Identifying the Core Driver for the Islamic Banking Capital Adequacy Regulation

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Islamic Banking

- Ban of fixed interest rates (usury)
- Ban of ambiguity in contracts
- Ban of Gambling
- asset backed operations
- PLS investment assets associated with special Investment accounts

$$CAR = \frac{K}{RWA_{SF} + \alpha \cdot \left(RWA_{UPSIA} - PER \& IRR_{UPSIA} \right)}^{*}$$

where RWA_{SF} - the assets financed solely by a bank;

RWA_{UPSIA} - the assets financed by the profit-sharing investment accounts with no limitations on the investment goals (the unrestricted accounts) and affected by credit and market risks;

$PER\&IRR_{UPSIA}$ - the reserves created against the credit and market risks of the UPSIA-financed assets;

α - the share of the commercial risk arisen initially for an investment account holder (IAH), but covered by a bank when IAH and a bank are co-investing (aka displaced commercial risk, DCR);

*The modification of the formula of IFSB-15 Standard, December 2013 to make it more illustrative

Literature Review

Comparative studies: Pappas et al, 2017; Beck et al, 2013; Hussein, 2010

Solely Islamic banking: Smaoui et al, 2020; Sobarsyah et al, 2020; Bitar et al, 2020

BUT! They process the available capital ratios without questioning its composition.

Source	Derivation of alpha	Estimates of alpha	Nomination
Archer et al., 2010	Vasicek-based theoretical model (UL), data panel on banks	No	"population alpha"
Baldwin et al., 2019	Vasicek-based theoretical model (UL), bank-level alpha	Yes, for 11 countries	"structural alpha", "population alpha"

Methodology
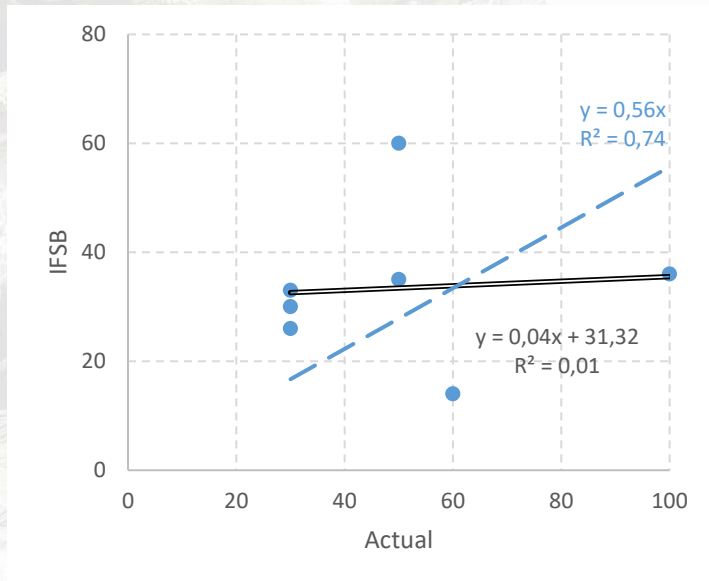
(a) Population alpha vs Actual one
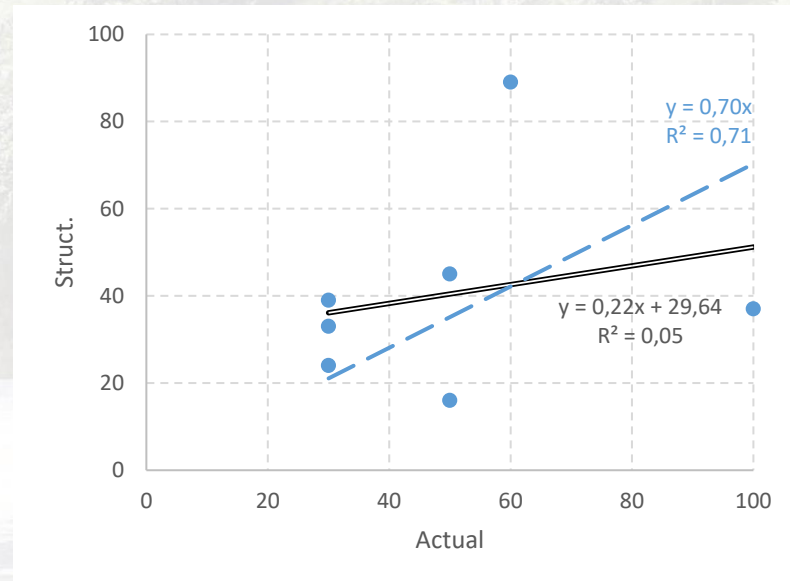
(b) Structural alpha vs Actual one

Methodology

$$\alpha_i = \beta + \beta_i X_i + e_i$$

where α_i – the value of "population alpha", median "structural alpha" or actual alpha for country i;
X_i – the explanatory variable for country i,
e_i – the regression model error component (we wish it to be independent and identically distributed, i.i.d.)

