Bankruptcy Design

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Agenda

- Auction as a bankruptcy process
- Systemically important financial institutions
- Banking system bailout – Scandinavian style
Bankruptcy systems, internationally

- UK – a "receivership system" (until 2003)
  - Strong protection of secured creditor rights
  - Excessive piecemeal liquidations?

- US – a "renegotiation system" (Ch. 11)
  - Stay of debt claims, DIP financing, voluntary sale
  - Excessive continuation of old management?

- Sweden – a "mandatory auction system"
  - Stay of all debt claims, DIP financing possible
  - Excessive risk-shifting and fire-sales?

U.S. milestones

- 1978: Creation of Chapter 11 ostensibly to avoid fire sales

- 1980/90s: Growing evidence that U.S. Ch. 11 is costly

  *The U.S. bankruptcy system seems to be fundamentally flawed. It is expensive, it exacerbates conflicts among different classes of creditors, and it often takes years to resolve individual cases... [The] value of viable businesses is destroyed... in providing life support for terminal cases. -- Michael C. Jensen (1991)*

- 2000s: Market mechanisms lowering bankruptcy costs
Market mechanisms lowering bankruptcy costs

- Private workouts in “prepackaged” bankruptcy filings
- Debt markets - distressed bond ("vulture") funds
- Both developments has led to auction sales inside Ch. 11

*When firms can be sold as going concerns, the need for the traditional negotiated plan of reorganization disappears... Today the Chapter 11 of a large firm is an auction of the assets, followed by litigation over the proceeds... [The era of] the law of corporate reorganizations... has come to an end.*


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Comparing control rights in bankruptcy

**Mandatory Auction**
- Management loses control
- Firm is restructured by buyer in auction
- Cash settlement according to APR
- Stay of collateral, DIP financing rare

**Renegotiation**
- Management retains control
- Firm is restructured by creditor consensus
- Securities payment, deviations from APR
- Stay of collateral, DIP financing frequent
"Hard constraint": CEO income changes following bankruptcy auctions in Sweden

Comparing duration, recovery, and survival

**Swedish Auctions**
- Av. duration 2 months
- Total debt recovery 40%
- APR strictly enforced
- 76% going concern sales
- Surviving firms perform at industry median

**US Chapter 11**
- Av. duration 2 years
- Total debt recovery 40%
- Deviations from APR
- 70% survive Chapter 11
- Surviving firms perform below industry median
Do auctions create fire-sale discounts?

- Auction demand may be temporarily low
  - Due diligence time pressure
  - Relatively efficient industry rivals may be cash constrained
  - Industry debt overhang – underinvestment incentives

- Result: winning bidder may be low-valuation (industry outsider)
  - If so, sales prices are temporarily low (discounted) relative to value of assets in best alternative use

But...

- No evidence of fire-sale discounts in auctions where the bankrupt firm is bought as a going-concern
  - (Eckbo and Thorburn JFE 2008)

- Auction premiums unrelated to
  - Degree of industry-wide distress and liquidity
  - Whether buyer is industry outsider v. insider
  - Whether acquisition method is merger v. LBO

- Also no empirical support for self-dealing arguments
“Fire-sale”: basic idea

- Auction demand is temporarily low
  - Time pressure
  - Auction requires cash payment, and relatively efficient industry rivals are cash constrained
  - Debt overhang and underinvestment incentives
- Result: winning bidder may be low-valuation (industry outsider)
  - If so, sales prices are temporarily low relative to value of assets in best alternative use

Counter-arguments...

- Inefficient buyers may hire efficient industry insider to run the firm
  - If so, the acquisition price may be right
- Cash constraints and incentive effects of debt overhang may lead to “project financing”
  - “LBO financing” of acquisition price
- Severe prospect of inefficient liquidation may prompt prepackaged bankruptcy filing
  - Increases the effective period available to search for efficient buyer
Our Swedish sample

- 258 bcy filings by private firms, 1988-1991
- Minimum 20 employees
- Average pre-filing assets of $3 mill.
- Complete set of auction prices for going-concern sales and piecemeal liquidations
- Average going-concern premium: 125%
- 75% of firms sold as going concerns
  - 60% are salebacks; 25% are prepacks

