

CoCos: a primer¹

Contingent convertible capital instruments (CoCos) are hybrid capital securities that absorb losses when the capital of the issuing bank falls below a certain level. In this article, we go over the structure of CoCos, trace the evolution of their issuance, and examine their pricing in primary and secondary markets. CoCo issuance is primarily driven by their potential to satisfy regulatory capital requirements. The bulk of the demand for CoCos has come from small investors, while institutional investors have been relatively restrained so far. The spreads of CoCos over other subordinated debt greatly depend on their two main design characteristics – the trigger level and the loss absorption mechanism. CoCo spreads are more correlated with the spreads of other subordinated debt than with CDS spreads and equity prices.

JEL classification: G12, G21, G28.

Private investors are usually reluctant to provide additional external capital to banks in times of financial distress. In extremis, the government can end up injecting capital to prevent the disruptive insolvency of a large financial institution because nobody else is willing to do so. Such public sector support costs taxpayers and distorts the incentives of bankers.

Contingent convertible capital instruments (CoCos) offer a way to address this problem. CoCos are hybrid capital securities that absorb losses in accordance with their contractual terms when the capital of the issuing bank falls below a certain level.² Then debt is reduced and bank capitalisation gets a boost. Owing to their capacity to absorb losses, CoCos have the potential to satisfy regulatory capital requirements.

In this article, we examine recent developments and trends in the market for CoCos. Our analysis is based on a data set that covers \$70 billion worth of CoCos issued between June 2009 and June 2013.³ Several trends stand out.

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² Non-CoCo debt instruments may also absorb losses. However, this could occur only upon the application of a statutory resolution regime at the point of non-viability.

³ Our sample consists exclusively of CoCos issued by banks (ie it does not include those issued by insurance companies and other non-bank financial institutions). Data are obtained from Bloomberg and Dealogic.

First, the main reasons for issuing CoCos are related to their potential to satisfy regulatory capital requirements. Second, the bulk of the demand has come from private banks and retail investors, while institutional investors have been relatively restrained so far. Third, CoCo yields tend to be higher than those of higher-ranked debt instruments of the same issuer and are highly dependent on their two main design characteristics – the trigger level and the loss absorption mechanism. Finally, CoCo yields tend to be more correlated with those of other subordinated debt than with CDS spreads (on senior unsecured debt) and equity prices.

The rest of this article is organised as follows. In the first section, we describe the structure and design of CoCos. We discuss the reasons for CoCo issuance in the second section. In the third section, we examine the main groups of investors in CoCos. In the fourth and fifth sections, we study the pricing of CoCos in primary and secondary markets, respectively. The final section concludes.

Structure and design of CoCos

The structure of CoCos is shaped by their primary purpose as a readily available source of bank capital in times of crisis. In order to achieve that objective, they need to possess several characteristics. First, CoCos need to automatically absorb losses prior to or at the point of insolvency. Second, the activation of the loss absorption mechanism must be a function of the capitalisation levels of the issuing bank. Finally, their design has to be robust to price manipulation and speculative attacks.⁴

CoCos have two main defining characteristics – the loss absorption mechanism and the trigger that activates that mechanism (Graph 1). CoCos can absorb losses either by converting into common equity or by suffering a principal writedown. The trigger can be either mechanical (ie defined numerically in terms of a specific capital ratio) or discretionary (ie subject to supervisory judgment).

