Playing Hardball

Stefan Arping

Discussion by
Ernst-Ludwig von Thadden
(Université de Lausanne and CEPR)
The goal: introduce credit derivatives into corporate finance models of capital structure.

The problem: Minimize inefficiencies of financial contracts for financially constrained firms.

A basic (simplified) financial contracting framework:
- Risk-neutral firm needs \( I \) at date 0 to produce returns at date 2.
- Date 1: Effort \( e \in [0,1] \) by firm, return at date 2 is \( \Pi \) with probability \( e \) and 0 otherwise.
- Liquidation value \( L \) at date 1, 0 at date 2.
- Effort costs \( \psi(e) \).
- First best: \( e^{FB} \) maximizes \( e\Pi - \psi(e) \)
  (A Jeckling-type problem)
The simple contracting options:

• plain long-term debt: maximize $e(\Pi - R) - \psi(e)$ → second-best

• short-term debt with face value $F$ ($F = I$): firm must default at date 1, which leads either to liquidation (in the bad state) or to new contract (in the good state).

Continuation contract if $e$ is public information: short-term debt with face value $R$ given by $eR = I$. Hence, firm maximizes

$$e(\Pi - R) - \psi(e) = e\Pi - I - \psi(e)$$

→ first-best

• Continuation contract if $e$ is private information by the firm: short-term debt with face value $R$ given by $e^* R = I$, where $e^*$ is the value of $e$ optimally chosen by the firm: maximize

$$e(\Pi - R) - \psi(e)$$

→ second-best
• long-term debt with face value $R$ and early liquidation option: 
lender can either call the debt at date 1 or leave the contract in place 
until date 2.
If lender is uninformed about $e$ → no improvement over second-best
Now assume that lender knows $e$ ("relationship lending")
Interim optimality:
leave the contract in place in the good state if and only if
$$eR \geq L$$
(*)
terminate in the bad state if and only if
$$L \geq 0$$
Observation: Even if the lender can observe $e$, it is not binding if $L$ is binding if $L$ is sufficiently small.
Hence, firm will to be allowed to go on and chooses $e$ to maximize
$$e(\Pi - R) - \psi(e)$$
→ second-best, as before
The main insight of this paper: Harden condition (*)

The liquidation decision at date 1 is an observable "credit event": the lender can "insure" against this event at date 0 (pay $P$ upfront to a third party, receive $C$ at date 1 in case of liquidation). Then condition (\(\dagger\)) becomes

\[ eR \geq L + C \]

Now fix $R$ by the lender’s zero-profit constraint,

\[ e^{FB} R = I \]

and choose $C$ to satisfy

\[ e^{FB} R = L + C \]

(note that this insurance is not used in equilibrium in this simplified version of the model) and

**BINGO**
Further insights:

1. Insuring second-period credit events is sub-optimal. For this finding one needs the renegotiation version of the above model.

2. Capital requirements for lenders force less well capitalized lenders to take second-period credit protection (and see 1).

3. Credit protection strengthens lender incentives to invest in long-term relationships (defined by monitoring and collateral enhancement)
My appreciation of the paper

1. Modern credit risk theory meets good old corporate finance

2. And modern credit risk theory even benefits from the encounter

3. The main idea is good and innovative. In particular, it helps

4. Praise for the clarity of the exposition and the stimulating
5. The link with regulatory capital requirements is somewhat artificial

6. What can this analysis teach us for the pricing of credit risk

7. Caution with institutional interpretation of the insurance contract:

the credit event in the model is triggered by the bank’s calling the
8. A problem with the renegotiation game:

At the renegotiation stage, the lender has information about $e$.

I would like to see the bargaining game between borrower, lender,