

CoCo issuance and bank fragility

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1. Introduction

2. Institutional background and data

3. Main hypotheses

4. Empirical analyses

5. Conclusion



Abstract

- The promise of contingent convertible capital securities (CoCos) as a "bail-in" solution has been the subject of considerable theoretical analysis and debate, but little is known about their effects in practice.
- We undertake the first comprehensive empirical analysis of bank CoCo issues, a market segment that comprises over 730 instruments totaling \$521 billion.



Abstract

- Four main findings emerge:
- (1) the propensity to issue a CoCo is higher for larger and better capitalized banks;
- (2) CoCo issues result in a statistically significant decline in issuers' CDS spread, indicating that they generate risk-reduction benefits and lower costs of debt (this is especially true for CoCos that convert into equity, have mechanical triggers, and are classified as Additional Tier 1 instruments);
- (3) CoCos with only discretionary triggers do not have a significant impact on CDS spreads;
- (4) CoCo issues have no statistically significant impact on stock prices, except for principal write-down CoCos with a high trigger level, which have a positive effect.



1.Introduction



If there is one term that epitomizes the infamy of the global financial crisis of 2007–2009, it is “too big to fail.”

One way of bringing about a swift and seamless recapitalization of a distressed bank is through the **conversion of contingent convertible capital securities** (CoCos) previously issued by the bank.

The introduction of the Basel III framework, which allowed banks to meet part of their regulatory capital requirements with CoCo instruments, created incentives for banks to issue CoCos.



As the number of jurisdictions implementing Basel III grew, banks responded by raising a substantial amount of capital in the form of CoCo issuance. Between January 2009 and December 2015, banks around the world issued a total of \$521 billion in CoCos through 731 different issues.



Contribution

- Our paper contributes to the wider literature of empirical studies of financial contracts
- Because our financial contracts are publicly traded, we can shed light on market reactions to particular designs, which is typically not possible for venture capital contracts or syndicated bank loans.



2. Institutional background and data



CoCo主要设计特征

- （一）触发条件
- 触发机制即可转债发行条款所约定的、必须进行债转股或债务核销的条件，它是可转债机制设计的关键。触发条件可以唯一，也可以是多个的，各个条件之间是并列而非叠加关系，满足其中之一即可触发损失吸收。主要分为三种类型：一是以**资本充足**情况为触发条件，如银行资本充足率达到某一下限时。二是以**市场指标**为触发条件，如银行股价低于某一水平时。上述两类统称为**机械触发条件**。三是以**监管当局规定**为触发条件，也称**监管裁量触发条件**。



- （二）损失吸收机制
- 可转债参与资本重组可以有两种方式：一种是强制转换为股权（MC），另一种是本金减记（PWD）。前者是指通过预先设定的转化率将应急可转债转换为股权，以此增加核心一级资本；后者是指通过永久或临时的减记债券金额来修复银行的资产负债表。



- （三）监管资本分类

- 按照监管要求，可转债可分为其他一级资本（AT1）可转债和二级资本（T2）可转债。AT1可转债是指用于补充其他一级资本的可转债；T2可转债是指用于补充二级资本的可转债。两者都需具备一个可自由选择的触发条件，也称无法维持营运（PONV）触发点。