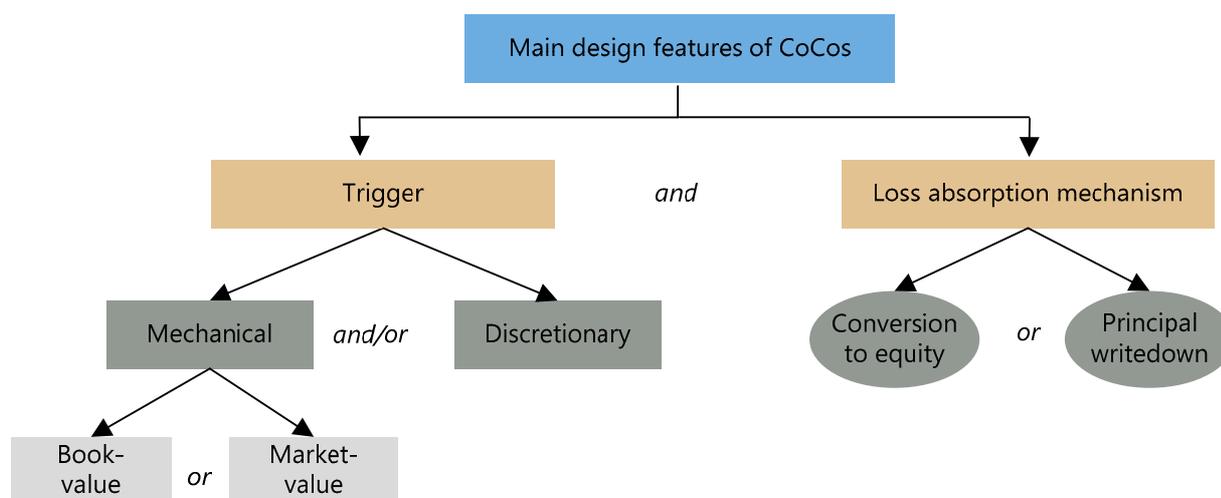
Triggers

One of the most important features in the design of a CoCo is the definition of the trigger (ie the point at which the loss absorption mechanism is activated). A CoCo can have one or more triggers. In case of multiple triggers, the loss absorption mechanism is activated when any trigger is breached.

Triggers can be based on a mechanical rule or supervisors' discretion. In the former case, 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 or market values.

Book-value triggers, also known as accounting-value triggers, are typically set contractually in terms of the book value of Common Equity Tier 1 (CET1) capital as a ratio of risk-weighted assets (RWA). The effectiveness of book-value triggers depends crucially on the frequency at which the above ratios are calculated and publicly disclosed, as well as the rigour and consistency of internal risk models,

⁴ These and other aspects of CoCo design are analysed in Albul et al (2012), Bolton and Samama (2011), Calomiris and Herring (2012), Culp (2009), Flannery (2009), Pennacchi et al (2011) and Sundarsen and Wang (2011), among others.



which can vary significantly across banks⁵ and time. As a result, book-value triggers may not be activated in a timely fashion.⁶

Market-value triggers could address the shortcoming of inconsistent accounting valuations. These triggers are set at a minimum ratio of the bank's stock market capitalisation to its assets. As a result, they can reduce the scope for balance sheet manipulation and regulatory forbearance.

However, market-value triggers may be difficult to price and could create incentives for stock price manipulation. The pricing of conversion-to-equity CoCos with a market-value trigger could suffer from a multiple equilibria problem.⁷ More specifically, 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 CE 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.

Finally, discretionary triggers, or point of non-viability (PONV) triggers, are activated based on supervisors' judgment 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 issuing bank's insolvency. PONV triggers allow regulators to trump any lack of timeliness or unreliability of book-value triggers. However, unless the conditions under which regulators will

⁵ BCBS (2013).

⁶ For example, had Citibank issued CoCos with even a high book-value trigger before November 2008, the loss absorption mechanism of those instruments would not have been activated prior to the government's injection of capital. Indeed, the bank's accounting regulatory capital ratios remained comfortably above the regulatory requirements even when its stock market capitalisation amounted to merely 1% of its reported risk-weighted assets. See Duffie (2009) for further discussion.

⁷ See Sundaresan and Wang (2011), Pennacchi et al (2011) and Calomiris and Herring (2013).

exercise their power to activate the loss absorption mechanism are made clear, such power could create uncertainty about the timing of the activation.

Loss absorption mechanism

The loss absorption mechanism is the second key characteristic of each CoCo. A CoCo can boost the issuing bank's equity in one of two ways. A conversion-to-equity (CE) CoCo increases CET1 by converting into equity at a pre-defined conversion rate. By contrast, a principal writedown (PWD) CoCo raises equity by incurring a writedown.

For CoCos with a CE loss absorption mechanism, the conversion rate can be based on (i) the market price of the stock at the time the trigger is breached; (ii) a pre-specified price (often the stock price at the time of issuance); or (iii) a combination of (i) and (ii). The first option could lead to substantial dilution of existing equity holders as the stock price is likely to be very low at the time the loss absorption mechanism is activated. But this potential for dilution would also increase the incentives for existing equity holders to avoid a breach of the trigger. By contrast, basing the conversion rate on a pre-specified price would limit the dilution of existing shareholders, but also probably decrease their incentives to avoid the trigger being breached. Finally, setting the conversion rate equal to the stock price at the time of conversion, subject to a pre-specified price floor, preserves the incentives for existing equity holders to avoid a breach of the trigger, while preventing unlimited dilution.