Data

Structural & population theoretical alphas from Baldwin et al., 2019

Actual alphas from local regulation, officials documents from open sources

The *macroeconomic explanatory variables* :

| #	Variable	Notation	Measurement	WB Series code
1	Domestic credit provided by financial sector	DCredit_GDP	% of GDP	FS.AST.DOMS.GD.ZS
2	GDP per capita (constant 2010 US$)	l_GDPpc	natural log	NY.GDP.PCAP.KD
3	Current account balance	CA_GDP	% of GDP	BN.CAB.XOKA.GD.ZS
4	Broad money to total reserves	Money_mult	ratio	FM.LBL.BMNY.IR.ZS

Findings

Actual alpha are positively related to the credit-to-gdp whereas the theoretical structural alpha yields opposite results
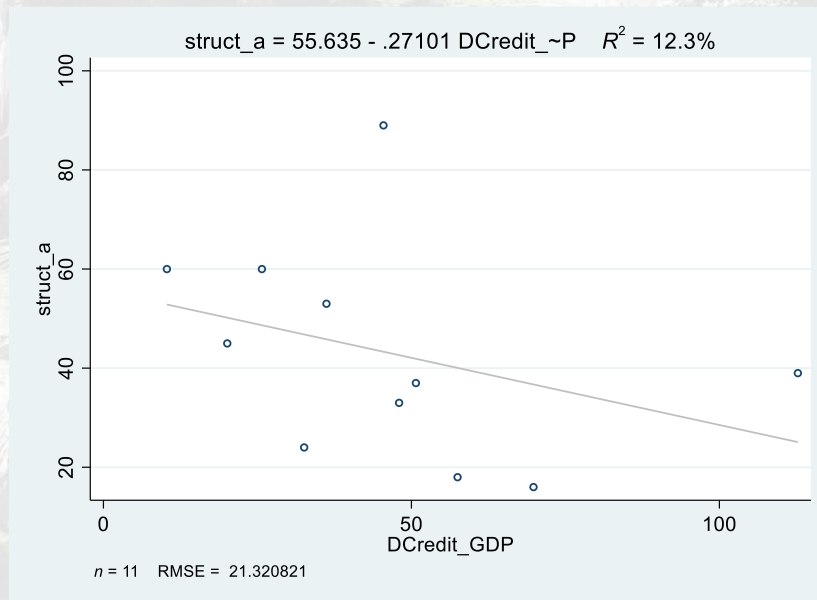
(a) OY - Structural alpha
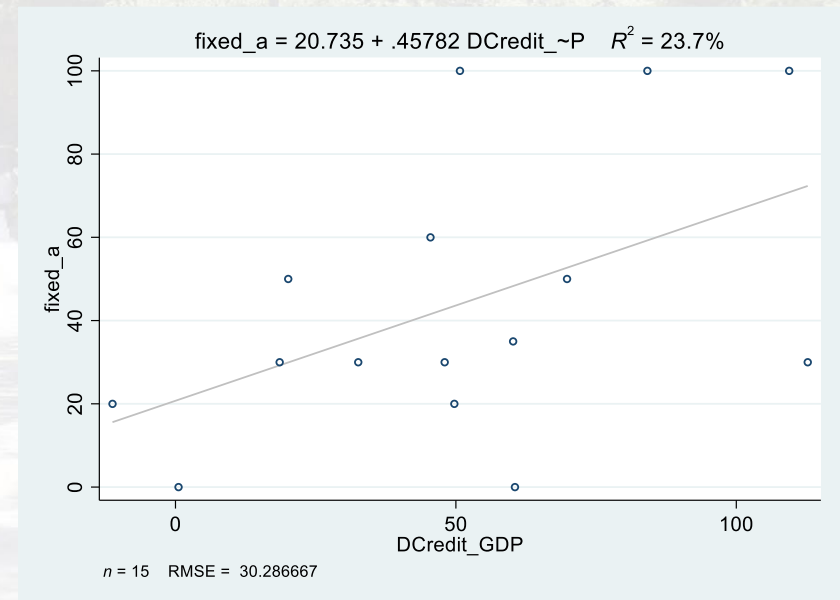
(b) OY – Actual alpha

Findings

Year	VARIABLES	Alpha, pp.		
		Population	Structural	Actual
2007	**DCredit_GDP**	-0.0912	-0.271	**0.581****
	Intercept	42.68***	55.63***	9.883
	Observations	11	11	15
	R-squared	1.6%	12.3%	30.3%
	l_GDPpc	0.517	**-10.68****	4.432
	Intercept	33.27	135.8***	-0.0313
	Observations	10	10	15
	R-squared	0.1%	55.7%	3.9%
	l_Money_mult	-10.7	11.57	5.74
	Intercept	51.85***	28.61*	35.17*
	Observations	11	11	14
	R-squared	12.2%	12.3%	1.4%
	CA_GDP	-0.28	-0.59	-0.204
	Intercept	38.63***	43.56***	39.05***
	Observations	10	10	12
	R-squared	4.3%	16.5%	1.0%