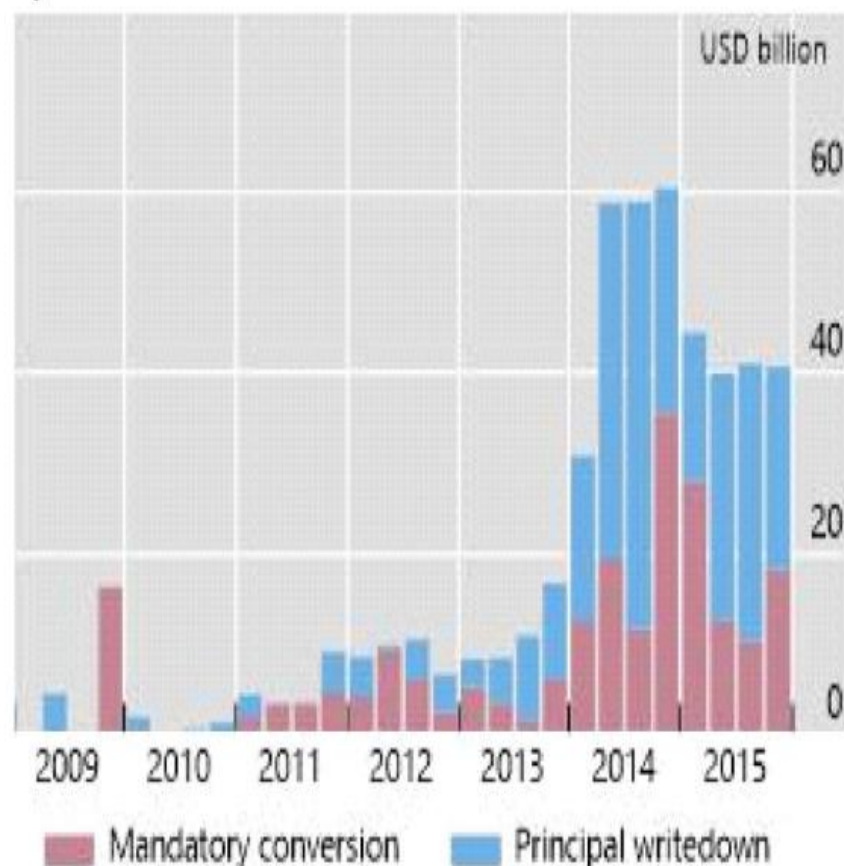
- 所有AT1转换债必须有一个机械触发条件，最低触发水平为核心一级资本充足率低于5.125%。但美国的情况比较特殊，《多德—弗兰克法案》规定银行发行的其他一级资本和二级资本工具须符合法定的触发条件。



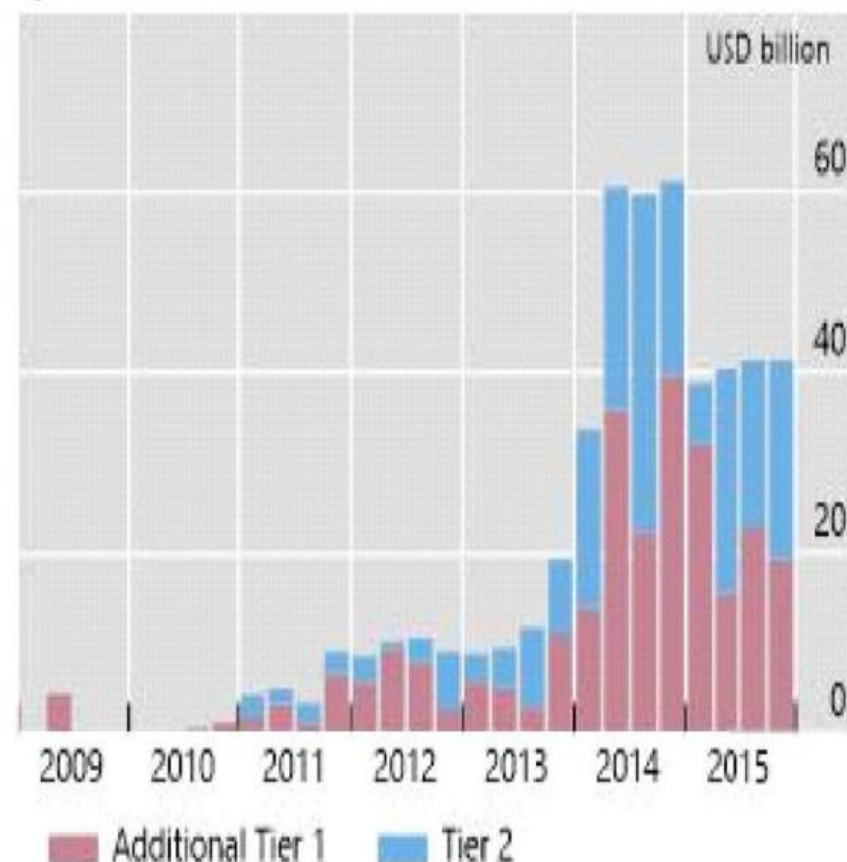
	Conversion mechanism		Trigger				Tier classification		G-SIB designation		Total
	Principal write-down	Mandatory conversion	Mechanical All levels	Mechanical < =5.125	Mechanical > 5.125	Discretionary only	AT 1	Tier 2	G-SIB	Non-G-SIB	
Advanced economies	124.3 (182)	154.7 (194)	206.7 (243)	125.7 (174)	81.0 (69)	73.3 (142)	188.3 (228)	73.2 (117)	124.4 (108)	155.6 (277)	280.0 (385)
Euro area	43.6 (56)	41.7 (41)	73.1 (83)	55.2 (61)	17.9 (22)	12.5 (16)	75.7 (83)	8.1 (15)	36.7 (32)	48.8 (67)	85.6 (99)
Non-euro area Europe	58.1 (84)	61.2 (68)	111.9 (136)	48.7 (89)	63.1 (47)	8.1 (22)	75.6 (86)	27.6 (33)	69.3 (43)	50.6 (115)	111.9 (158)
Switzerland	29.4 (28)	8.4 (4)	33.8 (30)	24.9 (22)	8.9 (8)	4.3 (4)	19.2 (20)	18.9 (14)	33.6 (18)	4.5 (16)	38.1 (34)
United Kingdom	10.7 (6)	51.7 (60)	62.4 (66)	16.9 (37)	45.5(29)	0 (0)	41.5 (27)	4.2 (3)	32.7 (19)	29.7 (47)	62.4 (66)
Other	18.0 (50)	1.0 (4)	15.7 (40)	6.9 (30)	8.7 (10)	3.7 (18)	14.9 (39)	4.5 (16)	3.0 (6)	16.4 (52)	19.4 (58)
Non-European AEs	22.6 (42)	51.8 (85)	21.8 (24)	21.8 (24)	0 (0)	52.7 (104)	37.0 (59)	37.5 (69)	18.4 (33)	56.1 (95)	74.5 (128)
Emerging market economies	158.6 (258)	65.1 (26)	85.6 (72)	79.5 (53)	6.1 (19)	155.9 (274)	86.6 (75)	147.8 (264)	69.4 (24)	172.0 (322)	241.5 (346)
Emerging Asia	130.0 (193)	62.2 (20)	64.7 (32)	62.5 (19)	2.2 (13)	134.1 (211)	68.7 (53)	123.5 (188)	69.1 (18)	129.7 (225)	198.8 (243)
Other EMEs	28.6 (65)	2.9 (6)	20.9 (40)	16.9 (34)	3.9 (6)	21.8 (63)	17.9 (22)	24.2 (76)	0.4 (6)	42.3 (97)	42.7 (103)
Total	282.9 (440)	219.8 (220)	292.3 (315)	205.2 (227)	87.1 (88)	229.2 (416)	274.9 (303)	221.0 (381)	193.8 (132)	327.7 (599)	521.5 (731)