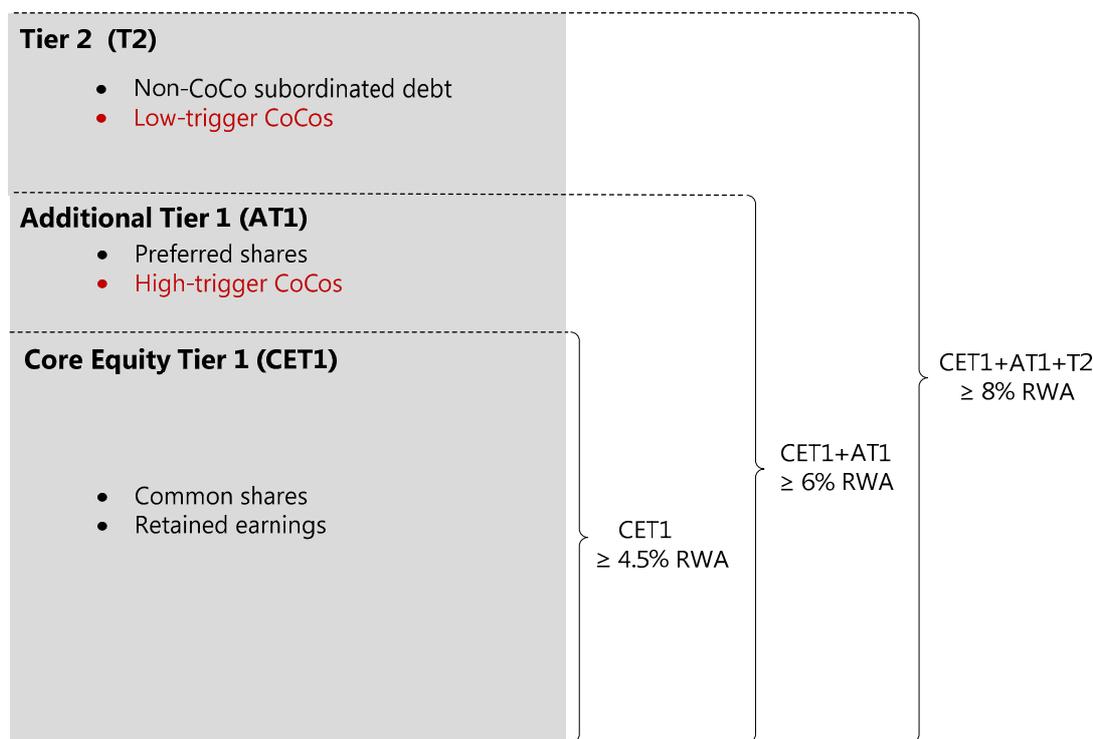
The principal writedown of a PWD CoCo could be either full or partial. Most PWD CoCos have a full writedown feature. However, there are exceptions. For example, in the case of the CoCo bond issued by Rabobank in March 2010, holders of CoCos would lose 75% of the face value and receive the remaining 25% in cash. One criticism of this type of loss absorption mechanism is that the issuer would have to fund a cash payout while in distress.

CoCo issuance

At the moment, the CoCo market is still relatively small, but it is growing. Banks have issued approximately \$70 billion worth of CoCos since 2009. By comparison, during the same period they have issued around \$550 billion worth of non-CoCo subordinated debt and roughly \$4.1 trillion worth of senior unsecured debt. Nevertheless, CoCo issuance volumes have increased in each of the last two years and are on pace to grow once again in 2013.

The regulatory treatment of CoCos against the background of the need to boost capital has been the main driver of the supply of those instruments. Under Basel III, CoCos could qualify as either Additional Tier 1 (AT1) or Tier 2 (T2) capital (Graph 2).⁸ The current Basel III framework contains two key contingent capital elements: (i) a PONV trigger requirement, which applies to all AT1 and T2

⁸ AT1 and T2 are two of the three types of capital that banks can use in order to satisfy regulatory capital requirements under Basel III. See BCBS (2011) for more information.



¹ The list of instruments in this graph is not exhaustive and is included solely for illustrative purposes. For a complete list of instruments and associated criteria for inclusion in each of the three capital buckets, see BCBS (2011). The above shares of RWA represent the bare minimum capital requirements and do not account for any add-ons, such as the capital conservation buffer, the countercyclical buffer and the SIFI surcharge.

instruments; and (ii) a going-concern contingent capital requirement, which applies only to AT1 instruments classified as liabilities.⁹

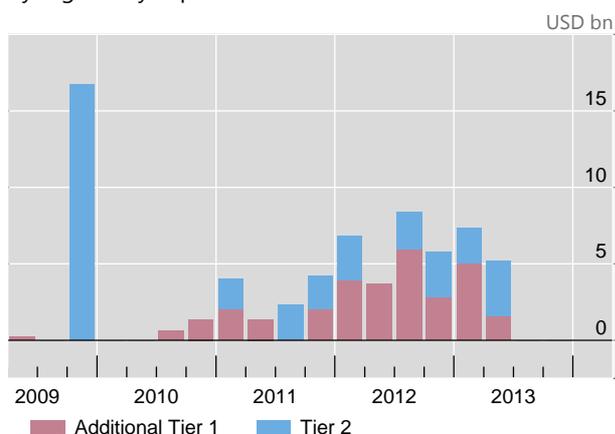
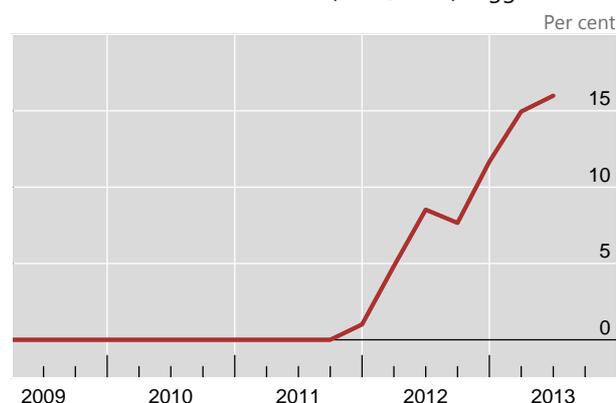
The inclusion of PONV clauses in CoCos is primarily motivated by regulatory capital eligibility considerations. As the adoption of Basel III has progressed across jurisdictions, the share of CoCos that have a PONV trigger has increased substantially over the past couple of years.