Bidder interest and actual bids

| Frequency | 147 going concern auctions, 1988-1991 |

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest</td>
<td>5.7</td>
<td>3.0</td>
</tr>
<tr>
<td>Actual</td>
<td>3.2</td>
<td>2.0</td>
</tr>
</tbody>
</table>
Empirical approach

- **Economic v. financial distress**
  - Prices may be low because decreases in industry profits permanently lowers demand (economic distress)

- **Step 1:** Estimate “fundamental” price
  - \( p^* = f(\text{asset size, profits, specificity, tangibility, PL}) \)
  - PL captures lack of going concern value

- **Step 2:** Estimate effect of fire-sale variables on model residual
  - \( p - p^* = f(\text{industry liquidity, auction outcomes}) \)

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**Table 2**

Estimation of the fundamental auction price \( (p^*) \) and auction debt recovery rate \( (r^*) \)

The cross-sectional regression models in Panel A and Panel B are, respectively, \( p = \beta_0 + \beta_1 X_1 + \epsilon_1 \) and \( r = \beta_0 + \epsilon_2 \), where \( p \) is the total proceeds from the bankruptcy proceeding, and \( r \) is the debt recovery rate \( r = (P - C)/D \), where \( D \) is the face value of the target's debt and \( C \) is the direct cost of the bankruptcy proceeding. The fundamental auction price is defined as \( p^* = \beta_0 X_1 \), and the fundamental recovery rate is \( r^* = \beta_0 X_1 \). The table shows the OLS coefficient estimates \( \beta_0 \) and \( \beta_1 \). Total sample of 268 Swedish firms filing for auction bankruptcy 1986-1991. Variable definitions for the regressors in \( X_1 \) are given in Table 1 (p-values in parentheses).

<table>
<thead>
<tr>
<th>Target asset characteristics</th>
<th>Industry conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>Size</td>
</tr>
<tr>
<td>-----------</td>
<td>------</td>
</tr>
<tr>
<td>5.44</td>
<td>0.46</td>
</tr>
<tr>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>5.50</td>
<td>0.46</td>
</tr>
<tr>
<td>(0.000)</td>
<td>(0.000)</td>
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</tbody>
</table>

**A. Auction price regressions**

<table>
<thead>
<tr>
<th>B. Auction recovery rate regressions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.73</td>
</tr>
<tr>
<td>(0.000)</td>
</tr>
<tr>
<td>0.70</td>
</tr>
<tr>
<td>(0.000)</td>
</tr>
</tbody>
</table>
Step 2: Fire-sale tests

- Do price residuals (p-p*) and recovery rate residuals (r-r*) vary with industry liquidity?
- Industry liquidity measures (4-digit SIC level):
  - **Industry distress**: fraction of 15,000 firms with and ICR<1 or filing for bankruptcy next year
  - **Industry leverage**: median debt-to-asset (book value) ratio in the industry
  - Number of firms in industry
- Auction outcome
  - Industry outsider vs. industry insider
  - Buyout vs. merger

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**Table 3**

Determinants of auction price residuals (p−p*) and recovery rate residuals (r−r*)

Coefficient estimates from OLS regressions of the standardized auction price residuals p−p* (Panel A) and total debt recovery rate residuals (Panel B). The standardized residuals are from the first regression model in Parts A and B of Table 3, respectively. The explanatory variables are defined in Table 1 (p-values are in parentheses).

<table>
<thead>
<tr>
<th>Industry Liquidity conditions</th>
<th>Auction outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>Distress</td>
</tr>
<tr>
<td>A. Auction price residual (p−p*)</td>
<td></td>
</tr>
<tr>
<td>1.07</td>
<td>-0.50</td>
</tr>
<tr>
<td>0.88</td>
<td>(0.181)</td>
</tr>
<tr>
<td>0.50</td>
<td>(0.181)</td>
</tr>
<tr>
<td>0.50</td>
<td>(0.181)</td>
</tr>
</tbody>
</table>