By conversion mechanism



By tier classification



Note: This graph shows quarterly issuance of contingent convertible capital securities (CoCos) by banks over the period Q1 2009–Q4 2015. In some periods, there are minor differences between the quarterly issued amounts in the left- and right-hand panels due to incomplete information (on tier classification or conversion mechanism) for a small number of CoCos issued in the respective periods.



3. Main hypotheses



□ Recapitalization under **full information**

- We consider a bank which would fail to meet the regulatory capital requirement in the loss state

$$\frac{A(1 - l) - (D + B)}{A(1 - l)} < \bar{\kappa},$$

- but remains solvent $A(1 - l) - (D + B) > 0$.



- The bank can recapitalize by issuing CoCos in the amount F at date 0 or by liquidating assets Δ in the loss state at date 1.
- To recapitalize with CoCos, the bank needs to issue the MC CoCo amount

$$\frac{CET1_l^{MC}}{RWA_l^{MC}} = \frac{(A + F^{MC})(1 - l) - (D + B)}{(A + F^{MC})(1 - l)} = \bar{\kappa}, \quad F^{MC} = \frac{D + B - A(1 - l)(1 - \bar{\kappa})}{(1 - l)(1 - \bar{\kappa})} > 0,$$

or the PWD CoCo amount

$$\frac{CET1_l^{PWD}}{RWA_l^{PWD}} = \frac{(A + F^{PWD})(1 - l) - (D + B + \eta F^{PWD})}{(A + F^{PWD})(1 - l)} = \bar{\kappa},$$

$$F^{PWD} = \frac{D + B - A(1 - l)(1 - \bar{\kappa})}{(1 - l)(1 - \bar{\kappa}) - \eta} > 0.$$



- To satisfy the investors' participation constraint, the bank needs to promise to investors the premium

$$P^{MC} = \frac{\theta}{1-\theta} \left[\frac{D+B-A(1-l)(1-\bar{\kappa})}{(1-l)(1-\bar{\kappa})} - \alpha \frac{\bar{\kappa}}{1-\bar{\kappa}} (D+B) \right],$$

$$P^{PWD} = \frac{\theta(1-\eta)}{1-\theta} \frac{D+B-A(1-l)(1-\bar{\kappa})}{(1-l)(1-\bar{\kappa})-\eta}.$$