The selection of the trigger level is largely determined by the trade-off between regulatory capital eligibility considerations and cost of issuance. CoCos with low triggers have lower loss-absorbing capacity. As a result, they tend to be less expensive to issue, but are usually not eligible to qualify as AT1 capital. Nevertheless, low-trigger CoCos allow banks to boost their T2 capital in a cost-efficient manner.

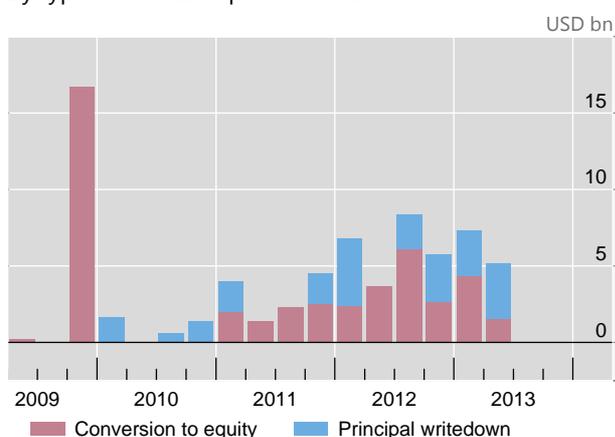
Over time, as banks felt more pressure from markets and regulators to boost their Tier 1 capital, they started to issue CoCos with trigger levels at or above the preset minimum for satisfying the going-concern contingent capital requirement. As a consequence, the volume of CoCos classified as AT1 capital has increased considerably since the start of 2012 (Graph 3, top left-hand panel).

⁹ Equity AT1 instruments (eg preferred shares) do not need to meet the going-concern contingent capital requirement.

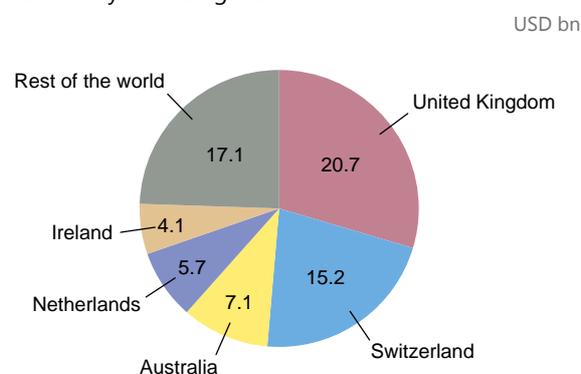
By regulatory capital classification

Ratio of CoCos with a 5.125% (CET1/RWA) trigger level¹

By type of loss absorption mechanism



By nationality of issuing bank



¹ Ratio of the volume of CoCos with a 5.125% (CET1/RWA) trigger level to the volume of all issued CoCos.

Sources: Bloomberg; Dealogic; authors' calculations.

Under Basel III, the minimum trigger level (in terms of CET1/RWA) required for a CoCo to qualify as AT1 capital is 5.125%. As a result, over the past couple of years, there has been a trend towards issuing CoCos with a trigger set exactly at that level (Graph 3, top right-hand panel). CoCos with such triggers are attractive for issuing banks due to the fact that they qualify as AT1 capital, while simultaneously being cheaper to issue than CoCos with higher trigger levels.

Regulatory capital eligibility considerations are a major factor not only in the selection of CoCo triggers, but also in the choice of their original maturity. In the Basel III framework, all AT1 instruments must be perpetual. That explains why over a third of all CoCos issued so far have no maturity date. The rest of the existing CoCos are dated and are therefore only eligible to obtain T2 capital status under Basel III. Most of them have an original maturity of approximately 10 years.

Capital eligibility considerations are not as important in the selection of the loss absorption mechanism. Regulatory requirements can be met with either CE CoCos or PWD CoCos. Nevertheless, the former dominated the initial stages of CoCo issuance (Graph 3, bottom left-hand panel). The most likely explanation for this is that CE CoCos tend to be cheaper for issuers than PWD CoCos (see below).

