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Bankruptcy & Business Groups: Empirical Evidence

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Business Groups in Continental Europe

- Large number of companies are economically interlinked due to common ownership

⇒ Berle & Means' (1932) assumption of dispersed ownership does not hold in Continental Europe

- Internal capital markets within groups: shift risks and resources throughout the group: major implications for debt policy, credit risk, tax optimization, etc.

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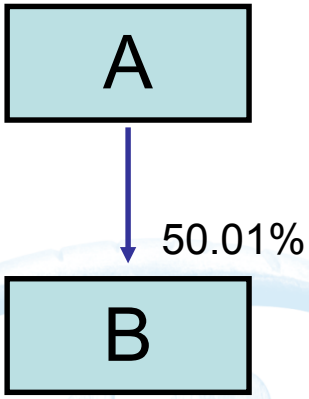
Ownership in Europe

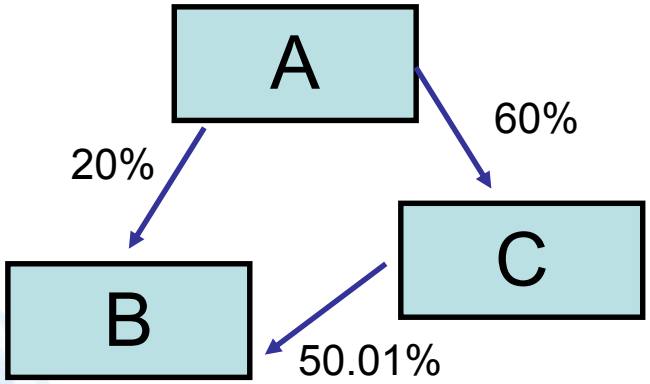
- High levels of ownership and control by founding families/ insiders
- Complex ownership mechanisms: pyramids, holding companies, cross holdings, dual class stock, etc.
- Allows for the control of companies with relatively low use of financial resources

Direct and indirect ownership

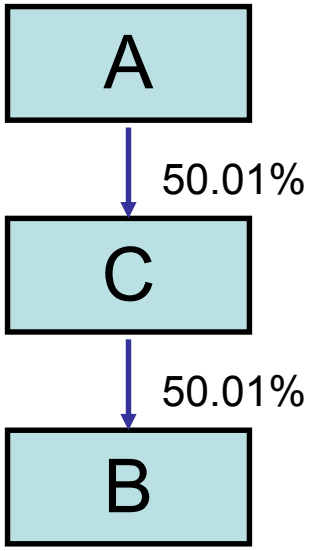
Direct control



Indirect control with majority of cash flow rights



Indirect control without majority of cash flow rights



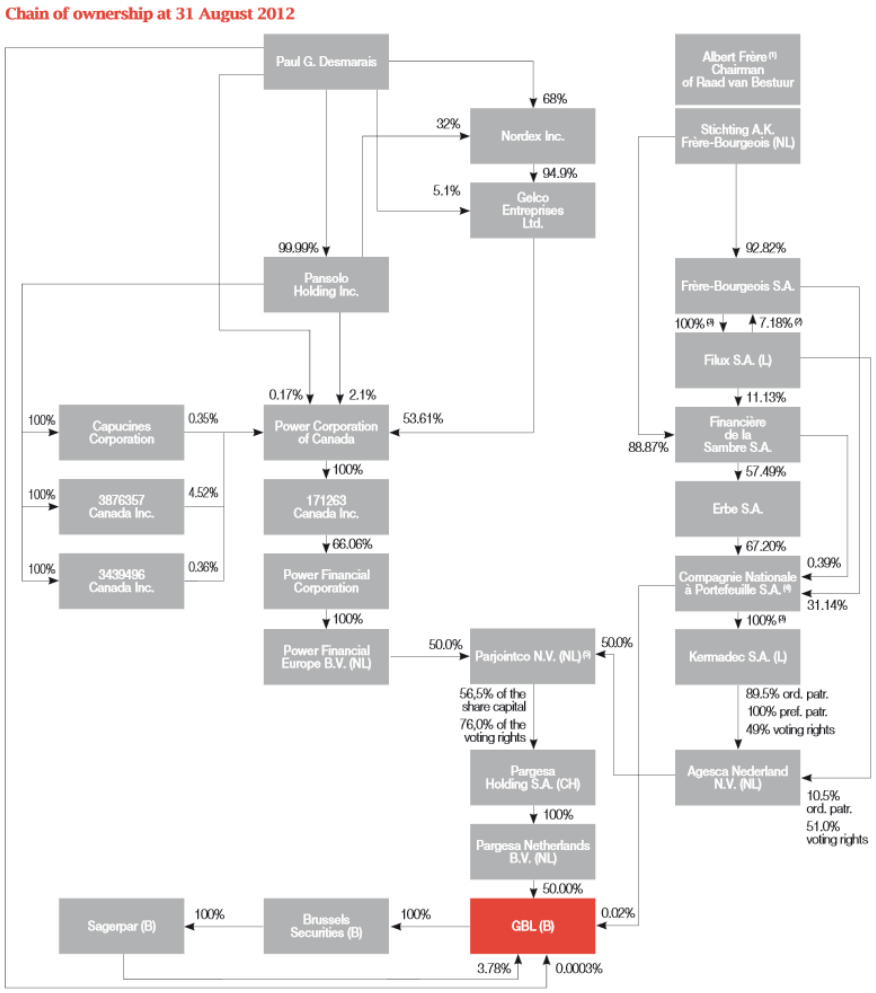
Percentage of company B's cash flow rights held by company A:

50.01%

20% + 60% x 50.01% = 50%

50% x 50% = 25%

Complex ownership: GBL



Complex ownership: GBL

Business Groups in Continental Europe

Panel A: Ownership status of largest 1,000 firms

Ownership types (%)	Germany	France	UK	Italy	Total
Multiple blocks	4.4	2.0	0.3	2.0	2.1
Family	38.6	43.8	21.0	53.1	39.0
Other	2.1	3.2	2.8	2.2	2.6
State	13.5	10.1	2.0	12.7	9.5
Widely held	9.9	8.9	27.4	5.6	13.0
Widely held parent	31.5	32.1	46.4	24.4	33.7
Total number of firms with ownership data	923	970	980	954	3,827
Unclassified firms	77	30	20	46	173

Panel B: Listed firms

Ownership types (%)	Germany	France	UK	Italy	Total
Multiple blocks	4.5	0.8	0.4	3.8	1.8
Family	34.3	48.5	7.7	66.3	29.8
Other	1.5	8.3	1.5	0.0	2.8
State	12.7	8.3	0.4	18.8	7.1
Widely held	21.6	20.5	85.3	2.5	46.9
Widely held parent	25.4	13.6	4.8	8.7	11.7
Total number of firms	134	132	272	80	618

Source: Franks, J., C. Mayer, P. Volpin & H.F. Wagner (2012), The Life Cycle of Familiy Ownership: International Evidence, *Review of Financial Studies*, Vol. 25, No. 6, pp. 1675-1712.

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Business Groups in Continental Europe

- Business group ≠ conglomerate
  - conglomerate headquarters raises capital centrally and allocates across divisions
  - business group members on all levels have direct access to external capital markets

    ⇒ different agency problems w.r.t. creditors

    ⇒ importance of groups' behaviour towards distressed subsidiaries

Financing Distressed Group Companies

Financing options:

- Increase internal debt
- Explicit intra-group guarantees for external debt
- Implicit guarantees: reputation

Group behavior:

- Limited liability could be exploited (cf. Bianco and Nicodano, 2002)
- Group can keep members afloat, even if severe losses occur
  - Strategic reasons
  - "Socialism" within the group (Scharfstein and Stein, 2000)

Empirical evidence on group behavior & financial health

- Debt source mix (internal vs. bank debt)

  European Financial Management (2010)
- Leverage adjustment speed

  Applied Financial Economics (2012)
- Cash holdings

  Journal of Business Research (2014)
- Probability of distress

  Journal of Business Finance & Accounting (2006)
- Length of reorganization-type bankruptcy procedure

  International Review of Law and Economics (2009)

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Data

- Belgian mid-sized and large companies

  (complete financial accounts: total assets > 3.125 million EUR; operating revenue > 6.25 million EUR; > 50 full-time equivalent employees)
- Group sample: subsidiaries of mid-sized and large consolidated groups

  (consolidation criteria: total assets > 14.6 million EUR; operating revenue > 29.2 million EUR; > 250 full-time equivalent employees)
- Stand-alone sample: companies without major incorporated blockholders
- Variables of interest defined at both individual company level and group level

Capital Structure: Bank vs. Internal Debt

Dewaelheyns N. and C. Van Hulle (2010), 'Internal Capital Markets and Capital Structure: Bank versus Internal Debt', European Financial Management, Vol. 16, No. 3, pp. 345–373.

