Contingent convertible securities
Is a storm brewing?

SUMMARY
Contingent convertible securities, otherwise known as 'CoCos', are hybrid securities issued by banks as debt instruments (e.g. bonds) and automatically converted into equity shares if a contractually pre-defined 'trigger event' occurs. Their defining characteristics are a loss-absorption mechanism (conversion or write-down) and an activation trigger, either based on a mechanical rule or on supervisors’ discretion.

CoCos are regarded positively both by the industry and by regulators. Banks appreciate the fact that this instrument allows them to fund themselves and satisfy their regulatory capital requirements at a lesser cost than with equity. Regulators note positively the fact that the instrument is designed to facilitate balance-sheet repair, or the orderly resolution of a bank, without the bank having to seek to issue extra equity under stressful conditions.

Although the size of CoCos issued until now is still small in comparison with other financial instruments, they attracted media attention in early 2016, when they contributed to increasing market volatility around some EU issuing financial institutions. While the 'incident' was contained, its importance should not be downplayed. The possible systemic implications for European markets of a more serious episode should be considered. This raises questions about how investors understand CoCos, as well as the robustness of models that estimate their risks. CoCos are also likely to feature in discussions on possible regulatory changes to banks’ capital requirements.

In this briefing:
- Banks and the invention of CoCos
- Main characteristics of CoCos
- Some statistics
- Current regulatory treatment at EU level
- Pros and cons of CoCos
- The Deutsche Bank AT1
- Main references
Contingent convertible securities

Glossary

Short selling: when an investor sells a stock he or she does not own.

Credit Default Swap (CDS): a derivative instrument that allows its buyer to purchase protection with respect to an underlying debt instrument, by paying a fixed premium to the seller over a fixed period, in return for a promise by the seller to pay a fixed amount to the buyer if a 'credit event' occurs in relation to the entity that issued the underlying instrument.

Repurchase agreements: (usually short-term) agreements to sell securities with a promise to buy back those securities at the end of a fixed period.

Banks and the invention of CoCos

The first contingent convertible security – or 'CoCo' in market parlance – was issued by Lloyds Bank, in the form of an exchange offer in 2009. Since then, the market for these hybrid instruments has been significantly expanding: the EU market for bank-issued CoCo bonds grew to almost US$90 billion since 2012. Before considering the characteristics of this hybrid instrument and its role in the January-February 2016 European market turmoil, it is useful to start with some preliminary information on its main issuers, i.e. banks, and the reasons why it was created.

Banks and regulatory capital

Banks are financial intermediaries, i.e. firms that borrow from consumers/savers and lend to companies that need resources for investment. They secure the funds needed to perform their function – providing loans and liquid assets (e.g. cash) to firms and households – by issuing capital (equity), as well as through retail (deposits) and wholesale (bonds) funding.

In performing this function, they take various risks, including credit risk and liquidity risk. If these risks materialise, the bank incurs losses, some of which can be accurately estimated, while others (or, at least, their extent) cannot be estimated. While banks can mitigate expected losses through the interest rate spread (the lending rate minus the deposit rate), they also need to keep a 'buffer' to protect against unexpected (either in occurrence or magnitude) losses. This is the role of bank capital. Already in the first Basel Accord in 1988, regulators focused on regulating capital, the rationale being that:

- more capital should make it easier for banks to absorb losses with their own resources ('going-concern' capital) without necessitating a taxpayer bailout;
- capital equates to 'skin in the game' for equity holders (the owners of the financial institution), which is expected to curb incentives for excessive risk taking.

Nevertheless, the financial crisis of 2007-09 and its bank runs and runs on shadow banking revealed that bank equity-capital requirements were too low to provide adequate loss absorption capacity for banks to be able to survive negative shocks.

Therefore, the Basel III framework provided that banks must fund their risk-weighted assets (RWA) with at least a certain amount of capital (known as the 'minimum requirements' of capital) and, in addition, maintain a number of capital buffers, to ensure they can absorb losses in times of stress without necessitating public assistance or affecting the banking-financial system as a whole. Those requirements are expressed in ratios of capital (see below) over risk-weighted assets, since capital absorbs any losses on bank assets.
What is 'capital' and how do banks choose their capital mix?