Nevertheless, issuance of PWD CoCos has picked up over time, in line with growing interest from fixed-income investors whose mandates often prevent them from holding CE CoCos. As a result, PWD CoCos have accounted for more than half of total CoCo issuance since the start of 2013.

CoCo issuance patterns are largely driven by the way Basel III is applied, or supplemented, by national regulators. As a result, the geographical distribution of issuers mainly reflects the regulatory treatment of CoCos across jurisdictions. Approximately 80% of the issuance has been done by European banks (Graph 3, bottom right-hand panel). UK banks have been the most active, having issued \$21 billion worth of CoCos so far. They have been primarily motivated by their need to satisfy the loss-absorbing capital requirements of UK regulators. Swiss banks have also issued a substantial amount (\$15 billion) of CoCos during our sample period. This could largely be attributed to the fact that the new regulatory regime in Switzerland requires Swiss banks to have 9% of risk-weighted assets in loss-absorbing instruments. Finally, the July 2013 entry into force of the Capital Requirements Directive IV, which transposes Basel III into EU law, is expected to stimulate a new wave of CoCo issuance by EU banks.

The issuance of CoCos is also affected by their tax treatment in different jurisdictions. If fiscal authorities treat CoCos as debt, then the interest expense associated with them is typically tax-deductible for the issuing bank. As a result, the tax classification of CoCos can have a significant impact on the after-tax interest expenses of issuing banks. While there is still considerable uncertainty in many jurisdictions, it appears that CoCos would not be tax-deductible in some countries. Preliminary estimates suggest that roughly 64% of CoCos have tax-deductible coupons, while approximately 20% do not. The tax treatment of the remaining 16% of CoCos is currently under review.¹⁰

Investors in CoCos

The bulk of the demand for CoCos has come from retail investors and small private banks. Large institutional investors have been relatively timid so far. The main factors suppressing the growth of the investor base at the moment are the absence of complete and consistent credit ratings for most CoCos and the inherent tension between the objectives of issuers' regulators and prospective buyers' regulators.

Main investor groups

According to market participants, three investor groups have been most active on the demand side of the primary market for CoCos. The bulk of the demand has come from retail investors and private banks in Asia and Europe. They have been enticed primarily by the relatively high nominal yield that CoCos offer in the current low interest rate environment. The second group consists of US institutional investors that look for alternative investment classes. Even though the CoCo volumes these investors have purchased are considerable relative to the size of the market, they are fairly modest compared to the overall size of their portfolios.

¹⁰ The above numbers are based on a subsample of CoCos with a total volume of \$36 billion. Currently, there is no information on the tax status of the rest of the CoCos in our sample.

Finally, European non-bank financial institutions represent a third investor group that has shown substantial interest in CoCos. Nevertheless, their demand is currently held back by the lack of clarity about how CoCo assets on their balance sheets will be treated by their national regulators.

Data from Dealogic on the institutional breakdown of investors for a sample of CoCo issues with a combined volume of roughly \$13 billion provide further details on the major investors in CoCos. Private banks and retail investors were responsible for 52% of the total demand in the sample. Asset management companies accounted for another 27%. Hedge funds (9%) and banks (3%) were much less active. Finally, demand from insurance companies was also limited (3%), most likely reflecting the fact that Solvency II and National Association of Insurance Commissioners (NAIC) regulations are expected to apply a significant capital charge to CoCo investments.

Factors influencing the size of the CoCo investor base

Increasing participation of traditional institutional investors like asset management companies, insurance companies and pension funds is necessary for the CoCo market to become a deep and liquid source of capital for banks. However, several factors are holding back demand from these investors.

The absence of a complete set of credit ratings for CoCos has been a significant hurdle on the growth path of this young market. The mandates of many institutional investors prevent them from holding financial instruments that do not have a credit rating or are rated below a certain level. In addition, an investment grade credit rating is a necessary condition for the inclusion of any security in many of the major bond indices.

Three main factors can explain credit rating agencies' initial reluctance to rate CoCos. First, the heterogeneity in the regulatory treatment of CoCos across jurisdictions hinders the creation of consistent rating methodologies. In addition, credit rating agencies are concerned that certain high-trigger CoCos have the potential to invert the traditional hierarchy of investors.¹¹ Finally, the existence of discretionary triggers creates valuation uncertainty, which further complicates the ratings process.

More than half of all CoCos are currently unrated. Until recently, only Standard & Poor's and Fitch rated (some, but not all) CoCos. Moody's did not rate them until May 2013, when it started rating some low-trigger CoCos. According to the S&P rating methodology, a CoCo rating should be at least two to three notches below the issuer's credit rating and cannot exceed BBB+.¹² Further downward notching is applied to instruments with triggers near or at the point of non-viability and to those that have a discretionary trigger. On average, CoCo ratings are approximately one notch lower than those of other subordinated debt and more than five notches below those of senior unsecured debt of the same issuer.