- To deleverage by asset liquidation in the loss state, the bank needs to sell Δ such that

$$\frac{A(1-l) - (1+\lambda)\Delta - (D+B-\Delta)}{A(1-l) - (1+\lambda)\Delta} \geq \bar{\kappa}.$$

- The minimum liquidation amount is

$$\Delta = \frac{1}{\bar{\kappa}(1+\lambda) - \lambda} [D + B - (1 - \bar{\kappa})A(1-l)].$$



Recapitalizing the bank by selling some of the assets at a discount is feasible if only if $\Delta > 0$, which implies the following restriction on the fire sale discount: $\frac{\lambda}{1+\lambda} \leq \bar{\kappa}$. Furthermore, the bank is solvent after the liquidation only if $A(1-l) - (D+B) - \frac{\lambda}{\bar{\kappa}(1+\lambda)-\lambda}[D+B - (1-\bar{\kappa})A(1-l)] > 0$. Thus, liquidation is a viable way to recapitalize the bank only when the fire sale discount is not too high and when the bank's loss in the low state is not too large.



- A bank issuing an MC CoCo in the amount F^{MC} at the premium P^{MC} obtains the expected payoff
- A bank issuing a PWD CoCo in the amount F^{PWD} at the premium P^{PWD} obtains the expected payoff

$$\begin{aligned}
 \Pi^{MC} &= \Pi^{PWD} \\
 &= \theta[A(1 - l) - (D + B)] + (1 - \theta) \\
 &\quad \times [A(1 + \pi) - (D + B)] + F^{MC}(\theta(1 - l) \\
 &\quad + (1 - \theta)(1 + \pi) - 1).
 \end{aligned}$$



- Suppose the bank recapitalizes by liquidating the assets at fire-sale prices at date 1. The bank expected payoff in case of liquidation is

$$\begin{aligned}\Pi^L = & \theta[A(1-l) - (D+B)] + (1-\theta)[A(1+\pi) - (D+B)] \\ & - \frac{\theta\lambda}{\bar{\kappa}(1+\lambda) - \lambda}[D+B - (1-\bar{\kappa})A(1-l)].\end{aligned}$$

- As $\Pi^{MC} = \Pi^{PWD} > \Pi^L$, the bank always prefers to issue a CoCo at date 0 rather than liquidate assets in the loss state at date 1.



- There is an inverse U-shaped relation between the issuing bank's incentives to issue a CoCo and the bank's fundamental strength as measured by equity capitalization.



□ Recapitalization under **asymmetric information**

Proposition 1. There exists \bar{v}_{HH} such that for any $v_{HH} > \bar{v}_{HH}$, the following strategies constitute a semi-separating Bayes-Nash equilibrium:

(i) Neither types LL or HH issue CoCos.

(ii) Types L and H raise the amount $F = \frac{D+B-A(1-\bar{\kappa})(1-l)}{(1-\bar{\kappa})(1-l)}$.

Type L offers an MC CoCo with $\alpha_L \in [\hat{\alpha}, 1]$, where $\hat{\alpha} = \frac{D+B-(1-\bar{\kappa})A(1-l)}{(D+B)\bar{\kappa}(1-l)}$. Type H offers either a PWD CoCo with $\eta = 0$ or an MC CoCo with $\alpha \in [0, \hat{\alpha}]$. Both types obtain full information payoffs Π_i^ , $i = L, H$.*



Proposition 2. If $l \leq \frac{v_{LL}l_{LL} + v_{HH}l_{HH}}{1 - v_L - v_H}$, the announcement of a CoCo issue triggers a positive stock price reaction. A positive stock price reaction for a bank that issues an MC CoCo with $\alpha > \hat{\alpha}$ will exceed that of a bank that issues an MC CoCo with $\alpha < \hat{\alpha}$ or a PWD CoCo with $\eta = 0$. If $l > \frac{v_{LL}l_{LL} + v_{HH}l_{HH}}{1 - v_L - v_H}$, the announcement of a CoCo issue triggers a negative stock price reaction.