Year	VARIABLES	Alpha, pp.		
		Population	Structural	Actual
2016	**DCredit_GDP**	-0.141	-0.188	**0.635*****
	Intercept	48.38**	55.04**	-6.581
	Observations	8	8	14
	R-squared	5.7%	9.5%	60.5%
	l_GDPpc	0.564	**-10.78****	4.929
	Intercept	32.87	136.3***	-4.857
	Observations	10	10	15
	R-squared	0.2%	53.6%	3.9%
	Money_mult	0.167	0.108	0.187
	Intercept	34.32**	38.69**	37.38***
	Observations	8	8	14
	R-squared	7.7%	3.0%	2.1%
	CA_GDP	-1.143	0.877	0.183
	Intercept	27.43**	50.06***	40.10***
	Observations	10	10	14
	R-squared	17.3%	9.0%	0.2%

Findings
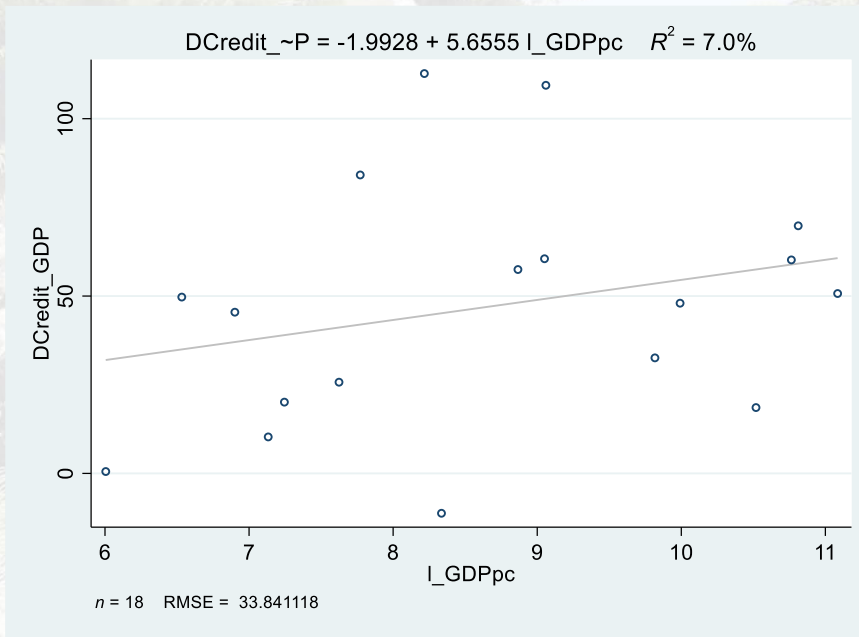
(a) 2007
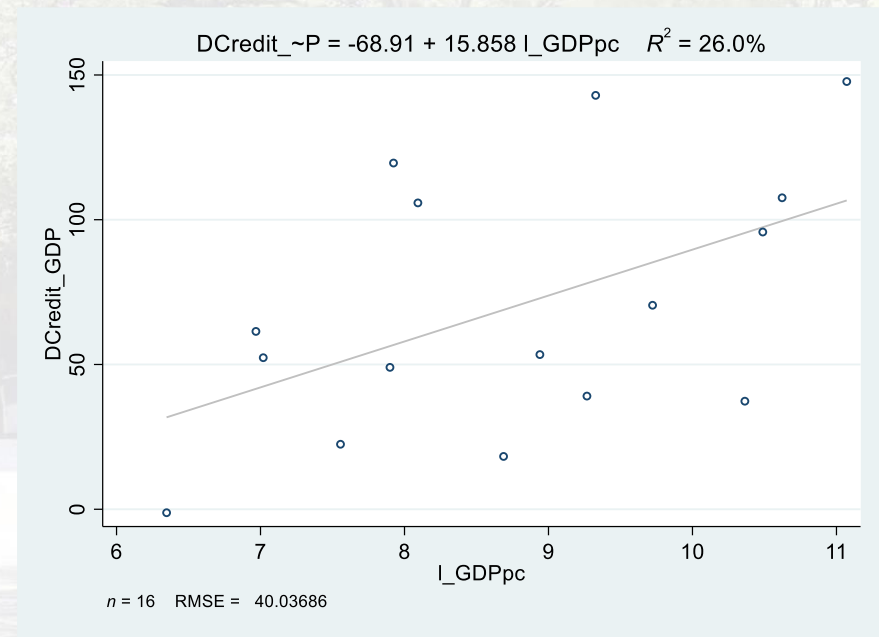
(b) 2016

Conclusions

- The actual alpha determinant is **different in essence and in sign** from the one corresponding to the theoretical alpha values.

- Each ten percentage points in the credit-to-GDP **add to six percentage points** in alpha.

- Given the same amount of capital, the Islamic bank becomes more constrained in its activities to meet the same minimum capital adequacy requirements. This means that **a regulator incentivizes an Islamic Bank to contract the amount of risks** taken when there is a credit boom.

Thank you!