An additional factor limiting demand for CoCos is the inherent tension between the objectives of issuing banks' regulators and the regulators of potential CoCo bondholders. On the one hand, issuing banks' regulators aim to provide an

¹¹ In some cases, holders of CoCos can incur losses ahead of equity holders (eg when the loss absorption mechanism of a high-trigger/PWD CoCo is activated).

¹² Standard & Poor's (2011).

automatic source of high-quality capital for banks in times of stress. This translates into a preference for instruments with greater loss absorption capacity. On the other hand, the regulators of prospective CoCo buyers are primarily concerned about the potential losses that those institutions might suffer on their CoCo holdings. As a result, they are likely to steer them towards instruments with a smaller loss absorption capacity.

Increasing the congruency and clarity of the regulatory treatment of CoCos across jurisdictions and fine-tuning their design could help to enhance the investor base by attracting more traditional fixed income investors. However, the risk-sharing capacity of these instruments also depends on the scope for diversification they offer and on the systemic importance of their buyers.

CoCos can provide strong diversification benefits only if the issuing banks' tail risk has low correlation with the portfolios of CoCo bondholders. Insurance of natural catastrophes is a useful analogy to assess the capacity limits of CoCos. Though the monetary costs of such events are high, their occurrence is independent from the business cycle. This implies that exposure to natural disaster risk through securities like catastrophe bonds provides diversification benefits for traditional investors. Unlike natural catastrophes, however, bank failures are correlated with the business cycle, limiting CoCos' diversification capacity in that regard.¹³

The ability of CoCos to reduce systemic risks depends heavily on whether their buyers are themselves systemically important. As a consequence, regulators may want to discourage CoCo holdings by banks. At the same time, the systemic risk associated with other large institutional investors should also be taken into consideration. More specifically, CoCo holdings should be distributed not in a way that simply shifts the concentration of risk across different sectors of the financial system, but rather in a manner that reduces the amount of systemic risk.

Primary market pricing of CoCos

The main determinants of the pricing of CoCos are their position in the bank's capital structure, the loss absorption mechanism and the trigger.

The yields on CoCos are consistent with their place in the bank's capital structure. CoCos are subordinated to other debt instruments as they incur losses first. Accordingly, the average CoCo yield to maturity (YTM) at issuance tends to be greater than that of other debt instruments (eg other subordinated debt and senior unsecured debt). The YTM of newly issued CoCos is on average 2.8% higher than that of non-CoCo subordinated debt and 4.7% higher than that of senior unsecured debt of the same issuer.

The preferences of CoCo bondholders and equity holders diverge when it comes to the trigger level. All else the same, CoCos with relatively low triggers offer more favourable terms to holders of CoCos than to equity holders since the trigger is less likely to be breached and the former group is less likely to absorb losses. By contrast, for a given YTM level, equity holders prefer high-trigger CoCos since they are more likely to lead to early loss absorption by holders of CoCos. As a

¹³ See Jaffee and Russell (1997) and Ibragimov et al (2008) for a discussion on the limits of insurability, and Froot (2001) for an analysis of the catastrophe bond market.

consequence, one can expect that the yields of high-trigger CoCos would on average be higher than those of low-trigger CoCos.

The interests of CoCo bondholders and equity holders also differ when it comes to PONV triggers. Issuing banks prefer these triggers since they are a necessary condition for regulatory capital eligibility under Basel III. Conversely, holders of CoCo favour instruments without PONV triggers because, all else the same, they increase the probability of the loss absorption mechanism being activated.

CoCo and equity holders also have conflicting interests when it comes to the loss absorption mechanism. All else the same, equity holders find PWD CoCos more attractive, since they avoid dilution and shift the cost of financial distress to CoCo bondholders. Conversely, for a given YTM level, holders of CoCos tend to prefer the CE clause over the PWD clause since the former gives them partial compensation, in the form of shares, when the trigger is breached, whereas the latter does not.¹⁴ That said, some CoCo holders seem to find the PWD feature attractive because it provides more clarity about the loss absorption amount than the CE feature. In addition, the PWD clause is favoured by those institutional fixed income investors that have mandates which prevent them from holding equity instruments.

Table 1 presents data on the pricing of several groups of CoCo bonds, divided according to their two principal characteristics, ie the trigger level and the loss absorption mechanism.¹⁵

CoCos with a PWD clause tend to have higher YTM at issuance than those with a CE clause. On average, the YTM of PWD CoCos is approximately 3.9% higher than that of non-CoCo subordinated debt of the same bank. By contrast, the comparable spread for CE CoCos is only 2.5%.

