

**Discussion of Risk-sharing or risk-taking?
Financial Innovation, margin requirements
and incentives., B. Biais, F Heider, M.
Hoerova**

by Artashes Karapetyan

Government intervention and moral hazard in the financial
sector,

Norges Bank, September 2010

The Big Question

- What are the benefits and costs of financial innovation?
 - Financial innovation = a derivative contract that protects the buyer against a risk, e.g. Credit Default Swaps
 - Risk sharing benefits are traded-off against costs of financial instability
- Can collateral or regulation help mitigate the risk of financial instability?

The Model: Recap

- An insurance contract between risk-averse insurance-buyer, and risk-neutral insurance-seller

The Model: Recap

- An insurance contract between risk-averse insurance-buyer, and risk-neutral insurance-seller
- The insurance-buyer has a risky project, and seeks protection against that risk

The Model: Recap

- An insurance contract between risk-averse insurance-buyer, and risk-neutral insurance-seller
- The insurance-buyer has a risky project, and seeks protection against that risk
- The protection-seller has assets in place which provide
 - high returns if (unobservable) effort is exerted
 - no return (with positive probability) if effort is not exerted (risk-taking)

The Model: Recap

- An insurance contract between risk-averse insurance-buyer, and risk-neutral insurance-seller
- The insurance-buyer has a risky project, and seeks protection against that risk
- The protection-seller has assets in place which provide
 - high returns if (unobservable) effort is exerted
 - no return (with positive probability) if effort is not exerted (risk-taking)
- **Effort is costly** for the seller.

The potential downside of an insurance contract

- If the protection seller observes negative information about the underlying project after the deal, her off-balance sheet liability rises (*hidden leverage*)
- She can pay this from her asset returns, but has to incur costly effort to insure returns

The potential downside of an insurance contract

- If the protection seller observes negative information about the underlying project after the deal, her off-balance sheet liability rises (*hidden leverage*)
- She can pay this from her asset returns, but has to incur costly effort to insure returns

The potential downside of an insurance contract

- If the protection seller observes negative information about the underlying project after the deal, her off-balance sheet liability rises (*hidden leverage*)
- She can pay this from her asset returns, but has to incur costly effort to insure returns

⇒ *But hidden leverage, undermines her incentives to exert effort.*

The potential downside of an insurance contract

- If the protection seller observes negative information about the underlying project after the deal, her off-balance sheet liability rises (*hidden leverage*)
- She can pay this from her asset returns, but has to incur costly effort to insure returns

⇒ *But hidden leverage, undermines her incentives to exert effort.*

- The buyer can induce efforts at the cost of incomplete risk-sharing (signal risk); or she may want risk-sharing and tolerate seller's risk-taking, if the counterparty risk is not too high: risk-taking and risk-sharing go together.
- Collateral will have ambiguous effect on risk-taking.

Comments

- What kind of protection is the paper about? CDS, home insurance,...?
- Insurance companies (e.g., home insurance) manage risk through diversification, while a large portfolio of CDS contract cannot be diversified: macroeconomic factors (Stultz 2009).
 - Important for the model outlined
- Your model (signal risk) is more applicable to CDS type of markets.

Comments

- Model does not discuss maintenance margin.
 - ▶ Most CDSs, e.g. hedge fund CDSs, are marked-to-market, and losses and gains are covered by margin requirements.
 - ▶ As most underlying assets lost value (CDS liability became very large) recently, this required higher collateral (when AIG's AAA tranches lost rating it had to raise 14.5 billion collateral, Sept 16 2008).

Comments

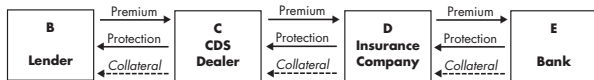
- Model does not discuss maintenance margin.
 - ▶ Most CDSs, e.g. hedge fund CDSs, are marked-to-market, and losses and gains are covered by margin requirements.
 - ▶ As most underlying assets lost value (CDS liability became very large) recently, this required higher collateral (when AIG's AAA tranches lost rating it had to raise 14.5 billion collateral, Sept 16 2008).
- Is your model robust to changing collateral requirements?

Comments

- Balance sheet risk and risk of firm assets independent in your model. Is that so?
- ▶ Many institutions (e.g., ACA Financial Guaranty, AIG) were downgraded after the housing market downturn when most underlying assets lost their rating (CDS liability became very large) recently, this required higher collateral which they could not meet

Comments

- Balance sheet risk and risk of firm assets independent in your model. Is that so?
- ▶ Many institutions (e.g., ACA Financial Guaranty, AIG) were downgraded after the housing market downturn when most underlying assets lost their rating (CDS liability became very large) recently, this required higher collateral which they could not meet
- Is the model robust in a longer chain of risk transfers?



Supportive evidence for results?

- Result: optimal risk sharing contracts are more likely to arise in an environment of low asset returns

Supportive evidence for results?

- Result: optimal risk sharing contracts are more likely to arise in an environment of low asset returns
 - Risk hedging benefits of CDS allow firms to borrow more (2002-2008)(Saretto and Tookes (2010))
 - Importantly, they do so more during downturns (2007-2008)

Supportive evidence for results?

- Result: optimal risk sharing contracts are more likely to arise in an environment of low asset returns
 - Risk hedging benefits of CDS allow firms to borrow more (2002-2008)(Saretto and Tookes (2010))
 - Importantly, they do so more during downturns (2007-2008)
- Margins requirements may have mattered
 - Margin requirements more than doubled from 2003-2007 up to around 63% (ISDA, 2009)
 - Result: When contract entails risk taking, margins protect against default (which is higher in downturns, so higher margins may have played a role).

Further comments

- In your model, the protection-buyer owns the debt it is trying to protect
- More than 80% of the CDS buyers in US do not own the underlying debt (naked CDS) (Bloomberg 2010)
- Is the model robust in a longer chain of risk transfers?



Summary suggestions

- Further clarification of which kind of insurance the paper is will be helpful
- Many aspect of derivative contracts may make the model more realistic
- Given the tendency of higher margins recently useful evidence can be found to support the theory.