



## EBI Working Paper Series

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**2024 – no. 169**

CoCos in Europe: What Is Wrong –  
and How to Fix It?

29/04/2024

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# CoCos in Europe: What Is Wrong – and How to Fix It?

Edoardo D. Martino<sup>†</sup>, Casimiro A. Nigro<sup>‡</sup>, Tom Vos<sup>§</sup>

## ABSTRACT

On March 19 2023, UBS Group AG agreed to buy Credit Suisse. The merger was necessary to avoid the collapse of Credit Suisse and the deal was supported by the Swiss regulator with the decision to write down 17bn CHF of contingent convertible bonds.

Contingent convertibles bonds (CoCos) are hybrid capital instruments that should absorb bank losses in going concern. CoCos entered into the regulatory landscape with the Basel III Accords in 2010. However, in the first decade of application, their going-concern loss absorption was never activated.

This article analyses the reasons why CoCos have not kept their promises in terms of prudential regulation. Building on banking theory, the analysis of financial regulation, and several case studies, the article identifies a vicious link between the regulatory framework and CoCos' contractual design.

Thereafter, the article proposes a set of reforms that would break this vicious circle, enabling CoCos to actually safeguard the going concern value of solvent banks as they approach distress. The proposed reforms would limit the autonomy of market players in defining the CoCos' contractual design and lower the threshold for their write-down or conversion. Importantly, this article argues that, should these reforms prove unimplementable, CoCos should be eliminated from the prudential framework and bank equity requirements should be increased accordingly.

**Keywords:** Contingent Convertibles; Financial Stability; Early Intervention; Contractual Design

**JEL Classification:** G21; K22; K23

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The authors would like to thank Todd Baker, Michael Ohlrogge, Enrico Perotti, Todd Philips, Oren Sussman, Tobias Tröger and David Zaring. A previous version of this paper was presented at the LawFin Seminar in Frankfurt, at the Research Seminar in Bankruptcy and Finance in Amsterdam, at the Robert Schuman Center for Advanced Studies at the European University Institute, and at the Wharton Financial Regulation Conference. Comments of participants are gratefully acknowledged. Edoardo D Martino and Tom Vos are thankful to the Center for Advanced Studies on the Foundations of Law and Finance in Frankfurt for hosting them in the initial phase of the project. This research endeavor benefitted from funding by the *Deutsche Forschungsgemeinschaft – DFG (Project 'FOR 2774')*. All remaining errors are our own.

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# 1. Introduction

On March 19 2023, UBS Group AG agreed to buy Credit Suisse for around 3bn CHF, to be paid to Credit Suisse shareholders through a share swap.<sup>1</sup> The deal was supported by a loan loss guarantee of 9bn CHF to UBS and a commitment to extend emergency liquidity assistance for 100bn CHF. The Swiss Financial Market Supervisory Authority (FINMA) also had a quintessential role in facilitating the deal, deciding to write down 17bn CHF of contingent convertible bonds (CoCos) held by Credit Suisse investors.

CoCos are a form of pre-committed capital that converts to equity or is written down upon the distress of the issuing bank in accordance with contractually agreed conditions, to safeguard the bank's going-concern value.<sup>2</sup> From a regulatory perspective, CoCos are categorized as hybrid capital instruments.<sup>3</sup>

The Credit Suisse collapse that led to the CoCo write-down reignited the regulatory and academic debate over the nature and the role of CoCos in banking regulation. CoCos are a regulatory instrument introduced in Basel III in 2010.<sup>4</sup> Their introduction aimed at facilitating loss absorption before a bank would reach the point on non-viability.<sup>5</sup> To date, however, the write-down of the Credit Suisse CoCos represents the first and only fully-fledged example of going-concern loss absorption. Anecdotal evidence suggests, instead, that in many previous instances CoCos were unable to effectively serve their function of absorbing losses in going-concern,<sup>6</sup> so much that CoCos as a regulatory construction do not seem to fulfill their prudential purpose.<sup>7</sup>

This article analyses the promises and pitfalls of CoCos and advances suggestions about how to fix them, in order to ensure that they have a viable future in banking regulation. In doing so, the article clearly defines CoCos' prudential function, unveils the reasons why as of now they are unable to perform that function, and how to amend the regulatory framework and contractual design to make them work. The article focuses on Additional Tier 1 CoCos (hereinafter 'AT1 CoCos'), which qualify as going-concern capital, rather than Tier 2 (gone-concern) CoCos.

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<sup>1</sup> For a discussion on the Credit Suisse-UBS merger deal, see Edoardo D Martino and Tom Vos, 'Credit Suisse CoCos: Why the Write-Down Makes Sense' (*Oxford Business Law Blog*, 4 June 2023) <<https://blogs.law.ox.ac.uk/oblb/blog-post/2023/04/credit-suisse-cocos-why-write-down-makes-sense>>

<sup>2</sup> For a more detailed discussion of CoCos, see below, Section 2.1.

<sup>3</sup> For a more detailed discussion of the regulatory treatment of CoCos, see below, Section 2.2.

<sup>4</sup> For details, see Mark J Flannery, 'Contingent Capital Instruments for Large Financial Institutions: A Review of the Literature' (2014) 6 *Annu. Rev. Financ. Econ.* 225, 231-232.

<sup>5</sup> On the prudential purpose of CoCos, see *ibid*, 227. See also below, Section 5, where we explain why CoCos do not work.

<sup>6</sup> For a discussion, see Robert Eisenbeis, 'Bailouts, Capital, or CoCos: Can Contingent Convertible Bonds Help Banks Cope with Financial Stress?' [2019] *Cato Institute Policy Analysis*. We discuss in detail the reasons why the Credit Suisse CoCo write-down was so exceptional later on. See below, Section 4.

<sup>7</sup> See, e.g., Tobias H Tröger, 'Too Complex to Work: A Critical Assessment of the Bail-in Tool under the European Bank Recovery and Resolution Regime' (2018) 4 *Journal of Financial Regulation* 35, 43-44 (arguing that CoCos could theoretically avoid many of the problems plaguing banking resolution, but noting very briefly that they cannot play this role because in practice CoCos are only triggered after resolution).

Given the sheer size of CoCos market,<sup>8</sup> fixing CoCos is an important exercise in itself. But, perhaps more importantly, fixing CoCos is also key to having a resilient prudential framework for banks. CoCos can currently count as AT1 capital for banks but de facto amount to gone concern capital.<sup>9</sup> If AT1 CoCos are not triggered in going concern, they do not fulfill their role of avoiding bank resolution by automatically recapitalizing banks when approaching the point of non-viability (PONV). In other words, such “gone-concern CoCos” do not help to prevent banking crises. Treating such CoCos as going concern capital amounts to an unjustified subsidy to banks. Therefore, we argue that CoCos should be fixed, to enable them being triggered in going concern. If this proves impossible, they should be eliminated from the prudential framework and the equity requirements for banks should be increased accordingly.

The article contributes to the long-lasting debate in banking theory and prudential regulation that studies instruments that can safeguard the going-concern value of banks upon distress, thus protecting both bank stakeholders and financial stability at large.<sup>10</sup> Specifically, we make three main contributions. First, drawing from the legal and financial literature, the article offers an interdisciplinary framework to understand the prudential function of CoCos. This innovates the previous, mainly monodisciplinary, relevant strands of literature. Second, it delivers the first comprehensive analysis of the shortcomings in the regulatory framework for CoCos, providing an original analytical framework based on the life cycle of CoCos. Third, it brings in suggestions as to how the existing regulatory and contractual design of CoCos can be amended to render CoCos more effective in fulfilling their regulatory purpose. The article also has direct policy implications, contributing to device a truly preventing tools to address bank distress.

Recently, Choi and Zhang have argued that CoCos are a ‘failed regulatory experiment’, based on an analysis of case studies.<sup>11</sup> In essence, Choi and Zhang argue that CoCos do not work because (1) triggering CoCos does nothing to stabilize a bank facing a liquidity crisis, but only reduces the debt of the bank, and (2) triggering CoCos creates a negative stigma for the bank that may exacerbate its liquidity crisis. We agree with their conclusion that CoCos as currently design do not work, but we propose a different, broader interpretation of such a failure as well as of the importance of having working CoCos in place. Specifically, in this article, we show that remedying a bank run is not the regulatory purpose of CoCos: their point is to absorb losses in going concern, well before doubts about the bank’s financial health lead to a bank run. We contend that the problem is that CoCos are currently triggered too late, such that they fail to absorb losses in going concern and that they should not be tasked with containing runs but

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<sup>8</sup> Outstanding CoCos are worth around half a trillion dollars and not even the recent banks’ default of spring 2023 have not put the market for CoCos on halt. Following the acquisition of Credit Suisse. UBS did in fact executed a \$3.5bn-worth issuance of CoCos that went oversubscribed. See ‘UBS Raises \$3.5bn for First AT1 Bonds since Credit Suisse Takeover’ (*Financial Times*, 10 November 2023) <<https://www.ft.com/content/d8a4dc31-ac20-4bac-8167-c32e3e282bcb>> accessed 29 March 2024.

<sup>9</sup> For a discussion on the regulatory treatment of CoCos, see below, Section 2.2.

<sup>10</sup> See, e.g., Stefan Avdjiev et al., ‘CoCo Issuance and Bank Fragility’ (2020) 138 *Journal of Financial Economics* 593. For an overview of the relevant debate see Philippe Oster, ‘Contingent Convertible Bond Literature Review: Making Everything and Nothing Possible?’ (2020) 21 *Journal of Banking Regulation* 343. For an overview of the literature, see below, Section 2.2.

<sup>11</sup> Albert H Choi and Jefferey Y Zhang, ‘Creditors, Shareholders, and Losers In Between: A Failed Regulatory Experiment’ (2024) 753 *ECGI Law Working Paper*.

rather to prevent and alleviate debt overhang. This proposal is based on a “life-cycle” understanding of CoCos, which represents the key contribution of our article and expands on the framework proposed by Choi and Zhang.

The article unfolds as follows. Section 2 takes stock of the finance and legal literature on the matter, proposes a novel analytical framework to approach CoCos over their lifecycle, and analyzes the function they should play in prudential regulation. Section 3 focuses on the regulatory regime for CoCo in the European Union (“EU”) and on how transactional practices has shaped European CoCos since their introduction. Section 4 describes and analyzes a few case studies in which CoCos absorbed losses to a certain degree. We use these case studies to highlight the limitations and inconsistencies of the system in the first decade of its application. Section 5 generalizes the limitations of the current regime and pinpoints the shortcomings of CoCos’ current design, diving in the role of the contractually set trigger and of the supervisory mandate, thereby making the case that CoCos, as currently designed, cannot work and hence cannot perform their prudential function. Section 6 proposes policy changes to enable CoCo to perform their function. Section 7 concludes.

## **2. What are Contingent Convertible Instruments?**

### *2.1 The Academic Idea and the Scholarly Debate*

CoCos instruments are a form of hybrid bank capital. They are issued as deeply subordinated debt that should absorb losses upon the realization of pre-determined contingencies related to bank distress. The option to convert does not lie with the CoCo holders: conversion or write-down of the CoCos follows automatically if the triggering contingency materializes. The idea is to perform a going-concern recapitalization of the bank to avoid the potentially ensuing deadweight costs.<sup>12</sup>

These instruments share some key characteristics with traditional corporate convertible bonds. Convertible bonds are issued by a firm in the form of debt and provide to their holder the option to convert into equity conversion should the equity value of the issuing firm at the conversion date be favourable.<sup>13</sup> Both corporate convertible bonds and CoCos have a key feature in a conversion right, but the function and the design of such conversion right differ sharply.

The original idea of this instrument comes from Professor Mark Flannery.<sup>14</sup> CoCos were originally designed as a private solution to avoid the costs related to financial distress. In essence, CoCos amount to a pre-packaged recapitalization.<sup>15</sup> Because the CoCo holders pre-commit to recapitalize the firm when the CoCos are triggered CoCos can also be instrumental to solving the debt overhang problem, which implies that firms approaching financial distress

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<sup>12</sup> For a broad introduction to the costs of financial distress, see Heitor Almeida and Thomas Philippon, ‘The Risk-Adjusted Cost of Financial Distress’ (2007) 62 *The Journal of Finance* 2557.

<sup>13</sup> Jeremy C Stein, ‘Convertible Bonds as Backdoor Equity Financing’ (1992) 32 *Journal of Financial Economics* 3.

<sup>14</sup> Mark J Flannery, ‘No Pain, No Gain. Effecting Market Discipline via Reverse Convertible Debentures’ in Hal S. Scott (ed.) *Capital Adequacy Beyond Basel: Banking, Securities, and Insurance* (Oxford University Press, 2005) 171.

<sup>15</sup> Flannery, ‘Contingent Capital Instruments for Large Financial Institutions’ (n 4) 228.

have a disincentive to raise additional equity because the new equity will primarily benefit their creditors.<sup>16</sup> The most natural application of CoCos is in banking, as the cost of failure for banks is particularly severe, so that CoCos' potential to prevent failure becomes more important.

Once the global financial crisis kicked in and the flaws of the Basel approach to capital regulation became evident, CoCos emerged as a perfect candidate to reform capital regulation, prompting financial economists to engage in vibrant discussions about the opportunity to include them in the new regime.<sup>17</sup>

The debate revolved around two key interlinked aspects: (a) the possible design features of CoCos and their flaws; and (b) the incentive impact of including CoCos in capital regulation. In discussing these points, financial economists have modelled CoCos primarily as derivative securities based on the value of banks' assets.<sup>18</sup> However, the value of a bank's assets is to a large extent unobservable and non-verifiable outside of insolvency (the 'unobservability problem').<sup>19</sup> This basic contradiction is at the heart of all the limitations of bank capital regulation and affects the effectiveness and efficiency of CoCos as well<sup>20</sup>.

(a) Existing literature has devoted particular attention to the design of CoCos' (i) trigger and (ii) conversion ratio. (i) As to the design of the trigger, some authors have proposed to set the trigger based on market prices to counter the 'unobservability' problem of banks' assets.<sup>21</sup> However, market price triggers have been criticized because they could give rise to price manipulation.<sup>22</sup> In response to this concern, regulations have eventually adopted accounting triggers,<sup>23</sup> which, however, may in turn lead to ineffective results because of the unobservability problem.<sup>24</sup>

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<sup>16</sup> Franco Fiordelisi, George Pennacchi and Ornella Ricci, 'Are contingent convertibles going-concern capital?' (2020) 43 *Journal of Financial Intermediation* 100822, 1; Suresh Sundaresan and Zhenyu Wang, 'On the design of contingent capital with a market trigger' (2015) 70(2) *The Journal of Finance* 881, 882. As to the debt overhang problem, see Stewart C. Myers, 'Determinants of corporate borrowing' (1977) 5 *Journal of Financial Economics* 147.

<sup>17</sup> Anil K Kashyap, Raghuram G Rajan and Jeremy C Stein, 'Rethinking Capital Regulation', *Proceedings-Economic Policy Symposium-Jackson Hole* (Federal Reserve Bank of Kansas City 2008).

<sup>18</sup> Jens Hilscher and Alon Raviv, 'Bank Stability and Market Discipline: The Effect of Contingent Capital on Risk Taking and Default Probability' [2014] *Journal of Corporate Finance*.

<sup>19</sup> Tri Vi Dang, Gary Gorton and Bengt Holmström, 'The Information View of Financial Crises' (2020) 12 *Annual Review of Financial Economics* 39.

<sup>20</sup> See below, Section 4.

<sup>21</sup> E.g. Sundaresan and Wang (n 16).

<sup>22</sup> See, e.g., Stefan Avdjiev, Anastasia Kartasheva and Bilyana Bogdanova, 'CoCos: A Primer' [2013] *BIS Quarterly Review* 43, 44 ("since CoCos must be priced jointly with common equity, a dilutive CoCo conversion rate could make it possible for more than one pair of CoCo prices and equity prices to exist for any given combination of bank asset values and non-CoCo debt levels. Furthermore, under certain circumstances, holders of [conversion-to-equity- CoCos may have an incentive to short-sell the underlying common stock in order to generate a self-fulfilling death spiral and depress the share price to the point at which the market-value trigger is breached").

<sup>23</sup> See *infra*, Section 2.3.

<sup>24</sup> For these criticism of accounting triggers see, Paul Glasserman and Enrico Perotti, 'The Unconvertible CoCo Bonds' in Douglas D Evanoff and others (eds), *Achieving Financial Stability: Challenges to Prudential Regulation*, vol 61 (World Scientific 2017); Sundaresan and Wang (n 16) 882-883. We discuss the accounting manipulation problem in more detail in Section 5.1.



(ii) As to the conversion ratio, the literature has focused first of all on the possible pricing issues of CoCos. The full predictability of conversion ratio is key to CoCos' efficient pricing.<sup>25</sup> In this regard, the two main design options are a conversion at par value or a conversion at a contractually fixed amount. The conversion ratio is crucial as it determines the extent to which incumbent shareholders will see their equity stakes being diluted, with low levels of dilutions (so-called “non-dilutive CoCos”) possibly bringing about perverse risk incentives.<sup>26</sup>

Underpinning the debates concerning CoCos' design is a problem of multiple equilibria when pricing those instruments, whichever their design may be.<sup>27</sup> This problem would facilitate price manipulation and thus render CoCos an inherently inefficient tool in capital regulation. This argument gained considerable traction in the policy debate, especially in the US.<sup>28</sup> Later research, however, showed that the multiple equilibria problem can be solved under certain conditions and based on different model assumptions.<sup>29</sup> Moreover, other scholars suggested to cope with the multiple equilibria issues by imprinting into CoCos alternative designs, such as a ‘quasi-market value ratio’ and a ‘capital access bond’, whereby banks would sell investors rights to issue equity at a pre-specified price in crisis events.<sup>30</sup>

(b) The debate on CoCos' conversion ratio ties in with the debate on the incentive effects of issuing CoCos as regards “risk shifting” – that is, the transfer of value from debt-like instruments to equity-like instruments by taking on more risk.<sup>31</sup> The effect of issuing CoCos on risk-shifting is ambiguous and depends on the conversion ratio. As some scholars have pointed out, if the CoCo is non-dilutive to shareholders (for example because the conversion ratio is set very low, or at zero – as in the case of principal write-down CoCos), the incentives of shareholders of the bank are to increase the bank's ex ante riskiness, as the holders of CoCos bear part of this risk.<sup>32</sup> However, other authors have pointed out that dilutive CoCos can also

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<sup>25</sup> Flannery ‘No Pain, No Gain’ (n 14).

<sup>26</sup> For a theoretical model and preliminary empirical evidence, see Tobias Berg and Christoph Kaserer, ‘Does Contingent Capital Induce Excessive Risk-Taking?’ (2015) 24 *Journal of Financial Intermediation* 356.

<sup>27</sup> Edward S Prescott, ‘Contingent Capital: The Trigger Problem’ (2012) 98 *FRB Richmond Economic Quarterly* 33; Sundaresan and Wang (n 16)

<sup>28</sup> See Financial Stability Oversight Council, ‘Report to Congress on Study of a Contingent Capital Requirement for Certain Nonbank Financial Companies and Bank Holding Companies.’ (2012) <<https://home.treasury.gov/system/files/261/Report%20to%20Congress%20on%20Study%20of%20a%20Contingent%20Capital%20Requirement%20for%20Certain%20Nonbank%20Financial%20Companies%20and%20Bank%20Holding%20Companies%20-%20July%202012.pdf>> accessed 29 March 2024.