4. Empirical analyses



Panel A: Duration to first CoCo issuance

	(1)	(2)	(3)	(4)	(5)
Total assets	-11.019*** (-4.36)	-14.317*** (-4.63)	-10.844*** (-3.53)	-9.641** (-3.22)	-16.537*** (-4.65)
Tier 1	-3.760** (-2.29)	-3.834** (-2.26)	2.821 (0.57)	-2.974* (-1.79)	-2.682 (-1.44)
G-SIB		-14.859 (-1.33)	-13.531 (-1.22)	-19.052* (-1.71)	-12.933 (-1.14)
Gross loans		-0.605** (-2.78)	-0.885*** (-3.60)	-0.853*** (-3.46)	-0.663** (-2.59)
Trading securities		-0.873** (-2.28)	-0.732* (-1.90)	-0.942** (-2.32)	-1.225** (-2.89)
Long-term funding		-0.156 (-0.79)	0.378 (1.42)	0.312 (1.21)	-0.114 (-0.56)
Deposits (Bank+Customer)			0.810** (3.30)		
Tier 1 ²			-0.385 (-1.24)		
Customer deposits				0.684** (2.92)	
Bank deposits				2.025*** (4.14)	
Interbank borrowing					0.833** (2.44)
Interbank assets					-0.154 (-0.45)
Number of observations	512	510	510	510	506



Panel B: Hazards to first CoCo issuance

	(1)	(2)	(3)	(4)	(5)
Total assets	0.449*** (6.19)	0.530*** (6.10)	0.515*** (5.16)	0.429*** (4.59)	0.581*** (5.94)
Tier 1	0.002 (0.29)	0.002 (0.34)	0.461* (1.91)	0.002 (0.36)	0.048 (0.88)
G-SIB		0.330 (1.06)	0.355 (1.13)	0.285 (0.89)	0.253 (0.80)
Gross loans		0.018*** (3.92)	0.032*** (4.38)	0.034*** (4.33)	0.022*** (2.81)
Trading securities		0.037*** (3.02)	0.033** (2.48)	0.040*** (2.66)	0.055*** (3.92)
Long-term funding		0.013** (2.16)	-0.004 (-0.47)	-0.004 (-0.52)	0.009 (1.45)
Deposits (Bank+Customer)			-0.026*** (-3.86)		
Tier 1 ²			-0.026 (-1.52)		
Customer deposits				-0.018*** (-2.68)	
Bank deposits				-0.117*** (-4.94)	
Interbank borrowing					-0.036*** (-2.98)
Interbank assets					-0.017 (-1.35)
Number of observations	3,323	3,323	3,323	3,323	3,296



Panel C: Hazards to first principal write-down issuance (with mandatory conversion as competing risk)

	(1)	(2)	(3)	(4)	(5)
Total assets	0.419*** (3.49)	0.473*** (3.30)	0.495*** (3.27)	0.350** (2.27)	0.588*** (4.48)
Tier 1	0.002** (2.05)	0.002** (2.36)	0.461** (2.28)	0.002** (2.51)	0.097** (2.04)
G-SIB		0.580 (1.55)	0.633* (1.65)	0.591 (1.51)	0.505 (1.29)
Gross loans		0.016*** (3.23)	0.026*** (3.21)	0.028*** (3.21)	0.015* (1.71)
Trading securities		0.036*** (3.54)	0.032** (2.51)	0.038*** (2.58)	0.046*** (3.28)
Long-term funding		0.019*** (3.47)	0.006 (0.76)	0.004 (0.54)	0.020*** (3.03)
Deposits (Bank+Customer)			-0.025*** (-3.74)		
Tier 1 ²			-0.020* (-1.95)		
Customer deposits				-0.017*** (-2.69)	
Bank deposits				-0.103*** (-4.07)	
Interbank borrowing					-0.023** (-2.11)
Interbank assets					-0.018 (-1.63)
Number of observations	3,323	3,323	3,323	3,323	3,296



Panel D: Hazards to mandatory conversion Issuance (with principal write-down as competing risk)

	(1)	(2)	(3)	(4)	(5)
Total assets	0.399*** (2.98)	0.505*** (2.83)	0.396** (2.04)	0.423** (2.08)	0.482** (2.33)
Tier 1	-0.002 (-0.04)	-0.019 (-0.22)	1.160 (1.62)	-0.022 (-0.31)	-0.034 (-0.36)
G-SIB		-0.303 (-0.51)	-0.241 (-0.40)	-0.304 (-0.50)	-0.216 (-0.36)
Gross loans		0.019** (3.92)	0.038*** (4.07)	0.041*** (2.98)	0.031** (2.12)
Trading securities		0.035** (2.18)	0.031 (1.55)	0.037* (1.71)	0.061*** (3.23)
Long-term funding		-0.002 (-0.30)	-0.028*** (-2.76)	-0.022** (-2.15)	-0.009 (-1.17)
Deposits (Bank+Customer)			-0.030*** (-4.18)		
Tier 1 ²			-0.103* (-1.76)		
Customer deposits				-0.019*** (-2.75)	
Bank deposits				-0.122*** (-3.06)	
Interbank borrowing					-0.053** (-2.33)
Interbank assets					-0.011 (-0.57)
Number of observations	3,323	3,323	3,323	3,323	3,296



