

State Entrepreneurial Activity and Bank Performance

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Some Initial Observations

- Entrepreneurship has become an important area within academia (over 2,000 programs according to *Princeton Review*)
- Earliest programs were created in the late 1970's
- Debate exists about:
 - the importance of small business in job creation and destruction
 - the role of tax policy in promoting or discouraging small business growth

Why Are States and Locales Interested in Entrepreneurship?

- **Job creation and growth**
- **Expansion of tax base**
- **Improved business supplier network**
- **Greater economies of scale in promotional activities**
- **Improved state reputation**

What Can States Do for Entrepreneurs?

- Improve **access to capital**
- Provide **technical assistance**
- Streamline **securities regulation**
- Improve **regulatory licensing**
- Build **intellectual capacity** at state universities
- Create **industry clusters**
- Improve state **tax environment**
- Improve **entrepreneurship education**
- Reach out to **entrepreneurs**
- **Recognize** entrepreneurial achievement

Source: National Commission on Entrepreneurship;
Kauffman Center for Entrepreneurial Leadership

The Kauffman Index of Entrepreneurial Activity



Entrepreneurial Climate: Top and Bottom Ten States

Top 10 States

- California .44
- Arizona .44
- Texas .43
- Nevada .43
- Georgia .43
- Colorado .42
- Louisiana .41
- Florida .41
- Vermont .40
- Montana .40

Bottom 10 States

- Washington .24
- Virginia .24
- Rhode Island .24
- Alabama .24
- Illinois .23
- Hawaii .23
- West Virginia .22
- Minnesota .22
- Indiana .22
- Pennsylvania .18



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Source: Kauffman Index of Entrepreneurial Activity
QC13015

Key Research Questions

- **Do banks perform differently in states with high vs. low entrepreneurship rankings?**
- **What are the significant univariate differences?**
- **What are the multivariate differences?**

Methodology

- Data on FDIC bank performance from the SNL Financial Services database.
- Banks <\$10 billion in total assets.
- Data for **three** periods:

Pre-crisis (2005.4)

Crisis (2008.4)

Post-crisis (2011.4)

- **Observations: Top 10** n=1623
Bottom 10 n=1455

Bank Performance Metrics

- **Size** (total assets; log total assets)
- **Growth rates** (asset and loan growth)
- **Management** (loan to asset; loan to deposit; efficiency ratio)
- **Earnings** (ROAA; ROAE)
- **Margins** (Net interest income; net interest margin; yield on loans; cost of interest bearing liabilities)
- **Capital** (Equity to average assets)

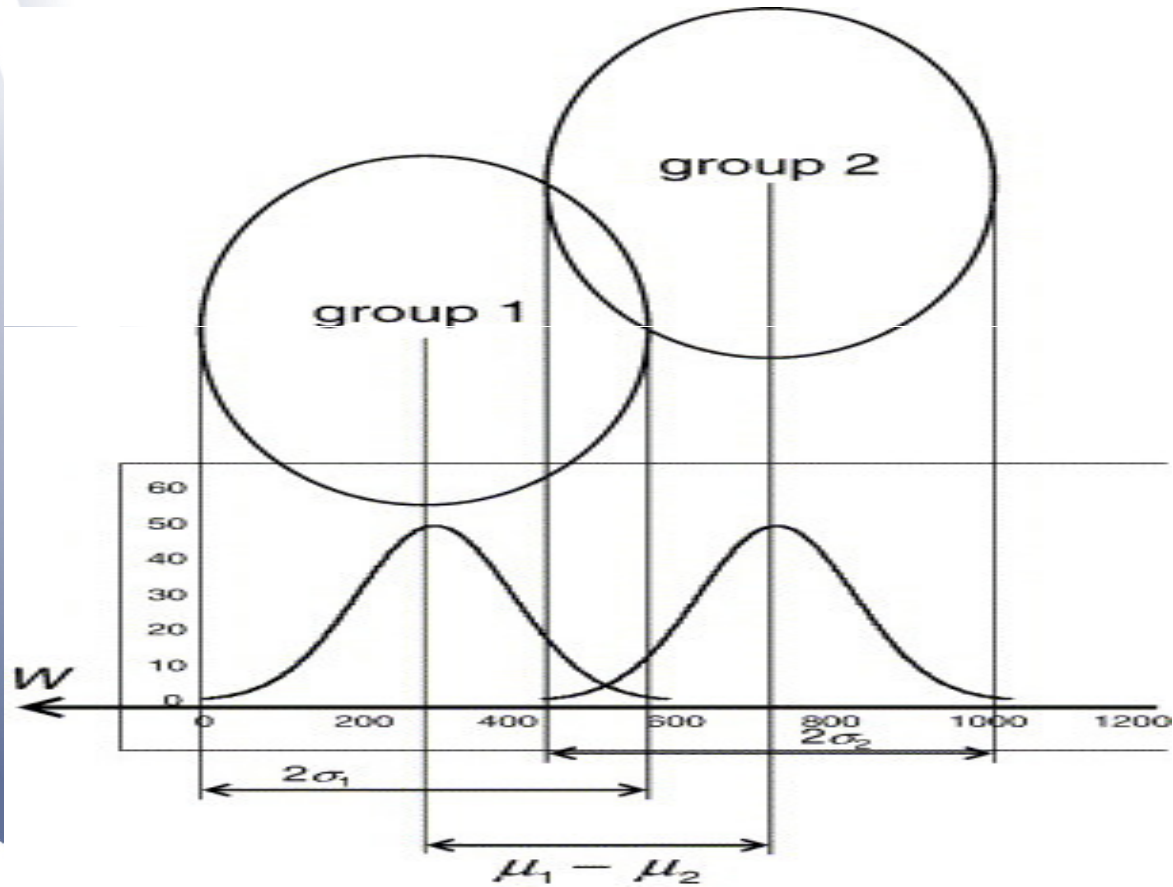
Metrics con't.

- **Loan composition** (1-4 family loans; commercial real estate loans; total real estate loans; commercial and industrial loans; consumer loans)
- **Asset quality** (non performing loans; loan charge-offs)
- **Liquidity** (liquidity ratio)
- **Sensitivity** (rate sensitive assets to assets)

Significant Univariate Relationships

- Most variables display **statistically significant differences** (at $\rho = .05$ level or better)
- Exceptions:
 - **Total assets** (2005; 2008)
 - **Return on average assets** (2005; 2008)
 - **Equity to assets** (2011)
 - **Total real estate loans to loans** (2008;2011)
 - **Liquidity ratio** (2008; 2011)
 - **Charge-offs to loans** (2005)

Two Group Multivariate Discriminant CAMEL Model



The CAMEL Model

- The CAMEL model is well established and is used by banking regulators and researchers.
- **Capital adequacy** (equity to assets)
- **Asset quality** (non-performing loan ratio)
- **Management** (loan to deposit; commercial real estate loans to loans; efficiency ratio)
- **Earnings** (return on average assets)
- **Liquidity** (liquidity ratio)
- **Size** (total assets)

CAMEL Discriminant Model

- $Y = \alpha + \beta_1 L2D + \beta_2 CREL2L + \beta_3 LiqRat + \beta_4 NPL + \beta_5 ER + \beta_6 TA + \beta_7 ROAA + \beta_8 E2A$

- Where:

α = constant

L2D= loan to deposit ratio

CREL2L= commercial real estate loans to loans

LiqRat= liquidity ratio

NPL= non performing loans to loans

ER= efficiency ratio

TA= total assets

ROAA= return on average assets

E2A= equity to assets

Discriminant Classification Matrix

		Low Entrep. Index (0)	High Entrep. Index (1)	Overall accuracy
2005	Low (0)	78.2%	21.8%	
	High (1)	55.1%	44.9%	62.4%
2008	Low (0)	75.9%	24.1%	
	High (1)	52.4	47.6%	62.5%
2011	Low (0)	72.0%	28%	
	High (1)	44.7%	55%	64.1%

Relative Importance of Discriminant Variables

Variable Rank	2005	2008	2011
1	L2D	CREL	CREL
2	CREL	ER	ER
3	LiqRat	ROAA	L2D
4	NPL	E2A	LiqRat
5	ER	LiqRat	NPL
6	TA	NPL	ROAA
7	ROAA	L2D	TA
8	E2A	TA	E2A

Conclusions

- **Banks located in Top 10 entrepreneurial activity states perform differently than Bottom 10 states based on both univariate and multivariate analysis.**
- **Some individual variables are substantially different**
- **In general, overall multivariate differences are less pronounced.**