| B. Auction recovery rate residual (r−r*) |  |  |  |  |  |  |  |  |  |  |  |  |
| 0.07 | -0.07 | (0.118) | (0.118) | -0.08 | -0.21 | -0.00 | 0.00 | 0.00 | 1.11 | 258 |
| 0.00 | (0.118) | -0.02 | (0.118) | -0.04 | -0.23 | 0.00 | 0.00 | 0.00 | 1.28 | 258 |
| 0.30 | (0.118) | -0.06 | (0.118) | -0.81 | -0.30 | 0.42 | 0.00 | 0.00 | 1.11 | 258 |
| 0.10 | (0.118) | -0.01 | (0.118) | 0.04 | -0.17 | -0.19 | 0.00 | 0.00 | 1.11 | 258 |
| 0.10 | (0.118) | -0.19 | -0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.11 | 258 |

Eckbo Bankruptcy Design (45)
Buyer industry affiliation

- Industry outsiders pay on average similar prices as industry insiders
  - No evidence of lower prices to “less efficient industry outsiders”
- Are prices sensitive to industry illiquidity measures for the subsample of industry outsiders?
  - Add interaction variables for industry distress across the going-concern subsamples

#### Table 4

Tests for the impact of industry distress on price and recovery rate residuals conditional on buyer industry affiliation

The dependent variable in Panel A is the standardised auction price residuals $p - p'$ from the first regression in Panel A of Table 2. In Panel B, the dependent variable is the standardised recovery rate residuals $r - r'$ from the first regression model in Panel B of Table 2. *Insider* is the complement to *Outsider* in column 1, so that *Outsider + Insider + PL = 1*. All other variables are defined in Table 1 (p-values in parentheses).

<table>
<thead>
<tr>
<th>Industry Liquidity conditions</th>
<th>Auction outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>Outsider</td>
</tr>
<tr>
<td>Industry Distress Outsider</td>
<td>Outsider + PL</td>
</tr>
<tr>
<td>(0.052)</td>
<td>-1.17 (0.231)</td>
</tr>
<tr>
<td>Industry Distress Insider</td>
<td>Outsider + PL</td>
</tr>
<tr>
<td>(0.062)</td>
<td>-1.17 (0.231)</td>
</tr>
</tbody>
</table>

A: Tests for the impact on the auction price residual $(p - p')$

| Industry Distress Outsider   | Outsider       | PL | Adj R² | F value | N  |
|-------------------------------|-----------------|
| (0.165)          | -1.09 (0.056)  | 0.04 (0.419)  | 1.02 (0.419) | 218 |
| (0.165)          | -1.07 (0.056)  | 0.04 (0.419)  | 1.02 (0.419) | 218 |

B: Tests for the impact on the recovery rate residual $(r - r')$
Summary

- Price residuals decrease with industry distress for piecemeal liquidations but not for going-concern sales.
- Prices are lower in piecemeal liquidations.
- Firms with intangible and specific assets:
  - Are less likely to be liquidated piecemeal.
  - Are more likely to be sold to industry insider.
  - Are more likely to be financed using LBO technique.

Liquidation preemption?

- Excessive liquidation and fire-sales may be preempted by a prepack or a saleback.
- Prices in preemptive transactions should be
  - higher than in piecemeal liquidations (as going-concern value is preserved).
  - but lower than in regular going-concern sales (as buyer has more bargaining power).
Table II
Determinants of auction price residuals ($p - p^*$) and debt recovery residuals ($r - r^*$) in prepacks and salebacks

The standardized residuals $p - p^*$ and $r - r^*$ are from the first regression models in Panel A and Panel B, respectively, reported in Table 2. The explanatory variables are defined in Table 1 (p-values are in parentheses).

