What's the contingency? A proposal for bank contingent capital triggered by systemic risk

Linda Allen a,*, Yi Tang b

a Zicklin School of Business, Baruch College, United States
b Fordham University, United States

ARTICLE INFO

Article history:
Received 25 May 2015
Received in revised form 1 June 2016
Accepted 3 June 2016
Available online 15 July 2016

JEL Codes:
G21
E58

Keywords:
Contingent capital
Callable put option
Dual trigger exercise price
Systemic risk

ABSTRACT

Contingent capital (coco) automatically recapitalizes the banking system during financial crises if the trigger mechanism is properly designed. We propose a dual trigger mechanism based on: (1) aggregate systemic risk in the banking system, measured using CoVaR, and (2) the individual bank’s contribution to overall systemic risk, measured using delta CoVaR. The dual trigger is highly correlated with system-wide insolvency risk and prices systemic risk. We set different triggers for banks, insurance companies and broker-dealers. Using the 99% cut-off, systemic coco issued by Lehman and Bear Stearns would have been triggered in November 2007, months prior to their actual demise.

© 2016 Elsevier B.V. All rights reserved.

Proposals requiring global systemically important banks (G-SIBs) to hold Total Loss Absorbing Capital (TLAC) are to be fully phased in by January 2019. Although systemic capital surcharges and TLAC requirements have not been finalized, banks are currently scrambling to find eligible securities that meet the requirement at lower cost than equity or standard Tier 2 debt issues. For instance, since TLAC eligibility requires a minimum of one year remaining maturity, one can expect financial engineers to design one year subordinated debt and bail-in instruments to meet TLAC and other systemic capital requirements. One may decry this latest round of financial engineering as a slide down the slippery slope of regulatory circumvention and manipulation (see Kane (1981) for a discussion of the regulatory dialectic). However, the regulatory focus on systemic risk offers the potential to innovate new financial instruments that expand risk sharing opportunities. That is, if banks are required to issue instruments that are triggered by system-wide risk events, the market can potentially price and trade systemic risk itself.

Systemic risk is an externality imposed on the global macro-economy by financial institutions individually exposed to extreme tail risk. Well-designed instruments that are triggered by systemic risk events may internalize the externality by penalizing banks (of any size) that impose tail risk on the financial system. To incentivize banks to manage their tail risk exposure, TLAC and other systemic capital instruments should be structured to price each bank’s individual contribution to global systemic risk. In this paper, we demonstrate how contingent capital (coco) bonds can be structured to accomplish the goals of both pricing systemic risk and enhancing bank capital positions so as to mitigate bailout risk (see Kaufman (2014) for a discussion of TBTF bailout risk).

We are grateful for the helpful comments of the editor Iftekhar Hasan, anonymous referees, as well as Meni Abudy, Benzion Barlev, Mark Flannery, Dan Galai, Glenn Harrison, Yoram Landskroner, Robert McDonald, Thorvald Grung Moe, Akiva Ofenbacher, Anna Paulson, Alon Raviv, Richard Rosen, Larry Wall and the seminar participants at the Nonbank Financial Firms and Financial Stability conference at the Federal Reserve Bank of Atlanta, the Bank of Israel, UIBE Beijing, Bar Ilan University, the 7th 2016 Financial Markets and Corporate Governance Conference in Melbourne, UNSW and SWUFE. All remaining errors are ours. Allen acknowledges the financial support of the Wasserman summer research award and discussions with Farindokht Vaghefi.

* Corresponding author.
E-mail address: Linda.Allen@baruch.cuny.edu (L. Allen).

Current systemic capital proposals focus exclusively on the largest banks in the world. However, Kashyap and Stein (2000) find that aggregate declines in loan supply are driven by small banks. Moreover, Allen et al. (2012) find evidence of systemic risk exposure at small- and medium-sized banks in addition to large banks. Our coco proposal can potentially price and manage systemic risk at all financial institutions of all types and sizes.

http://dx.doi.org/10.1016/j.jfs.2016.06.005
1572-3089/© 2016 Elsevier B.V. All rights reserved.
Coco proposals have proliferated as a response to the 2007–2009 global financial crisis with the stated objective of reducing the incidence of regulatory interventions and bailouts. During crises, financial markets shut down as prices fall to fire sale levels, ultimately resulting in government intervention since bank recapitalization is either extremely costly or not possible at any price. Coco instruments automatically inject capital into the banking system in the event of system-wide breakdowns, thereby mitigating the need for fire sales of assets and/or moral hazard inducing government bailouts. Despite this objective, however, many of the more recent coco proposals are based entirely on the financial condition of the individual firm. That is, the trigger that automatically converts debt to equity is determined by some formulation based only on an individual bank's financial or accounting measures (e.g., bank capital ratio (market or regulatory), stock price, etc.). These approaches, while potentially beneficial from a capital structure point of view, do not address the systemic roots of banking crises. In contrast, coco instruments designed with systemic triggers would automatically increase capital cushions when the risk of system-wide banking crises increases, thereby potentially mitigating macroeconomic downturns.