<sup>29</sup> Paul Glasserman and Behzad Nouri, ‘Market-Triggered Changes in Capital Structure: Equilibrium Price Dynamics’ (2016) 84 *Econometrica* 2113; George Pennacchi and Alexei Tchistyi, ‘On Equilibrium When Contingent Capital Has a Market Trigger: A Correction to Sundaresan and Wang *Journal of Finance* (2015)’ (2019) 74 *The Journal of Finance* 1559.

<sup>30</sup> See, respectively Charles W Calomiris and Richard J Herring, ‘How to Design a Contingent Convertible Debt Requirement That Helps Solve Our Too-Big-to-Fail Problem’ (2013) 25 *Journal of Applied Corporate Finance* 39; Patrick Bolton and Frederic Samama, ‘Capital Access Bonds: Contingent Capital with an Option to Convert’ (2012) 27 *Economic Policy* 275.

<sup>31</sup> For an overview of how these risk incentives materialize in banking, see Marco Becht, Patrick Bolton and Ailsa Röell, ‘Why Bank Governance Is Different’ (2011) 27 *Oxford Review of Economic Policy* 437.

<sup>32</sup> See for this argument, Hilscher and Raviv (n 18); Berg and Kaserer (n 26); Stephanie Chan, Sweder van Wijnbergen, ‘Cocos, Contagion and Systemic Risk’ (CEPR Discussion Papers 2015). For preliminary empirical evidence on this matter, see Jannic Cutura and Henning Hesse, ‘Incentive Effects from Write-down CoCo Bonds: An Empirical Analysis’ (2022) 8 *Journal of Financial Regulation* 162.

encourage risk-shifting when the bank is close to the trigger threshold, because the shareholders have incentives to “gamble for resurrection” to avoid being diluted when the CoCos are converted.<sup>33</sup> The automatical deleveraging when the CoCo is triggered reduces incentives for gambling for resurrection, as shareholders retain more skin in the game. This effect is precluded, however, when shareholders are diluted, because shareholders are then punished with a lower share of the value when they choose the safer choice of triggering the CoCo to delever the bank. Therefore, there may be a trade-off between different types of risk-shifting, depending on how the conversion ratio of the CoCo is set.

The legal debate over CoCos has been rather limited, particularly in its initial phase. Professor Coffee first advocated the use of CoCos in U.S. capital regulation proposing a design that would improve corporate governance ex-ante,<sup>34</sup> and other US authors have since followed.<sup>35</sup> Other legal scholars in the US have been more skeptical of CoCos,<sup>36</sup> and so far, the US has not allowed banks to meet their regulatory capital through CoCos. In the European context, most of the legal debate relates to the potential inconsistencies between CoCos and the rules on creditors’ treatment enshrined in the novel resolution framework.<sup>37</sup> Finally, an interesting, yet limited and underdeveloped, strand of literature looked at the problematic relationship between the regulatory and contractual regimes related to CoCos.<sup>38</sup> This article contributes to these three strands of the literature by providing a novel and more structured account of the prudential role of CoCos, focusing on why CoCos currently do not work and how they should be fixed.

## 2.2 *The CoCo Lifecycle*

This Section introduces in an analytical framework that brings the discussion about how to understand and regulate CoCo beyond the conclusions previous academic debate. We show that

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<sup>33</sup> See for this argument: Calomiris and Herring (n 30); Andrea Gamba, Joe Gong and Kebin Ma, ‘Non-Dilutive CoCo Bonds: A Necessary Evil?’ [2022] WBS Finance Group Research Paper Forthcoming (also providing empirical evidence in support of this argument); Natalya Martynova and Enrico Perotti, ‘Convertible Bonds and Bank Risk-Taking’ (2018) 35 *Journal of Financial Intermediation* 61.

<sup>34</sup> John C Coffee Jr, ‘Systemic Risk after Dodd-Frank: Contingent Capital and the Need for Regulatory Strategies beyond Oversight’ (2011) 111 *Colum. L. Rev.* 795.

<sup>35</sup> Wulf A Kaal and Christoph K Henkel, ‘Contingent Capital with Sequential Triggers’ (2012) 49 *San Diego L. Rev.* 221 (proposing CoCos with a second trigger, upon which the CoCo holders gain additional voting rights; our article differs by focusing on why the current triggers are not being triggered); John Crawford, ‘Credible Losers: A Regulatory Design for Prudential Market Discipline’ (2017) 54 *Am. Bus. L. J.* 107 (although focusing on gone concern CoCos rather than going concern CoCos, as this article does).

<sup>36</sup> Hilary J Allen, ‘Cocos Can Drive Markets Cuckoo’ (2012) 16 *Lewis & Clark L. Rev.* 125 (arguing that CoCos could encourage bank failure if they are about to be triggered, because this may lead to panic selling and short selling; our article points out that another problem is more important: CoCos are unlikely to be triggered in going concern); Choi and Zhang (n 11) (arguing that triggering CoCos does not solve the liquidity issue for banks faced with a bank run and that the stigma effect of triggering CoCos may actually increase the probability of the bank failing; we discussed above in the introduction how our article differs from theirs).

<sup>37</sup> Jens-Hinrich Binder, ‘The Position of Creditors Under the BRRD’, *Commemorative Volume in memory of Professor Dr. Leonidas Georgakopoulos* (Bank of Greece’s Center for Culture, Research and Documentation 2016).

<sup>38</sup> Bart PM Joosen, ‘Regulatory Capital Requirements and Bail in Mechanisms’ [2015] *Research handbook on crisis management in the banking sector* 175; Edoardo Martino, ‘Bail-Inable Securities and Financial Contracting: Can Contracts Discipline Bankers?’ (2019) 10 *European Journal of Risk Regulation* 164; Bart PM Joosen, ‘Enforcement of Qualitative Capital Requirements for Banks’ in Jan Crijns, Matthias Haentjens, Rijnhard Haentjens (eds) *The Enforcement of EU Financial Law* (Hart Publishing 2022) 69.

CoCos conversion or write-down can only be effective once understood in the broader context of the CoCo's lifecycle and the interactions between the issuing banks, the regulation of CoCos and the supervisor along such a lifecycle. Section 2.2.1 sets the framework; and Section 2.2.2 analyses the incentives of the bank issuing CoCos through backwards induction.

### *2.2.1 The Setting*

In our framework there are four key sets of players: (1) the banks issuing CoCos; (2) the regulator setting the rule for such issuance; (3) investors buying, trading in, and holding, CoCos; and (4) the supervisor in charge of enforcement, where appropriate.<sup>39</sup>

The lifecycle intuitively starts with the issuance of the CoCo and can end either end when (a) the CoCo is called, (b) it is triggered or (c) the bank reaches the PONV and is resolved or liquidated.

Before the lifecycle starts, the regulator sets the 'rules of the game'. Once the rules are set and all parties know them, a life cycle that unfolds in four periods starts. Figure 1 depicts the key nodes of this lifecycle; and Figure 2 specifies the key regulatory and contractual mechanisms at play for each period.

At to the regulator sets by means of regulation the relevant constraints on CoCos. This is likely the output of several actors, depending on jurisdiction-specific arrangements.<sup>40</sup> Irrespective of how such regulatory framework is developed, all relevant parties know all the elements of such framework in this period.

At this stage, there are four key variables to consider: (1) the level of contractual autonomy that the regulatory framework grants to the bank and the investor in drafting the CoCo indenture; (2) the supervisory powers that the regulatory framework grants to the competent authority; (3) the verifiability and enforceability of the contractual trigger; (4) the verifiability and enforceability of the PONV.

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<sup>39</sup> The regulator and the supervisor can be the same institutions or different ones, but are in any way separate in their regulatory and supervisory activities.

<sup>40</sup> For instance, within the EU, this is the result of the Basel III Accords and their implementation through primary legislation. Such implementation is then refined and specified by secondary legislation issued by the Commission or by the European Banking Authority, depending on their competences. Furthermore, there will likely be the intervention of national legislators to implement the EU legislation into national jurisdiction.

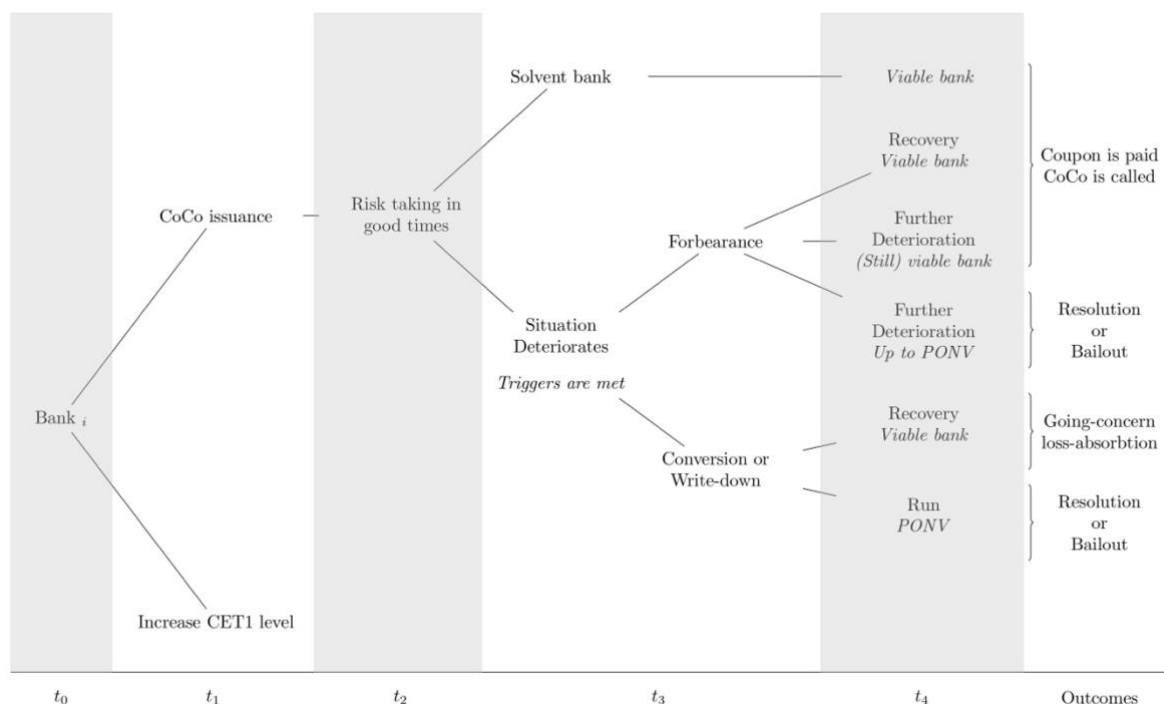


Figure 1 – The CoCo Lifecycle

Specifically, there are two key features devised by the regulator: the regime for being recognized as an AT1 CoCo and the regime applicable to banks that reach the PONV. The former entails provisions on quantitative and qualitative requirements of CoCos and the prudential rules interacting with CoCos.<sup>41</sup> The latter refers to the definition of the Point of Non-Viability (PONV) and the legal consequences attached to this status.<sup>42</sup>

At this point, the autonomy of parties in designing the indenture as well as the supervisory powers in enforcing the conversion/write-down is positive. However, different legal arrangements can differ substantially, such as in the case of the EU and the Swiss regime.<sup>43</sup> Within our framework, the regulation mandates the issuance of CoCos and the only alternative is holding more common equity.

<sup>41</sup> In the European Union, those are the rules discussed in Section 3.1.

<sup>42</sup> In the EU those are the rules on recovery and resolution defined by the Bank Recovery and Resolution Directive. See specifically Article 31, 32 and 48 BRRD.

<sup>43</sup> See below in the text to fn 147.

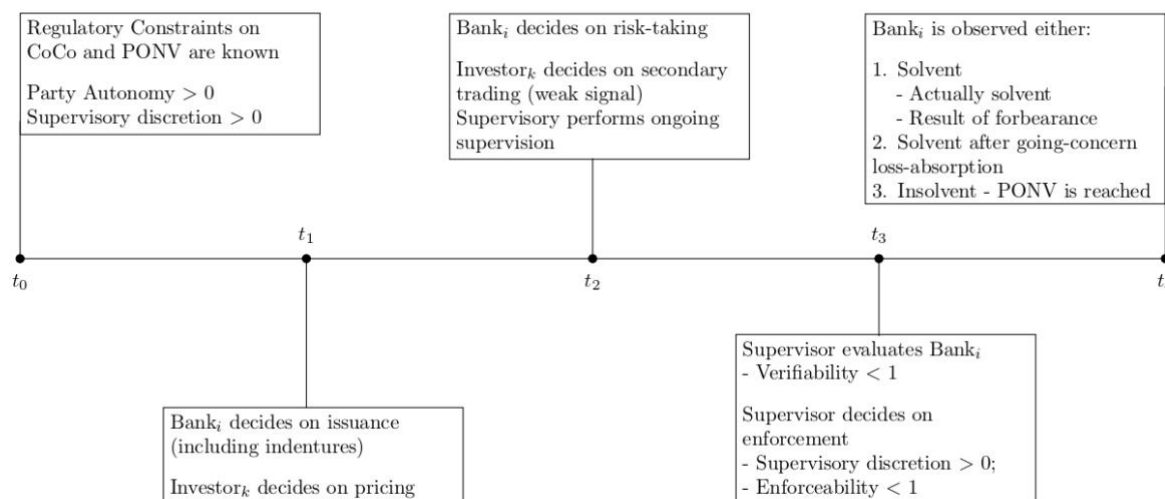


Figure 2 – Key Junctures in the CoCo Lifecycle

At  $t_1$  the bank decides on the issuance of the CoCo and its indenture. The investors decide on pricing. Assuming that the market for CoCos is deep and liquid, the pricing decision depends on the riskiness of CoCos, which depends, in turn, on the level of systemic risk – which can be assumed equal for all banks – and on the idiosyncratic characteristics of the bank, such as leverage, liquidity, etc. The characteristics of the bond indenture, such as the trigger, the conversion/write-down clause, and the conversion ratio influence pricing. We assume that the bank has clear expectations of the investors’ willingness to buy and adjusts the indenture to minimize its overall funding costs.

Therefore, the equilibrium between the characteristics of the bond and its price depends on the characteristic of the issuing bank and on the rules set by the regulator at  $t_0$ .

At  $t_2$  the bank decides on its risk taking and the investor decides on secondary trading. This decision depends on the overall market conditions and on the impact of the bank’s decision on the probability of suffering going-concern losses.<sup>44</sup> This decision is imperfectly observed by the investor who, in turn, can only react once in the secondary market.<sup>45</sup> The price volatility of the CoCo in the secondary market provides a weak signal about the resilience of the bank.

At  $t_3$ , the supervisor evaluates the bank either as part of the yearly evaluation and stress-test cycle or as a consequence of adverse information on the bank’s viability. The supervisor either finds the bank to be solvent and well-capitalized or observes capital deterioration. Crucially,

<sup>44</sup> For the sake of simplicity, the macro- and micro-economic conditions are assumed as stable and the Bank can only decide on the risk-taking appetite once.

<sup>45</sup> Robert R Bliss, ‘Market Discipline and Subordinated Debt: A Review of Some Salient Issues’ (2001) 25 Economic Perspectives 24. For the limitations of market discipline in banking, with specific reference to deeply subordinated creditors, see Edoardo Martino, ‘The Bail-in Beyond Unpredictability: Creditors’ Incentives and Market Discipline’ [2020] European Business Organization Law Review <<http://link.springer.com/10.1007/s40804-020-00188-7>>.

the capital situation of the bank is not perfectly verifiable and the supervisor retains considerable discretion at this point.<sup>46</sup>

If the supervisor considers the bank to be solvent and well-capitalized, at  $t_4$  the CoCo coupon can be freely paid to investors and – if further conditions apply – the CoCo can be called.<sup>47</sup>

On the other hand, the supervisor may consider that the bank, albeit solvent, is facing troubles and its capitalization is deteriorating. This is the situation in which the CoCo trigger may be met. The use of the hypothetical form is warranted by the fact that the real capital situation of the bank is imperfectly verifiable.<sup>48</sup>

In this situation, the supervisors is tasked with some discretion. The extent of this discretion depends on the rules set at  $t_0$  and on the CoCo indenture set at  $t_1$ . The supervisor can either opt for forbearance or push to trigger CoCo conversion or write-down.<sup>49</sup> The verifiability and enforceability of such contingency are imperfect as regulation is incomplete as well.<sup>50</sup>

Opting for foreberance, at  $t_4$  the bank can recover, either because of its profitability or because of exogeneous factors. Alternatively, the situation of the bank can further deteriorate. In this second case, the bank – albeit still viable – gets closer to the PONV. In both situations, the coupon is paid or the CoCo is called, as if the bank was deemed solvent and well-capitalized since the very beginning. Crucially, these two cases and the case of a perfectly solvent bank cannot be easily told apart and the payoff for CoCo investors and the bank is identical.

On the other hand, the situation of the can further deteriorates, up to the PONV. This assessment implies a large degree of technical discretion in the valuation of banks assets and prospects.<sup>51</sup> In that case the bank is pushed in resolution or is bailed out. CoCo investor suffer losses according to the priority in the bankruptcy waterfall.<sup>52</sup> With high probability, the value for both bank shareholders and CoCo holders goes to zero.<sup>53</sup>

Pushing for conversion or write-down effectively reduces bank leverage, favouring recovery through going-concern loss absorption of CoCo investors.<sup>54</sup> On the other hand, the conversion

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<sup>46</sup> This is theoretically modelled in Natalya Martynova, Enrico Perotti and Javier Suarez, ‘Capital Forbearance in the Bank Recovery and Resolution Game’ (2022) 146 *Journal of Financial Economics* 884. This is also consistent with the modern understanding of the inherent opacity of banks as a feature to maintain their viability, see Dang, Gorton and Holmström (n 19).

<sup>47</sup> Text to fn. 85.

<sup>48</sup> All the complications in verifying and enforcing the triggers are detailed in Section 5.1 and largely depend on how control rights are allocated.

<sup>49</sup> Edoardo D Martino and Enrico Perotti, ‘Containing Runs on Solvent Banks: Prioritising Recovery over Resolution’ (2024) 127 *CEPR Policy Insight* 5.

<sup>50</sup> For a conceptualization of regulatory incompleteness, in parallel with contract incompleteness, see Katharina Pistor and Chenggang Xu, ‘Incomplete Law’ (2002) 35 *NYUJ Int’l L. & Pol.* 931.

<sup>51</sup> Concetta Brescia Morra, ‘The New European Union Framework for Banking Crisis Management: Rules versus Discretion’ (2019) 16 *European Company and Financial Law Review* 349.

<sup>52</sup> In the EU, the PONV is decided upon by the supervisor – the SSM for mid-to-large size Euro Area Banks – with the declaration of the bank being ‘failing or likely to fail’. See Article 32 BRRD.

<sup>53</sup> This is consistent with the estimations carried out for banks that failed or were bail-out during the global financial crisis. See Thomas Conlon and John Cotter, ‘Anatomy of a Bail-In’ (2014) 15 *Journal of Financial Stability* 257.

<sup>54</sup> Text to fn **Error! Bookmark not defined.**

or write-down can send an adverse signal to the market, which may turn into a run and – consequently – into insolvency.<sup>55</sup>

### *2.2.2 Determining Incentives through Backwards Induction*

Having set the framework, now we unveil how the relevant players would act, taking into account their expectations and incentives. In so doing, we move backward from the situation and payoffs at  $t_4$  to the initial decision on the issuance.

Looking back at Figure 1, the area of interest is the one where the situation of the bank deteriorates. Focusing on that segment of the framework, the bank can either recover, further capital deterioration, or reach the PONV. To properly understand the incentives of both the bank and the supervisor, it is crucial to understand the impact of forbearance on the incentives of the bank.

If the situation of the bank deteriorates up to the point where the CoCo triggers are met, prompting its recovery would require of taking corrective actions – which, in our setting, would consist in CoCos' conversion or write-down. If the deterioration exists but is not so severe, avoiding to pay CoCos' coupon or delaying their call date would also allow for milder recovery options. However, the supervisor may be reluctant to take any corrective action, fearing runs on the bank. The deeper the deterioration, the more pronounced the likelihood of runs, and the more problematic it would be to take corrective actions.<sup>56</sup>

On the other hand, if the supervisor decides to use its discretion to forbear, avoiding to trigger CoCo loss-absorption or take milder recovery actions, the bank may recover because of exogenous factors, such as improved market conditions, or can go on with the trend of deterioration. In any of such scenarios, CoCo investors have their coupon paid and the CoCos will be likely called when possible.

If the forbearance continues for several cycles, the deterioration of the bank condition can become so dire that the supervisor cannot keep opting for forbearance. At that point, CoCos triggers are for sure met and most likely the bank is also past the PONV. At this stage, converting or writing down CoCos would be of little aid and would very likely lead to bank runs, with the bank then having to be either resolved or bailed out.<sup>57</sup>

Forbearance is possible and likely to happen because of the limited verifiability of whether the bank reached the PONV or reaches the trigger for the conversion or write down of the CoCos. Even when these events are verified, the enforceability of their consequences is complicated,

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<sup>55</sup> Chan and van Wijnbergen (n 32).

<sup>56</sup> Martynova, Perotti and Suarez (n 46) 897.

<sup>57</sup> Noticeably, the more severe the deterioration, the less likely is that a resolution procedure would be effective. Wolf-Georg Ringe, 'Bank Bail-In between Liquidity and Solvency' (2016) 92 Am. Bankr. LJ 299. Hence, delaying the recognition of deterioration and even the recognition of the bank being failing increases the propability of bailouts. This is also in line with Choi and Zhang (n 11) as they only study conversion when a run is already happening.

either because of their legal ramifications or because of the fears of the economic and financial consequences that such enforcement would bring about.<sup>58</sup>

Therefore, unless the supervisors have tools to increase the verifiability and the enforceability of CoCo conversion or write-down, there is a high incentives to forbear at  $t_3$ . This directly follows from the fact that at  $t_4$ , the outcome of ‘viable and well-capitalized banks’ and ‘undercapitalized banks’ is indistinguishable.

Going one more step backward, this implies that the signals sent by secondary trading are particularly weak, as the risk of of being written down or converted is only loosely correlated with the situation of the bank, unless the deterioration is so dire to require resolution (or bailouts). This makes CoCos extremely similar to common subordinated, gone concern, debt.<sup>59</sup> In turn, their nature hybrid going-concern capital fades.

Accordingly, at  $t_1$  the bank is likely to decide to issue CoCos, rather than increase the level of equity. Increasing the level of equity means either issuing new common shares, which sends bad signals to the market and dilutes existing shareholders (which may include managers); or increasing the level of retained earnings, reducing dividend payouts.<sup>60</sup>

Moreover, when issuing CoCos, the contractual design has a limited influence on the pricing of the CoCo, as conversion and write-down is unlikely, and the riskiness of the CoCo is only loosely correlated with the financial health of the bank as long as it is considered solvent. Therefore, the decision on the type and level of trigger may not mirror the relative riskiness of the bank, but can be designed to send positive signals to the market or the supervisor (for instance in cases where the trigger is higher than the regulatory minimum), or to limit legal headaches (for instance when choosing the loss-absorbing mechanism, assuming that such mechanism will never be enforced).<sup>61</sup>

Considering this, the task of the regulator is to set all the parameters at  $t_0$  in a way in which CoCos can actually work; in other words, in a way in which the verifiability and enforceability of the conditions triggering the conversion or write-down of the CoCos are maximized when the situation of the bank starts deteriorating. We discuss how this could be achieved in Section 6.

### *2.3 The Role of CoCos in Prudential Regulation*

This article contends that CoCos do not work as they should. Therefore, it is preliminarily important to understand how CoCos should work and what their function is in the current prudential framework.

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<sup>58</sup> For details on these mechanisms in the various cases where CoCo did (not) absorbed losses, see below, Section 4.

<sup>59</sup> Glasserman and Perotti (n 24) 328.

<sup>60</sup> Stewart C Myers and Nicholas S Majluf, ‘Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have’ (1984) 13 *Journal of financial economics* 187.

<sup>61</sup> See below in text to fn **Error! Bookmark not defined.**



CoCos are designed as precommitted equity originally issued in the form of debt, convertible into equity to safeguard the going-concern value of the issuing bank.<sup>62</sup> Including CoCos among the regulatory capital should contribute to address long-lasting shortcomings of the prudential framework.

Capital requirements have traditionally exhibited two well-known shortcomings. The first shortcoming was the lack of appropriate tools to treat a bank that is approaching financial distress.<sup>63</sup> While the prudential supervision of a bank in good time and the resolution procedure of an insolvent bank are at least in principle clear, the appropriate prudential treatment of a solvent but distressed bank is an everlasting mystery. Fearing panic and contagion, such a bank, as well as its supervisor and regulator, may strategically prefer to delay recognizing the existing distress and avoid taking any consequential action as much as they can.<sup>64</sup> Delaying such actions, however, implies that possible avenues to saving the bank and retaining going-concern value disappear, thereby exacerbating any existing distress, eventually. The second shortcoming is banking regulation's pro-cyclicality. The first two iterations of the Basel Accords were remarkably pro-cyclical: that is, the regulation was too lenient in good times, thus fostering excessive risk taking, and too strict in bad times, thus prompting credit crunches.<sup>65</sup> The Basel III framework has taken a less pro-cyclical approach, bringing in a variety of tools that chiefly consisted in macro-prudential buffers and the plain leverage ratio.<sup>66</sup>

CoCos have the potential to help mitigate both the shortcomings of traditional capital regulation. On the one hand, CoCos are a pre-committed recapitalization package with the potential to safeguard the banks' going concern.<sup>67</sup> CoCos can therefore help treating bank distress in a timely manner by causing an automatic recapitalization of the ailing bank. On the other hand, CoCos go issued in good times and aid relieve the bank's position once the cycle reverses. Thus, they can also help ameliorate the problem stemming from regulation's pro-cyclicality.

Unleashing CoCos' potential requires, however, that two crucial preconditions coexist: CoCos' trigger should be designed so that it can proxy distress effectively and CoCos should undergo a timely conversion or write-down.

Based on the analysis in this Section and the previous Sections, the discussion on the impact of CoCos on risk incentives should be revisited. On the one hand, the literature highlighted an ambiguous effect on risk-shifting incentives, depending on the dilutive or non-dilutive conversion rate.<sup>68</sup> This holds *ex ante*, even though it must be noted that supervisors and

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<sup>62</sup> Mark J Flannery, 'Stabilizing Large Financial Institutions with Contingent Capital Certificates' (2016) 6 *Quarterly Journal of Finance* 1650006.

<sup>63</sup> Martino and Perotti (n 49) 3.

<sup>64</sup> See about this phenomenon: Glasserman and Perotti (n 24).

<sup>65</sup> Hyun Song Shin, *Procyclicality and the Search for Early Warning Indicators* (International Monetary Fund 2013).

<sup>66</sup> Daniel K Tarullo, 'Macroprudential Regulation' (2014) 31 *YALE J. ON REG.* 505. See below in Section 3.12

<sup>67</sup> Flannery, 'Stabilizing Large Financial Institutions' (n 62).

<sup>68</sup> Text to fn 95.

regulators are empowered with other tools to limit risk-taking in good times,<sup>69</sup> which are arguably more effective than the threat of being diluted in case of a future conversion or write-down. On the other hand, the effect of CoCos on debt overhang incentives when banks approach distress has been widely overlooked; yet, it appears to be the aspect where properly designed CoCo can actually make a difference (Figure 3).<sup>70</sup>

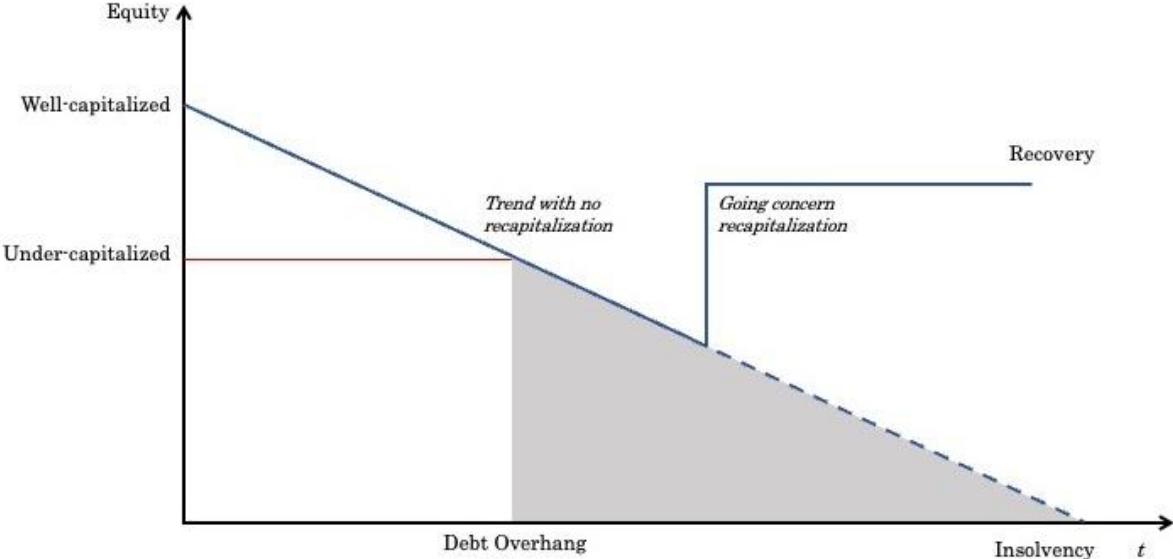


Figure 3 - Capital Deterioration and CoCo Deleverage<sup>71</sup>

The deleveraging effect of CoCo conversion or write-down also has an unambiguous effect on risk-shifting ex-post, limiting gambling for resurrection incentives especially if the CoCos are triggered early on.<sup>72</sup>

Another potential, yet less straightforward, prudential benefit of CoCos, in comparison to equity, concerns the lower potential for accounting manipulation. CoCos are issued as debt, i.e. they are a fixed, unsecured, claim against the bank’s assets. In contrast, equity is a contingent claim on a bank’s asset and its accounting value equals the difference between the value of assets and banks’ debt. The value of bank’s assets is not perfectly verifiable and banks have incentives towards late recognition of losses.<sup>73</sup> This also means that the book value of equity is likely to be excessive when approaching distress. This also affects the counter-cyclical potential of all regulatory tools based on equity, such as buffers. In contrast, the principal amount of CoCo is fixed, as it is its conversion ratio. Therefore, the deleveraging effect of CoCo

<sup>69</sup> For instance, the supervisor can restrict the operations of a bank, require it to divest risky branches, apply additional capital charges for bank-specific risks, etc. See Article 104 CRD.

<sup>70</sup> With some noticeable exceptions. See, for instance, Martynova and Perotti (n 33).

<sup>71</sup> Martino and Perotti (n 49) 7.

<sup>72</sup> For preliminary empirical evidence of US banks gambling for resurrection during the 2023 crisis, see Erica Xuwei Jiang and others, ‘Limited Hedging and Gambling for Resurrection by US Banks During the 2022 Monetary Tightening?’ [2023] Available at SSRN.

<sup>73</sup> Martynova, Perotti and Suarez (n 46). For instance, during the 2023 crisis, US banks have not recognized unrealized losses on their treasuries while counting them as liquid assets. See Erica Xuwei Jiang and others, ‘Monetary Tightening and US Bank Fragility in 2023: Mark-to-Market Losses and Uninsured Depositor Runs?’ (National Bureau of Economic Research 2023).

conversion can be even more effective. The key is, once again, the ability of the trigger to efficiently proxy the bank's distress and the possibility to correctly enforce the conversion. However, the manipulation of accounting value may hamper the effectiveness of CoCos as well, as accounting-based triggers are prone to the same incentives to delay.

### 3. CoCo Regulation and Market Practices

The Basel III framework for capital regulation introduced CoCos in the prudential framework. CoCos are – under certain conditions – part of Additional Tier 1 capital.<sup>74</sup> The implementation of the Basel III regime has taken divergent paths on the two shores of the Atlantic. In the US, the doubts surrounding CoCos' design and impact on incentives prevailed and the US regulatory regime does not include them.<sup>75</sup> Conversely, in the EU, the prudential treatment of CoCos closely follows the Basel III framework.<sup>76</sup> Finally, in Switzerland, the implementation of capital regulation is tighter than in other jurisdictions. CoCos are the only capital instrument that qualifies as Tier 1 capital, other than common equity. Moreover, the Swiss regime has reinforced the requirements for trigger events.<sup>77</sup> In the next part of this article, we discuss the EU prudential regime, with limited comparative notes to the Swiss regime.

#### 3.1 CoCo Regulation in the EU

Appreciating the relevance of CoCos in the current prudential framework requires of introducing their regulatory status under EU law.

Capital requirements have represented the cornerstone of the prudential regulation toolkit since the inception of the first Basel Accord in 1988.<sup>78</sup> In the EU, the Capital Requirement Regulation (CRR)<sup>79</sup> implements the Basel Framework with regard to banks' capital adequacy. Capital requirements respond to crucial regulatory purposes: first, capital represents a buffer against losses; second and relatedly, heightened capital increases shareholders' skin in the game which, supposedly, should prevent excessive risk-taking. Ultimately, capital regulation aims at decreasing the systemic spillovers of banking activities.<sup>80</sup>

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<sup>74</sup> Basel Committee on Banking Supervision. *Basel III: A global regulatory framework for more resilient banks and banking systems*. June 2011, 17. Available at <https://www.bis.org/publ/bcbs189.htm>

<sup>75</sup> In implementing Basel III, the Federal Reserve did not include the contingent convertibility clause as part of their AT 1 instruments. See 12 CFR Parts 208, Part V § 2. Available at <http://www.gpo.gov/fdsys/pkg/FR-2013-10-11/pdf/2013-21653.pdf>.

<sup>76</sup> See below in Section 2.3.

<sup>77</sup> See FINMA, *Capital requirements for systemically important banks*. Available at <https://www.finma.ch/en/enforcement/recovery-and-resolution/too-big-to-fail-and-financial-stability/capital-requirements-for-systemically-important-banks/>. See below in Section 3.1

<sup>78</sup> Richard J Herring and Robert E Litan, *Financial Regulation in the Global Economy* (Brookings Institution 1995).

<sup>79</sup> Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012. OJ L 176, 27.6.2013, p. 1–337

<sup>80</sup> Jihad Dagher and others, *Benefits and Costs of Bank Capital* (IMF Staff, International Monetary Fund 2016) 6. The sharp increase in regulatory capital for banks have been advocated by Anat Admati and Martin Hellwig, *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It* (Princeton University Press 2014).

In a nutshell, to be considered solvent and maintain their license, banks are required to hold 8% of capital over their risk-weighted assets (RWA) and 3% of Tier 1 Capital over their non-risk-weighted assets.<sup>81</sup> This generic definition requires clarifications to fully understand the role of CoCos.

From a quantitative perspective, the 8% of capital over risk-weighted asset requirement can be fulfilled by banks with various capital instruments. Specifically, Common Equity Tier 1 (CET1) capital must be at least 4,5% of RWA. CET1 comprises mainly common shares and retained earnings. The remaining part of regulatory capital can be composed of ‘lower quality’ instruments, namely Additional Tier 1 (AT1) Capital for up to 1,5% and Tier 2 (T2) Capital for the remaining 2%. CoCos are classified as falling within the AT1 or T2 categories depending on their contractual characteristics. To address the limits of the risk weight system, Basel III introduced a non-risk weighted leverage ratio requirement whereby banks need to hold at least 3% of Tier 1 capital over their total non-risk weighted assets.<sup>82</sup> Tier 1 capital is defined by the sum of Common Equity Tier 1 and Additional Tier 1 instruments. This is what constitutes the so-called ‘Pillar 1 Capital Requirements’.

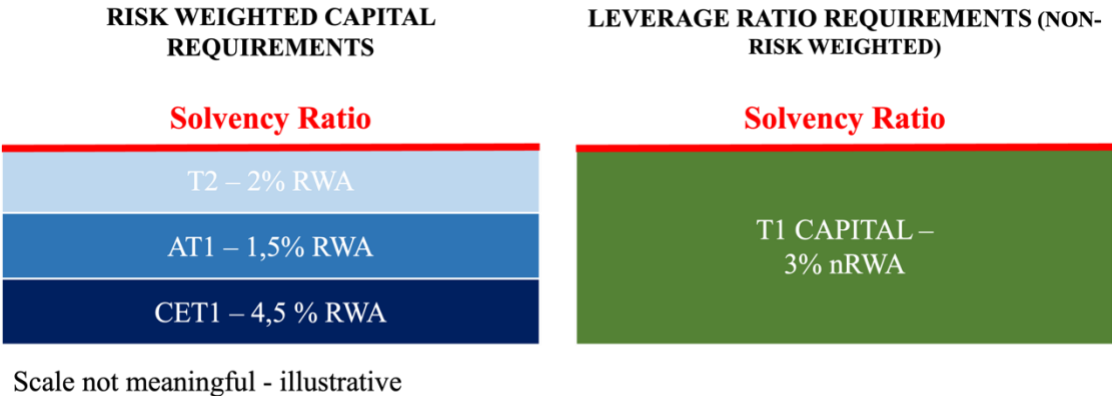


Figure 4 - Capital Requirements

From a prudential perspective, it is crucial to underline that this regime represents a compromise between the need to limit excessive bank leverage and the willingness of the regulators, often pushed by the banking industry, to limit compliance costs. Clearly, the possibility of complying with capital requirements with instruments other than common shares decreases the cost of capital for banks.<sup>83</sup>

A second clarification needed to correctly frame the role of CoCos relates to the qualitative requirements of capital instruments or, in other words, which instruments qualify as regulatory capital other than common shares and retained earnings. While the array of instruments is quite extensive, the analysis focuses on the key qualitative requirements relating to CoCos. In

<sup>81</sup> Respectively, article 92 (1) (c) and 92 (1)(d) CRR.  
<sup>82</sup> On the limits of risk-weighted capital requirements, see Giovanni Ferri and Valerio Pestic, ‘Bank Regulatory Arbitrage via Risk Weighted Assets Dispersion’ (2017) 33 Journal of Financial Stability 331.  
<sup>83</sup> See Anat R Admati and others, ‘Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity Is Not Socially Expensive’ (2013) 23 Max Planck Institute for Research on Collective Goods 13, showing that bank capital is privately costly but socially inexpensive. In general, the pecking order theory of capital structure also applies, see Myers and Majluf (n 60).

particular, the four main categories of qualitative requirements will be discussed: subordination, maturity, convertibility and distributions.

