

« Financial Contracting as Behavior towards Risk: the Corporate Finance of Business Cycles »

Robert E. KRAINER

&

« Entry in Banking Markets »

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11th FINANCIAL RISKS INTERNATIONAL FORUM

Chambre de Commerce et d'Industrie de Région Paris Île-de-France – 27th March 2018

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A parsimonious model

- **Objective** : Solving the usual **conflict of interest** problem between **bondholders** and **shareholders** of a firm, and show how covenants can shape the **structure of the firm's balance sheet** and influence **business cycles**.
- Corporate finance paper giving insights to the business cycle literature.
- **Model's ingredients** :
 - 2 agents : one more risk-averse (bondholder), one less risk-averse (shareholder)
 - 2 market equilibrium conditions
 - 2 assets : safe asset / risky asset
 - 2 decisions : investment decision / funding decision
 - 1 concave production function
 - 1 convex operating risk function
 - 1 covenant implying :
 - ❖ a minimum amount of safe asset to serve as collateral for the bondholder
 - ❖ an automatic restriction on dividend payment if previous condition breached

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Simple mechanic

Shock to **risk-aversion** of agents that changes **required** rates of returns



Prices of bonds and shares adjust accordingly, making the **market value** of the firm different from its **economic book value**



Signal for the managers of the firm to **downsize** or **expand** the firm
→ **Business cycle fluctuations**



Changing the size of the firm is done by buying/selling safe/risky assets
→ The **composition of the assets** of the firm, hence its **risk profile**, is modified



Covenants can force the firm to rebalance the **liability side** of the balance sheet

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Models predictions consistent with long-term data

- Dataset for non-financial corporates between 1947 and 2002
- Increase in market valuation of equity is associated with future larger investments in risky assets
- Long-term financial leverage is negatively associated with risky corporate investments

Several applications of the model

- Non-financial corporate : business cycle fluctuations and balance sheet structure
- Small new firms (start-ups) versus established mature firms :
 - ➔ Impact of the dynamics between these two types of firms on business cycles
- Mature and more efficient (but more risk-averse) workers, versus young apprentice workers :
 - ➔ Impact on the labor market

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Suggestions

- Nice paper that provides a simple framework to analyze situations of conflict of interest between two types of agent that can be solved through the use of simple covenants. Applicable to many real situations.

Suggestion 1 : Banking regulation

- **Banks** face a similar **conflict of interest** between their shareholders and their bondholders / **depositors**.
- **Banking regulation** is partly here to mitigate this conflict and ensure that depositors do not lose their funds.
- **Basel regulation = Application of covenants**
 - ❖ a minimum amount of safe asset to serve as collateral for the bondholder
 - ➔ This is the spirit of the Basel III **Liquidity Coverage Ratio (LCR)**
 - ❖ an automatic restriction on dividend payment if previous condition breached
 - ➔ This is the case for most Basel III **capital requirements**

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Suggestions

Suggestion 2 : Implications for business cycles

- Implications of the model for business cycles fluctuations through the adjustments to the size of the firm
- Simple model : consumption and households are not modeled
- Usual question in the business cycle literature :
 - ➔ What is the impact in terms of consumption for households ?
 - ➔ What is the impact in terms of welfare ?

Suggestion 3 : Convex operating risk function

$$\sigma(K) = g(K)$$

$$g'(K) > 0$$

$$g''(K) \geq 0$$

$$(13a) \text{ Log (Stddev Profits,BT)}_{t+t+4} = -4.86 + 1.38 \log (\text{Cap Expend})_t + 9.85 \Delta(\text{Liab/A})_t$$

(-2.17/.00) (4.07/.00) (1.74/.09) $\bar{R}^2 = .80$ AR(1) = .67

- Add a **quadratic term** for capital expenditure to see if $g''(K) \geq 0$?

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Banks face two strategies





- Trade-off between ***diversification*** and ***specialization***
- Reasons for diversification:
 - Hedging against independent shocks
 - Economies of scale in monitoring
 - Reduced cost of delegated monitoring in the case of agency conflict
 - ➔ **Diamond (1984)** : *“the diversification which occurs when bankers within the intermediary can share independent risks does serve to reduce the severity of its incentive problem”.*
- Reasons for specialization:
 - Informational barriers to entry
 - Adverse selection of borrowers
 - Difference in technologies : collection of soft information locally
 - ➔ **Marquez (2002)** : *“banks find it easier to enter a market when they are either specialized in an industry or when they are on a more equal footing with incumbent banks”.*

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Geographical locations of a banking group

- Not contradictory, but which effect dominates empirically ?
- Different implications in terms of geographical locations when deciding to **enter a new market** :

		Similar market	Dissimilar market
Main Objective	Specialization		
	Diversification		

← Barriers

- But when forced to contract and **close branches** :