Indeed, if a systemically important financial institution (SIFI) were to become insolvent in isolation, it is unclear that this would precipitate a systemic panic. Under these conditions, healthy SIFIs would likely acquire the assets of the failed SIFI at a discount, thereby preventing death spirals that spread contagiously throughout the system (e.g., even during the panic of September 2008, Barclays acquired Lehman assets and booked a $4 billion gain on the acquisition). As long as healthy banking capacity is sufficient to absorb the assets of the failed SIFI, as would be the case in an isolated, non-systemic failure, any impact on real economic conditions would be mitigated. Thus, if the objective of the coco instrument is to discipline bank managers who individually take on excessive systemic risk rather than idiosyncratic firm risk, then capital should be automatically created via coco conversion only in the event of a system-wide panic, not an isolated bank failure. The objective of the coco mechanism is not to prevent isolated bank insolvencies, but rather to intervene when system-wide increases in bank distress have negative externalities that potentially threaten the entire banking system. It is during these crisis periods that governments and taxpayers are called upon to bail out systemically important financial institutions in order to prevent asset fire sales and contagious financial market meltdowns. Thus, coco can recapitalize the banking system without the moral hazard concerns and inefficiencies associated with too-big-to-fail government bailouts.

In this paper, we propose a “systemic coco” that is designed to automatically take effect when macroeconomic downturns are imminent. A critical design feature of any coco is the trigger mechanism that determines the conditions under which debt will be automatically converted to equity. Therefore, coco triggers should be contingent on both individual bank and systemic measures, and therefore require a dual trigger construction. The first condition in our dual trigger coco conversion proposal is that an aggregate banking sector risk signal forecasts imminent macroeconomic downturns. Allen et al. (2012) use publicly available data to devise a time-consistent measure of aggregate banking sector systemic risk (denoted CATFIN) that provides real-time forecasts of macroeconomic downturns approximately six months in advance throughout the world. CATFIN is a cross-sectional tail risk measure based on equity returns for all financial firms. To the extent that the measure is broad-based and robust to methodological estimation approaches, CATFIN is resistant to possible manipulation concerns. One can estimate an early warning threshold level of CATFIN that prevails during months of macroeconomic recessions. If CATFIN is higher than those thresholds, there is a high likelihood of macroeconomic downturns within the next six months. To the extent that coco triggers automatically recapitalize banks at times of high macroeconomic stress, our proposal should act as an automatic stabilizer to reduce systemic risk. In this paper, we estimate a different early warning threshold for banks, non-bank financial firms and insurance companies. Thus, coco can be used to address the systemic risk of the shadow banking system and non-banks, as well as banks.

Once the systemic risk trigger signals possible macroeconomic declines, the second condition in our dual trigger coco conversion proposal is a micro-level systemic risk measure such as delta CoVaR (Adrian and Brunnermeier (2011)). The most systemically interconnected banks (i.e., high delta CoVaR) would be subject to coco conversion, thereby structuring the second component of the coco trigger as a relative ranking of bank exposures conditional on high levels of aggregate systemic risk. Bank shareholders can avoid a coco trigger by reducing their bank’s systemic risk taking (i.e., reducing their bank’s CoVaR) during high CATFIN periods, thereby reducing the overall systemic risk and potentially reducing the risk of systemic crisis. Thus, systemic coco reduces the risk shifting agency problem engendered as the bank approaches the trigger threshold by incentivizing bank shareholders to reduce systemic risk taking in periods of high aggregate systemic risk exposure. This approach could reverse the incentives famously expressed by Charles Prince, CEO of Citibank in 2007, “As long as the music is playing, you’ve got to get up and dance. We’re still dancing.”

Facing a relative ranking dual trigger, systemically important financial institutions (SIFIs) would have incentives to reduce their individual bank’s exposure, potentially reducing the system-wide CATFIN measure below the warning level and preventing trigger for all banks. Moreover, the required rate of return on coco bonds would incorporate the market’s consensus estimate of each bank’s contribution to overall systemic risk, thereby introducing market discipline pricing to systemic risk control. Even if overall trigger is not prevented (i.e., aggregate CATFIN is not reduced sufficiently below the early warning level), each individual institution can take measures to try to improve their relative risk ranking in order to reduce the risk premium included in their coco bonds and prevent their own bank’s coco from triggering, thereby reversing equity holders’ moral hazard risk taking incentives.

---

2 An exception is McDonald (2013) which uses a dual trigger that includes a banking stock index. We compare our coco proposal to McDonald (2013) in Section 4.2 of this paper.

3 Ramcharan and Rajan (2014) show that reductions in local financing capacity as a result of bank failures reduces recovery rates and has real economic implications. When there is sufficient banking capacity, however, they show that bank failures are not contagious. Of course, regulators would have to resist the temptation to bail out a failing SIFI that could be absorbed by healthy banks without creating financial panic and contagion.

4 Coco loans triggered by individual bank insolvency are dominated by straight subordinated debt requirements since the shareholders’ put option is destroyed by coco conversion. Indeed, capital requirements based on individual bank insolvency can precipitate a systemic crisis as banks are forced to delever.

5 Allen et al. (2012) show that CATFIN is more prone to Type I than Type II errors. Thus, it signals false warnings (false positives, i.e., high CATFIN even though no recession occurs), but no false negatives over the 1973–2012 estimation period, therefore qualifying as a conservative regulatory policy tool. However, it is possible that its predictive power can be eroded over time as agents incorporate CATFIN into their behavior and find ways to circumvent it. Although this Lucas critique can be applied to any policy measure, the aggregate nature of CATFIN makes it somewhat resistant to non-collusive circumvention tactics. Similarly, Christensen and Li (2014) also report false positives in their early warning system forecasting the IMF’s financial stress index.

دریافت فوری

امکان دانلود نسخه تمام متن مقالات انگلیسی
امکان دانلود نسخه ترجمه شده مقالات
پذیرش سفارش ترجمه تخصصی
امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
امکان دانلود رایگان ۲ صفحه اول هر مقاله
امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
دانلود فوری مقاله پس از پرداخت آنلاین
پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات