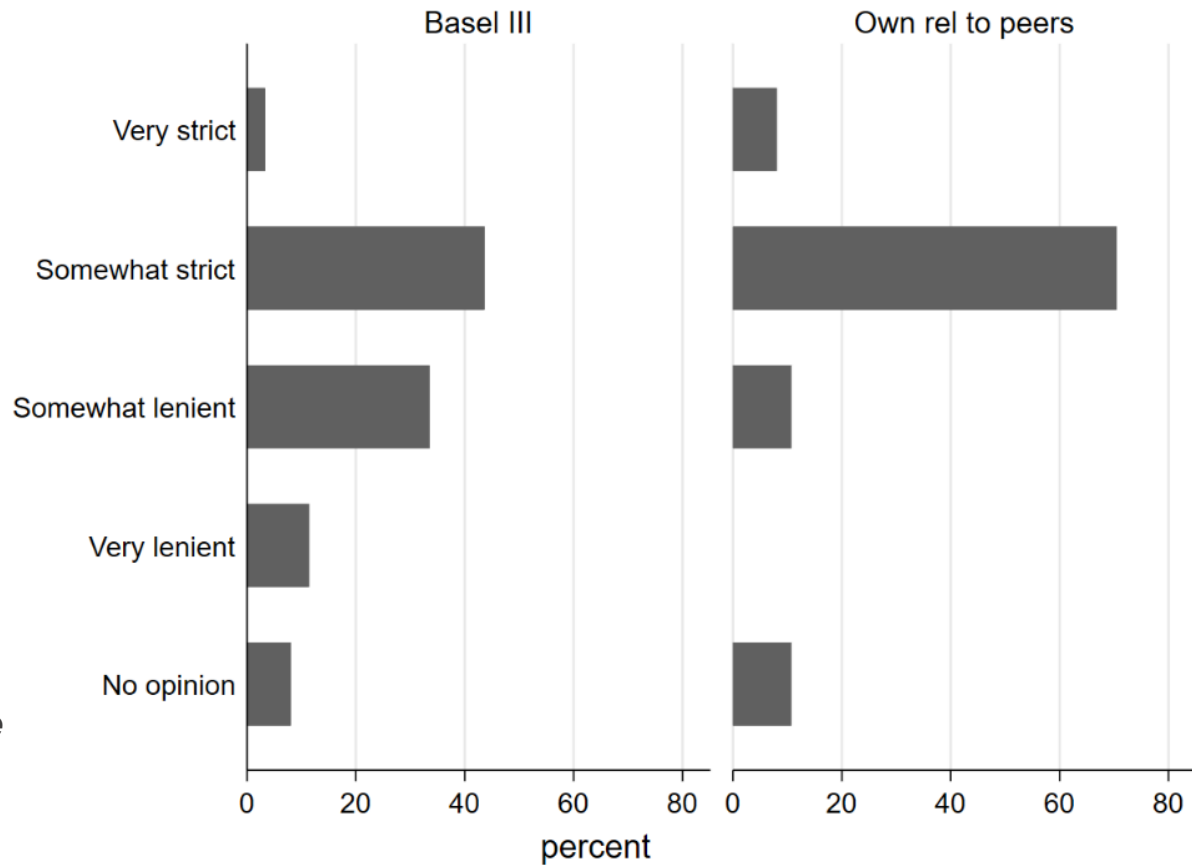
- Basel III reforms are generally well received
- **Some support for market-based measures of capital**
- **”Exposure” to public sector seems to be a strong driver for (dis-) approval of market-based measures and additional requirements on SIFI**
- **Effect on bank funding costs also appear to be a driver for support of Hybrid instruments and CCyB**

General Views and "internal consistency"

Stringency of own views and Basel III

Stringency of own views and Basel III Are their answers consistent among answers? Most are strict. They think they are stricter here relative to peers.

- *"How would you describe the overall strictness of Basel III recommendations?"*
- *"How would you describe the strictness of your views on banking regulation relative to your peers and colleagues?"*
- *Strictness may be interpreted in terms of scope, coverage or intensity where a more restrictive state (e.g. higher capital requirements) is more stringent.*



Consistency of views

- Quantify views: Very strict (+1) ... Very lenient (-1)
- Higher (lower) preferred minimum requirements when considers self (Basel III) to be stringent
- More resilient financial system associated with lower preferred ratios and likelihood of future crises

You expect that strict people no correlation... Those believe basle is strict you give lower number.

Those who think high RWA also Min Lev .7736. **who believe system is resilience you think crisis is less likely, those who believe basel is strict – also believe in resilience is higher.**

	Min RWA	Min Lev	Improved resilience	Crisis likely	Strictness: own	Strictness: Basel
Min RWA	1					
Min Lev	0.7736***	1				
Improved resilience	-0.1214	-0.2946***	1			
Crisis likely	0.094	0.0969	-0.3994***	1		
Strictness: own	0.1476	0.0977	-0.0282	-0.0011	1	
Strictness: Basel	-0.3934***	-0.2561**	0.2831***	-0.168*	-0.314***	1

*p<0.1; **p<0.05; ***p<0.01

Conclusions

- Survey-based estimates of desirable (“optimal”) level of bank capital requirements
 - **Higher than current with some dispersion**

- Providing expert “approval ratings” for new elements of Basel III recommendations
 - **General support**

- Shedding further light on channels through which bank capital requirements work in determining the trade-off between bank safety and economic activity
 - **Trade-off operating through cost of bank lending**

- Help identify issues of bank regulation with consensus vs disagreement
 - Helping to guide future research efforts

Results available online:

<https://www.suomenpankki.fi/en/research/survey-on-bank-capital-requirements/>