Impact of CoCo issuance on issuers' CDS spreads: cumulative prediction error (CPE) analyses

	ACPE	Z-value	Proportion negative	WACPE	Sample size
All CoCos	-2.66***	-2.70	0.57**	-4.81	136
Conversion mechanism					
Principal write-down (PWD)	-1.35	-1.07	0.54	-2.40	87
Mandatory conversion (MC)	-4.97***	-3.07	0.63***	-8.37	49



	ACPE	Z-value	Proportion negative	WACPE	Sample size
Trigger					
Mechanical trigger	-3.25**	-2.22	0.55**	-4.80	83
≤ 5.125	-3.36	-1.38	0.60	-5.57	50
> 5.125	-3.08*	-1.83	0.48	-3.91	33
Discretionary trigger only	-1.08	-1.15	0.58	-2.14	50
PWD and mechanical trigger	-1.61	-1.18	0.55	-2.36	53
PWD and trigger ≤ 5.125	-0.82	-0.63	0.57	-0.67	37
PWD and trigger > 5.125	-3.42	-1.20	0.50	-6.38	16
PWD and discretionary trigger only	-0.89	-0.22	0.52	-2.51	33
MC and mechanical trigger	-6.15**	-2.13	0.57*	-8.26	30
MC and trigger ≤ 5.125	-10.58	-1.64	0.69	-21.71	13
MC and trigger > 5.125	-2.76	-1.39	0.47	-2.43	17
MC and discretionary trigger only	-1.46*	-1.66	0.71*	-1.24	17



		ACPE	Z-value	Proportion negative	WACPE	Sample size
Additional Tier 1		-4.17***	-2.63	0.57**	-6.69	75
Tier 2		-0.67	-1.00	0.57	-0.35	60
CoCo issue size (amount issued/ RWA)	< median	-1.76	-1.46	0.58*	-1.66	79
	> =median	-4.36**	-2.56	0.57*	-7.21	54
Issuer size (total assets)	< \$1000bn	-4.04***	-2.63	0.62***	-8.97	68
	> =\$1000bn	-1.54	-1.25	0.54	-2.18	65
Issuer	G-SIB	-1.53	-1.15	0.53	-2.03	72
	Non-G-SIB	-3.93***	-2.72	0.63***	-9.74	64



Impact of CoCo issuance on issuers' CDS spreads: cross-sectional regression analyses.

Panel A: Conversion mechanism				
	(1)	(2) DC: Tier 1	(3) DC: G-SIB	(4) DC: First-time issuer
Constant	−5.60** (−2.40)	−2.40* (−1.86)	−5.04* (−1.88)	−5.61** (−2.51)
PWD	3.87 (1.34)	1.28 (0.60)	3.09 (0.96)	3.83 (1.25)
Tier 1/ RWA	0.15 (0.42)	0.19 (0.53)	0.19 (0.49)	0.15 (0.41)
Amount issued/ RWA	−2.35 (−0.85)	−1.21 (−0.45)	−2.54 (−0.92)	−2.21 (−0.77)
Log (total assets)	−0.02 (−0.01)	0.64 (0.46)	−1.45 (−0.87)	0.08 (0.06)
Leverage ratio	0.28 (0.20)	0.53 (0.37)	0.56 (0.40)	0.35 (0.26)
Dummy control (DC)		−6.50 (−1.60)	2.81 (0.70)	−0.47 (−0.07)
PWD*DC		4.55 (0.97)	1.23 (0.29)	0.56 (0.08)
<i>Overall impacts</i>				
PWD	−1.73			
MC	−5.60**			
PWD; DC=0		−1.11	−1.95	−1.78
MC; DC=0		−2.40*	−5.04*	−5.61**
PWD; DC=1		−3.07	2.09	−1.69
MC; DC=1		−8.90**	−2.23	−6.08
Number of observations	133	132	133	131