AT 1 instruments are a form of hybrid capital where loss absorption in going concern is quintessential.<sup>84</sup> In terms of subordination, to qualify as AT1 an instrument must rank below all other instruments but for CET1.<sup>85</sup> The instrument must be perpetual and fully paid in since its issuance.<sup>86</sup> The instrument can contractually include a call provision after at least 5 years.<sup>87</sup> However, the CoCo indenture cannot include any incentive for the issuer to call the instruments<sup>88</sup> and the call is subject to prior supervisory approval.<sup>89</sup> The underlying idea is that penalizing a delay in the calling of CoCos would undermine their ability to absorb losses in going concern. The decision to call the CoCos must be at the sole discretion of the issuer.<sup>90</sup> In practice, however, CoCos are mostly called at the first call date.<sup>91</sup>

Furthermore, to qualify as AT1, the CoCo indenture must embed a clause for contingent loss absorption – the so-called trigger event. This must be set, at least, to 5,125% of CET1 over risk-weighted assets, meaning that if the bank falls below such threshold the CoCos would convert into common equity to automatically recapitalize the bank.<sup>92</sup> Such instruments are commonly called ‘high trigger CoCos’.<sup>93</sup> CoCos can also specify a higher trigger threshold and additional triggers.<sup>94</sup> The loss absorption mechanism can be either ‘conversion to equity’, whereby the CoCos are converted in Common Shares following the contractual indentures, or ‘Principal Write-Down’, whereby the outstanding amount of CoCos is simply brought to zero. The finance literature considers the latter a subset of non-dilutive CoCos where the conversion ratio is set to zero.<sup>95</sup> Sometimes, CoCos contain a temporary write-down mechanism, in which case a later “write-up” is possible if the bank’s financial health is restored.<sup>96</sup>

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<sup>84</sup> That AT1 instruments are going-concern capital is explicitly stated by Basel III: Bank for International Settlements, ‘Basel III: A global regulatory framework for more resilient banks and banking systems’, December 2010 (revised June 2011), <https://www.bis.org/publ/bcbs189.pdf>, 12.

<sup>85</sup> Article 52(1)(d) CRR.

<sup>86</sup> Article 52(1)(a) and (g) CRR.

<sup>87</sup> Article 52(1)(i) CRR.

<sup>88</sup> Article 52(1)(g) CRR.

<sup>89</sup> Article 77 CRR.

<sup>90</sup> Article 52(1)(h) CRR.

<sup>91</sup> EBA, ‘Report on the monitoring of additional tier 1 (AT1) instruments of European Union (EU) institutions – update’, 24 June 2021, [https://www.eba.europa.eu/sites/default/documents/files/document\\_library/Publications/Reports/2021/1015682/Report%20on%20the%20monitoring%20of%20Additional%20Tier%201%20instruments%20of%20EU%20institutions.pdf](https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2021/1015682/Report%20on%20the%20monitoring%20of%20Additional%20Tier%201%20instruments%20of%20EU%20institutions.pdf), 8.

<sup>92</sup> Article 54(1)(a) CRR. This differs from the Swiss regime, where the AT1 trigger is set at 7%. See supra text to n 77.

<sup>93</sup> It should be noted, however, that some literature uses the term ‘high trigger CoCos’ for CoCos with a higher trigger than required to be qualified as AT1. See, for example: Fiordelisi et al (n 1616) 11.

<sup>94</sup> Article 51(a) and (b) CRR.

<sup>95</sup> Gamba, Gong and Ma (n 33).

<sup>96</sup> Avdjiev et al., ‘CoCos: A Primer’ (n 22) 52.

It is important to underline that the minimum requirement for CET1 capital to consider the bank solvent is 4,5%.<sup>97</sup> Therefore, the 5,125% threshold is considered preventive, as it is supposed to allow for a recapitalization before the bank insolvency, even though the threshold for conversion and for the breach of the minimum capital requirements are very close, which may hamper the effectiveness of CoCos.<sup>98</sup>

Finally, another hybrid feature of CoCos relates to distributions. Indeed, the regulatory regime on the payment of the CoCo coupon equals the regime on the payment of dividends to shareholders. Specifically, the coupon can be paid only out of distributable items.<sup>99</sup> The payment is not mandatory so skipping a coupon cannot be considered an event of default, as is commonly the case in virtually any other debt instrument.<sup>100</sup> The coupons are not cumulative, which means that if a coupon is skipped, it is not added to future coupon payments.<sup>101</sup> Functionally, this represents a further mechanism through which CoCos can preventively absorb losses and reduce excessive leverage.

The regulation of AT1 CoCos in Switzerland is comparable to the EU, with one important difference.<sup>102</sup> Similar to the EU, AT1 CoCos must be perpetual and banks must have discretion in deciding whether to call them, and can do so only after five years; coupon payments are subject to the availability of sufficient distributable reserves; and the trigger for CoCos must be higher, at least at 7% CET1 over risk-weighted assets. Specific to Switzerland, however, is that the CoCo indenture should also contain a “discretionary trigger”.<sup>103</sup> This discretionary trigger was the one that was invoked by the Swiss supervisor when it wrote down the AT1 CoCos of Credit Suisse.<sup>104</sup>

CoCos can also qualify as T2 instruments instead of AT1, depending on their contractual design. T2 instruments constitute “gone concern” capital, i.e., they are not supposed to absorb losses in going concern.<sup>105</sup> CoCos mainly qualify as T2 instruments if they are not perpetual but issued for at least 5 years, or if the trigger event is contractually set below the 5,125% threshold, so-called ‘low trigger CoCos’.

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<sup>97</sup> Bank for International Settlements, ‘Basel III: A global regulatory framework for more resilient banks and banking systems’, December 2010 (revised June 2011), <https://www.bis.org/publ/bcbs189.pdf>, 12.

<sup>98</sup> See Section 4 for more detailed discussion of this problem with the threshold for triggering CoCos.

<sup>99</sup> Article 52(1)(l)(i) CRR. Distributable items are defined in article 4(1)(128) CRR.

<sup>100</sup> Article 52(1)(l)(iv) CRR.

<sup>101</sup> Article 52(1)(l)(iii) CRR.

<sup>102</sup> CoCos are regulated by the Ordinance on the Capital Adequacy and Risk Diversification of Banks and Securities Firms (Capital Adequacy Ordinance). English translation available at: <https://www.fedlex.admin.ch/eli/cc/2012/629/en>. Last accessed 3 March 2024.

<sup>103</sup> Article 29 Capital Adequacy Ordinance: “The terms and conditions of issue or the articles of association must make provision for AT1 capital to contribute to the bank’s restructuring by means of a complete write-off or conversion at the point of non-viability. In this case, creditors’ claims must be written off in full. The conversion to CET1 capital or the write-down must take place at the latest: a. before recourse to public sector assistance; or b. when FINMA orders this to avoid insolvency.”

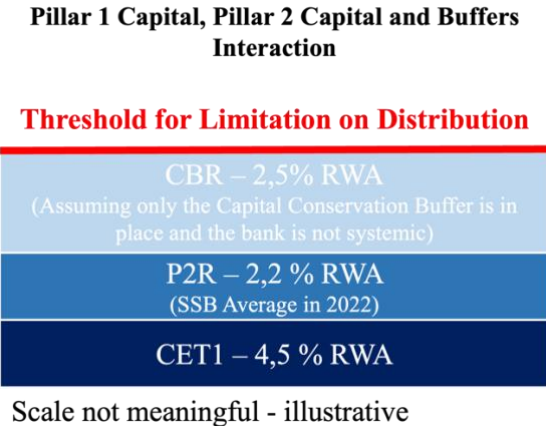
<sup>104</sup> See below, Section 4.2.

<sup>105</sup> Bank for International Settlements, ‘Basel III: A global regulatory framework for more resilient banks and banking systems’, December 2010 (revised June 2011), <https://www.bis.org/publ/bcbs189.pdf>, 18.

The final piece of prudential regulation needed to frame the CoCos is the interaction between Pillar 1 Capital Requirement and the prudential add-ons. First, the bank supervisor, as a result of the Supervisory Review and Evaluation Process (SREP),<sup>106</sup> can impose a ‘Pillar 2 Capital Requirement’. This is a bank-specific add-on to account for risks that are not adequately covered by the Pillar 1 Requirements.<sup>107</sup> Pillar 2 capital requirements are a minimum requirement to consider the bank solvent and able to operate

Moreover, on top of Pillar 1 and Pillar 2 capital requirements, the EU regulator introduced several prudential buffers to account for the specific macro-economic risks in certain stressed periods and the specific systemic risks brought by systemically relevant banks.<sup>108</sup> The sum of all applicable buffers constitute the bank specific ‘Combined Buffer Requirement’ (CBR). These buffers are not minimum requirements, to the contrary these represent excess capital capacity accumulated in good times that should be released in stressed times, addressing the pro-cyclicality issue of capital regulation.<sup>109</sup> Both Pillar 2 Requirements and Buffers are expressed as percentage of CET1 over RWA.

The sum of Pillar 1 capital, Pillar 2 capital and the CBR sets a bank-specific threshold that if breached implies, among other things, a limitation on banks’ distribution.<sup>110</sup>



*Figure 5 - Regulatory Interaction and Limitations on Distributions*

This means that, if the level of CET1 decreases to the point where the CBR is breached, the coupon to CoCo holders should be cancelled to allow the bank to rebuild capital capacity by

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<sup>106</sup> Article 97 CRDV.

<sup>107</sup> Article 104 of the Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC. OJ L 176, 27.6.2013, p. 338–436.

<sup>108</sup> Katarzyna Parchimowicz, *The Regulation of Megabanks: Legal Frameworks of the USA and EU* (Taylor & Francis 2023) 123.

<sup>109</sup> Claudio Borio, ‘The Financial Cycle and Macroeconomics: What Have We Learnt?’ (2014) 45 *Journal of Banking & Finance* 182.

<sup>110</sup> Article 141 CRD. This very point proved problematic in the Deutsche Bank Case. See below in Section 4.1.1 for further details on the specific legal construction at play in that instance.

accruing and retaining earnings.<sup>111</sup> It is important to highlight that the CBR threshold depends on the characteristics of each bank and the systemic risk. This means that the CBR threshold will be higher for riskier banks and will be higher for all banks in periods of high systemic risk. This complex system has been criticized for making both the minimum capital requirement and buffer requirements ineffective, providing incentives not to realise buffers when needed. Indeed, during the Covid-19 crisis, when the ECB encouraged banks to breach the CBR to keep on supporting the real economy, no bank did so to avoid having binding restrictions on dividend and CoCo-related distributions.<sup>112</sup>

3.2 Market Practices for CoCo Issuance in the EU

The EU regulations have shaped market practices on CoCo issuances of EU banks. To validate our framework, we analyze all CoCos included in the Bloomberg database that are issued by EU banks between March 2010 (the first CoCo issued by an EU bank included in Bloomberg) and June 2023 (when we downloaded the data from Bloomberg). The result is a sample of 264 CoCos, issued by 88 different banks incorporated in 14 different EU countries.

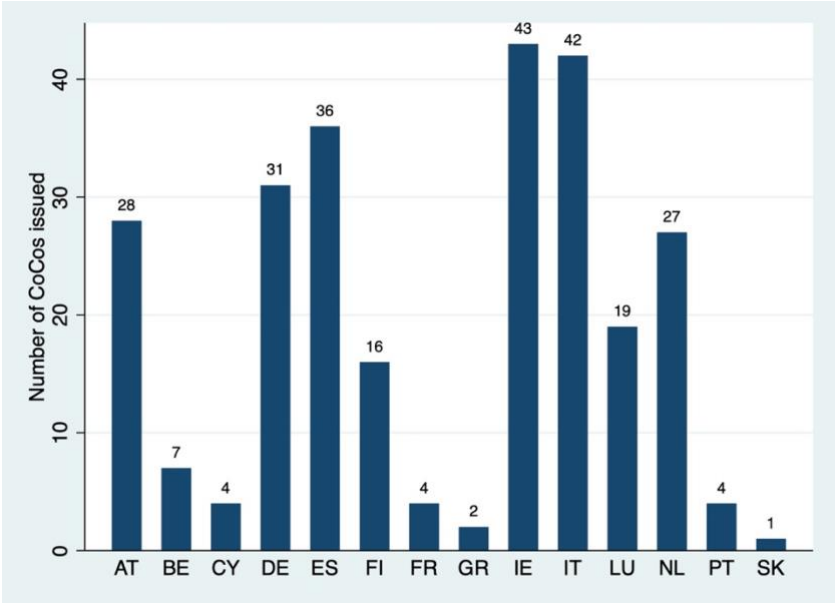


Figure 6 – Number of CoCos Issued by Country

Figure 6 shows the number of CoCos in each country. It seems that the number of CoCos issued differs significantly across countries, and not necessarily in correlation with the size of that country’s financial sector. For example, only 4 CoCos have been issued by French banks, while 42 CoCos have been issued by Italian banks. This shows different approaches towards compliance with capital regulation.

<sup>111</sup> Terhi Jokipii and Alistair Milne, ‘The Cyclical Behaviour of European Bank Capital Buffers’ (2008) 32 Journal of banking & finance 1440.

<sup>112</sup> Thom Wetzter, Laura Kodres and Alissa Kleinnijenhuis, ‘Usable Bank Capital’ (VoxEU) <<https://cepr.org/voxeu/columns/usable-bank-capital>>; Manuel A Muñoz and others, ‘Rethinking Capital Regulation: The Case for a Dividend Prudential Target’ (2021) 17 International Journal of Central Banking 271.



Figure 7 shows the number of CoCos issued in each year. CoCo issuance in the EU really picked up in 2013, after the EU adopted the CRR, with the requirements for CoCos to qualify as AT1 capital. A sharp drop in the number of CoCos issued occurred in 2022.

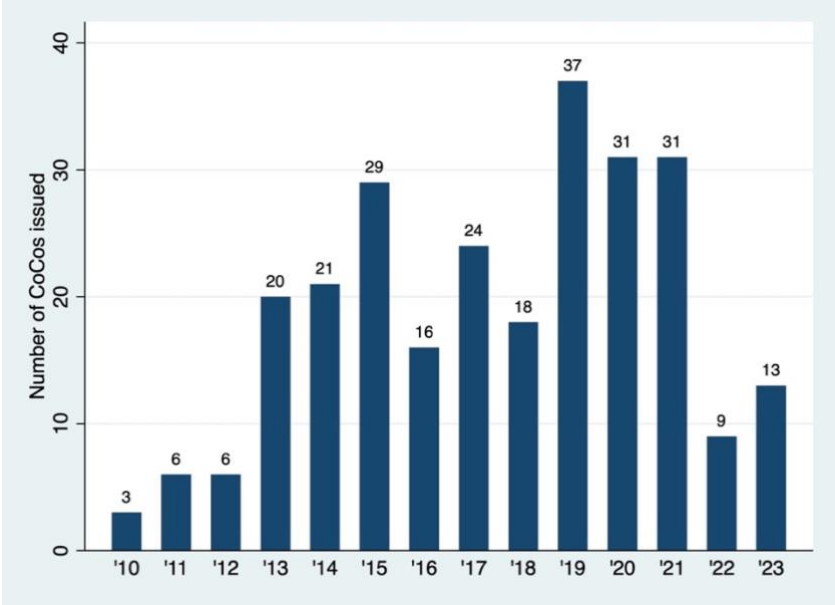


Figure 7 – Number of CoCos Issued by Year of Issuance

Figure 8 shows the percentage of AT1 versus T2 CoCos. The overwhelming majority (almost 80%) of CoCos issued by EU banks qualifies as AT1 CoCos.<sup>113</sup>

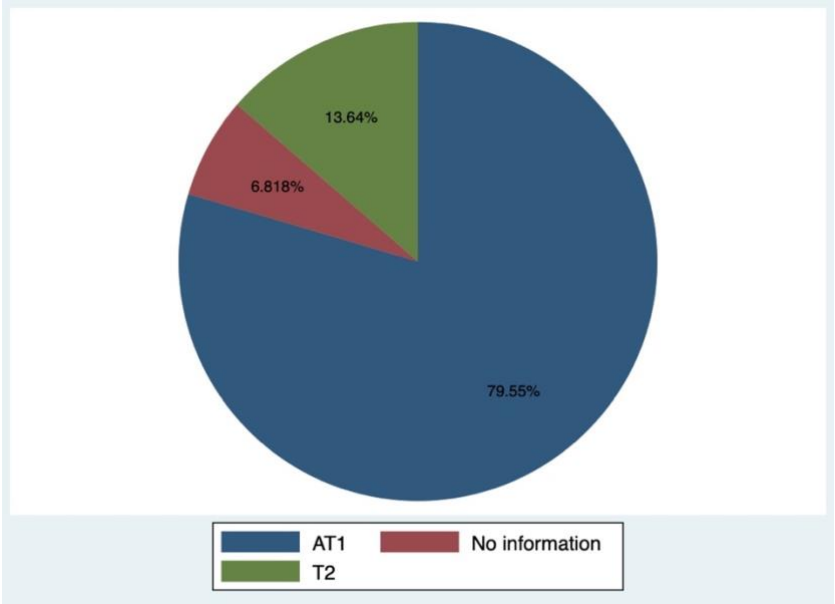


Figure 8 - Percentage of AT1 and T2 CoCos

<sup>113</sup> For a small percentage of CoCos (almost 7%), Bloomberg has no information on whether it qualifies as a AT1 or T2 CoCo.

All of the CoCos in our sample for which data is available have a mechanical trigger based on the book value of the bank’s equity (6 CoCos have no information on the trigger type). Figure 9 shows the level of the mechanical trigger for the CoCos in our sample.<sup>114</sup> Most CoCos (more than 60%) have a trigger of exactly 5.125%. All of the CoCos with a lower trigger than 5.125% are T2 CoCos, which makes sense as this is the minimum level in order to qualify as AT1 capital. A small but significant percentage of CoCos (around 26%) have a higher trigger than 5.125%, typically 7% (almost three quarters of CoCos with a higher trigger than 5.125% have a trigger of 7%).

