Discussion of “Convertible bonds and bank risk-taking”

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All of the views expressed in this presentation are those of the discussant, and not necessarily those of the Bank of England.
Contingent Convertible Bonds

- This is a very topical paper.
- In H1 2014, European banks issued more than **GBP 29bn** worth of “AT1” instruments, which can broadly be described as CoCos.
- This has been neither fully voluntary nor fully forced:
- Under Basel III, Banks **can** satisfy part of their minimum capital requirements via CoCos.
The Model

• t=0: A bank has a risky asset with value 1, which will yield \( v \in [1 - \delta, 1 + \delta] \) in \( t=1 \).

  The asset is financed by
  » C of CoCos
  » D-C of (costlessly insured) deposits
  » 1-D of equity owned by the banker

• t=1: The banker observes \( v \) and chooses
  » To invest in a safe „store of value“ with NPV 0
  » To invest in a risk project with negative NPV

  If \( v < v^* \) the CoCos convert from debt into equity
  » They only do so with (exogenous) probability \( \phi \)
  » For now, we will assume that \( \phi = 1 \)

• t=2: Bank is liquidated, creditors & shareholders are repaid
Period 1: Debt and equity but no (triggered) CoCos

- With debt financing, the banker does not internalize the full downside risk (limited liability).
- Hence, he may be choose to gamble.
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- With debt financing, the banker does not internalize the full downside risk (limited liability).
- Hence, he may be choose to gamble.
- But this is only a problem if he is close to the limited liability constraint (the ‘kink’).
Interim values and risk-shifting

- Hence, risk-shifting will be a problem if and only if the interim value of the asset is below some cut-off $v^*$
Period 1: How can converting CoCos help?
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- If the banker knows that his CoCos will convert into equity he knows that
  - His shares will be diluted (lower upside potential)
  - He is further away from his limited liability constraint.
- The dilution effect does not affect the risk-choice: the banker is simply a representative shareholder owning fewer shares.
- So overall, this has a positive effect on incentives.
Interim values, triggers, and risk-shifting

- Hence, it is optimal to convert CoCos for all $v < v^*$: $v_T = v^*$
- We could even convert for $v > v^*$ but this makes no difference.
Interim values, triggers, and risk-shifting

But:
- There are only so many CoCos we can convert. For very low interim values this is not enough: there is still risk-shifting!
Are more CoCos the solution?
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- In this very simple model: **yes**!
- We could set $C=D$ (i.e. the “bank” does not take deposits).
- The limited liability constraint would not be an issue (no debt!).
- And dilution doesn’t distort incentives.

**BUT:**
- This is **where $\varphi<1$ comes in!**
The case of uncertain conversion: optimal C

With probability $(1-\varphi)$

Banker's payoff

Value of bank in $t=2$

With probability $\varphi$

Banker's payoff

Value of bank in $t=2$
The case of uncertain conversion: optimal C

With probability \((1-\varphi)\)

Banker's payoff

Value of bank in \(t=2\)

D  v

With probability \(\varphi\)

Banker's payoff

Value of bank in \(t=2\)

D-C  v

Expected payoff profile

\(D-C\)  D
Uncertain conversion & optimal amount of CoCos

• Once we account for uncertain conversion, it is not clear that C=D is optimal.
• In fact, there is usually an **interior optimum for C**.

• Interesting since there are no obvious costs of CoCos:
  – No explicit cost of conversion
  – Deposits are not assumed to be socially valuable

• Also, uncertain conversion seems to be a plausible assumption!
CoCos and incentives

- Shareholders take all decisions.
- Hence, CoCos can only have effects if they convert while shareholders are still “in charge”.

- This is different from the rationale of **bailing in** creditors in resolution.
- So ensuring that creditors suffer losses (rather than being “insured”) in resolution may be induce them to exert “market discipline”:
  - (i.e. to make the cost at which they **roll over debt** a function of observed risk-taking.)
The trigger value and the conversion ratio

• The paper assumes that at \( v = v_T \) there is no wealth transfer from CoCos to shareholders. This requires the “conversion ratio” to depend on \( v_T \)

• As we move \( v_T \) we change the payoff profile of equity in states of the world where the CoCo triggers anyway
  – Some intuition on why setting \( v_T = v_C^* \) is still optimal would be helpful

• In reality for many CoCos wealth transfers do occur at \( v_T \)
  – This causes serious concerns, in particular if wealth is transferred to shareholders!
CoCos versus other funding instruments

- The paper shows that banks don’t issue CoCos voluntarily.
- This is driven by the assumption that debt only consists of costlessly insured deposits.

- Assume the bank has insured deposits and uninsured debt. Now, issuing CoCos have to counterveiling effects:
  - CoCos may replace uninsured deposits (privately costly)
  - But they reduce commitment problems w.r.t. risk-shifting (privately beneficial)