<table>
<thead>
<tr>
<th>Industry liquidity conditions</th>
<th>Auction outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>F- value</td>
</tr>
<tr>
<td>A. Auction price residual ($p - p^*$)</td>
<td>0.06 (0.002)</td>
</tr>
<tr>
<td>Di s t r e s s &lt;GC&gt;</td>
<td>0.14 (0.030)</td>
</tr>
<tr>
<td>Di s t r e s s &lt;PL&gt;</td>
<td>0.13 (0.030)</td>
</tr>
<tr>
<td>Le v e r a g e</td>
<td>0.45 (0.003)</td>
</tr>
<tr>
<td>N o of Firms</td>
<td>0.00 (0.000)</td>
</tr>
<tr>
<td>F L</td>
<td>0.17 (0.000)</td>
</tr>
<tr>
<td>P re p a c k</td>
<td>0.17 (0.000)</td>
</tr>
<tr>
<td>S aleback</td>
<td>0.34 (0.000)</td>
</tr>
<tr>
<td>P re p a c k &lt;Saleback&gt;</td>
<td>0.34 (0.000)</td>
</tr>
<tr>
<td>P re p a c k &lt;Nonpack&gt;</td>
<td>0.34 (0.000)</td>
</tr>
<tr>
<td>S aleback &lt;Saleback&gt;</td>
<td>0.34 (0.000)</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.60 (0.000)</td>
</tr>
<tr>
<td>N</td>
<td>218</td>
</tr>
<tr>
<td>B. Total recovery rate residual ($r - r^*$)</td>
<td>0.00 (0.020)</td>
</tr>
<tr>
<td>Di s t r e s s &lt;GC&gt;</td>
<td>0.03 (0.030)</td>
</tr>
<tr>
<td>Di s t r e s s &lt;PL&gt;</td>
<td>0.03 (0.030)</td>
</tr>
<tr>
<td>Le v e r a g e</td>
<td>0.12 (0.000)</td>
</tr>
<tr>
<td>N o of Firms</td>
<td>0.12 (0.000)</td>
</tr>
<tr>
<td>F L</td>
<td>0.12 (0.000)</td>
</tr>
<tr>
<td>P re p a c k</td>
<td>0.12 (0.000)</td>
</tr>
<tr>
<td>S aleback</td>
<td>0.12 (0.000)</td>
</tr>
<tr>
<td>P re p a c k &lt;Saleback&gt;</td>
<td>0.12 (0.000)</td>
</tr>
<tr>
<td>P re p a c k &lt;Nonpack&gt;</td>
<td>0.12 (0.000)</td>
</tr>
<tr>
<td>S aleback &lt;Saleback&gt;</td>
<td>0.12 (0.000)</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.12 (0.000)</td>
</tr>
<tr>
<td>N</td>
<td>218</td>
</tr>
</tbody>
</table>

Summary: liquidation preemption

- Evidence of lower prices in prepacks but not in salebacks
- The probability for a prepack:
  - Increases in asset specificity and intangibility
- The probability for a saleback:
  - Also increases in industry distress
- Is liquidation preemption risky?:
  - Examine refiling rates compared to non-prepacks
Conclusion

- Investors are pushing for auction-type procedures to resolve insolvency – against opposition
- Research support the use of auctions as a bankruptcy procedure
- A reform of U.S.-types of bankruptcy codes towards greater reliance on auctions is likely to enhance economic efficiency
Agenda

- Auction as a bankruptcy process
- **Systemically important financial institutions**
- Banking system bailout – Scandinavian style

What’s different about banks?

- A “bank” is a state/federal authorized “franchise” – not a “corporation” – often holding separate legal entities:
  - Depositary bank
  - Commodity broker/derivatives dealer
  - Futures commission merchant
  - Insurance company
  - Delaware corporations
  - Foreign corporations

- U.S. Bankruptcy Code does not address insolvency of banks, savings and loans, and credit unions
U.S. failed bank resolution authorities

- Depositary banks
  - FDIC acts as conservator/receiver (ResolutionTrust Corporation) - and typically uses auction

- Insurance companies
  - State insurance regulators

- Stockbrokers and commodity brokers (broker-dealers)
  - Securities Investor Protection Corporation (and Ch. 7)
  - Lehman: Brokerage accounts transferred to Barcaly’s

Qualified financial contracts (QFC)

- Mostly derivatives, swaps and repos

- Protected from the automatic stay provisions of the FDI Act and the U.S. bankruptcy code
  - Counterparties permitted to enforce default and termination provisions and to liquidate collateral
  - Remaining shortfall constitutes unsecured claim against bankruptcy estate

- The safe harbor of QFC helps reduce counterparty risk by promoting orderly netting-out and replacement transactions
Counterparty reputation of dealer banks

- The one factor which allows dealer banks to collateralize derivative positions using over-night cash deposits (repos)

- Probably impossible to prevent client/counterparty “run” from a bank whose reputation is in weakened
  - Neither deposit insurance nor stay of claims work here

- Prior to their collapse in 2008, neither Bear Stearns nor Lehman Brothers dared reveal their liquidity problems by borrowing openly from Federal facilities – set up at that time precisely for the purpose of lowering counterparty risk

Contingent reverse convertibles: A solution?