Banks obtain funding by way of a variety of financial instruments. The Basel III framework, translated into EU law through the Capital Requirements Directive (CRD IV) and the Capital Requirements Regulation (CRR), makes a distinction between three main forms of regulatory capital:

<table>
<thead>
<tr>
<th>Common Equity Tier 1 capital (CET1)</th>
<th>Ordinary/common shares and retained earnings – absorbs losses before any other tier of capital.</th>
</tr>
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<tbody>
<tr>
<td>Additional Tier 1 capital (AT1)</td>
<td>Perpetual subordinated debt instruments – 'going concern' capital.</td>
</tr>
<tr>
<td>Tier 2 capital</td>
<td>'Gone concern' capital, which supports the resolution of banks and the position of other creditors, such as the bank's deposit customers, under bankruptcy proceedings.</td>
</tr>
</tbody>
</table>

**Subordination hierarchy**

The primary source of loss absorption – in terms of the relative proportion of loss absorption capacity and in the sense that it has the most 'junior' place in the subordination hierarchy – and thus the most expensive is CET1.

AT1 equity instruments and Tier 2 capital instruments in turn are intended to absorb low-probability, relatively high-impact losses, such as those that would cause the bank to breach a minimum requirement or become insolvent.

- **AT1 instruments** see their distributions suspended when the bank makes an outright loss (see 'Maximum Distributable Amounts' below) and ultimately suffer loss of principal (amount borrowed or invested) in case the bank fails. Tier 1 investors are – or at least should be – willing to accept a lower return and less control than common equity to the extent they hold a 'preferred' (more senior) place in the loss-absorption hierarchy;
- **Tier 2 capital** also suffers a loss of principal should the bank fail. Tier 2 investors require a lower return than investors in the other two categories, because they take losses only after CET1 and AT1 investors.

Where do CoCos fit in the current framework?

According to Mark J. Flannery, shareholders in an over-leveraged financial firm will not voluntarily issue new equity claims because much of the benefit accrues to the firm's bondholders. Furthermore, although the USA (Dodd-Frank) and the EU (Bank Recovery and Resolution Directive (BRRD)) have sought to avoid taxpayers bearing the losses of financial institutions by 'bailing-in' bondholders, preventing a systemically important financial institution from failing by having its equity depleted is still preferable from the perspective of the public interest to orderly resolution, which is only a 'second best' outcome.

Contingent convertible securities are hybrid capital instruments designed to solve this problem, by providing a source of capital to banks in distress, when private investors are reluctant to supply external capital. They start as debt, and convert to equity only upon the occurrence of a triggering event. They can thus facilitate balance sheet repair, or the orderly resolution of a bank, without the bank having to seek to issue extra equity under stressful conditions.

CoCos are attractive to issuers because they allow them to benefit from actual or potential corporate tax benefits, and because they help them satisfy regulatory capital requirements.
requirements; they are attractive to investors because they promise higher yields than other bonds do.

Main characteristics of CoCos
Experts tend to agree\(^7\) that CoCos have two main defining characteristics: the loss absorption mechanism and the triggering event that activates this mechanism.

The loss absorption mechanism
CoCos can absorb losses by conversion or write-down:

- by converting to equity (CET1) at a pre-defined rate, based on
  - the market price of the stock at the time the trigger is breached;
  - a pre-specified price (often the stock price at the time of issuance); or
  - a combination of (i) and (ii).

According to Flannery, this choice of conversion price has important implications for the effect of CoCos on risk-taking incentives, and on the type of investor(s) interested in holding the bonds, given that a price below the share's market value at conversion transfers wealth from the initial shareholders to the CoCo investors, while a conversion price above the market share price transfers value to the initial shareholders.

- through a full or partial (e.g. CoCo holders would lose 80% of its face value and receive the remaining 20% in cash) write-down in the value of the principal.

The activation trigger
One of the most important features in the design of a CoCo is the definition of the trigger (i.e. the point at which the loss absorption mechanism is activated). According to Stefan Avdjiev et al., CoCos can have one or more triggers, which can be based either on a mechanical rule or on supervisors' discretion.