Panel B: Trigger type				
	(1)	(2) DC: G-SIB	(3) DC: First-time issuer	(4) DC: PWD
Constant	−4.80** (−2.13)	−5.60** (−2.13)	−6.09** (−2.46)	−8.07** (−2.21)
DT only	1.81 (0.84)	3.83 (1.37)	3.38 (1.51)	5.35 (1.36)
Tier 1/ RWA	0.63 (1.62)	0.62 (1.54)	0.72* (1.89)	0.52 (1.33)
Amount issued/ RWA	−5.06 (−1.41)	−4.44 (−1.26)	−6.06* (−1.71)	−5.10 (−1.35)
Log (total assets)	0.16 (1.42)	−1.66 (1.69)	0.09 (1.40)	0.24 (1.49)
Leverage ratio	−0.06 (−0.05)	0.28 (0.21)	−0.08 (−0.06)	0.30 (0.22)
Dummy control (DC)		5.77** (2.33)	3.43 (1.29)	5.31 (1.54)
DT*DC		−1.86 (−0.58)	−6.08 (−1.47)	−5.87 (−1.41)
<i>Overall impacts</i>				
DT	−3.00			
Mechanical trigger (MT)	−4.80**			
DT; DC=0		−1.77	−2.71	
MT; DC=0		−5.60**	−6.09**	
DT; DC=1		2.14	−5.36	
MT; DC=1		0.17	−2.66	
PWD;MT				−2.75
MC;MT				−8.07**
PWD;DT				−3.28
MC;DT				−2.72
Number of observations	130	130	129	130



Panel C: Trigger level			
	(1)	(2) DC: G-SIB	(3) DC: First-time issuer
Constant	-4.20* (-1.72)	-2.39 (-0.95)	-7.44*** (-2.60)
LT	-0.97 (-0.29)	-6.00 (-1.12)	2.02 (0.68)
DT only	1.22 (0.55)	0.92 (0.38)	4.77 (1.62)
Tier 1/ RWA	0.63* (1.65)	0.64 (1.62)	0.81* (1.93)
Amount issued/ RWA	-5.16 (-1.38)	-4.65 (-1.27)	-6.31* (-1.70)
Log (total assets)	0.10 (0.07)	-2.08 (-1.08)	0.03 (0.02)
Leverage ratio	-0.12 (-0.08)	0.56 (0.39)	-0.05 (-0.04)
Dummy control (DC)		3.33 (0.82)	6.93* (1.95)
LT*DC		6.40 (1.09)	-6.42 (-0.96)
DT*DC		1.26 (0.29)	-9.54** (-2.03)
<i>Overall impacts</i>			
LT	-5.16*		
DT	-2.98		
HT	-4.20*		
LT; DC=0		-8.38*	-5.42*
DT; DC=0		-1.46	-2.67
HT; DC=0		-2.39	-7.44***
LT; DC=1		1.35	-4.91
DT; DC=1		3.13	-5.28
HT; DC=1		0.94	-0.51
Number of observations	130	130	129



- Impact of CoCo issuance on issuers equity prices: cumulative prediction error (CPE) analyses.

		ACPE	Z-value	Proportion negative	WACPE	Sample size
All CoCos		0.15	0.76	0.35	0.27	170
Conversion mechanism						
Principal write-down (PWD)		0.27	1.03	0.29	1.16	103
Mandatory conversion (MC)		-0.04	-0.07	0.88	-0.74	67
Trigger						
Mechanical trigger		0.40	1.02	0.23	0.60	97
< =5.125		-0.17	0.73	0.29	0.04	65
> 5.125		1.55	0.73	0.55	1.32	32
Discretionary trigger only		-0.24	-0.07	0.95	-0.38	67
PWD and mechanical trigger		0.69	1.56	0.15	1.91	60
PWD and trigger < =5.125		-0.19	0.66	0.36	0.20	47
PWD and trigger > 5.125		3.87**	2.10	0.22	7.33	13
PWD and discretionary trigger only		-0.44	-0.44	0.69	-0.57	39
MC and mechanical trigger		-0.08	-0.35	0.92	-0.82	37
MC and trigger < =5.125		-0.12	0.32	0.65	-0.34	18
MC and trigger > 5.125		-0.04	-0.80	0.66	-1.07	19
MC and discretionary trigger only		0.04	0.41	0.86	-0.11	28
Additional Tier 1		0.23	0.71	0.26	0.35	92
Tier 2		0.06	0.35	0.79	0.13	78
CoCo issue size	< median	0.33	1.44	0.12	0.14	92
(amount issued/ RWA)	> =median	0.37	-0.17	0.99	0.43	69
Issuer size	< \$1000bn	0.65	1.30	0.27	1.75	96
(total assets)	> =\$1000bn	-0.04	0.09	0.85	-0.74	67
Issuer	G-SIB	0.06	0.35	0.79	-0.27	74
	Non-G-SIB	0.22	0.70	0.48	1.13	96
European issuance		0.17	0.37	0.58	0.43	111
Non-European issuance		0.11	0.78	0.46	-0.24	59
Distance to trigger	< median	1.40*	1.65	0.19	1.66	40
(Regulatory T1 capital/RWA)	> =median	0.29	0.50	0.38	-0.26	51
First-time issuer		0.76	1.62	0.10	1.36	57
Repeat issuer		-0.23	-0.45	0.78	-0.41	108

