RESTRUCTURING VS. BANKRUPTCY

Jason Roderick Donaldson, Washington University in St. Louis & CEPR

Edward R. Morrison, Columbia University

Giorgia Piacentino, Columbia University, CEPR & NBER

Xiaobo Yu, Columbia University

RESTRUCTURING VS. BANKRUPTCY

Two ways to reduce debt

Bankruptcy

Out-of-court restructuring (distressed exchange)

Distress exchanges c. 40% of defaults, same as bankruptcy filings

Even after restructuring, end up bankruptcy in three years 17% of time

Interaction of restructuring & bankruptcy not acknowledged in lit.

Either conflates the two or treats them as substitutes

QUESTIONS

How do restructuring and bankruptcy interact?

Do parameters of bankruptcy environment affect ability to restructure?

   Do low bankruptcy costs crowd out restructuring?

   Does a debtor-friendly Code crowd out restructuring?

How can relief policies facilitate debt reduction?

THIS PAPER

Model levered firm exposed to costly financial distress

Restructuring and bankruptcy can mitigate distress costs

Two key ingredients:

1. Restructuring inhibited by collective action (hold-out) problem

2. Bankruptcy is choice of firm (could choose to file after restructuring)

RESULTS

R0. Hold-out problem solved by granting priority
   Bernardo–Talley 96 and Gertner–Scharfstein 91

   But priority valuable only if bankruptcy likely

R1. Low bankruptcy costs facilitate restructuring

   Bankruptcy likely $\implies$ priority valuable

R2. Debtor friendliness has non-monotonic effect

   (i) Makes bankruptcy likely $\implies$ priority valuable

   (ii) Makes creditor recovery values low $\implies$ priority not valuable

   Argue (i) likely dominates (ii) in US $\implies$ Code too creditor friendly

RELIEF POLICY

Analyze effect of \$1 subsidy on welfare on two sets of policies

<u>Ex post policies</u>: subsidize DIPs (DeMarzo–Krishnamurty–Rauh 20)

<u>Ex ante policies</u>: forgivable loans (PPP), cash grants (CARES Act)

<u>Insight</u>: policy makers must take effect on restructuring into account

<u>Results</u>:

Don't target firms' incentive to file: leads to less restructuring

Do target creditors' incentive to restructure, either ex ante or ex post

EXTENSIONS

1. Court congestion

2. Debt overhang

3. Debt-equity exchanges

4. APR deviations

5. Secured creditor power

MODEL

MODEL OVERVIEW

Two dates, 0 and 1; single firm with debt D_0 and risky assets $v \sim F$

Date 0: firm makes restructuring offer and creditors accept/reject

Date 1: v realized; firm repays or files for costly bankruptcy

RESTRUCTURING

At Date 0, firm offers creditors (debt or equity) claims take-it-or-leave-it

Each creditor accepts/rejects taking others' decisions as given

REPAYMENT OR BANKRUPTCY

At Date 1, firm's assets v realized

Repays debt D (outcome of restructuring or D_0) or files for bankruptcy

Filing destroys $(1 - \lambda)v$ (bankruptcy costs)

Filing leaves $(1 - \theta)\lambda v$ to equity

$$\text{equity payoff } = \begin{cases} v - D & \text{if repay} \\ (1 - \theta)\lambda v & \text{if file} \end{cases}$$

Define $\hat{v}_D$ as threshold below which firm files: $\hat{v}_D := \dfrac{D}{1 - (1 - \theta)\lambda}$

BENCHMARK:

RESTRUCTURING WITH SINGLE CREDITOR

BM: RESTRUCTURING WITH SINGLE CREDITOR

Suppose firm offers creditor <u>equity</u> stake $1 - \alpha$

<u>Result</u>: $\exists\, \alpha$ making creditor and firm better off

INTUITION: SINGLE CREDITOR BENCHMARK

Restructuring avoids all distress costs, increasing "size of the pie"

Bilateral bargaining allows firm and creditor to slice it up

    Like Coase theorem: assign property rights to achieve efficiency

BENCHMARK:

DEBT-EQUITY EXCHANGE WITH DISPERSED CREDITORS

BM: D-E EXCHANGE W/ DISPERSED CREDITORS

Suppose firm offers creditors equity stake $1 - \alpha$

<u>Result</u>: with dispersed creditors restructuring to equity is <u>in</u>feasible