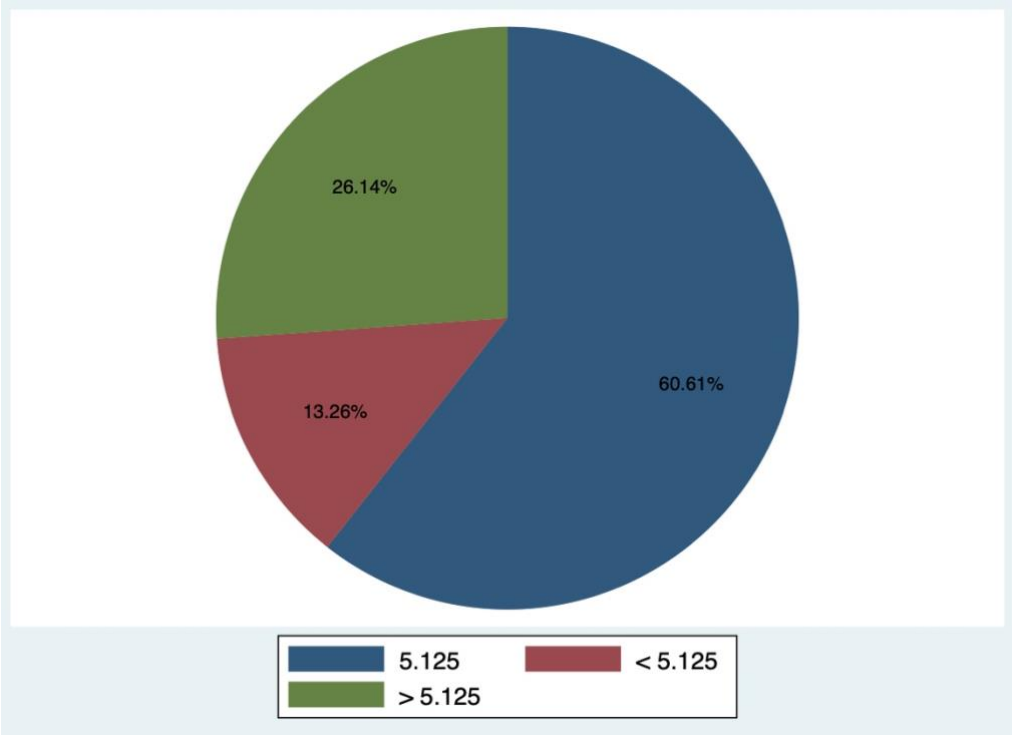


Figure 9 – CoCo Mechanical Triggers

Figure 10 shows the different types of conversion when the CoCos are triggered. The most common type of CoCo is a principal write-down CoCo, where the CoCos do not convert to equity. Different variations exist. Permanent write-down CoCos (around 17% of the total) are fully written down when triggered, leaving CoCo holders with nothing. In some cases, the write-down of the CoCos is only partial when the CoCo is triggered, in which case the CoCo holders still receive a cash payment from the bank when the CoCo is triggered (so-called “partial permanent write-down CoCos”), but this is very rare (only 5 CoCos in our sample, less than 2%).<sup>115</sup>

The most common type of CoCo is the temporary principal write-down CoCo (more than 55% of CoCos). In that type of CoCo, the CoCos are not fully written down when triggered; instead, the CoCos are written down with the amount necessary to restore the capital ratio to the trigger

<sup>114</sup> For 7 CoCos, Bloomberg does not provide information on the trigger level. These CoCos are not included in the figure.

<sup>115</sup> See about this conversion type: See also, Avdjiev et al., ‘CoCos: A Primer’ (n 22), 46 (giving the CoCo issuance of Rabobank in 2010 as an example).

level of the CoCos, or with an amount that reduces principal of the CoCos to one cent, whichever is lower. If the bank later recovers and becomes profitable again, it can at its sole discretion decide to (partially) reinstate the principal of the CoCos (a “principal write-up”).<sup>116</sup> While such practice is in line with the EU Regulation, the actual loss absorbing capacity of this instrument is extremely limited.

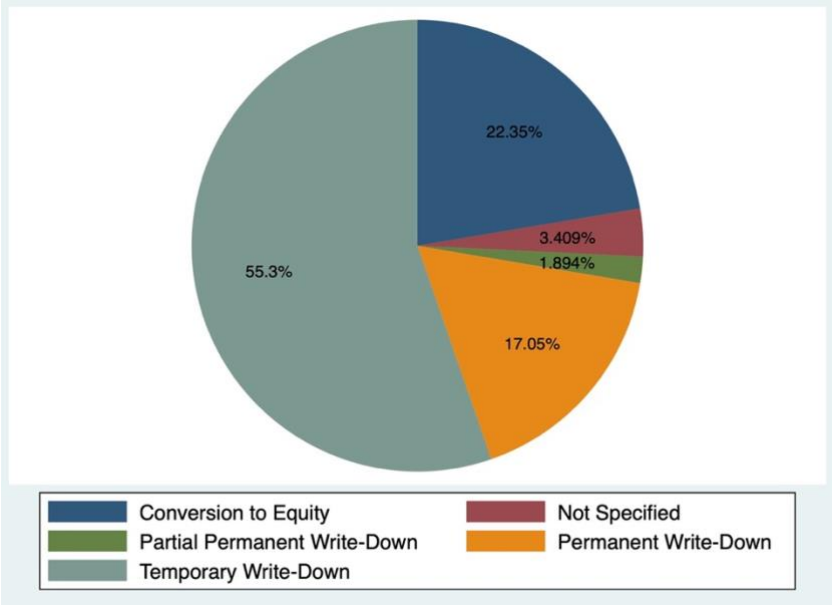


Figure 10 - CoCo Conversion Mechanism

The final type of CoCo is the conversion to equity type, which is present in around 22% of CoCos. Typically, the conversion of the CoCos occurs at the highest price out of the market price at the moment of conversion and a floor price determined in the CoCo prospectus.<sup>117</sup> The floor price limits the amount of dilution suffered by shareholders when the CoCos are converted. For the analysis of risk-shifting incentives, such non-dilutive conversion to equity CoCos are relatively similar to principal write-down CoCos.<sup>118</sup>

#### 4. A Brief History of CoCos’ Failures and Modest Successes

CoCos were first issued at the beginning of the 2010s and their market gained traction in the following years, pushed by the need for banks to comply with the novel regulatory requirements.

<sup>116</sup> This description of temporary write-down CoCos is based on the prospectuses of the AT1 CoCos issued by KBC Group NV (Belgium) in 2019, Raiffeisen Bank International AG (Austria) in 2020, Bank of Ireland Group PLC (Ireland) in 2020, La Banque Postale SA (France) in 2021, Banque Internationale à Luxembourg (Luxemburg) in 2019), and Commerzbank AG (Germany) in 2021.

<sup>117</sup> This is the case in the prospectuses of conversion to equity CoCos that we studied (see previous footnote). See also, Avdjiev et al., ‘CoCos: A Primer’ (n 22) 46.

<sup>118</sup> See for this point, Berg and Kaserer (n 26). See also the discussion above in Section 2.1 of the risk-shifting incentives of conversion to equity versus principal write-down CoCos.

Despite the relatively large volume of this market, to date, there has been no real, going-concern, enforcement of CoCos in the European Union.<sup>119</sup> The first example of enforcement was the write-down of 17 bn CHF of Credit Suisse’s CoCos, but it happened very late in the bank’s distress and under a number of complex and intricately circumstances.

At least from an anecdotal perspective, CoCos have not worked as they should, i.e. with the preventive and going-concern feature. It is nonetheless important to briefly review the most contentious cases of the past years when CoCos actually suffered losses – or were in the verge of doing so. This is crucial to draw lessons on the shortfall of this construction. This Section analyses five key cases, discussing their functional features (Figure 11).

Case	Year	Loss Absorption	Actual Losses	Going Concern	Legal Mechanism	Function
<b>Deutsche Bank</b>	2016	Dividend Restriction & Not Calling	NO	YES	Combined Buffer Requirement (CBR) & Pilla 2 Capital	Early Recapitalization
<b>Banco Popular</b>	2017	Write Down	YES	NO	Sale of Business & Liquidation	Resolution
<b>MPS</b>	2017	Write Down	YES	YES*	Precautionary Recapitalization	Burden Sharing for Public Aid
<b>Pireus Bank</b>	2022	Conversion to Equity	YES	YES**	Precautionary Recapitalization & Going-Concern Trigger	Early Recapitalization
<b>Credit Suisse</b>	2023	Write Down	YES	YES	Discretionary Trigger assisted by Emergency Law	Facilitating a merger
* but public ownership ex-post						
** but public contribution ex-ante and public ownership ex-post						

Figure 11 - Cases of CoCos Loss Absorption

First, we analyse a few early examples that highlight different facets of CoCos’ loss-absorbing capacity (Section 4.1); thereafter, we delve into the recent Credit Suisse case (Section 4.2).

#### 4.1 Early Examples of CoCo’s Loss-Absorption

CoCos have never been properly converted in the context of a private mechanism for loss absorption. Nonetheless, there have been several cases where these instruments have been discussed in relation to bank distress.

##### 4.1.1 The Deutsche Bank Case

The first noticeable case related to CoCos happened in 2016 and concerns Deutsche Bank, the largest German bank, which has often been criticized for bad and opaque management practices.<sup>120</sup> Deutsche Bank reported losses for the fiscal year 2015. This brought the bank close to breaching its combined buffer requirement and, in turn, put CoCo holders at risk of not receiving their 6% coupon. Moreover, rumours started about Deutsche Bank not being able to

<sup>119</sup> Choi and Zhang (n 11).

<sup>120</sup> Jack Shannon, Ben Yu and James S O’Rourke, *Deutsche Bank, AG: Mortgage Securitization and Financial Collapse* (The Eugene D Fanning Center for Business Communication, Mendoza College of ... 2017).

call the bond at the expected date.<sup>121</sup> This quickly generated panic among the CoCo investors and, more generally, within the banking industry as it would have been the first case of going-concern loss-absorption of a CoCo bond which would likely have increased the cost of funding for all European Banks. In a few weeks, the CoCos lost almost 25% of their value in the secondary market and were exchanged at 71 cents on the Euro.

The key problem was the interaction between Pillar 1 capital, Pillar 2 capital and the Combined Buffer Requirement, as discussed before. Breaching the CBR would imply a limitation on distribution. This sparked a discussion on the nature and scope of Pillar 2 capital. Back then, Pillar 2 capital referred both to the additional requirements for the bank-specific risk not captured by Pillar 1 and to the capital guidance stemming from the result of the stress tests.<sup>122</sup> This means that both elements of Pillar 2 capital counted toward the determination of the threshold for limiting distribution. However, some contended that only the first element of Pillar 2 capital should count toward the limitation on the distribution of the coupon. In contrast, the stress-test-related guidance should be interpreted as a non-binding add-on that the supervisor expects banks to fulfil but whose breach does not imply legal consequences. This would have clearly decreased the amount of CET1 needed to be allowed to pay out the coupon on CoCo. This lenient interpretation was sanctioned by the European Banking Authority in July 2016.<sup>123</sup> This interpretation then explicitly entered into primary EU legislation with the 2019 reform package of the CRR and CRD.<sup>124</sup>

This case highlights three problematic aspects inherent to the regulatory design of CoCos.<sup>125</sup> First, even a modest level of going-concern loss absorption, such as skipping a coupon and a delay in the expected call date, represents an adverse signal that may trigger a turmoil in the industry. Second, and relatedly, supervisors and regulators are likely to forebear and delay action to avoid adverse market reactions, likely also in response to lobbying activities.<sup>126</sup> Third, this vicious loop is reinforced by the implicit guarantee of powerful fiscal sovereigns, such as Germany. Unsurprisingly, several years later, right after the collapse of Credit Suisse and the

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<sup>121</sup> John Glover, 'Deutsche Bank CoCo Bonds Have Bumpy Ride as Lender Struggles' (*Bloomberg*, 29 January 2016) <[https://www.bloomberg.com/news/articles/2016-01-28/deutsche-bank-coco-investors-have-bumpy-ride-as-lender-struggles?in\\_source=embedded-checkout-banner](https://www.bloomberg.com/news/articles/2016-01-28/deutsche-bank-coco-investors-have-bumpy-ride-as-lender-struggles?in_source=embedded-checkout-banner)> accessed 28 August 2023. As discussed above in Section 2.2, banks are not legally obliged to call CoCos at the first possible date, but they often do so in practice, and the market has come to expect this.

<sup>122</sup> Article 104 CRD. See Directive (EU) 2019/878 of the European Parliament and of the Council of 20 May 2019 amending Directive 2013/36/EU as regards exempted entities, financial holding companies, mixed financial holding companies, remuneration, supervisory measures and powers and capital conservation measures OJ L 150, 7.6.2019, p. 253–295

<sup>123</sup> European Banking Authority. Information update on the 2016 EUwide stress test (July 1<sup>st</sup>, 2016), p. 2. Available at <https://www.eba.europa.eu/documents/10180/1509035/Information+update+on+the+2016+EU-wide+stress+test.pdf>

<sup>124</sup> European Parliament and Council Directive (EU) 2019/878 of 20 May 2019 amending Directive 2013/36/EU as regards exempted entities, financial holding companies, mixed financial holding companies, remuneration, supervisory measures and powers and capital conservation measures [2019] OJ L150/253. This directive inserted the new articles 104a and 104b in the CRD, on Pillar 2 Requirements and Pillar 2 Guidance, respectively.

<sup>125</sup> For a wider account of this case, see Glasserman and Perotti (n 24), 319-320.

<sup>126</sup> Pierluigi Bologna, Arianna Miglietta and Anatoli Segura, 'Contagion in the CoCos Market? A Case Study of Two Stress Events' [2018] Bank of Italy Working Paper.

write-down of its CoCo Bonds, the German Chancellor Olaf Scholz had to publicly intervene to dismiss the rumours about the imminent distress of Deutsche Bank as well.<sup>127</sup>

#### 4.1.2 The Banco Popular Case

The second case concerns the case of Banco Popular, a mid-size Spanish bank that suffered a sudden liquidity crisis in May-June 2017. The bank was declared ‘failing or likely to fail’ by the Single Supervisory Mechanism on June 6<sup>th</sup> and was put in resolution on June 7<sup>th</sup>. That was the first fully-fledged resolution decision taken by the Single Resolution Board (SRB).<sup>128</sup> The resolution scheme prepared by the SRB and implemented by the Spanish National Resolution Authority (FROB) contained the transfer of Banco Popular to Banco Santander for 1€ through the ‘sale of business tool’. In the context of the Resolution Scheme, 1.3bn € of outstanding CoCo Bonds were written down. In this case, CoCos actually bore losses but not via the going-concern, preventive, contractually design mechanisms. Rather, the CoCos were written down by an administrative decision of the Resolution Authority once the bank was already considered bankrupt.

#### 4.1.3 The Monte dei Paschi di Siena Bank Case

The third example does not directly relate to CoCos but to a form of quasi-going-concern loss absorption by junior debt holding. Monte dei Paschi di Siena (MPS) Bank experienced slow and long distress since the 2008 crisis. In 2016, the results of the stress test highlighted a severe capital shortfall that the bank was unable to cover with open market capital increase.<sup>129</sup> Therefore, in December 2016, MPS applied for ‘precautionary recapitalization’, a special support tool included in the Bank Recovery and Resolution Directive. This, *de facto*, constituted a request for a bail-out intervention by the Italian State subject to some form of ex-ante and ex-post conditionality. In the construction of the EU resolution framework, a bank that receives public financial support shall be deemed ‘failing or likely to fail’ and be resolved accordingly.<sup>130</sup> However, public financial support can be provided to solvent institutions to remedy a serious disturbance in the economy of a Member State and preserve financial stability. The support must be proportionate and temporary and must be approved by the EU Commission under the State Aid Framework. The support can include forms of capital injection only to address capital shortfalls highlighted in a stress test.<sup>131</sup>

In July 2017, the precautionary recapitalization was approved by the Commission. According to the approved scheme, the 6.3 bn € of capital shortfall was covered by the Italian State for

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<sup>127</sup> See Financial Times, Germany’s Olaf Scholz dismisses fears over Deutsche Bank . March 24<sup>th</sup>, 2023. Available at <https://www.ft.com/content/963d8fde-1bd0-4285-98f4-715248119f2a>.

<sup>128</sup> For an extensive account, see Luís Silva Morais, ‘Lessons from the First Resolution Experiences in the Context of Banking Recovery and Resolution Directive’ [2019] The Palgrave Handbook of European Banking Union Law 371.

<sup>129</sup> European Commission, ‘State Aid: Commission Authorises Precautionary Recapitalisation of Italian Bank Monte Dei Paschi Di Siena’ <[https://ec.europa.eu/commission/presscorner/detail/en/IP\\_17\\_1905](https://ec.europa.eu/commission/presscorner/detail/en/IP_17_1905)> accessed 28 August 2023.

<sup>130</sup> Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms. OJ L 173, 12.6.2014, p. 190–348. Hereinafter BRRD.

<sup>131</sup> Article 32(4)(d)(iii) BRRD.

2.1bn €. The remaining part was covered by the write-down of junior bonds, for 4.2 €. These were not CoCos, as MPS never had the possibility to issue this instrument in the market, but were subordinated notes labelled as T2 capital. This private contribution was crucial to have the scheme accepted by the European Commission, as private burden sharing is required when providing State Aid to banks as of 2013.<sup>132</sup> Moreover, the Italian State provided an additional 2.5bn € to meet all capital requirements and 2bn to compensate retail subscribers of shares and subordinated debt.

There are three key takeaways from this case. First, although no CoCos were involved, this is a key example where capital instruments other than common equity absorb losses in going concern. However, this was only possible in the context of a *de facto* nationalization of the bank. In fact, even if the measure was meant to be temporary, MPS is still in public hands and there does not seem to be a concrete possibility to put it back in the market. Second, the precautionary recapitalization happened when the bank was very close to insolvency, so much so that the decision to declare the bank solvent by the ECB was heavily criticized.<sup>133</sup> Therefore, the private intervention in the form of a bond write-down cannot be considered preventive as it did not take place early enough. Third, the scheme was challenged in court on the ground that the priority rules among creditors were violated because of the 2bn € relief to retail investors, which functionally constitutes a selective bail-out. This challenge is very similar to the criticisms surrounding the Credit Suisse case.<sup>134</sup> The ECJ held in a preliminary ruling that the case was irreceivable, and the decision on the legitimacy of the scheme is now pending in the Italian court.<sup>135</sup>

#### 4.1.4 The Piraeus Bank Case

The next case worth discussing is that of Piraeus Bank, the second largest Greek bank.<sup>136</sup> In 2015, the application for a precautionary recapitalization of 2,72bn € was approved by the European Commission. In contrast to the MPS case, where the Italia State through the Ministry for Economics and Finance did the capital injection, in the Piraeus Bank case, the aid was provided by the Hellenic Financial Stability Fund (HFSF) with funding provided by the European Stability Mechanisms (ESM).<sup>137</sup> Interestingly, the recapitalization came in the form of common equity for only 25% of the amount. The other 75% was in the form of CoCos with a 7% coupon. The indenture set two conversion events: first, if the CET1 fell below 7% of

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<sup>132</sup> Communication from the Commission on the application, from 1 August 2013, of State aid rules to support measures in favour of banks in the context of the financial crisis (‘Banking Communication’). OJ C 216, 30.7.2013, p. 1–15.

<sup>133</sup> Christos Hadjiemmanuil, ‘Monte Dei Paschi: A Test for the European Policy Against Bank Bailouts’ <<https://www.law.ox.ac.uk/business-law-blog/blog/2017/05/monte-dei-paschi-test-european-policy-against-bank-bailouts>>.

<sup>134</sup> Discussed further in Section 3.2.

<sup>135</sup> Commission v Braesch and Others. Case C-284/21 P

<sup>136</sup> ‘Precautionary Recapitalisations under the Bank Recovery and Resolution Directive: Conditionality and Case Practice’ (European Parliament 2017) PE 602.084 <[https://www.europarl.europa.eu/RegData/etudes/BRIE/2017/602084/IPOL\\_BRI\(2017\)602084\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2017/602084/IPOL_BRI(2017)602084_EN.pdf)> accessed 28 August 2023.

<sup>137</sup> European Commission, ‘State Aid: Commission Approves Aid for Piraeus Bank on the Basis of an Amended Restructuring Plan’ <[https://ec.europa.eu/commission/presscorner/detail/en/IP\\_15\\_6193](https://ec.europa.eu/commission/presscorner/detail/en/IP_15_6193)> accessed 28 August 2023.

RWA; and, second, if the bank missed the payment of two coupons. Piraeus missed the payment of the second coupon during the Covid-19 crisis, in December 2020.<sup>138</sup> That implied the first even going-concern conversion of CoCo instruments in Europe. Consequently, there was also a shift in control of Piraeus Bank. The HFSF passed from a 26% to a 61% shareholding, obtaining a controlling stake as a result of the conversion.