Low-trigger CoCos tend to command a lower yield premium than high-trigger ones. The average YTM spread at issuance for high-trigger CoCos over other

Primary market pricing of CoCo bonds

YTM¹ spread at issuance over non-CoCo subordinated bonds, in per cent²

Table 1

	All	Conversion to equity (CE)	Principal writedown (PWD)
All	2.8	2.5	3.9
Low-trigger ³	2.5	2.3	4.8
High-trigger ⁴	3.6	3.5	3.6

¹ YTM = yield to maturity. ² Weighted averages based on issued amounts. ³ Mechanical trigger level ≤6% (CET1/RWA). ⁴ Mechanical trigger level >6% (CET1/RWA).

Sources: Bloomberg; Dealogic; authors' calculations.

¹⁴ In theory, the principal writedown mechanism embedded in a CoCo could be temporary or permanent. The former offers the possibility of a "write-up" if the bank restores its financial health; the latter does not. In practice, most CoCos that have been issued so far have a permanent principal writedown mechanism, reflecting regulatory requirements that seek a permanent increase in equity on the trigger event.

¹⁵ While informative, the sample statistics reported in Tables 1 and 2 should be interpreted with caution due to the fact that, as discussed above, the size of the CoCo market is still relatively small and, as a result, the sampling uncertainty is non-negligible.

subordinated debt is 3.6%. By contrast, that spread is only 2.5% for low-trigger CoCos.

Consistent with the preferences of issuers and investors, the CoCos that are least costly to issue are those that feature a combination of a low trigger and a CE loss absorption mechanism. The average spread on that CoCo type over other subordinated debt of the same bank is 2.3%. By contrast, the corresponding average spread for CE CoCos with a high trigger is 3.5%. High-trigger CoCos with a PWD feature are even costlier – their average YTM spread at issuance over non-CoCo subordinated debt is 3.6%. Finally, the most expensive group of CoCos in our sample are those that have a PWD feature and a low trigger. Their average YTM spread at issuance is 4.8%.

Table 1 contains a pair of relative pricing metrics that is puzzling at first glance. Namely, PWD CoCos with a low trigger command a higher yield than their high-trigger counterparts (column 1), even though economic intuition suggests that the opposite should be true. One possible explanation for that apparent pricing anomaly is that most of the low-trigger PWD CoCos in our sample have a PONV clause, whereas the majority of the high-trigger PWD CoCos do not. As discussed above, the PONV clause raises the probability that the loss absorption mechanism will be activated, which causes investors to demand a higher premium for holding CoCos with a PONV clause.

Secondary market trading of CoCos

The trading of CoCos on secondary markets can provide further insights into the properties of these instruments. In order to gauge the degree of co-movement between CoCos and other debt and equity instruments of the same bank, we have calculated the correlation between the daily changes in the CoCo bond spread, on the one hand, and the daily changes in the non-CoCo subordinated debt spread, the CDS spread (on senior unsecured debt) and the equity price of the same issuer, on the other hand (Table 2). Several patterns stand out.

First, CoCo spreads are most strongly correlated with the spreads of other subordinated debt (Table 2, column1). The average correlation coefficient for that pair of instruments in our sample is 0.44. The correlations of CoCos with CDS spreads and equity prices, although significant, are not as strong (0.38 and –0.25,

Correlations between CoCo bond spreads¹ and prices/spreads of other instruments of the same issuer²

Table 2

	Subordinated bond spread ³	CDS spread ⁴	Equity prices ⁵
All	0.44	0.38	–0.25
Low-trigger ⁶	0.50	0.42	–0.25
High-trigger ⁷	0.32	0.30	–0.26

¹ Daily changes in the spread between the yield to maturity (YTM) of a CoCo bond and a corresponding government bond (matched by currency and maturity). ² Weighted averages based on issued amounts. ³ Daily changes in the spread between the YTM of a non-CoCo subordinated bond and a corresponding government bond (matched by currency and maturity). ⁴ Daily changes. ⁵ Daily percentage changes. ⁶ Mechanical trigger level ≤6% (CET1/RWA). ⁷ Mechanical trigger level >6% (CET1/RWA).

Sources: Bloomberg; Dealogic; Markit; authors' calculations.