In the case of a mechanical rule, the loss absorption mechanism is activated when the capital of the CoCo-issuing bank falls below a pre-specified fraction of its risk-weighted assets. The capital measure, in turn, can be based on book values – typically set contractually in terms of the book value of CET1 capital over Risk-Weighted-Assets – or market values, both of which have their merits and risks\(^8\).

On the other hand, discretionary triggers, or 'point of non-viability' (PONV) triggers, are activated based on supervisors' judgment\(^9\) about the issuing bank's solvency prospects. In particular, supervisors can activate the loss absorption mechanism if they believe that such action is necessary to prevent the CoCo-issuing bank's insolvency.

Some statistics
Avdjiev et al. provide some useful statistics on CoCo bonds: between January 2009 and September 2015, banks around the world issued a total amount of US$446.958 billion in CoCos through 519 different issues. Of these:

- 53.9% used principal write-down loss absorption, while the rest used conversion-to-equity.
- 44.6% were issued in US$, 18.1% in euro and the rest in other currencies.
- 54% were classified as AT1, while 46% were classified as Tier 2.
- The majority (57.1%) were perpetual bonds (no set maturity), while most of the others (38.3%) were bonds with a maturity of more than 10 years.
Finally, with regards to the trigger, almost half (48%) of CoCos issued had a trigger between 4.5% and 6%, almost a fifth (18%) used a higher trigger (> 6%) and almost a third (29.6%) had no numerical trigger.

**Current regulatory treatment at EU level**

The new Capital Requirements Framework was published in July 2013: it consists of a directive to be implemented by the Member States (CRD IV) and a regulation directly applicable in the EU (CRR).

Chapter 4 of CRD IV includes provisions on capital buffers, while Chapter 3, Section 1 of CRR contains the criteria for financial instruments to qualify as AT1 capital. Member States are required to make sure that their banks maintain the buffers provided in CRD IV Articles 129-133 (i.e. the capital conservation buffer, the countercyclical capital buffer, the buffer for global systemically important institutions & other systemically important institutions (G-SIIs & O-SIIs), and the systemic risk buffer).

Under CRD IV, CoCo bonds cannot be secured, or be subject to a guarantee, or enjoy any enhancement of seniority; they are perpetual, with no incentive to redeem; they may be called, redeemed or repurchased only after five years after the date of issuance; upon a trigger event, they must be written down or converted to CET1 capital; finally, their pay-out must be discretionary and non-cumulative – specifically, their coupons can be cancelled by the issuer or by regulators.

**How are CoCos classified in regulatory capital considerations?**

<table>
<thead>
<tr>
<th>Core Equity Tier 1 (CET 1)</th>
<th>Common shares</th>
<th>CET1 ≥ 4.5% of RWA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Retained earnings</td>
<td></td>
</tr>
<tr>
<td>Additional Tier 1 (AT 1)</td>
<td>Preferred shares</td>
<td>CET1 + AT1 ≥ 6% of RWA</td>
</tr>
<tr>
<td></td>
<td>High-trigger CoCos</td>
<td></td>
</tr>
<tr>
<td>Tier 2 (T2)</td>
<td>Non-CoCo subordinated debt</td>
<td>CET1 + AT1 + T2 ≥ 8% of RWA</td>
</tr>
<tr>
<td></td>
<td>Low-trigger CoCos</td>
<td></td>
</tr>
</tbody>
</table>

Source: Stefan Avdjiev et al. 'CoCo Bond Issuance and Bank Funding Costs' p. 39.

**CoCo coupon distribution**

Coupon distribution is subject to two conditions.

The first condition is to meet the combined buffer requirements. According to Article 141(2) of CRD IV, institutions that fail to meet the combined buffer requirements are required to calculate the Maximum Distributable Amount (MDA), i.e. the amount a bank can pay out in bonuses, dividends and coupons on certain debt instruments, if its capital level is below their combined buffer requirement. The article further specifies that as long as an institution fails to meet or exceed its combined buffer requirement, Member States shall prohibit it from distributing more than the MDA.

The second condition is the availability of distributable items (ADI) to make the coupon payments. Nevertheless, this is more complicated, as according to ratings agency Scope Ratings, estimation of ADI involves an analysis of national legislation and accounting rules to correctly identify and separate distributable from non-distributable reserves.