- Subordinated debt instrument where the *issuer* (bank) has the option to force conversion into its own (newly issued) equity

- Raises core Tier 1 capital on a contingent basis

- BUT: Does not lead to capital infusion – only reduces leverage

- What should be the trigger?
  - Some suggest a declaration by the Fed of a systemic crisis
  - But then it is probably already too late
  - The conversion needs to take place in “good times” – how?
Reverse convertibles w/forced rights offer

- **Idea:** To force infusion of new equity from existing shareholders upon debt conversion
  - Again – conversion must take place before crisis point

- **The threat:** “Supply new equity capital – or you will be substantially diluted by convertible debtholders”

- Unresolved issues:
  - Optimal conversion trigger: Systemic component?
  - “Death spiral” from short-selling anticipating conversion?
  - Bond funds (who cannot hold equity) must sell immediately – will the market be deep enough?

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Conclusions

- Existing procedures for resolving bank insolvencies relies heavily on auctions and are therefore typically more efficient than corporate bankruptcy procedures (Ch. 11)

- It is unclear that current capital reserve requirements (even Basel III) is sufficient to hedge against the type of “rapid-fire” insolvency characterizing the deterioration of counterparty risk

- It is unclear that the idea of banks relying on reverse convertible securities to avoid default is a superior solution to outright forced auction
**Agenda**

- Auction as a bankruptcy process
- Systemically important financial institutions
- **Banking system bailout – Scandinavian style**

**Common path to banking crises**

- More than 100 banking crises internationally over the past 40 years
- Path to crisis remarkably similar across countries with very different governance/political systems
  - Relaxation of bank lending standards
  - Household leverage increases – housing market heats up
  - Financial system fragility – exposed to exogenous economic shocks
- Also the path in Scandinavia late 1980s/early 1990s
Figure 1: Annual percent growth in nominal lending by parent banks in Norway, Sweden and Finland, 1981-1996.

Figure 2: Annual percent household savings rate (in percent of disposable income) in Norway, Sweden and Finland, 1980-1995.
Figure 3: Annual commercial real estate price indices for Oslo (1981=100) and Stockholm (1983=100).

Figure 4: Annual percent bank capital reserves (in percent of year-end total assets) for commercial banks in Norway, Sweden and Finland, 1980-1999.
Two different bailout strategies

- Norway:
  - Placed the largest commercial bank in receivership (zeroed out old equity)
  - Infused taxpayer funds into the bank using a type of preferred equity capital
  - “Owner of last resort”

- Sweden:
  - Issued a system-wide debt guarantee
  - Purchased equity control in the third-largest bank
  - Spun off non-performing loans into a “bad bank”

Government as “owner of last resort”

- Scandinavian experience with government bailout appears to be positive for taxpayers
  - IMF estimates overall bailout cost to be close to zero for taxpayers in both Norway and Sweden

- Norway made sure that existing equity was zeroed out BEFORE the taxpayer bailout
  - But subordinated debt got a windfall

- Sweden successful in its implementation of the “bad bank”
  - But here equity-holders also got a windfall
Figure 5a: Annual percent profits before tax (in percent of total assets) for commercial banks in Norway, Sweden and Finland, 1980-99

Figure 5b: Annual percent profits before tax (in percent of total assets) for savings banks in Norway, Sweden and Finland, 1980-99
Conclusions

- Using the government to bail out systemically important financial institutions may be efficient
  - Need to clarify definition of “systemically important”
  - Bailout terms must be at least as demanding as if the funds came from the private sector (which refused)
    - Control rights
    - Upside participation
    - Superpriority
  - Government ownership must be temporary (covering the turnaround period only) and it must follow best governance practices (shareholder oriented)