- Is there group-wide optimization in debt composition?
- Internal debt: advantages
  - Owner-provided: reduced monitoring costs
  - Very flexible (renegotiation)
  - Low moral hazard
  - Number of loan contracts reduced
- Subsidiary level bank debt: advantages
  - Limited liability:
    - Reduction of bankruptcy costs
    - Limits contagion effect of subsidiary difficulties
  - Collateralized loans

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Capital Structure: Bank vs. Internal Debt

Debt type	Stand-alone median	Group member median
BANK (non-zero)	0.1961 (80.6%)	0.1176 (70.1%)
	5.525***	
INT (non-zero)		0.1345 (84.6%)
GBANK (non-zero)		0.3244 (97.2%)

Capital Structure: Bank vs. Internal Debt

Variable	Median		
	Highest 50% GLEV	Lowest 50% GLEV	
BANK	0.2019	0.0336	*(8.818)****
INT	0.0897	0.2434	*(7.273)****
	Mean		
	Highest 50% GLEV	Lowest 50% GLEV	
BANK	0.2672	0.1580	*(8.001)****
INT	0.1826	0.3172	*(8.726)****

Capital Structure: Bank vs. Internal Debt

	BANK	INT
ROA	-0.4676***	-0.5014***
	(0.163)	*(0.088)*
TANG	0.2828***	–
	(0.034)	
SIZE	0.0327***	0.0098
	(0.007)	*(0.008)*
AGE	-0.0154	-0.0237**
	(0.012)	*(0.009)*
LEV	0.3674***	0.3217***
	(0.095)	*(0.042)*
BANK	–	-0.1037
		(0.112)
INT	-0.7911***	–
	(0.281)	
GSIZE	0.0028	0.0323***
	(0.013)	*(0.007)*
GAGE	–	0.0222***
		(0.008)
GLEV	-0.0113	-0.3952***
	(0.130)	*(0.062)*
Intercept	-0.0318	-0.2758**
	(0.129)	*(0.112)*
Industry & time dummies	Yes	Yes
Adj. R^2	0.2210	0.2185

Capital Structure: Bank vs. Internal Debt

- Pecking order of intra-group over bank debt
- Internal debt concentration mostly driven by group factors (depth of the internal capital market)
- Company level factors remain important for bank debt concentration
- Direct bank borrowing is most important for stronger subsidiaries (i.e. larger, more collateralable assets) of weaker groups
- Consistent with group-wide capital structure optimization

Capital Structure: Leverage Adjustments

Dewaelheyns N. and C. Van Hulle (2012), 'Capital Structure Adjustments in Private Business Group Companies', Applied Financial Economics, Vol. 25, No. 3, pp. 1275–1288.

- Capital structure literature:
  - Evolution towards dynamics
  - Pecking-order vs. trade-off theory
- Capital structure adjustment decisions:
  - (Distance to) optimal level of leverage
  - Transaction costs
- Transaction costs differ across company types:
  - Public vs. private companies (Brav, 2009)
  - Group-affiliated vs. stand-alone companies

Capital Structure: Leverage Adjustments

- Optimal leverage level:
  - internal leverage: owner-provided; low to zero assymetric information problems; easy renegotiation (Hoshi *et al.*, 1990)
  - intra-group guarantees (Chang & Hong, 2000)
  - reputation effect (Schiantarelli & Sembenelli, 2000)
  - intra-group cost optimization at different levels within the group (Bianco & Nicodano, 2006) or in the use of debt type (Dewaelheyns & Van Hulle, 2009)

$\Rightarrow$ increase optimal level of leverage

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Capital Structure: Leverage Adjustments

- Many of the arguments concerning the level of leverage can be applied to the leverage adjustment process
  - internal leverage: low adjustment costs
  - intra-group guarantees & reputation effect: facilitate access to external financing
  - group affiliates are less likely to be credit rationed (cf. Ghatak & Kali, 2001)