Failure to meet these two conditions may cause banks to limit or suspend their distribution – in this case the CoCo bond coupon payment. According to Moody's research, this complexity, coupled with the fact that 'hybrid AT1 instruments' (...
coupon payments are fully discretionary and hence can in theory be skipped at any time’, is why they are typically rated at least three notches below the rating assigned to the issuing financial institution.\(^{12}\)

**Pros and cons of CoCos**

Avdjiev et al. provide a useful summary of the main positions held by CoCo bond proponents and sceptics:

- The conversion or write-down of CoCo bonds has the advantage of being ‘a quick and effective way for a bank that has incurred losses to deleverage and to be put back on a sounder financial footing’. Furthermore, in a recent paper, Natalya Martynova and Enrico Perotti note that the ‘going concern’ conversion reduces heightened risk incentives. By shifting the costs of the failure of a financial institution from taxpayers as a whole to investors and debt-holders, the latter are thought to be incentivised to keep a closer eye on the institution’s management and ensure that it is acting prudently.

- On the other hand, sceptics on CoCos have argued that these securities are excessively complex and unlikely to provide adequate loss-absorbing capacity to banks. Given that conversion is only triggered if a tail event occurs, there is a risk that buyers of CoCos almost entirely discount the possibility of conversion, and expect to hold an exclusively high-yield debt instrument. Furthermore, Stephanie Chan and Sweder Van Wijnbergen note that the CoCo conversion raises the probability of a run on the bank, because conversion sends a negative signal to depositors about asset quality; and

  - if bank assets are correlated across banks, a CoCo conversion at one bank may increase the probability of runs on other banks – even those that have not issued CoCos.

Similarly, Charles Goodhart notes that CoCos risk make the system more complex, potentially leading to problematic market dynamics, so he is not convinced that these hybrid instruments represent an improvement over, for example, higher (equity) counter-cyclical requirements.

Finally, Hilary J. Allen notes that in a financial crisis, CoCos are likely to incentivise behaviours and strategies that may undermine confidence in banks. The destruction of confidence can, in turn, lead to panic selling (which, in the case of debt instruments like CoCos, can cause even larger negative price swings than in the case of stocks, given that debt markets are less liquid than equity markets) and/or short selling – large volumes of which depress the price of the securities being sold, even for a short time – or even the use of credit default swaps, which are likely to be interpreted by the market as symptomatic of problems with the bank, regardless of the fundamentals. These consequently can cause banks to experience funding difficulties – not in the form of a traditional ‘run on the bank’, but of a ‘run’ on other sources of bank funding, such as a freezing of the interbank repurchase (‘repo’) market. This in turn can have wider repercussions for financial stability, as the recent financial crisis has shown (e.g. Bear Sterns).

Allen’s paper provides a rather detailed example that can explain in part what happened in the markets in February. Her starting point is that, among investors in CoCo bonds, there may be those that know the product they have purchased, but also some that
purchase the instruments solely because their coupon rate is more attractive than normal bonds, omitting to 'discount in' the possibility of conversion or write-down.

In the event that the issuing institution runs into difficulties, these latter investors may rush to sell. Allen identifies the following risks:

- investors manage to sell the bonds, but at a heavily discounted price. This price in turn reduces the market value of the issuing institution's CoCos, which sends a signal to the market that the institution has problems;
- due to the fact that bond (and especially CoCo bond) markets are less liquid, investors may not find buyers, even at reduced prices. In such a scenario, they may be tempted to
  - either short the stock of the issuing institution, hoping that, as a result, the stock price will be lower and therefore that it will correspond to more shares upon conversion;
  - or enter into a CDS to hedge the risk of conversion. In this case, assuming that the issuing institution has more than one investor seeking to protect itself, the price of CDS will climb higher.

In each of these cases, the markets (including shareholders and speculators) will perceive the changes as a signal of increased risk, and may decide to sell or further short, or simply spread rumours about possible conversion and/or bailing-in, which will further undermine confidence and depress the stock price.