		Similar market	Dissimilar market
Main Objective	Specialization		
	Diversification		

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Empirical assessment

- US data, at county level, between 1982 and 2015
- Nice **matching procedure** to keep track of branches over time and isolate openings from acquisitions and closures from sales
- Construct an **industry-based similarity measure** capturing how close the characteristics of a county where the bank could expand are from those of counties where the bank is already active : $Similarity^f$
- Analysis restricted to “**close counties**” to limit unobserved determinants of expansion
- Regression for **expansion decisions** :

$$Expand_{i,c,t} = \beta_0 \cdot Similarity_{i,c,t}^f + \gamma \cdot Controls_{c,t} + \mu_t + \epsilon_{i,c,t}$$

- Results :

	(1)	(2)	(3)
	Dependent variable: Expansion dummy		
$Similarity_{i,c,t}^f$	1.377*** (0.018)	0.388*** (0.017)	0.213*** (0.016)
Controls	No	Yes	Yes
Year FE	No	Yes	Yes
Openings only	No	Yes	Yes
New counties only	No	No	Yes
R^2	0.070	0.157	0.085
N. Obs.	55,013	61,215	32,757

“Banks are more likely to expand in counties that are more similar.”

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Empirical assessment

- Alternative household-based similarity measure : $Similarity^h$ → Same results
- Regression for contraction decisions :

$$Contract_{i,c,t} = \beta_0 \cdot Similarity_{i,c,t} + \gamma \cdot Controls_{i,c,t} + \mu_t + \epsilon_{i,c,t}$$

- Results :

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable: Contraction dummy						
	All counties		Within state		Close counties	
$Similarity_{i,c,t}$	0.272*** (0.006)	0.043*** (0.006)	0.528*** (0.011)	0.091*** (0.011)	0.722*** (0.031)	0.473*** (0.034)
Controls	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.015	0.036	0.020	0.066	0.013	0.061
N. Obs.	211,364	211,151	119,917	119,790	38,896	38,866

“Banks are more likely to contract in counties that are similar to those in which they will keep operations.”

- Refinements and extensions :
 - Exploiting the 1994 deregulation
 - Exogenous shock forcing to contract (exposure to 2007-2009 real estate price drop)
- ➔ Results remain stable

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Suggestions

- Nice paper that provides convincing empirical evidence on the interest of diversification: a key driver of geographical expansion and contraction of banking groups, in line with theoretical background.

Suggestion 1 : Extensive vs. Intensive margin

- All the paper relates to the **extensive margin** of banking, with binary decisions to open / close branches in counties
- What about the **intensive margin** ?
- Seeking specialization could translate into :
 - new entry in similar counties, and/or
 - intensification of the activity in counties where the bank is already active (increasing local market share)
- Couldn't this bias the results towards the conclusion that banks primarily seek diversification ?
- Would it be possible to add controls in the regressions to take into account this intensive margin ?

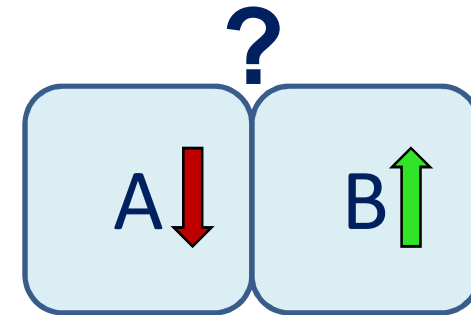
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Suggestions

Suggestion 2 : Cannibalization effect ?

- Does the opening of a new branch in a neighbor county B reduce the activity in the branch in the initial county A ?
- A part of client living in county B could previously be served by branch located in county A, and then switch to the new branch opening in B.
- Virtually there would be diversification because of the opening of the new branch in B, but the true activity would remain unchanged.
- Is it possible to measure and keep track of this **potential cannibalization effect** in the dataset ?



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Suggestions

Suggestion 3 : Use of logit model ?

- Linear model used with a binary dependent variable :

$$Expand_{i,c,t} = \beta_0 \cdot Similarity_{i,c,t}^f + \gamma \cdot Controls_{c,t} + \mu_t + \epsilon_{i,c,t}$$

- Signs and significance levels of the coefficients β_0 are commented on the paper, but not their values. A bit difficult to interpret and give an economic sense.
- Could you use a **logit model** and analyze the question in terms of probability to enter / leave a county ?
- Computing marginal effects in the logit model could bring more interpretable coefficients : for instance *“if similarity of a county increases by 1 pp, then the probability that a bank enters this county increases by x pp”*.

Suggestion 4 : Which type of diversification is more wanted ?

- Two alternative measures of similarity : **industry-based** and **household-based**
- Positively correlated, but surprisingly low : 24%
- Which one dominates if both are **simultaneously** included in the regression ?

Thank you for your attention !