⇒ Low adjustment costs

⇒ More frequent capital structure adjustments

Capital Structure: Leverage Adjustments

Methodology: cf. Hovakimian *et al.*, 2001; Korajczyk & Levy, 2003

- First stage:
  - estimate the optimal level of leverage (LEV*)
  - fixed effect panel data regression
  - control variables linked to trade-off theory: company size, tangibility, growth opportunities, risk (earnings volatility)
- Second stage:
  - estimate the probability of a substantial change in leverage (>5% of assets; cf. Hovakimian *et al.*, 2001; Leary & Roberts, 2005)
  - multinomial logistic regression
  - distance to optimal level of leverage $(LEV^* - LEV)_{t-1}$
  - control variables linked to pecking order theory: profitability, changes in growth opportunities
  - leverage adjustments in the previous period

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Capital Structure: Leverage Adjustments

- Significant differences in leverage levels, leverage adjustments and their determinants
  - Group affiliates have higher target leverage levels
  - Group affiliates adjust leverage more frequently and to a larger extent
- Flexibility of group leverage not limited to use of internal debt
  - External leverage is adjusted much more frequently than in stand-alone companies
- Financial health of the group matters

Capital Structure: Leverage Adjustments

Table 5. Determinants of external leverage increase/decrease

	Combined sample		Group sample	
	Leverage decrease	Leverage increase	Leverage decrease	Leverage increase
	(1)	(1′)	(2)	(2′)
$EXTLEV^* - EXTLEV_{t-1}$	−0.593***	1.382***	−1.095***	0.665*
	(0.181)	(0.262)	(0.241)	(0.399)
$PROFIT_{t-1}$	1.932***	−1.824**	−0.115	−1.436
	(0.722)	(0.737)	(0.889)	(0.877)
$\Delta GROWTH_{t-1}$	0.175	−0.410	0.182	−0.389
	(0.182)	(0.226)	(0.259)	(0.283)
$GROUP$	0.440***	0.864***	–	–
	(0.092)	(0.097)		
$BADGROUP$	−0.014	−0.964***	0.037	−0.954***
	(0.202)	(0.388)	(0.213)	(0.373)
Intercept	−1.261***	−1.196***	−0.835***	−0.462***
	(0.115)	(0.115)	(0.156)	(0.155)
Time dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Wald model χ^2 test	259.32***		107.32***	
McFadden R^2	0.026		0.017	
Firm years	5410		2535	
Dep = 0 (no change)	3428		1514	
Dep = 1 (decrease)	1140		575	
Dep = 2 (increase)	843		446	

Cash Holdings

Locorotondo, R., Dewaelheyns, N. and C. Van Hulle (2014), 'Cash Holdings and Business Group Membership', Journal of Business Research, Vol. 67, pp. 316–323.

- Company cash holdings:
  - Precautionary motive (buffer)
  - Transaction motive

- Both motives should be less important for business group members: buffer provided by financing advantages of belonging to a group + intra-group trade

Cash Holdings

Results:

- Affiliates hold less cash
- Negative effect of group financial distress on affiliates' cash holdings
- Cash levels of vital subsidiaries belonging to groups in distress are not affected by group financial distress
  - Large subsidiaries
  - Core-activity subsidiaries
  - Subsidiaries that received formal group guarantees

Cash Holdings

Table 4
Antecedents of cash holdings: extended analysis.

Variables	GROUPDISTRESS1		
	(1)	(2)	(3)
GROUPDISTRESS∗CORE	−0.597	–	
	[0.41]		
GROUPDISTRESS∗(1-CORE)	−0.614[a]	–	
	[0.15]		
GROUPDISTRESS∗LARGE	–	−0.0666	–
		[0.15]	
GROUPDISTRESS∗(1-LARGE)	–	−1.035[a]	–
		[0.25]	
GROUPDISTRESS∗GUARANTEE	–	–	−0.427
			[0.32]
GROUPDISTRESS∗(1-GUARANTEE)	–	–	−0.687[a]
GROUPSIZE	−0.0436	−0.0517	−0.0417	−0.0182	−0.0283	−0.0188
	[0.05]	[0.05]	[0.05]	[0.05]	[0.05]	[0.05]
GROUPAGE	−0.0479	−0.0463	−0.0506	−0.0546	−0.0513	−0.0526
	[0.05]	[0.05]	[0.05]	[0.05]	[0.05]	[0.05]
INTERCEPT	−0.295	−0.160	−0.303	−0.669	−0.531	−0.680
	[1.02]	[1.00]	[1.01]	[1.01]	[1.09]	[1.01]
Observations	5128	5128	5128	5128	5128	5128
Ind. & time dummies	Y	Y	Y	Y	Y	Y
Parent clustering	Y	Y	Y	Y	Y	Y
R^2 adj.	0.272	0.278	0.272	0.268	0.271	0.268

Notes: The dependent variable is the natural logarithm of the cash to net assets ratio. Independent variables as defined in Table 1. Standard errors between brackets.
[a] Denotes significance at the 1% level.
[b] Denotes significance at the 5% level.
[c] Denotes significance at the 10% level.