**The Deutsche Bank AT1**

The aforementioned elements can provide a key to understanding what happened in European stock markets at the end of January and the beginning of February 2016.

On 20 May 2014, Deutsche Bank successfully completed the issuance of AT1 notes, with an equivalent value of €3.5 billion (€1.75 billion tranche with a coupon of 6%, US$1.25 billion tranche with a coupon of 6.25%, and £650 million tranche with a coupon of 7.125%).

Bank stocks had been falling since 2015, among other reasons because of fears of a slowdown in global growth. In October 2015, expecting negative results, Deutsche Bank had announced that it would not pay a dividend for the next two years. This already had an impact on the price of its AT1 bonds, which dropped to US$0.95 on the dollar at the beginning of November.

Meanwhile, on 18 December 2015, the European Banking Authority published an opinion – to which the European Central Bank referred in its calculation of MDAs – in which it clarified that the MDA should be calculated taking into account both minimum (Pillar 1) and additional (Pillar 2) capital requirements, including the combined buffer requirement, thus narrowing the distance to a breach of the Combined Buffer Requirements to 1-3%.

In January 2016, when the bank announced that it expected to report a full-year net loss of about €6.7 billion in March – following litigation charges, restructuring costs and a fall in revenues in its securities trading unit – its share price fell by as much as 8% (see Figure 1). Although during the 28 January earnings conference call, Deutsche Bank CFO Marcus Schenck said that ‘Based on the preliminary 2015 financial [sic], ... we believe we have sufficient general reserves available to cover any shortfall', given the fall in the bank's CET1 ratio from 11.7% to 11.1% and the relative uncertainty surrounding its
ADIs, investors began to worry that if the situation deteriorated further, the bank would not be able to honour its coupon promise in April 2016.

Furthermore, given that AT1s have cancellable coupons (they are contractually discretionary) and no predefined maturity, as well as no incentives for the issuer to redeem at the first call date, uncertainty over whether or not these bonds would be called back, as well as the related timing and purchase price, added to investor anxiety, because they effectively found themselves facing the possibility of holding perpetual bonds with no coupon payments.

This resulted in the CoCo price falling to 72% of par on Monday 8 February, from 93% at the start of the year. This, in turn, created a feedback loop: as AT1 prices fell, investors had few places to sell. Given that private banks in Asia – which are major buyers of high-yield securities – were on holiday on Monday (for Chinese New Year), investors sold CDS, which spiked at levels (275 basis points for the 5-year senior CDS and 540 basis points for the 5-year junior CDS15 – see Figure 2) not seen since 2011. This market anxiety was reflected in the stock price of Deutsche Bank, which fell further (by a total of 34.5% since the beginning of 2016) and risked suffering a panic sell-off.

The turbulence only subsided after concerted action:

- On 8 February, Deutsche Bank CFO Marcus Schenck sent out a message to the Bank's employees, stating that the bank's payment capacity in 2016 was expected to be approximately €1 billion – sufficient to service the AT1 coupon of approximately €350 million on 30 April 2016.
- On 9 February, German Finance Minister, Wolfgang Schäuble, stated that he was 'not worried' about Deutsche Bank; the same day, John Cryan, Co-CEO of Deutsche Bank, sent out a message to the Bank's employees, stating that 'Deutsche Bank remains absolutely rock-solid, given our strong capital and risk position'.

Figure 1: Deutsche Bank – Closing share price, in €


Figure 2: Deutsche Bank – Senior CDS, in basis points

Data source: Boursorama, 2016.
On 12 February, Deutsche Bank announced that it would launch a **US$5.4 billion buy-back** of its own bonds. The bank said that it took the decision in order to lower 'its debt burden at attractive prices' and 'to provide liquidity to bond investors in challenging market conditions', but the underlying intention, according to the press, was to 'reassure markets of its financial strength'.

The situation at Deutsche Bank stabilised, but issuances of new CoCos 'froze' in February, and only restarted in mid-March, with a **UBS AT1 issuance** reaching US$7.8 billion after the ECB announced its latest measures to encourage bank lending.