The two key takeaway points from this last case relate to the trigger and private involvement. First, the accounting trigger did not manage to get the CoCo converted even though it was set at 7% CET1/RWAs. This illustrates, once again, the inability of the accounting trigger to work as an effective enforcement mechanism. Second, the only real CoCo conversion in going concern was part of a bail-out, where public money was converted from hybrid debt to equity.

#### 4.2 *Credit Suisse*

On March 19 2023, UBS Group AG agreed to buy Credit Suisse for around 3bn CHF.<sup>139</sup> The deal was facilitated by FINMA, the Swiss supervisory authority for banks and financial markets. This was necessary to avoid the collapse of Credit Suisse and, consequently, the possible national and international contagion. Within this construction, 17bn CHF of CoCos were wiped out, even though shareholders retained a (minimal) claim on the bank. This was the first time in which CoCos properly absorbed losses in going concern, which reignited the debate over CoCos.

Before analysing the contentious points of the FINMA decision and focusing on the role of CoCos in the Credit Suisse-UBS merger, it is important to contextualize the decision. Credit Suisse had a long history of financial scandal and mismanagement.<sup>140</sup> On March 10<sup>th</sup> 2023, SVB collapsed and was put in receivership by the FDIC, triggering a widespread market reaction. Unsurprisingly, all the eyes were captured by Credit Suisse, whose share price plummeted. On March 14<sup>th</sup>, during an interview the chairman of the Saudi National Bank, a major Credit Suisse shareholder, ruled out the possibility of injecting fresh capital into the bank, reinforcing the concerns of investors surrounding the resilience of Credit Suisse.<sup>141</sup> On March 15<sup>th</sup>, in a joint statement, the Swiss National Bank (SNB) and the Swiss Financial Market Supervisory Authority (FINMA) declared the bank solvent. In addition, the SNB pledged to provide liquidity assistance if necessary.<sup>142</sup> The day after, on March 16<sup>th</sup> the Swiss Bundesrat

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<sup>138</sup> See, Piraeus Financial Holding, Announcement. 23 November 2020. Available at <https://www.piraeusholdings.gr/en/press-office/announcement/2020/11/announcement-23-11-2020>

<sup>139</sup> For a discussion of the case, see Martino and Vos ‘Credit Suisse CoCos’ (n 1); Edoardo Martino and Tom Vos, ‘The Bail-In of Credit Suisse CoCos: Why Principal Write-Down Made Sense’ (*The CLS Blue Sky Blog*, 5 December 2023) <<https://clsbluesky.law.columbia.edu/2023/05/12/the-bail-in-of-credit-suisse-cocos-why-principal-write-down-made-sense/>> accessed 28 August 2023.

<sup>140</sup> See, for instance, Kalyeena Makortoff and David Pegg, ‘Crooks, Kleptocrats and Crises: A Timeline of Credit Suisse Scandals’ (*The Guardian*, 21 February 2022) <<https://www.theguardian.com/news/2022/feb/21/tax-timeline-credit-suisse-scandals>> accessed 28 August 2023.

<sup>141</sup> Yousef Gamal El-Din and Marion Halftermeyer, ‘Credit Suisse Reels After Top Shareholder Rules Out Raising Stake’ (*Bloomberg*, 15 March 2023) <[https://www.bloomberg.com/news/articles/2023-03-15/credit-suisse-top-shareholder-rules-out-more-assistance-to-bank-lf9gfhbr?in\\_source=embedded-checkout-banner#xj4y7vzkg](https://www.bloomberg.com/news/articles/2023-03-15/credit-suisse-top-shareholder-rules-out-more-assistance-to-bank-lf9gfhbr?in_source=embedded-checkout-banner#xj4y7vzkg)> accessed 28 August 2023.

<sup>142</sup> FINMA and Swiss National Bank, ‘FINMA and the SNB Issue Statement on Market Uncertainty’ (15 March 2023) <<https://www.finma.ch/en/news/2023/03/20230315-mm-statement/>> accessed 28 August 2023.



issued an emergency decree legitimizing the SNB to provide liquidity assistance, as required by the Swiss law.<sup>143</sup> On March 19<sup>th</sup>, a few hours before the announcement of the merger deal, the Bundesrat amended the previous decree.<sup>144</sup> This amendment, among other things, legitimized FINMA to write down AT1 instruments in the context of a merger of systemically important banks assisted by a federal guarantee. This amendment plays a crucial role in the interaction between the contractual provisions of the CoCo instruments and the power of FINMA.

The decision raised numerous criticisms and a considerable level of confusion especially among legal scholars.<sup>145</sup> A few key aspects deserve a brief analysis to further inform the discussion about CoCos. First and foremost, Credit Suisse was never declared insolvent, so that the bankruptcy rules – especially the *pari passu* rule – do not apply. The write-down of the CoCos happened in going-concern, when Credit Suisse was still legally considered solvent by the relevant authorities, as officially declared in the joint statement of March 15<sup>th</sup>.

The analysis should therefore focus on the contractual trigger, the legal risk stemming from the write-down decision, and the political and pragmatic roots of the write-down decision.

The prospectuses of the various CoCo instruments that were written down by FINMA all included a clause embedding the contingent possibility of the write-down. All instruments were of the ‘Principal Write-Down’ type rather than the ‘Conversion to Equity’ type. The prospectuses included two alternative trigger events: first, an accounting trigger generally set at 7% of CET1/RWAs; second, a so-called ‘discretionary trigger’ (the prospectus calls this a ‘Viability Event’), which (briefly summarized) covers the situation where the regulator deemed the write-down necessary to improve the capital adequacy of Credit Suisse in order to prevent its insolvency, or where extraordinary public support is granted to improve the capital adequacy of Credit Suisse in order to prevent its insolvency.<sup>146</sup> Such a discretionary trigger is present in

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<sup>143</sup> Bundesrat, Ordinance on additional liquidity assistance loans and the granting of federal default guarantees for liquidity assistance loans from the Swiss National Bank to systemically important banks, 16 March 2023 <<https://www.news.admin.ch/news/message/attachments/76289.pdf>>.

<sup>144</sup> Bundesrat, Amendment to Ordinance on Additional Liquidity Assistance Loans and the Granting of Federal Default Guarantees for Liquidity Assistance Loans from the Swiss National Bank to Systemically Important Banks, 19 March 2023, <<https://www.news.admin.ch/news/message/attachments/76290.pdf>>.

<sup>145</sup> For an account of all these confusions and misunderstandings, see Javier Paz Valbuena and Horst Eidenmüller, ‘Bailout Blues: The Write-Down of the AT1 Bonds in the Credit Suisse Bailout’ (2023) 24 *European Business Organization Law Review* 409. For a deep criticism of this recollection, see Enrico C Perotti, ‘The Swiss Authorities Enforced a Legitimate Going Concern Conversion’ (*VoxEU*, 22 March 2023) <<https://cepr.org/voxeu/columns/swiss-authorities-enforced-legitimate-going-concern-conversion>> accessed 28 August 2023; Martino and Vos, ‘The Bail-In of Credit Suisse CoCos’ (n 138).

<sup>146</sup> See, for example: Credit Suisse, ‘CHF 200,000,000 3.875 per cent perpetual tier 1 contingent write-down capital notes’, <<http://www.kccllc.net/document/88719002303240000000000001>>, p. 10-11. In full, the clause reads: ‘(a) The Regulator has notified CSG that it has determined that a write-down of the Notes, together with the conversion or write-down/off of holders’ claims in respect of any and all other Going Concern Capital Instruments, Tier 1 Instruments and Tier 2 Instruments that, pursuant to their terms or by operation of law, are capable of being converted into equity or written down/off at that time is, because customary measures to improve CSG’s capital adequacy are at the time inadequate or unfeasible, an essential requirement to prevent CSG from becoming insolvent, bankrupt or unable to pay a material part of its debts as they fall due, or from ceasing to carry on its business; or (b) customary measures to improve CSG’s capital adequacy being at the time inadequate or unfeasible, CSG has received an irrevocable commitment of extraordinary support from the Public Sector (beyond customary transactions and arrangements in the ordinary course) that has, or imminently will have, the effect of

the contractual indentures because of Swiss legal requirements for AT1 CoCos (see above in Section 3.1), but it is formulated in an ambiguous and complex manner. One interpretation, put forward by FINMA, is that the Viability Event occurred (and the CoCos could therefore be written down), as Credit Suisse was granted extraordinary liquidity assistance loans secured by a federal default guarantee.<sup>147</sup> In this view, FINMA already had the power to write down the CoCos. Others, however, believed that the Viability Event did not occur, because there was no need to improve Credit Suisse's capital adequacy.<sup>148</sup> The Bundesrat seems to have recognized that there was scope for legal uncertainty, as the amendment of 19 March 2023 to the emergency decree discussed above introduced an article 5a that explicitly gives FINMA the power to write down AT1 CoCos.<sup>149</sup> FINMA has also announced that its decision to write down the AT1 CoCos of Credit Suisse was also based on the powers under the emergency decree.<sup>150</sup>

This aspect tightly links to the legal risk stemming from the write-down decision. Unsurprisingly, the write-down is currently being challenged in court and a long-lasting litigation is to be expected.<sup>151</sup> There are two key contentious issues. The first is an alleged breach of the *pari passu* rule.<sup>152</sup> The argument rests on the fact that shareholders cumulatively received 3bn CHF, while CoCo holders have been wiped out.<sup>153</sup> This argument has to be rejected both on legal and financial grounds. From a legal perspective, the *pari passu* rule does not apply outside of bankruptcy and CoCo holders agreed to bear losses in the form of a write-down before shareholders. From a financial perspective, imposing going-concern losses on CoCo holders when the trigger is breached is exactly what CoCos are supposed to do.<sup>154</sup>

The second contentious legal point relates to the legitimacy of the emergency decree and the qualification of the emergency liquidity assistance with embedded government guarantee as 'extraordinary public support'. As noted above, the Swiss regulator seems to have performed

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improving CSG's capital adequacy and without which, in the determination of the Regulator, CSG would have become insolvent, bankrupt, unable to pay a material part of its debts as they fall due or unable to carry on its business.'

<sup>147</sup> FINMA, 'FINMA provides information about the basis for writing down AT1 capital instruments' (23 March 2023) <<https://www.finma.ch/en/news/2023/03/20230323-mm-at1-kapitalinstrumente/>>.

<sup>148</sup> This seems to be the position of certain CoCo holders that have challenged the Credit Suisse CoCo write-down. See for example on their website: <https://www.at1action.com/about-us>.

<sup>149</sup> Bundesrat, Amendment to Ordinance on Additional Liquidity Assistance Loans and the Granting of Federal Default Guarantees for Liquidity Assistance Loans from the Swiss National Bank to Systemically Important Banks, 19 March 2023, <<https://www.news.admin.ch/news/message/attachments/76290.pdf>>.

<sup>150</sup> FINMA, 'FINMA provides information about the basis for writing down AT1 capital instruments' (23 March 2023) <<https://www.finma.ch/en/news/2023/03/20230323-mm-at1-kapitalinstrumente/>>.

<sup>151</sup> Owen Walker and Stephen Morris, 'Credit Suisse bond investors plot lawsuit against Switzerland' (Financial Times, 15 September 2023).

<sup>152</sup> This represented a heavily discussed issues in the aftermath of the Credit Suisse demise, especially by legal scholars whose main focus is traditional bankruptcy law. See, for instance, Paz Valbuena and Eidenmüller (n 145) 415. Throughout this article, we propose a different conceptualization of the problem, better focused on the nature of banking and on the preventive nature of CoCo, showing that this argument is intrinsically flawed.

<sup>153</sup> Shareholders will receive UBS shares on a swap agreement whereby Credit Suisse shareholders will receive the equivalent of 0,76 CHF per share for a total amount of 3bn CHF. The merger was closed on Monday, June 12, 2023 (the "closing date"). Each Credit Suisse Share issued and outstanding immediately prior to the completion entitles its holder to receive the merger consideration consisting of 1/22.48 UBS Group AG Shares. See, Credit Suisse, Latest update on the acquisition by UBS – For investors. Available at <<https://www.credit-suisse.com/about-cs/en/faq-shareholders.html>> , accessed 28 August 2023.

<sup>154</sup> Text to fn **Error! Bookmark not defined.**

an ex-ante assessment of the legal risk, preferring to have the emergency decree challenged rather than forcing the interpretation of the prospectus clause.<sup>155</sup>

Supporting the merger between Credit Suisse and UBS is not merely a technical decision. Credit Suisse was the second largest Swiss bank and UBS the largest one. The result of the merger is that the Swiss banking market is fully concentrated in one financial conglomerate. This clearly raises concerns related to the competitiveness of the Swiss banking market and in relation to the too-important-to-fail nature of UBS. However, the decision seems to be at least partly rooted in the political desire not to sell the bank to foreign owners, keeping the assets in Switzerland. In this political context, some pragmatic aspects related to the holders of CoCos may have influenced the decision to write down. Comprehensive data set on Credit Suisse CoCo holders is not publicly available. Nonetheless, there is anecdotal evidence that the write-down decision mainly hit foreign sovereign wealth funds and hedge funds.<sup>156</sup> Moreover, a considerable share of CoCo bonds were held by Credit Suisse's high-ranked employees, as the bank was paying part of their variable remuneration with AT1 instruments as an incentives compatible form of remuneration.<sup>157</sup> Arguably, this made it politically easier to write down the CoCos rather than the shareholders. Finally, it can be noted that the opposite decision, not to write down the CoCos while the trigger event arguably occurred, would likely also have been challenged in court, by the shareholders who would in that scenario not have received any compensation from the deal.

## 5. Why CoCos Do not Work

The Credit Suisse write-down was the first relevant case where CoCos absorbed losses in going concern and such losses were fully allocated to private parties. However, the analysis provided in the previous Sections highlighted how complex and politically charged this decision was, even in Switzerland, where CoCos are subject to stricter regulatory requirements.<sup>158</sup> Such a complex and contentious scheme cannot be relied upon as a workable mechanism for the preventive recapitalization of distressed banks, since the interaction between the regulatory requirements and the contractual design of CoCos prevents them from performing their prudential role. This Section focuses on the shortcomings related to CoCo's contractual design and the role of the supervisory authorities in the enforcement.

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<sup>155</sup> For the sake of completeness, there is an additional avenue for litigation. Allegedly, the FINMA decision violates some Free Trade Agreements between Switzerland and some Asian countries, including Singapore. This would provide Asian investors with a direct recourse towards the Swiss government. See Mercedes Ruehl, 'Singapore Bondholders Prepare to Sue Switzerland over Credit Suisse' (*Financial Times*, 20 April 2023) <<https://www.ft.com/content/438fa6de-92f8-4d41-a169-c7e9ecada1bd>> accessed 28 August 2023.

<sup>156</sup> Eleanor Pringle, 'One of America's Biggest Investment Managers Lost \$340 Million in the Surprise Credit Suisse Bond Write-Off' (*Fortune*, 22 March 2023) <<https://fortune.com/2023/03/22/pimco-america-investment-manager-lost-340-million-surprise-credit-suisse-bond-write-off/>> accessed 28 August 2023. On the crucial role of bail-inable creditors counterparties, see Edoardo D Martino, 'Towards an Optimal Composition of Bail-Inable Debtholders?' (2021) 21 *Journal of Corporate Law Studies* 321.

<sup>157</sup> Robert Hart, 'Credit Suisse Workers Gear Up To Sue Swiss Regulator Over \$400 Million In Lost Bonuses, Report Says' (*Forbes*, 22 May 2023) <<https://www.forbes.com/sites/roberthart/2023/05/22/credit-suisse-workers-gear-up-to-sue-swiss-regulator-over-400-million-in-lost-bonuses-report-says/?sh=75d1a9a6e17c>> accessed 28 August 2023. On the desirability of paying bank risk takers partly with CoCos, see Edoardo D Martino, 'Fine-Tuning Bank Governance and Resolution: The Case for Remunerating Bankers through Bail-Inable Debt' (2020) 31 *European Business Law Review*.

<sup>158</sup> See above, Section 2.2.

## 5.1 The Contractual and Regulatory Design of the Trigger

The design of the trigger is the most important feature for the ability of CoCos to safeguard the going-concern value of the bank in distress.

In the European Union, the Capital Requirement Regulation unambiguously opts for triggers based on the accounting value of equity, i.e. on the accounting value of banks' assets.<sup>159</sup> As we have shown earlier,<sup>160</sup> such value is at least in part unobservable, which leaves ample room for the manipulation of the accounting value of equity. Consequently, one may wonder if accounting triggers are at all capable of performing the prudential tasks allotted to CoCos.

This is best understood by positioning CoCos within a framework of contractual incompleteness. As any contract, CoCo indentures are ex ante incomplete.<sup>161</sup> Consequently, the trigger clause also suffers from such incompleteness. This implies that the contract allocates to one or more parties the control rights to 'complete' the contract ex post. With accounting triggers, such control power is largely allocated to the issuing bank itself, which has a certain discretion over its accounting practices, and to the supervisory authority, which oversees the banks' activities and accounting. In contrast, market triggers allocate the control power to the investors in bank stocks, whose trading determines the stock price.

Several factors make it less likely that CoCos with an accounting trigger, as currently designed, will be triggered in going concern.<sup>162</sup>

First, accounting triggers are set too close to the PONV, at which point the bank can be put into resolution, for CoCos to be triggered in going concern.<sup>163</sup> As discussed in Section 3.1, the minimum accounting trigger of AT1 CoCos is 5,125% CET1/RWA, while the Pillar 1 capital requirement is 4,5% CET1/RWA and the Pillar 2 capital add-on was on average 2,25% for SSM-supervised banks in 2024 (the minimum Pillar 2 add-on was 1%).<sup>164</sup> This implies that no SSM-supervised bank could have had its CoCos triggered without breaching capital requirements. This makes it exceedingly unlikely that the accounting trigger will be met in going concern, as the bank will likely have been put in resolution before that moment. In addition, even during the financial crisis, an accounting trigger of 5.125% CET1/RWA would not have been hit by

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<sup>159</sup> See above in Section 3.1.

<sup>160</sup> See above, Section 2.1.

<sup>161</sup> Philippe Aghion and Patrick Bolton, 'An Incomplete Contracts Approach to Financial Contracting' (1992) 59 *The Review of Economic Studies* 473.

<sup>162</sup> See for a similar conclusion: Flannery, "Contingent Capital Instruments for Large Financial Institutions" (n 4) 231 ('Overall, an accounting trigger probably assures that the coco will not convert before the firm encounters serious funding difficulties').

<sup>163</sup> See for a similar argument: Glasserman and Perotti (n 24), 318 ('Low trigger CoCo bonds have very little equity content, as they convert only upon a final breach of the core capital').