Bankruptcy Prediction

Dewaelheyns, N. and C. Van Hulle (2006), 'Corporate Failure Prediction Modeling – Distorted by Business Groups' Internal Capital Markets?', Journal of Business Finance and Accounting, Vol. 33, Nos. 5&6, pp. 909 – 931.

- Given the existence of internal capital markets, some of the classic variables in default prediction models (leverage, liquidity, profitability, etc.) may reflect incomplete information
- Biased estimates of probability of distress

⇒ Improve model performance by incorporating group information

Bankruptcy Prediction

Basic and Group-Adjusted Prediction Models (Full Sample)

	t−1			*t*−3		
	A	*A′*	*A″*	*B*	*B′*	*B″*
NCOM	–		−2.771*** (7.381)	–		−3.039*** (17.714)
UCO	–		−0.854** (5.677)	–		−4.643*** (7.021) −0.547** (5.897)
GSIZE	–		–	−0.407*** (13.126)		–
GROA	–		–	−18.980** (5.528)		−0.275*** (21.081)
GLEV	–		–	7.489*** (17.411)		–
GLIQ	–		–	−1.172* (3.029)		3.883*** (14.634)
			(3.029)			–
Intercept	−0.047	0.493	0.492	0.189	0.617	0.519
ρ^2	0.548	0.567	0.659	0.201	0.257	0.274
$CP_{\text{in sample}}$	83.3	83.0	88.6	69.9	74.2	72.5
$CP_{\text{quasi-jackknife}}$	83.0	82.7	87.3	69.0	72.9	71.6

Vuong Tests	*z-statistic*		*z-statistic*
Model A′ vs. Model A	2.997***	Model B′ vs. Model B	6.199***
Model A″ vs. Model A	11.321***	Model B″ vs. Model B	6.447***
Model A″ vs. Model A′	10.547***	Model B″ vs. Model B′	2.015**

Notes:
Stepwise logistic regressions (likelihood ratio optimizing); variables as defined in Table 2; $_{IA}$ = industry adjusted ratio.

Bankruptcy Prediction

Model Performance Comparison

	$t-1$	Δ	$t-3$	Δ
ρ^2 – Basic	0.548		0.201	
ρ^2 – Simple Adj.	0.567	+0.019	0.257	+0.056
ρ^2 – Group Adj.	0.659	+0.092	0.274	+0.017
ρ^2 – Basic + Group Adj.	0.717	+0.058	0.310	+0.036
		+0.169		+0.109

- Model fit improves substantially by adding group information
- Groups tend to support poorly performing subsidiaries, unless the overall health of the group is poor
- Not all subsidiaries are supported equally: core-activity vs. non-core-activity

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Reorganization Procedure Speed

Dewaelheyns, N. and C. Van Hulle (2009), 'Filtering Speed in a Continental European Reorganization Procedure', International Review of Law and Economics, Vol. 29, No. 4, pp. 375–387.

The 1997 Belgian Bankruptcy Law:

- Textbook example of the reform of a 19th century (1853) liquidation-only system to a US-inspired dual chapter system

- (Re)establishment of a formal reorganization procedure (*gerechtelijk akkoord/concordat judiciaire*)