- Impact of Coco issuance on issuers' equity prices: cross-sectional regression analyses.

Conversion mechanism and trigger level

	(1)	(2) DC: G-SIB	(3) DC: First-time issuer	(4)	(5) DC: G-SIB	(6) DC: First-time issuer
Constant	-0.44 (-0.77)	-0.71 (-1.07)	-0.63 (-1.06)	0.40 (0.55)	0.98 (1.3)	-0.05 (-0.05)
PWD	-0.10 (-0.16)	0.50 (0.59)	-0.28 (-0.41)	1.07 (1.02)	1.32 (1.16)	1.08 (1.04)
HT	0.61 (0.63)	1.38 (1.01)	0.37 (0.37)			
LT	1.05 (1.37)	1.59* (1.88)	0.92 (1.18)			
DT only				-0.78 (-0.98)	-1.78* (-1.75)	-0.55 (-0.66)
Tier 1/ RWA	-0.27* (-1.71)	-0.28 (-1.58)	-0.24 (-1.59)	-0.28* (-1.69)	-0.29 (-1.51)	-0.24 (-1.58)
Amount issued/ RWA	-0.28 (-0.23)	-0.40 (-0.32)	-0.46 (-0.38)	-0.29 (-0.21)	-0.44 (-0.34)	-0.49 (-0.38)
Log (total assets)	-0.36 (-0.96)	-0.16 (-0.33)	-0.34 (-0.87)	-0.42 (-1.03)	-0.10 (-0.18)	-0.40 (-0.95)
Leverage ratio	-0.51* (-1.81)	-0.52* (-1.88)	-0.55* (-1.92)	-0.60* (-1.92)	-0.60** (-2.03)	-0.64** (-2.04)
Dummy control (DC)		-1.11 (-1.07)	0.83 (1.18)		-1.68 (-1.44)	0.96 (1.4)
PWD*LT	0.15 (0.16)	-0.10 (-0.10)	0.29 (0.3)			
PWD*HT	4.09** (2.07)	3.33* (1.67)	4.24** (2.04)			
PWD*DT				-1.22 (-1.11)	-0.56 (-0.49)	-1.44 (-1.23)
<i>Overall impacts</i>						
PWD*HT	4.16**	4.51**	3.71**			
MC*HT	0.17	0.67	-0.26			
PWD*LT	0.66	1.28*	0.30			
MC*LT	0.62	0.88	0.29			
PWD*DT	-0.54	-0.21	-0.91	-0.53	-0.04	-0.95
MC*DT	-0.44	-0.71	-0.63	-0.38	-0.80	-0.59
PWD*MT				1.47**	2.30**	1.04
MC*MT				0.40	0.98	-0.05
Number of observations	155	155	154	155	155	154

Conclusions

- Our analysis indicates that CoCos can contribute to reducing bank fragility.
- We have shown that the issuance of MC CoCos has a stronger impact on CDS spreads, which may suggest that MC CoCos have a superior design from the point of view of reducing bank fragility.
- This points to a trade-off in terms of the combined effects of contractual features and overall issuance volumes for financial stability that any efforts to standardize CoCo instruments would have to take into account.



- Other potential avenues for standardization include
 - (i) reconsidering the benefits of CoCos with only discretionary triggers,
 - (ii) requiring higher triggers so that CoCos are more like going concern than gone concern instruments,
 - (iii) revisiting the merits of T2 CoCos,
 - (iv) considering whether to increase CoCo requirements with the goal of increasing their overall loss-absorbing capacity.



THANKS!