Debt, CoCo and equity price reactions to news about capital

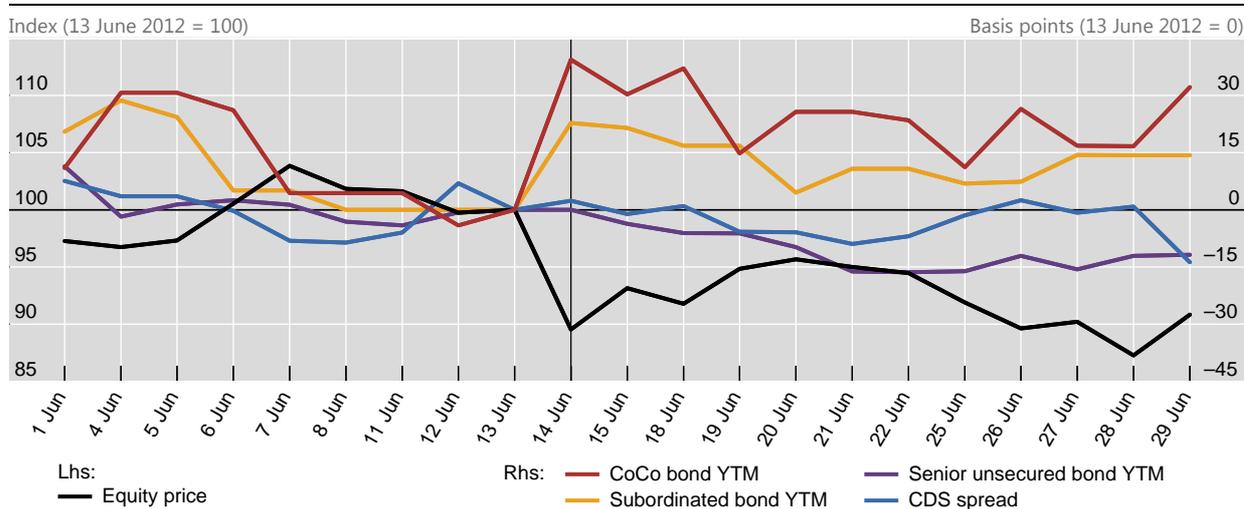
On 14 June 2012, the Swiss National Bank (SNB) criticised in its *Financial Stability Report* the low level of capitalisation of Credit Suisse, urging the bank to increase its capital by suspending dividends and/or by raising fresh capital through a rights issue.^① We examine how the SNB announcement, which came as a surprise to financial markets, affected the prices of various debt and equity instruments issued by Credit Suisse.

The reaction of CoCo bond spreads was consistent with the place of that type of instrument in the capital structure. Their market value was more sensitive to the news than the market values of other, more senior, debt instruments, but less sensitive than the market value of equity, which is a more junior claim. On the day the SNB report was published, the equity price of Credit Suisse dropped by more than 10% while the yield on the bank's CoCos maturing in February 2041 rose by 39 basis points or 5.8%. By comparison, the yield to maturity on non-CoCo subordinated debt with a similar remaining maturity as the CoCo increased by 23 basis points while the yields on more senior debt issues and CSD spreads hardly moved.

① SNB (2012).

Credit Suisse debt and equity prices, June 2012

Graph A



YTM = Yield to maturity.

Sources: Bloomberg; Markit.

respectively). These general observations are in line with the conclusions of a case study on the reactions of the share price of Credit Suisse and the spreads on its bonds to adverse news about the bank's level of capitalisation (see box).

Second, non-CoCo subordinated debt spreads and CDS spreads tend to be more correlated with the spreads of low-trigger CoCos than with those of high-trigger CoCos (Table 2, columns 1 and 2). The average correlation coefficient between low-trigger CoCos and non-CoCo subordinated debt in our sample (0.50) is considerably higher than the one between high-trigger CoCos and non-CoCo subordinated debt (0.32). Similarly, the average correlation coefficient between low-trigger CoCos and CDS spreads (0.42) is substantially higher than the one between high-trigger CoCos and CDS spreads (0.30). Intuitively, low-trigger CoCos are likely to suffer losses at the same point as other subordinated debt – the point of

insolvency. By contrast, high-trigger CoCos are likely to suffer losses much earlier than non-CoCo subordinated debt.

Finally, the trigger level does not appear to affect the correlations between CoCo spreads and equity prices (Table 2, column 3). This result is somewhat surprising since, all else the same, high-trigger CoCos should be more informationally sensitive than low-trigger ones due to the fact that the former are more likely to absorb losses. Therefore, one could expect that high-trigger CoCos would behave more like equity than low-trigger CoCos. Yet the average correlation coefficient between low-trigger CoCos and equity prices (-0.25) is almost the same as the one between high-trigger CoCos and equity prices (-0.26).

Conclusion

In this feature, we reviewed the structure, issuance patterns and pricing of CoCos. The design of CoCos is shaped by their primary goal of being a readily available source of bank equity in times of crisis. CoCo issuance is primarily driven by the need to satisfy regulatory capital requirements. The demand for CoCos has so far been held back by the scarcity of credit ratings and the lack of consistent regulatory treatment.

The pricing of CoCos in primary markets is consistent with their position in banks' capital structures. The main determinants of CoCo yields are the mechanical trigger level, the loss absorption mechanism, and the existence of a discretionary trigger. In secondary markets, CoCo bond yields are most highly correlated with those of other subordinated debt, albeit with a considerable degree of variation between high- and low-trigger CoCos.

Looking ahead, CoCos have the potential to strengthen the resilience of the banking system. Their ability to do so will depend on the scope for diversification, the capacity for reducing systemic risk and the coordination of their treatment between the regulators of issuers and prospective buyers.

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