Reorganization Procedure Speed

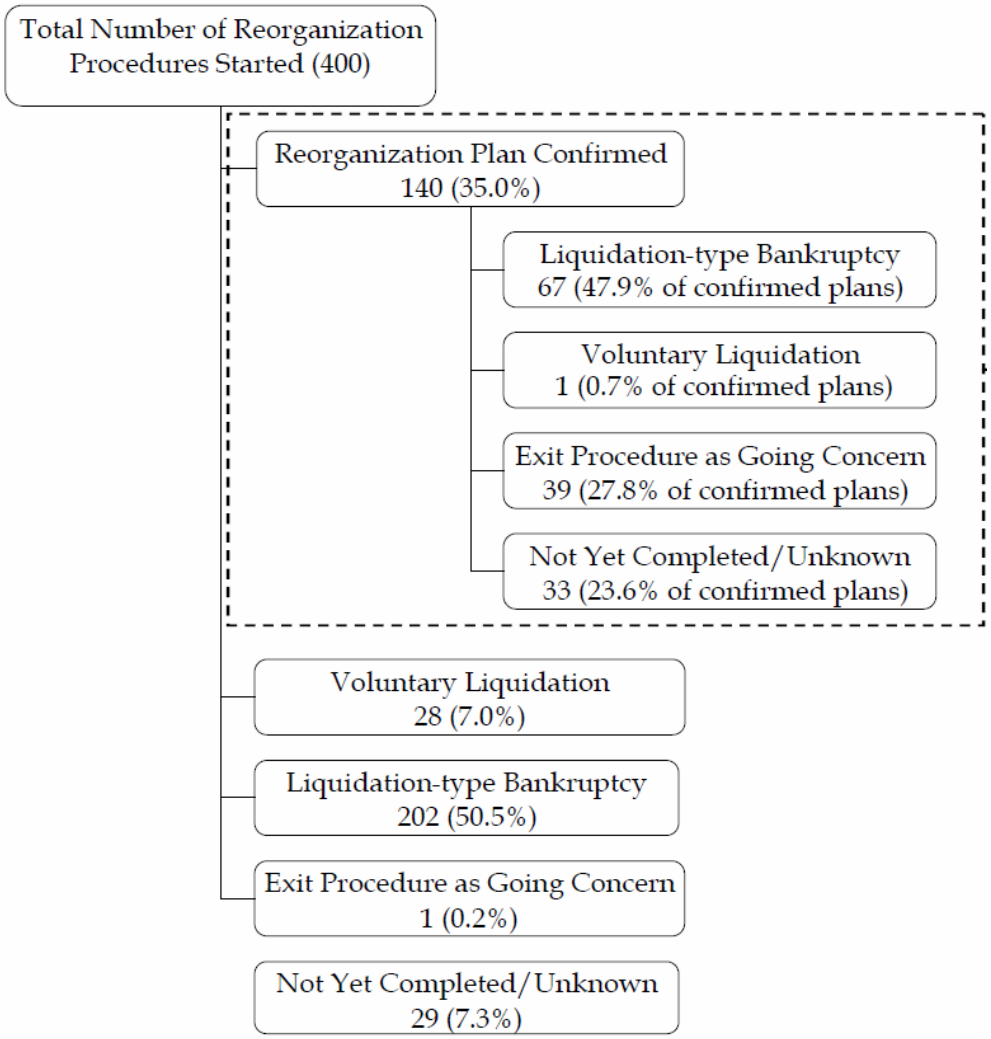
- Dual chapter systems imply filtering:
  - economically viable companies to reorganization
  - too highly distressed companies to liquidation

- Criticism on Chapter 11-type procedures:
  - protect unviable companies from creditors and market forces for long periods of time
  - coalition building behavior of major creditors to extract rents
  - mechanism to stall for time while trying to sell assets
  - succes rates in the US are low for smaller cases

Reorganization Procedure Speed

- Model the length of time spent in a procedure in a bank-based, creditor oriented economy (hazard models)
- All corporations (*NV/SA*) that file for reorganization during the first 6 years of the procedure's existance
- Link case data with detailed accounting and ownership information: examine the impact of business group membership, financial health scores, etc.
- Main focus on unsuccesful cases: if filtering works, the system should be able to quickly terminate reorganization of unviable companies

Reorganization Procedure Speed



Reorganization Procedure Speed

Business group membership and procedure length:

- Creditors may have more incentives to cooperate (+)
- Groups can use their network to find buyers for the assets (-)
- Groups want to minimize reputation damage (-)

Reorganization Procedure Speed

- Limited pre-entry screening
- Success rates very low
- Average time spent in unsuccesful procedures quite long

Hazard models:

- no significant relationships between most company characteristics & time spent in procedure
- companies with worst financial situation stay in longest (continuation bias)
- cases in which creditors are likely to benefit from liquidation or are members of a business group (regardless of group health) are terminated more quickly

Reorganization procedure used as mechanism to sell assets or negotiate merger rather than preserve companies as going concerns

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Future Research

- Business group behavior towards distressed subsidiaries during the crisis and recession

- Impact of bankruptcy reform *(Wet op de Continuïteit van de Ondernemingen/Loi relative à la Continuité des Entreprises, 2009)*