INTUITION: HOLD-OUT BENCHMARK

Restructuring avoids all distress costs, increasing "size of the pie"

But bargaining impeded by collective action problem

Restructuring succeeds only if each creditor accepts <u>given others accept</u>

But if others accept, each (small) creditor's debt valued at par

Prefers D_0 unless $1 - \alpha$ high $\implies$ restructuring too expensive

Free-rider/Hold-out problem causes restructuring to fail

INTUITION: HOLD-OUT BENCHMARK

Restructuring avoids all distress costs, increasing "size of the pie"

But bargaining impeded by collective action problem

Restructuring succeeds only if each creditor accepts given others accept

But if others accept, each (small) creditor's debt valued at par

Prefers D_0 unless $1 - \alpha$ high $\implies$ restructuring too expensive

Free-rider/Hold-out problem causes restructuring to fail

(Like equity, debt write-downs decrease distress but suffer from hold-out)

DISTRESSED DEBT EXCHANGES ARE COMMON

Many successful restructurings in recent weeks:

AMC Entertainment, JCrew, Serta Simmons, SM Energy, Envision Healthcare,...

DISTRESSED DEBT EXCHANGES ARE COMMON

Many successful restructurings in recent weeks:

AMC Entertainment, JCrew, Serta Simmons, SM Energy, Envision Healthcare,...

All exchanged outstanding debt for debt with higher priority

R0: PRIORITY SOLVES HOLD-OUT PROBLEM

R0: PRIORITY SOLVES HOLD-OUT PROBLEM

Suppose firm offers debt with lower face value $D < D_0$ but higher <u>priority</u>

Individual creditor accepts write-down (given others accept) if

$$\underbrace{\left(1 - F(\hat{v}_D)\right)D + F(\hat{v}_D)\,\mathbb{E}\left[\theta\lambda v \,\middle|\, v < \hat{v}_D\right]}_{\text{Accept payoff}} \geq \underbrace{\left(1 - F(\hat{v}_D)\right)D_0}_{\text{Reject payoff}} \qquad \text{(IC)}$$

NB 1: creditor's decision does not affect filing probability $F(\hat{v}_D)$

NB 2: hold-out's recovery value $= 0$ given others accept senior debt

<u>Result</u>: write-down $D_0 - D > 0$ accepted (up to max)

INTUITION FOR PRIORITY SOLVING HOLD-OUT

Creditors reluctant to accept write-downs

Hold-outs free ride on others' write-downs: paid in full w/ high prob.

But could accept them when new debt has priority

Hold-outs diluted by new debt: paid last in bankruptcy

NB: write-down limited: lots of junior debt still better than little senior

WRITE-DOWN LARGER IF PRIORITY VALUABLE

From binding IC, max write-down is

$$\overline{\text{WD}} = \frac{F(\hat{v})}{1 - F(\hat{v})} \mathbb{E}\left[\theta \lambda v \mid v \leq \hat{v}\right]$$

$\underline{\overline{\text{WD}} \text{ increasing in value of priority}}$

priority valuable when probability of bankruptcy $F(\hat{v})$ high

priority valuable when recovery in bankruptcy $\mathbb{E}\left[\theta \lambda v \mid v \leq \hat{v}\right]$ high

WRITE-DOWN LARGER IF PRIORITY VALUABLE

From binding IC, max write-down is

$$\overline{\text{WD}} = \frac{F(\hat{v})}{1 - F(\hat{v})} \mathbb{E}\left[\theta\lambda v \,\middle|\, v \leq \hat{v}\right]$$

$\underline{\overline{\text{WD}} \text{ increasing in value of priority}}$

    priority valuable when probability of bankruptcy $F(\hat{v})$ high

    priority valuable when recovery in bankruptcy $\mathbb{E}\left[\theta\lambda v \,\middle|\, v \leq \hat{v}\right]$ high

NB: unlike in lit., bankruptcy is choice $\implies \hat{v}$ depends on λ and θ

R1: LOW BANKRUPTCY COSTS HELP RESTRUCTURING

R1: LOW BANKR. COSTS HELP RESTRUCTURING

Result: $\overline{\text{WD}}$ is increasing in λ

Two effects of high λ:

    (i) Makes bankruptcy attractive to firm, increasing filing prob. $F(\hat{v})$

    (ii) Makes creditors' recovery value $\theta\lambda v$ high

(i) and (ii) make priority valuable $\implies$ help restructuring

BANKRUPTCY COMPLEMENTS RESTRUCTURING

Efficient bankruptcy does not crowd out restructuring

Facilitates it, by making priority valuable

R2: CREDITOR FRIENDLINESS CAN HELP OR HINDER RESTRUCTURING

R2: CREDITOR FRIENDLINESS HELPS OR HINDERS

<u>Result</u>: $\overline{\text{WD}}$ can increase or decrease in θ (typically hump shaped)

<u>Two effects of high θ</u>:

    (i) Makes bankruptcy <u>un</u>attractive to firm, <u>reducing</u> filing prob. $F(\hat{v})$

    (ii) Makes recovery value $\theta \lambda v$ high

(ii) makes priority more valuable, (i) makes it less $\implies$ non-monotonic

Optimal bankruptcy system does not max creditor recovery value

    It balances it with filing incentives

RESULTS DRIVEN BY ENDOGENOUS FILING

In current hold-out models filing exogenous, so could be misleading

$\implies$ Code cannot be too creditor friendly

In practice, 99% of bankruptcies initiated by firms

$\implies$ Code can be too creditor friendly

I.e. new insight driven by new, realistic assumption: <u>firm chooses to file</u>

IS CODE TOO CREDITOR FRIENDLY?

Sufficient condition: $\overline{\text{WD}}$ decreases in θ if

$$1 \leq \lambda \theta \hat{v} \frac{\partial F(\hat{v})}{\partial D}$$

Code is too creditor friendly if

recovery value already high ($\lambda \theta \hat{v}$ high)

default probability sensitive to debt level ($\partial F / \partial D$ high)

Look for numbers in lit., find rough lower bound on RHS in US of 1.03

Suggests US system could favor creditor recovery excessively

In line with Giambona–Lopez-de-Silanes–Matta 19

RELIEF POLICY

RELIEF POLICY

How should planner spend $1 to max welfare ($\equiv$ min bankruptcy prob.)?

PLANNER'S PROBLEM

Denote vector of subsidies by $\mathbf{s}$ and associated costs by $\mathbf{q}$

E.g. s_i could be subsidy to firm's assets; so cost $q_i = 1$

E.g. s_j could be subsidy to assets in bankruptcy; so cost $q_j = F(\hat{v})$

If planner's budget is ε and $\Delta \geq 0$ represents creditors' IC, his problem:

$$
\begin{cases}
\min_{\mathbf{s}} & \hat{v} & \text{(min default prob.)} \\
\text{s.t.} & \Delta \geq 0 & \text{(restructuring IC)} \\
\& & \mathbf{q} \cdot \mathbf{s} \leq \varepsilon & \text{(planner's budget)}
\end{cases}
$$

taking into account $\hat{v}$ & Δ depend on $\mathbf{s}$ & D, which also depends on $\mathbf{s}$

CONSIDER SPECIFIC POLICIES

Ex post policies (subsidies in bankruptcy)

   Subsidies to equity in bankruptcy (senior DIPFF)

   Subsidies to debt in bankruptcy (junior DIPFF)

Ex ante policies (subsidies outside bankruptcy)

   Asset subsidies; e.g. cash grants/forgivable loans (PPP)

   Subsidized lending; e.g. Main Street Lending Program/Primary
   Market Corporate Credit Facility

   Restructuring subsidies; e.g. tax relief if accept restructuring (IRS
   Reg. TD9599)

INSIGHT: SUBSIDIES HAVE TWO EFFECTS

(i) <u>Direct effect</u>: affect bankruptcy prob. via firms' incentive to file

(ii) <u>Indirect effect</u>: affect prob. via creditors' incentive to restructure

<u>Result</u>: best policies target only indirect effect on restructuring

Can be done ex ante via restructuring subsidies

Or <u>equivalently</u> ex post via debt subsidies in bankruptcy

INTUITION FOR TARGETING RESTRUCTURING

Don't target direct effect:

    Decreases filing incentive backfires: fewer write downs

Target indirect effect by subsidizing (equivalently) either:

    Restructuring: slackens IC without distorting filing decision

    Creditors in bankruptcy: slackens IC by making priority valuable

EXTENSIONS

EXTENSIONS

1. Court congestion

2. Debt overhang

3. Debt-equity exchanges

4. APR deviations

5. Secured creditor power

COURT CONGESTION

Baseline: Bankruptcy costs don't depend on number of filing firms

Extension: "congestion costs": bankruptcy cost increase in # firms filing

Result: multiple equilibria due to feedback:

filing likely $\rightarrow$ many firms file $\rightarrow$ congested courts =

bankruptcy costly (low λ) $\rightarrow$ little restructuring (R1) $\rightarrow$ filing likely

Matters: bankruptcy policy can't be separated from financial stability

Support for policies to avoid congestion (e.g. Iverson–Ellias–Roe 20)

COURT CONGESTION

Baseline: Bankruptcy costs don't depend on number of filing firms

Extension: "congestion costs": bankruptcy cost increase in # firms filing

Result: multiple equilibria due to feedback:

filing likely $\rightarrow$ many firms file $\rightarrow$ congested courts =

bankruptcy costly (low λ) $\rightarrow$ little restructuring (R1) $\rightarrow$ filing likely

Matters: bankruptcy policy can't be separated from financial stability

Support for policies to avoid congestion (e.g. Iverson–Ellias–Roe 20)

DEBT OVERHANG

Baseline: v risky, but distribution exogenous—only ex post distress costs

Extension: debt $\implies$ debt overhang—also ex ante distress costs

Result: solving debt overhang can help or hinder restructuring

 (i) Helps b/c increases recovery values, making priority more valuable

(ii) Hinders b/c decreases bankruptcy prob., making it less valuable

Matters: guides what firms policy should target

   Viz. firms for which (ii) dominates; hence can't restructure privately

DEBT-EQUITY EXCHANGES

Struggling Retailer Party City Floats Debt Swap With Bondholders

The deal, which the company said would cut its debt by about $450 million and raise $100 million of new capital, was struck with some holders of the company's 6.125% notes due in 2023 and its 6.625% bonds due 2026. Bondholders would get:

- Shares of Party City representing nearly 20% of outstanding common stock

- About $100 million of new second-lien 10% notes due in 2026 that would be issued by a newly formed subsidiary

- $185.0 million of variable rate senior secured notes due 2025 to be issued by the parent company

DEBT-EQUITY EXCHANGE

Baseline: debt held by dispersed creditors

Extension: with prob. ξ debt held by single large creditor (no hold out)

Result: For intermediate ξ, restructurings include senior debt and equity

Matters: explains observed debt-equity exchanges

APR VIOLATIONS

Baseline: no APR violation between junior and senior debt

Extension: junior and senior debt repaid pro rata with prob. ρ

Result: $\overline{\text{WP}}$ decreasing in ρ; i.e. optimal to set $\rho = 0$

Matters: debate on relaxing APR; "junior debt too vulnerable to dilution"

  We find such dilution can be good: facilitates restructuring

SECURED CREDITOR POWER

<u>Baseline</u>: size of pie in bankruptcy doesn't depend on how it is divided

<u>Extension</u>: secured creditor power (high θ) $\implies$ inefficient decisions (low λ)
(see, e.g., Ayotte–Ellias 20)

<u>Result</u>: more power makes creditors less willing to accept restructuring

<u>Matters</u>: even more important Code not more creditor friendly

QUESTIONS AND ANSWERS

QUESTIONS

How do restructuring and bankruptcy interact?

Do parameters of bankruptcy environment affect ability to restructure?

Do low bankruptcy costs crowd out restructuring?

Does debtor-friendly Code

How can relief policies facilitate debt reduction?

QUESTIONS AND ANSWERS

How do restructuring and bankruptcy interact?
Via value of priority, and priority valuable only when firms choose to file

Do parameters of bankruptcy environment affect ability to restructure?
Yes, via value of priority—incentive to file and recovery value

Do low bankruptcy costs crowd out restructuring?
No, they catalyze it

Does debtor-friendly Code
Depends, unlikely in the US right now

How can relief policies facilitate debt reduction?
Target restructuring, e.g., by subsidizing creditors in bankruptcy

RESTRUCTURING VS. BANKRUPTCY