<sup>164</sup> Data available at <[https://www.bankingsupervision.europa.eu/banking/srep/html/p2r.en.html#:~:text=The%20Pillar%20%20Requirement%20\(P2R,direct%20legal%20consequences%20for%20banks>](https://www.bankingsupervision.europa.eu/banking/srep/html/p2r.en.html#:~:text=The%20Pillar%20%20Requirement%20(P2R,direct%20legal%20consequences%20for%20banks>)>, accessed 14 February 2024. See above in Section 2.2.

any of the major banks.<sup>165</sup> In general, capital ratios were poor indicators of whether banks required government intervention during the financial crisis.<sup>166</sup>

The empirical evidence (discussed above in Section 3.2) also indicates that relatively few banks adopt AT1 CoCos with higher accounting triggers than the regulatory minimum. AT1 CoCos with such higher triggers would be more likely to be triggered in going concern, which would likely increase the coupon that is required to convince investors to buy such CoCos. Higher-trigger CoCos are therefore more costly for banks to issue, while offering no additional prudential benefits to banks in terms of compliance with prudential regulation. Consistent with the idea that the trigger level matters, the empirical evidence shows that only CoCos with a higher trigger than the minimum trigger of 5.125% for AT1 CoCos have a statistically significant negative impact on the credit default swap spreads of the issuer.<sup>167</sup> The authors of that empirical study theorize that CoCos with a higher trigger are more likely to be triggered in going concern, and therefore provide higher quality protection to unsecured bondholders. In other words, the empirical evidence suggests that the trigger level matters, and that the minimum trigger level does not have a meaningful impact on bank fragility.<sup>168</sup>

Second, even if an accounting trigger would be set at an appropriately high level, accounting ratios are often a poor proxy for financial distress.<sup>169</sup> One reason is that bank accounting rules allow banks to book financial instruments in their accounts at their historical cost rather than their fair market value if these financial instruments are intended to be held to maturity.<sup>170</sup> However, banks that face a liquidity shock may be required to sell financial instruments that they originally intended to hold until maturity, making the losses suddenly very concrete. This was the situation Silicon Valley Bank found itself in at the end of 2022.<sup>171</sup> In such a situation, the accounting trigger of CoCos will likely be triggered too late to recapitalize the bank in going concern.

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<sup>165</sup> Calomiris and Herring (n 30) 42; Glasserman and Perotti (n 24), 326; Andrew Haldane, ‘Capital discipline’ (Presentation at the 2011 American Economic Association Meeting), [www.bis.org/review/r110325a.pdf](http://www.bis.org/review/r110325a.pdf), 14.

<sup>166</sup> Haldane (n 165) 4.

<sup>167</sup> Avdjiev et al., ‘CoCo Issuance and Bank Fragility’ (n 10).

<sup>168</sup> See for a similar argument: Glasserman and Perotti (n 24), 319.

<sup>169</sup> Berg and Kaserer (n 26) 379 (arguing that accounting rules ‘*cause market prices to be imperfectly and belatedly reflected in book values*’); Flannery, ‘Contingent Capital Instruments for Large Financial Institutions’ (n 4) 229 (‘Accounting measures inevitably track deterioration less rapidly than (forward-looking) market valuations do’) and 231 (‘accounting measures trail economic developments when a firm encounters difficulties’).

<sup>170</sup> See about this topic: ECB, ‘Fair value accounting in the banking sector’, <https://www.ecb.europa.eu/pub/pdf/other/notefairvalueacc011108en.pdf>, 1. See also, Calomiris and Herring (n 30) 41 (‘Supervisors face major challenges in detecting and preventing manipulation of book values through gains trading—for example, the common practice of recognizing capital gains on positions that are held at book value while deferring the recognition of losses’).

<sup>171</sup> See on the importance of accounting for the failure of Silicon Valley Bank: Prasad Krishnamurthy, ‘Accounting for Bank Failure’ (HLS Forum on Corporate Governance, 1 May 2023) <<https://corpgov.law.harvard.edu/2023/05/01/accounting-for-bank-failure/#:~:text=SVB%20held%20%2426%20billion%20in,of%20all%20of%20SVB%27s%20stakeholders>>.

Third, accounts can be manipulated by a bank, in violation of accounting rules, in order to avoid the accounting trigger being met.<sup>172</sup> Shareholders and managers may have incentives to cause the bank to engage in accounting manipulation if they would face adverse consequences from triggering the CoCos, for example if they are diluted due to the CoCos' conversion to equity and/or if they would lose control over the bank. Of course, supervisors are supposed to monitor accounting manipulations of banks and have detailed knowledge about the financial situation of banks due to their supervisory role.<sup>173</sup> Nevertheless, they may still not be able to detect all accounting manipulation.<sup>174</sup> In addition, supervisors may have incentives for regulatory forbearance, as we discuss in Section 5.2. Indeed, the empirical evidence suggests that banks can and do manipulate the risk weights of their assets, especially if they have low capital.<sup>175</sup>

Fourth, closely related to the previous points, the effectiveness of an accounting trigger depends on how quickly the accounts are updated.<sup>176</sup> As a default, the accounting trigger is calculated on the basis of the statutory accounts that must be provided by the bank on an annual, semi-annual or quarterly basis. However, the terms of CoCos typically also stipulate that the supervisor of the bank can require the bank to prepare interim accounts with an updated CET1/RWA ratio, which can then be used to determine whether the accounting trigger has been met.<sup>177</sup>

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<sup>172</sup> Berg and Kaserer (n 26) 379 (arguing that CoCos may never be triggered because banks are able to manipulate the accounting trigger); Flannery, 'Contingent Capital Instruments for Large Financial Institutions' (n 4) 231 (arguing that 'managers can manipulate accounting statements', which undermines the effectiveness of an accounting trigger); Fiordelisi et al (n 16) 4 ('There is extensive empirical evidence that banks manipulate accounting values to maintain a high regulatory capital ratio in the face of market value losses'); Calomiris and Herring (n 30) 46 ('as an accounting concept, book value is subject to manipulation').

<sup>173</sup> Berg and Kaserer (n 26) 378-379 ('In the case where regulators have superior knowledge about the fundamental asset value based on their privileged access to bank-internal information, regulators might be able to separate the bad banks (who are in need of additional equity capital) from the good banks (who are not). In this regulator-friendly view, regulator would use their information to force bad banks to realize losses and to subsequently convert the contingent capital if the regulatory capital ratio falls below the trigger')

<sup>174</sup> *ibid*, 379 (arguing that CoCos may never be triggered because banks are able to manipulate the accounting trigger).

<sup>175</sup> Mike Mariathan and Ouarda Merrouche, 'The manipulation of Basel risk-weights' (2014) 23 *Journal of Financial Intermediation* 300; Taylor Begley, Amiyatosh Purnanandam and Kuncheng Zheng, 'The Strategic Underreporting of Bank Risk' (2017) 30 *Review of Financial Studies* 3377; Matthew C. Plosser and João A. C. Santos, 'Banks' Incentives and the Quality of Internal Risk Models' (2014) Federal Reserve Bank of New York working paper, [https://www.newyorkfed.org/medialibrary/media/research/staff\\_reports/sr704.pdf](https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr704.pdf).

<sup>176</sup> See for a similar point, Avdjiev et al., 'CoCos: A Primer' (n 22) 44 ('The effectiveness of book-value triggers depends crucially on the frequency at which the above ratios are calculated and publicly disclosed').

<sup>177</sup> We looked at the prospectuses of 10 randomly selected AT1 CoCos recently issued by banks incorporated in 10 different countries (see above in Section 3.2) and we found such a clause in 8 out of 10 prospectuses; in the other 2 prospectuses, it was unclear whether the supervisor could demand the bank to prepare interim accounts with an updated CET1/RWA ratio. See, for example: Credit Suisse, 'CHF 200,000,000 3.875 per cent perpetual tier 1 contingent write-down capital notes', <<http://www.kccllc.net/document/887190023032400000000001>>, 90 (The accounting trigger is defined in relation to the CET1 Ratio contained in a "Financial Report", where "Financial Report" is defined as "a Quarterly Financial Report or an Interim Capital Report, as the case may be"; and an "Interim Capital Report" is defined as "a report based on the financial accounts of CSG and the Group containing *inter alia*, the CET1 Ratio prepared by CSG upon request of the Regulator in respect of the Notes and with respect to which the Auditor has performed procedures in accordance with the International Standard on Related Services applicable to agreed-upon procedures engagements").

## 5.2 *The Role of the Supervisor*

The supervisor plays an important role with regards to the accounting trigger, by monitoring whether banks are accurately reporting their accounts to ensure the reliability of the accounting trigger. The supervisor should also force banks to update their accounts to determine whether the accounting trigger is met (enforceability of the accounting trigger). In practice, it seems highly unlikely that banks would trigger CoCos on the basis of an accounting trigger without the agreement of their supervisor.<sup>178</sup> In addition, some CoCos contain a ‘discretionary trigger’, which gives supervisor the discretion to trigger the CoCos if certain conditions are met, for example if extraordinary public support is granted to the bank or if triggering the CoCos is necessary for the viability of the bank. The write-down of the AT1 CoCos in the Credit Suisse case was partially based on such a discretionary trigger.<sup>179</sup>

In the EU, there is no legal requirement of such a discretionary trigger in going concern, and such a trigger is commonly not included in AT1 CoCos in the EU (see above in Section 3.2). The resolution authority has the power to write down or convert capital instruments, including CoCos, before a formal resolution procedure starts but only if the conditions for resolution – including the bank being failing or likely to fail – are met.<sup>180</sup> This does not represent a power to impose going-concern absorption on CoCo, which could lead to the recovery of solvent banks. Rather, it is an important tool to smoothen the liquidation of already insolvent banks in gone concern.

In other words, supervisors play a key role in triggering CoCos. As we discuss in this Section, however, the problem is that supervisors may not have the incentives to force banks to trigger their CoCos.<sup>181</sup> This can also explain why loss absorption in going concern has been so rare in CoCos.<sup>182</sup>

There are two main reasons why bank supervisors have incentives to exercise regulatory forbearance in triggering CoCos. First, bank supervisors may fear that triggering the CoCos would send a negative signal to the market about the financial health of that bank and other banks. Chiefly, supervisors are afraid that disseminating adverse public information on the bank would trigger a run. Moreover, triggering a CoCo would have other indirect consequences. The bank’s cost of capital would increase, reacting to the adverse news, which may make it more

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<sup>178</sup> Glasserman and Perotti (n 24), 324 (“Automatic conversion can only occur once a bank admits to failing to satisfy the minimal capital requirement. Such a step is practically impossible without the explicit agreement of its regulators, rendering the automatic triggering de facto a discretionary regulatory decision”).

<sup>179</sup> See above in Section 3.2.

<sup>180</sup> Article 59(3)(a) BRRD in combination with articles 32 and 33 BRRD.

<sup>181</sup> See for a similar argument: Berg and Kaserer (n 26), 379 (“Even if regulators have superior knowledge about banks’ asset quality, regulators face their own set of incentives which might tilt them towards forbearance”); Glasserman and Perotti (n 24), 324 (“Academic work generally favors mechanical conversion over conversion that is subject to supervisory discretion, as there is a widespread concern that authorities are generally reluctant to trigger conversion. In other words, a discretionary trigger is likely to make CoCos more “unconvertible.”) and 9 (“regulatory forbearance in its many form is at risk of undermining the careful design of preventive tools that have emerged from Basel III”); Calomiris and Herring (n 30) 41 (“Supervisors are subject to substantial political pressure, and that pressure often leads them to prefer to forbear and “play for time” rather than enforce capital adequacy requirements”); Haldane (n 165) 7 (“the temptation to forbear or bail-out is very strong. It is no surprise that the authorities often opt for the greater certainty of bail-out ex post”).

<sup>182</sup> See above in Section 3.

difficult to turn it around and save it from financial distress. This is particularly true if the bank is close to the PONV when the CoCos would be triggered, because in that case, recapitalizing the bank by converting or writing down the CoCos may not be enough to reassure the market that the bank's financial health is restored. In addition, triggering the CoCos of one bank could signal to the market that supervisors could also impose losses to CoCo holders at other banks, leading to contagion.<sup>183</sup>

Second, supervisors may also be reluctant to trigger CoCos for political economy reasons. Triggering a CoCo could be seen as an admission that they made mistakes in the past, because they failed to anticipate and avoid excessive risk-taking by the bank.<sup>184</sup> Supervisors may not want to expose themselves to that kind of criticism unless they are very sure that the bank is non-viable, at which point the possibility to absorb losses in going concern may have passed. In addition, supervisory decisions that try to force banks to recognize losses earlier may be challenged in judicial or administrative proceedings, exposing the supervisors to more criticism.<sup>185</sup> The incentives of supervisors have been modelled (although in the related context of triggering bank resolution) as a "trade-off between short-term reputational, political, economic or fiscal costs of an early intervention, and the longer-term costs of forbearance".<sup>186</sup>

The tendency to delay and forbear of the supervisors, especially in relation to capital requirements, is a well-documented fact and represents an issue that goes way beyond the effectiveness of the CoCo bonds.<sup>187</sup> Tying CoCos' conversion or write-down solely and tightly to the book value of capital is contrary the counter-cyclical design of CoCos, as supervisors tend to be very lenient in good times and delay the recognition of capital losses. This, in turns, reinforces supervisory tendency to forbear.

Third, supervisors may also avoid triggering CoCos if they are held by investors on whom it is politically difficult to impose losses for the supervisor.<sup>188</sup> This can be the case, for example, if the CoCos are held by retail investors.

Besides triggering the conversion or write-down of the instrument, CoCos can absorb losses in going concern also by skipping coupon payments or by calling the CoCos at a later date than the first possible call date.<sup>189</sup> In practice, banks anxiously try to avoid skipping coupon payments, as is illustrated by the Deutsche Bank case.<sup>190</sup> In addition, it seems that most CoCos

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<sup>183</sup> Glasserman and Perotti (n 24), 326 ('reluctance to impose losses naturally arises from a concern to avoid market stress').

<sup>184</sup> Flannery, 'Contingent Capital Instruments for Large Financial Institutions' (n 4) 229 ('Supervisors may also be reluctant to impose "unnecessary" costs on a bank because it appears to imply that they failed to anticipate (and correct) a risky situation'); Martynova, Perotti and Suarez (n 46), 885 ('inadequate or delayed supervisory intervention may reflect the desire to hide weak supervisory skills or bad past decisions').

<sup>185</sup> Calomiris and Herring (n 30) 41.

<sup>186</sup> Martynova, Perotti and Suarez (n 46), 887.

<sup>187</sup> *ibid.* For an earlier discussion, see Ramon P DeGennaro and James B Thomson, 'Capital Forbearance and Thrifts: Examining the Costs of Regulatory Gambling' (1996) 10 *Journal of Financial Services Research* 199.

<sup>188</sup> See for this point: Glasserman and Perotti (n 24), 328. For an in-depth analysis on the possibility to bail-in different classes of investors in the context of resolution, see Martino, 'Towards an Optimal' (n 156).

<sup>189</sup> See above in Section 2.2 for a discussion of the legal framework relating to these terms of CoCos.

<sup>190</sup> See above in Section 3.1.1.



are in most cases called at the earliest possible date.<sup>191</sup> The supervisor has a key role in both this determination. The first is based, once again, on accounting metrics validated by the supervisor. The second is based on the explicit authorization of the supervisor.<sup>192</sup>

This construction has negative effects on CoCos' going-concern loss-absorption capacity. It complicates also the most limited form of loss-absorption, such as a missed coupon or a late call, as the supervisor has the same incentives to delay and forbear. Moreover, it also has an indirect negative effect, as it incentivizes banks to avoid using capital buffers, artificially maintaining a high capital ratio via late recognition of losses or, when that is not possible anymore, via asset shrinking.<sup>193</sup>

What is the reason for this behavior by banks? If banks (threaten to) cancel coupon payment or delay the calling of CoCos, they would likely be punished by the market and would face problems in raising additional capital through CoCos. In other words, the market expectation of the loss-absorption in going concern of CoCos is not in line with the regulatory expectation.

### *5.3 The Irrelevance of the Conversion Mechanism?*

In contrast to the design of the trigger and the role of the supervisor, the loss-absorption mechanism (principal write-down versus conversion to equity) is less important to ensure the workability of CoCos. Whether the loss-absorption happens through principal write-down or conversion to equity – dilutive or less dilutive – should not make a first-order difference if CoCos are almost never triggered in going concern.<sup>194</sup> The problem with the going-concern loss absorption of CoCos mainly concerns the design of the trigger, not the design of the loss-absorption mechanism.

That being said, there may be some second-order impact if we take into account the preferences of banks and of supervisors. For example, one study finds that the issuance of conversion to equity CoCos reduces stock return volatility of banks, while the issuance of principal write-down CoCos does not.<sup>195</sup> The authors interpret this as evidence that principal write-down CoCos are less likely to be triggered in going concern than conversion to equity CoCos (because the likelihood of loss-absorption by CoCo holders smoothens shareholder returns). They theorize that principal write-down CoCos impose more explicit losses on CoCo holders and that therefore banks (for reputational reasons) and the supervisor (for investor protection reasons) may be more reluctant to trigger principal write-down CoCos than conversion to equity CoCos.<sup>196</sup> Another study finds that the issuance of conversion to equity CoCos, but not principal

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<sup>191</sup> EBA, 'Report on the monitoring of additional tier 1 (AT1) instruments of European Union (EU) institutions – update', 24 June 2021, [https://www.eba.europa.eu/sites/default/documents/files/document\\_library/Publications/Reports/2021/1015682/Report%20on%20the%20monitoring%20of%20Additional%20Tier%201%20instruments%20of%20EU%20institutions.pdf](https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2021/1015682/Report%20on%20the%20monitoring%20of%20Additional%20Tier%201%20instruments%20of%20EU%20institutions.pdf), 8.

<sup>192</sup> See, respectively, Article 141 CRD and Articles 77 and 78 CRR.

<sup>193</sup> Wetzer, Kodres and Kleinnijenhuis (n 112112).

<sup>194</sup> See for a similar argument: Glasserman and Perotti (n 24), 322 ('While attention to date has focused on the effect of the CoCo conversion feature, the issue becomes insignificant if CoCos (of any type) become unconvertible').

<sup>195</sup> Fiordelisi et al (n 16).

<sup>196</sup> *ibid.*

write-down CoCos, has a negative impact on the bank's credit default swap spreads.<sup>197</sup> This could be evidence that principal write-down CoCos are more likely to absorb losses in going concern, although the authors rather relate this difference to the difference in impact on risk-taking incentives for banks (see above in Section 2.1 for this discussion).

On the other hand, a theoretical argument can be made that principal write-down CoCos would be more likely to be triggered. Principal write-down CoCos and non-dilutive conversion to equity CoCos reward (or at least: do not punish as severely) bank shareholders if the CoCo is triggered, as the losses are mainly born by CoCoholders. Consequently, banks may have lower incentives to manipulate their accounts to avoid meeting the accounting trigger of the CoCo.<sup>198</sup> In addition, CoCos issued by European banks are often held by foreign investors. Supervisors may find it politically more acceptable to write down such foreign investors, rather than dilute the existing shareholders of the bank, which may shift the control of the bank into foreign hands,<sup>199</sup> who may be (in part) domestic investors. In practice, we do not observe that bank shareholders or supervisors are eager to trigger CoCos, perhaps because this would send a negative signal about the bank's financial health to the market and because it would negatively impact the bank's ability to raise capital in the future. Nevertheless, the argument makes clear that forcing banks to issue conversion to equity CoCos instead of principal write-down CoCos would not necessarily make it easier to trigger the CoCos in going concern.

The counter-argument to this argument is that CoCos should convert at a dilutive ratio, as this "Sword of Damocles" hanging over the bank's shareholders incentives them to voluntarily issue more equity, in order to avoid the trigger of the CoCos.<sup>200</sup> If the conversion mechanism is not dilutive to the existing shareholders, they have few incentives to manage the risk level of the bank in such a way that the trigger of the CoCos will be avoided. If the CoCos are triggered in that case, it is more likely that it will be done when it is too late, i.e., in gone concern. However, this reasoning also assumes that the trigger is set at a level that is sufficiently distant from the PONV, so that the CoCos can absorb losses in going concern.<sup>201</sup> If this is not the case, whether the conversion ratio is dilutive or not matters much less.

If CoCos are unlikely to be triggered in going concern, the choice between principal write-down and conversion to equity is unlikely to be a very important element of the contractual design. Accordingly, the choice on the loss-absorption mechanisms is likely to be driven by different factors. For instance, banks may want to signal the supervisor and the market their seriousness,

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<sup>197</sup> Avdjiev et al., 'CoCo Issuance and Bank Fragility' (n 10).

<sup>198</sup> See for a similar argument, Berg and Kaserer (n 26), 378 ('Contingent capital featuring regulatory triggers that transfers wealth from CoCo bond holders to equityholders upon conversion provides equity holders with incentives to quickly write down assets and to correctly reflect the riskiness of the remaining assets in their calculations of regulatory risk-weighted-assets. If regulators are worried about evergreening of loans (Peek and Rosengren, 2005) or about a too optimistic calculation of regulatory risk weights, then Convert-to-Steal-type CoCo bonds might help to counterbalance these incentives')

<sup>199</sup> In the Credit Suisse case, the write-down of the CoCos, mainly held by foreign investors, facilitated the acquisition of Credit Suisse by UBS, keeping the bank in Swiss hands.

<sup>200</sup> See for this argument, Calomiris and Herring (n 30) 44.

<sup>201</sup> *ibid*, 44-45 (arguing that the incentive to preemptively issue more equity only works if certain conditions are fulfilled, including that 'the trigger is credibly and observably based on market prices and pegged to a high ratio of equity to assets (and thus conversion would take place well before serious concerns about insolvency arise)').

proposing a strong ‘principal write-down’ mechanisms. Another factors that may impact the decision is the simplicity of the legal construction behind the loss-absorbing mechanism. In some countries, corporate law technicalities may not allow conversion to equity CoCos to be issued if the number of shares into which the CoCos will convert when they are triggered is not yet known at the moment of the issuance. Opting for a ‘principal write-down’ mechanisms may therefore be easier in terms of legal compliance.

If CoCos are unlikely to be triggered in going concern, much of the finance literature about the advantages and disadvantages of principal write-down versus conversion to equity CoCos becomes irrelevant.<sup>202</sup> The impact of the loss-absorption mechanism on the risk-taking incentives of banks and bank shareholders only matters if these actors expect loss-absorption in going concern. If CoCos are only triggered in resolution in the European Union, it does not matter whether CoCos are of the principal write-down or conversion to equity type, as the European supervisors have clarified that they will not allow CoCos to be written down if the shareholders are given certain value.<sup>203</sup>

## 6. A Workable Future for CoCos?

So far, we have detailed what CoCos are and what their prudential role in banking should be. We have also looked at market practices and case studies revealing the shortcomings of the legal design and the limitations of supervisory actions. Finally, we have generalized these shortcomings in a theoretically coherent framework. Our results stem from a lifecycle approach to CoCos, shifting the attention from the initial set up and the enforcement moment towards the moment in which the capital situation starts deteriorating. We demonstrated that the inability to act in that moment is a function of the regulatory regime set ex ante and of the uncertainties related to the resolution (or bailouts) of banks when undercapitalization turns into runs and insolvency.

Now we propose solutions to make CoCo workable, giving them a chance to perform their prudential function of going-concern loss absorption. Fixing CoCos is key to enable prudential regulation and supervision to rely on tools that can address bank vulnerabilities when they are most needed (but also most difficult), i.e. when the crisis starts materializing but is not yet too deep, so that the ailing bank still has a chance to recover.

This has two direct implications. First, it is impossible to identify one reform that single-handedly fixes such a crucial issue. Rather, we seek to provide some useful guidance to improve the system at the margin, triggering a virtuous circle that puts recovery at the core of prudential supervision. Second, if CoCos are unworkable and policymakers opt simply to increase book equity measures, the problem of banks swiping into distress would remain unsolved. Currently, once that happens, the supervisor can only hope for ‘good luck’ in recovery or prepare to allocate losses (gone-concern resolution with bail-in) or providing forms of public assistance (bail-outs).

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<sup>202</sup> Text to fn 22.

<sup>203</sup> ECB, SRB and EBA, ‘Statement on the announcement on 19 March 2023 by Swiss authorities’ (20 March 2023), <https://www.bankingsupervision.europa.eu/press/pr/date/2023/html/ssm.pr230320~9f0ae34dc5.en.html>.

Therefore, we aim at proposing a regulatory design for a ‘workable CoCo’, one that can actually absorb losses in going concern. This would have the direct consequence of promoting early recovery of distressed banks. Moreover, it would bring about two additional indirect consequences. First, it would decrease the forbearance incentives, sharply increasing the credibility of a bail-in based resolution compared to a bail-out. Second, it would have an ex-ante impact on banks’ risk-taking incentives, as the riskiness of CoCo bonds starts being better correlated with the actual riskiness of the bank.

Before delving into the details, a preliminary note is warranted. Any possible reform would imply sizeable costs. These costs would burden the issuing banks, in the form of increased cost of capital, and the regulator/supervisor in the form of decreased ex-post flexibility of the system. If the latter ‘regulatory’ costs outweigh the prudential benefits of having workable CoCos, these reforms should not be undertaken. The recent collapses boosted by supervisory inertia suggest that prudential benefits dominate possible regulatory costs.

In addition, the question arises why the regulator cannot simply increase equity requirements instead of trying to fix CoCos. One reason is that the cost of capital of CoCos is generally lower than for common equity. Abolishing CoCos could therefore lower bank profitability, which could in turn have a negative impact on bank’s lending activities.

Of course, it is possible that under our proposed approach, banks no longer have incentives to issue CoCos, because the cost of capital of CoCos could have become higher than the cost of capital common equity. In this case, the rational response for the bank would be to fulfil the capital requirements, endogeneously increasing its common equity holding. This solution would forgo the specific prudential benefit of workable CoCos, chiefly in relation to the debt overhang problem.<sup>204</sup> However, it would still mark a sharp improvement of the current prudential regulation framework for banks in the EU.

### *6.1 Key Features of a ‘Workable’ Design*

A ‘workable’ CoCo should have three key characteristics.<sup>205</sup> First, the loss absorption in going concern should be credible. Going back to our analytical model discussed in Section 2.2, this means that the enforceability of the contractual trigger should approximate 1. Second, the loss absorption in going concern must be predictable. This means that the verifiability of the contractual trigger should approximate 1. This would allow investors to appreciate the bank-specific risks of going-concern losses, pricing them in the primary and secondary markets. In turn, this would help to limit the excessive risk-taking incentives of the issuing bank. Third, the going-concern loss-absorption mechanism has minimal interaction with the resolution rules and bailout expectations. This means that when the triggers are met ( $t_3$ ) and when the PONV is reached ( $t_4$ ) are distant enough both in terms of timing and in terms of severity of distress.

The fulfillment of these three characteristics rests on the quality of the regulatory framework – both in terms of substantive requirements and supervisory powers. The current regulatory

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<sup>204</sup> Text to n **Error! Bookmark not defined.**

<sup>205</sup> See for a similar view, Calomiris and Herring (n 30) 44-45.

framework, especially the in the EU, is far from fulfilling these three characteristics. Therefore, the existing regulatory framework should be reformed along two main lines.

First, the regulatory context should be conducive to issuing ‘workable CoCos’. This point does not directly relate to the quantitative and qualitative requirements for AT1 CoCos, but also contributes to a workable CoCo design. The regulatory context will be more conducive to workable CoCos if the verifiability and enforceability of the bank reaching the PONV conditions can be increased. To achieve this, the rules triggering bank resolution should become highly predictable and credible.<sup>206</sup> This would limit the strategic incentives of the issuing bank to make the trigger overly complicated to enforce and push the trigger as close as possible to the PONV, thereby increasing the probability of a bail-out. Moreover, the interplay of the CoCo loss-absorbing mechanism should have minimal interaction with other prudential tools. If the CoCo trigger is further removed from bank resolution, the signalling effect and further spillovers of enforcement of the CoCo trigger by the supervisor would decrease. This would in turn decrease the tendency of supervisor to delay and forbear. This represents one further argument to move away from the current low accounting triggers.

Second, beyond the broader regulatory context, the regulation of CoCos specifically should be improved. First of all, the regulatory design should make sure that the moment in which the trigger conditions are met ( $t_3$  in our model discussed above in Section 2.2) is easily and clearly distinguishable from the moment in which the PONV ( $t_4$ ) is reached. This means the law should only allow banks to issue CoCos with triggers that are met in a moment in which the bank is unambiguously solvent, with no probability of having the trigger reached only when the bank is (almost) insolvent.

There are two specific regulatory implications that can be derived from this principle. First, the accounting trigger, if maintained, should be set a particularly high threshold. Second, an additional, non-accounting-based trigger should be added as a complement to the accounting one. Section 6.2 discusses in details the design of a workable trigger.

### *6.2 Workable Triggers: Seeking for Reliable Signals*

As our conceptual framework shows,<sup>207</sup> setting workable triggers means to identify signals of early distress that legitimize the going-concern loss absorption of CoCos. The signal should intervene far from the PONV to reduce the probability of generating a panic or a run. In turn, this should decrease the supervisory incentives to forbear.

In searching for a workable trigger, we are searching for the holy grail of prudential regulation. Identifying reliable early signals of distress represents the persisting ambition. of any regulator

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<sup>206</sup> For an explanation of why this is far from being achieved in the EU, see Tröger (n 7); Martino, ‘The Bail-in Beyond Unpredictability’ (n 45).

<sup>207</sup> See above, Section 2.2.

and academic in the field.<sup>208</sup> However, such ambition has always unmet due to the peculiar characteristics of banking activities.<sup>209</sup>

We do not aim to settle once and for all one of the most debated topics in prudential regulation among financial economists. Rather, we take a pragmatic approach. Rather than looking for the best early signal possible, we aim to identify a workable (set of) signals that could make CoCos work effectively.

To this end, we build on the few instances where CoCos actually absorbed losses in going concern. In spite of all the problematic aspects of each specific case, in each case, CoCos absorbed losses in going concern when a discretionary trigger complemented the accounting one.<sup>210</sup> Therefore, we propose to bundle mechanical triggers based on book equity values and discretionary triggers based on different qualitative and quantitative indicators. At the same time, even the cases in which CoCos actually absorbed losses in going concern were somewhat unsatisfactory.<sup>211</sup> Therefore, we propose to strengthen the design of both the accounting and the discretionary trigger.

We start by looking at the mechanical trigger based on the book value of equity. Quantitatively determining such a threshold is not an easy task. However, a trigger below 10% cannot be considered a ‘high-trigger’ CoCo, and hence should not be considered as an AT1 instrument. This indicative figure can be derived as follows: 4,5% is the Pillar 1 minimum CET1 requirement; 2,2% of CET1 is the average Pillar 2 requirement for SSM-supervised banks; 2,5% of CET1 is the minimum combined buffer requirement applicable to all banks at all time. This only consists of the ‘capital conservation buffer’, assuming that no other bank-specific or macro-prudential buffer is applicable. Even with this conservative estimation, the CET1 requirement amounts to 9,2% of risk-weighted assets. In addition, this does not take into account countercyclical buffers and the additional buffer applied to institutions that are deemed systemically relevant, nor the undisclosed Pillar 2 Guidance capital, which results from the outcome of the yearly stress tests.

All things considered, a 10% threshold is barely sufficient to avoid problematic interactions with the resolution rules and the other going-concern capital requirements. To account for this, the law should be modified, empowering the supervisor – based on its review and evaluation activities – to require specific banks ex ante to stipulate an even higher trigger in order for the

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<sup>208</sup> Among many others, see Paola Bongini, Luc Laeven and Giovanni Majnoni, ‘How Good Is the Market at Assessing Bank Fragility? A Horse Race between Different Indicators’ [2002] Ratings, Rating Agencies and the Global Financial System 159; Mikhail V Oet and others, ‘SAFE: An Early Warning System for Systemic Banking Risk’ (2013) 37 *Journal of Banking & Finance* 4510; Frank Betz and others, ‘Predicting Distress in European Banks’ (2014) 45 *Journal of Banking & Finance* 225. All these pieces of research try to develop their own early indicators. Those invariably rest on the assumptions of the specific models and are almost impossible to operationalize in supervisory practices.

<sup>209</sup> To summarize a potentially long and intricate discussion, one can refer to the efficient level of opacity and information insensitivity that banks need to guarantee their stability. These characteristics also make extremely difficult to detect early distress. See Dang, Gorton and Holmström (n 19).

<sup>210</sup> See above, Section 4.

<sup>211</sup> See above, Section 4.

CoCo to be counted as AT1, if that is necessary to ensure the timely conversion or write-down ahead of resolution.

The advantage of a higher accounting trigger is that it presents a simple metric that investors can use to evaluate the riskiness of the CoCo. In addition, there is some empirical evidence that CoCos with higher triggers have a negative and statistically significant impact on CDS spreads, which indicates that they are more likely to be triggered in going concern.<sup>212</sup>

However, it is still unlikely that CoCos will be triggered out of certified balance sheets where the CET1 ratio falls below the trigger. For instance, the last certified and disclosed CET1 ratio of Credit Suisse was 14,1%.<sup>213</sup> This problem is alleviated to some extent by the market practice in CoCo indentures that gives supervisors the power to request the bank to draw up an interim report to recalculate the CET1 ratio used to determine whether the accounting trigger is met (see above in Section 3.2). In our view, such a feature is essential for ensuring the possibility of the accounting trigger being met in advance of the PONV, and should therefore be a legal requirement for CoCos to count as AT1 capital.

Nevertheless, setting a higher accounting trigger will still have a limited effect on the effectiveness of going concern loss absorption, as the book equity value is a poor proxy for banks' financial health.<sup>214</sup> Therefore, we believe a higher accounting trigger should be bundled with an additional discretionary trigger in order for CoCos to count as AT1 capital. The case studies discussed earlier on<sup>215</sup> make clear that going-concern loss absorption has been most likely on the basis of a discretionary trigger, rather than an accounting trigger.

However, it is not simple to define a discretionary trigger that it is actionable in going concern, while still providing legal certainty for supervisors (so that the risk of their actions being successfully challenged in court is not excessive) and investors (so that they can accurately price the CoCos).

A discretionary trigger could be based on either quantitative or qualitative criteria. Among the quantitative elements, market indicators and stress test results could be included. When it comes to market indicators, there is a long-lasting debate about the desirability of having automatic market-based triggers for CoCos.<sup>216</sup> Practically speaking, choosing for only market-based triggers for AT1 CoCos seems implausible. First, not all banks have (reliable) market prices. Second, market prices can be manipulated, especially in the moment when the crisis starts deepening, which is exactly the moment when recovery measures are needed.<sup>217</sup> Finally, among all market indicators, such as stock price, price-to-book, CDS spreads, and so forth, it

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<sup>212</sup> Avdjiev et al., 'CoCo Issuance and Bank Fragility' (n 10), 607. ("CoCos with a high trigger are closer to going concern Co-Cos, as they are more likely to convert before the PONV than low-trigger CoCos. Thus, they provide higher quality protection to unsecured bondholders of the CoCo-issuing bank.")

<sup>213</sup> See, Credit Suisse Group AG, Annual Report 2022, 2. Available at <https://www.credit-suisse.com/about-us/en/reports-research/annual-reports.html> last accessed 26.02.2024.

<sup>214</sup> Ssee above, Section 5.1.

<sup>215</sup> Ssee above, Section 4.

<sup>216</sup> Text to n 21.

<sup>217</sup> For a parallel argument, arguing that market based triggers are most effective for banks very far from the PONV, see Flannery, 'Contingent Capital Instruments for Large Financial Institutions: A Review of the Literature' (n 4) 231.

is not intuitive what is the best nor what is the appropriate threshold. Nevertheless, it is undoubtful that market indicators provide invaluable information that cannot go overlooked.

Among the qualitative indicators, one could think of the provision of Emergency Liquidity Assistance by national central banks;<sup>218</sup> the need of the bank to skip more than one coupons on the instruments;<sup>219</sup> or the use of early intervention powers as codified in the BRRD – especially when they attain to mismanagement and the unviability of the bank business model.<sup>220</sup>

Which criteria should be adopted from the suggestions above? It is a matter on which reasonable people may well disagree. However, what is clear, in our view, is that the discretionary trigger in the Credit Suisse CoCos,<sup>221</sup> which was typical for Swiss CoCos, does not strike the right balance: it does not clearly give the supervisor the power to intervene in going concern, i.e. in situations where the bank needs recovery measure, but the PONV is still far off. In addition, the Credit Suisse discretionary trigger clearly did not provide sufficient legal certainty to the supervisor, as an emergency decree was necessary to make clear that the supervisor had the power to write down the CoCos, and even in that case, CoCo holders challenged the decision of the supervisor.

Instead of the Swiss approach to the discretionary trigger, we propose a different approach. We propose to reform the Capital Requirements Regulation in such a way that the supervisor is empowered to verify at the moment of the issuance of the CoCo whether the combination of the accounting trigger and discretionary trigger allow the CoCo to be triggered in going concern, so that the bank can take recovery measures and avoid the need for resolution. Banks will therefore have to convince their supervisor before issuing the CoCo that the triggers it has designed are actionable in going concern. The advantage of this approach is that it allows supervisors to take into account bank-specific characteristics and allow innovative ideas for triggers to emerge. In other words, our proposed approach is a more dynamic and bank-specific approach to CoCo triggers, rather than the static, “one-size-fits-all” approach currently taken in European regulations of AT1 CoCos.

In addition, we propose that the discretionary trigger should be formulated in such a way that the AT1 CoCos are automatically triggered when the quantitative or qualitative criteria (specified in the CoCo indenture and approved by the supervisor) are met, unless the supervisors explicitly decide to waive the trigger requirements (potentially under certain conditions). This discretionary waiver of the trigger is what makes this trigger a discretionary trigger. We believe that such an approach has several advantages. First, the possibility for the supervisor to waive the concrete qualitative or quantitative trigger avoids the problem that for example market-based indicators are met because of market manipulation. Second, it reduces the legal uncertainty for investors pricing the CoCo. Third, the combination of concrete criteria and a broadly formulated discretion in waiving the trigger (for example “when such a waiver is justified in the interest of the stability of the financial system”) would reduce the possibility to

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<sup>218</sup> Text to n 147.

<sup>219</sup> Text to note 138.

<sup>220</sup> See Article 27-30 BRRD.

<sup>221</sup> See above in Section 4.2.



challenge the intervention of the supervisor in court. Finally, forcing the supervisor to take a decision on waiving the trigger may responsabilize the supervisor and counteract incentives to forbear. In the current system, it is easier for supervisors not to take an active decision to enforce the CoCo trigger and forbear. With our proposed discretionary trigger, supervisors will need to document and motivate why triggering the CoCos is not necessary for the recovery of the bank, forcing them to take an active decision on the bank's strategy for recovery.

## **7. Concluding Remarks**

CoCos are a hybrid capital instrument whose main goal is to safeguard the going-concern value by absorbing losses of solvent banks upon distress. The article provides an analysis of the shortcomings of the current regulatory framework based on the interaction of regulatory requirements and contractual design. Based on the scrutiny of the relevant cases, it identifies the key frictions preventing CoCos from effectively performing their prudential task.

The article has also proposed a conceptual model of CoCo's lifecycle to better understand the sources of these frictions and has proposed some key features for a regulatory framework allowing CoCos to properly work, with specific reference to the reform that the current EU regulatory framework would need.



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