**Conclusion**

Ultimately, the AT1 February 'incident' did not spill over and remained a minor part of the current market turmoil. This is probably due to the aforementioned measures and to the fact that the CoCo-related turbulence in January-February 2016 was mostly **limited to institutional portfolios**. Nevertheless, its importance should not be minimised. It is difficult to claim that the turmoil was caused by fears of conversion/write-down, since there was significant 'headroom' (for example, the Deutsche Bank AT1 trigger was set at 5.125%); instead, it seems that the cause of the turmoil was uncertainty about receiving a coupon payment, which, as mentioned earlier, is (and should remain) at the discretion of the bank or the supervisors. With this in mind, one can wonder, as Jan De Spiegeleer and Wim Schoutens do, whether the CoCo concept has been misunderstood by many investors who are hunting for yield in a zero-interest-rate environment; and further, whether all the models used until now to investigate CoCo bond risks should be revised upwards with regard to the possible systemic implications of a more serious episode for European markets.

In addition, the market turbulence reportedly **prompted the Commission** to consider defining the current MDA levels differently, so as to increase banks' flexibility in making pay-outs to investors.

**Main references**


Andreas Cahn, Patrick Kenadjian, Frankfurt, '**Contingent convertible securities: from theory to CRD IV**', 2014.


Stefan Avdjiev, Patrick Bolton, Wei Jiang, Anastasia Kartasheva and Bilyana Bogdanova, 'CoCo Bond Issuance and Bank Funding Costs' 2015.

Scope Ratings Research '**AT1 Capital Instruments**' 2014.
Endnotes

1 For more information, see Wall Street Journal ‘Buyer beware: the vulnerability of one complex debt investment’.
2 Bank capital and capital regulation are a vast topic. For a good introduction, see Daniel K. Tarullo, ‘Role of capital regulation’, or João A C Santos, ‘Bank capital regulation in contemporary banking theory: a review of the literature’.
3 Capital earmarked to reduce losses to the bank’s creditors in the event that it does fail is known as ‘gone-concern capital’.
4 For more information, see Kris James Mitchener and Gary Richardson ‘Does “Skin in the Game” Reduce Risk Taking? Leverage, Liability and the Long-Run Consequences of New Deal Banking Reforms’.
5 Equity is more expensive than debt in the sense that borrowers face less risk than shareholders (common equity is the most ‘junior’ form of liability, i.e. it is the first to absorb any losses) and that the debt interest is tax-deductible. However, one must bear in mind that if a company fails to generate enough cash, the fixed-cost nature of debt can prove too burdensome.
6 According to S. Avdjiev et al. (2013), ‘Preliminary estimates suggest that roughly 64% of CoCos have tax-deductible coupons, while approximately 20% do not’.
7 See for example Avdjiev et al, Flannery or Hilary J Allen in ‘References’.
8 The effectiveness of book-value triggers depends on their timeliness and thus on the frequency of calculation and disclosure of the ratios. To illustrate how this can lead to problems, the authors provide an example from Citibank in 2008. As for market-value triggers, they may be difficult to price and could create incentives for stock price manipulation.
9 PONV triggers provide a solution to the aforementioned problem of book-value triggers, but the conditions under which regulators exercise their powers must be very clear, otherwise they may create market uncertainty.
10 See especially Articles 129-133 and 141-142.
11 Moody’s research report ‘Capital Requirements at European Banks Highlight Risk for AT1 Instruments’.
12 ‘One notch reflecting likely high loss-given-failure, two notches for the uncertainty of coupon suspension prior to bank failure’.
13 This briefing uses Deutsche Bank AT1 bonds as an example because their coverage was wider; however, similar situations occurred with Contingent Convertible bonds at Santander and UniCredit.
14 They are determined ‘on the basis of the banks audited unconsolidated financial statements prepared in accordance with German GAAP and other applicable German law’.
15 The Senior CDS gives protection against the risk of a bond defaulting, while the Junior CDS protects the subordinated debt against default.
16 See for example Wall Street Journal article ‘Deutsche Bank to Buy Back $5.4 Billion in Debt’, according to which the move is ‘designed to bolster confidence in German lender’s finances and in the value of its securities’, or Financial Times article ‘Deutsche Bank to launch buyback of its bonds’, which states that ‘German bank seeks to reassure investors over its financial strength’.

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