

Convertible Bonds and Bank Risk-taking

Natalya Martynova¹ Enrico Perotti ²

2nd EBA Research Workshop
November 14-15, 2013

¹University of Amsterdam, Tinbergen Institute

²University of Amsterdam, CEPR and ECB

Motivation

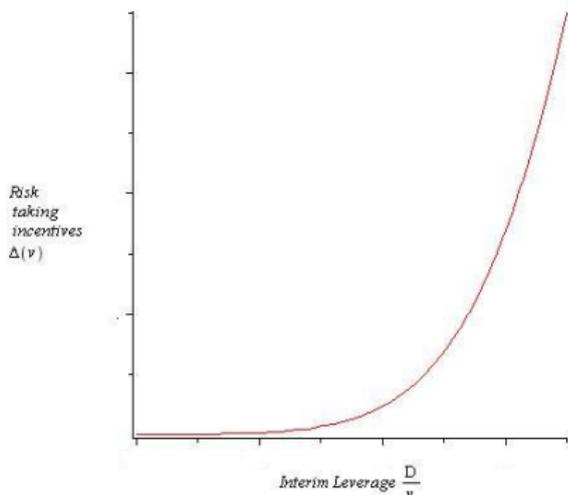
- In the credit boom, high leverage drove excess risk shifting.
- Basel III calls for more bank capital in order to
 - force more risk absorption (bail in at default)
 - reduce risk incentives associated with high leverage
- Contingent capital proposed as an alternative to equity. CoCo bonds is a debt instrument which automatically converts into equity as going concern, when leverage becomes too high
- Distinct from bail-in debt, which does not contain risk shifting
- While not adopted under Basel III, CoCos are admitted as a component of additional capital buffers (EBA, Switzerland).

Contribution

- Optimal design for going-concern contingent capital to prevent endogenous risk shifting.
- **Paper:**
 - focuses on banks' risk control decisions in the presence of CoCos financing.
 - CoCos assumed to substitute conventional debt (deposits)
 - CoCos converted into equity at a fixed conversion ratio when asset values fall below a given threshold (trigger)
 - CoCos might convert ahead of default, and at maturity they act as a junior bond.

Risk incentives

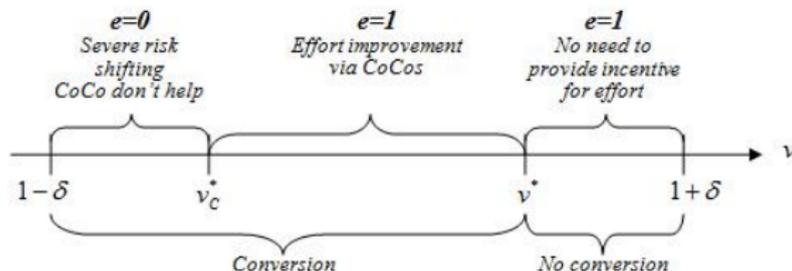
- As leverage increases, risk incentives start to build up non linearly.



- Critical to ensure conversion when leverage passes a critical threshold.

Model: Optimal trigger

- Without CoCos, a banker controls risk only if asset values high $v > v^*$ (low leverage).
- With CoCos, a banker also controls risk for intermediate asset values $v > v_C^*$.
 - For high asset values $v \geq v^*$, bank makes effort to control risk independent of the presence of CoCos
 - For low asset values $v \leq v_C^*$, risk shifting incentives are too severe. CoCos do not change a bank's risk choice.
 - For intermediate leverage $v_C^* < v < v^*$, CoCos induce bank to control risk.



Results: Equity and CoCo dilution effects

- An appropriate trigger reduces risk shifting by converting in high leverage states, when incentives deteriorate.
- Equity dilution effect decreases the upside gains and thus reduces the benefits from risk-shifting.
- However, there is also a debt dilution effect. The fixed conversion ratio leads to a value transfer from CoCo to equity when asset prices are low. This may encourage risk shifting.
- Due to the interaction of two effects, there is an optimal amount of contingent capital, beyond which incentives deteriorate.

Market versus Regulatory Trigger

- Suppose both triggers noisy
- A market trigger produces more frequent conversion, including in some states when more capital is not necessary (type 1 error).
- A regulatory trigger will not be activated for some banks with moderate leverage as the regulator gambles on success (type 2 error). This leads to more risk taking for those banks.
- So a market trigger offers more risk reduction (and more equity in general) but causes some unnecessary conversion. A regulatory trigger causes too much forbearance.
- A dual trigger may be optimal, to filter out market error or price manipulation, while challenging forbearance.

Conclusion

- Properly designed CoCos can induce risk reduction.
- There exists an optimal CoCo amount that minimizes risk. The trade-off is between equity dilution and CoCos dilution effect.
- When asset risk and trigger precision are high, CoCos may be safer and thus cheaper than traditional bonds.
- A higher amount of contingent capital is required to provide the same effort incentives as equity.
- A dual trigger may be optimal, to filter out market manipulation while challenging forbearance.