Capital Regulation: Less Really Can Be More When Incentives Are Socially Aligned*

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Herring: Evolving Complexity

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- Revisions of capital regulations reduce arbitrage opportunities.
  - Basel I versus Basel II
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- Revisions of capital regulations reduce arbitrage opportunities.
  - Basel I versus Basel II
- Innovations in financial instruments counter revisions of regulations.
- More complex revisions counter innovations - a *dialectical process*. 
Herring: Evolving Complexity

- Makes monitoring by markets and supervisors more difficult.
- Creates new arbitrage opportunities.
- Has not necessarily improved the risk sensitivity of measures of capital adequacy.
Is Complexity Inexorable?
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- Risk-taking incentives push arbitrage.
Is Complexity Inexorable?

• Risk-taking incentives push arbitrage.

• Dichotomous risk-taking strategies to maximize value (Marcus 1984)
  - **Low-risk capital strategy** to protect valuable investment opportunities
    • Relatively high expected cost of financial distress makes low risk value-maximizing.
Is Complexity Inexorable?

• **Risk-taking incentives push arbitrage.**

• Dichotomous risk-taking strategies to maximize value (Marcus 1984)
  
  – **Low-risk capital strategy** to protect valuable investment opportunities
    
    • Relatively high expected cost of financial distress
  
  – **High-risk capital strategy** to exploit safety net and “reach for yield”
    
    • Lower valued investment opportunities
    • Relatively low expected cost of financial distress
    • Option value of explicit/implicit deposit insurance
The Role of Market Discipline in Promoting Bank Safety

• The second Basel Capital Accord rests on three “pillars”:
  • Minimum capital standards
  • Supervisory review
  • Market Discipline
The Role of Market Discipline in Promoting Bank Safety

• The second Basel Capital Accord rests on three “pillars”:
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  • Market Discipline

• BIS: “Market discipline imposes strong incentives on banks to conduct their business in a safe, sound and efficient manner, including an incentive to maintain a strong capital base as a cushion against potential future losses arising from risk exposures.”
Dichotomous Capital Strategies

• Low-risk capital strategy to protect valuable investment opportunities
  - Market Discipline promotes financial stability.
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• High-risk capital strategy to exploit safety net and “reach for yield”
  – Market Discipline works against financial stability.
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• High-risk capital strategy to exploit safety net and “reach for yield”
  – Market Discipline works against financial stability.
  – And gives banks incentive to arbitrage capital standards.
Is Complexity Inexorable?

- Strategies to reduce risk-taking/arbitrage incentives of large financial institutions
  - Create costs resembling distress before actual financial distress
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• Distress-like costs suppress arbitrage incentives and tend to boost capital ratio.
Incentives to Reach for Yield

• Koehn and Santomero (1980)
  - Capital regulation seeks to reduce the risk of insolvency.
  - Capital regulation may increase risk-taking and risk of insolvency for some banks.
Efficient Investment Strategies

Expected Return

Risk

Koehn and Santomero 1980

\[ Z = \frac{E(\pi) + k}{S(\pi)} = \frac{E(\pi/k) + 1}{S(\pi/k)} \]

\[ E(\pi/k) = S(\pi/k)Z^0 - 1 \]

\[ \frac{\partial E(\pi/k)}{\partial S(\pi/k)} = Z^0 \]
Strategies with Stricter Capital Standard

- Expected Return vs. Risk
- Lower ratio
- Higher ratio

$Z_0$
Low-Risk Investment Strategy

- Expected Return
- Risk

Lower ratio

Higher ratio

Z0

Z1

0

-1

Risk
Low-Risk Investment Strategy

Expected Return vs. Risk

Lower ratio

Higher ratio

Z₀

Z₁

0

-1

Risk
Mid-Range Investment Strategies

Expected Return vs. Risk

- **Lower ratio**
- **Higher ratio**

Points:
- $Z_0$
- $Z_1$
- $Z_2$
Mid-Range Investment Strategies

Expected Return

Risk

lower ratio

higher ratio

Z₁

Z₂

Z₃

Z₀
Mid-Range Investment Strategies

![Graph showing expected return versus risk with points Z0, Z1, Z2, and Z3 representing lower and higher ratio strategies.]

- Expected Return
- Risk
- Lower ratio
- Higher ratio
High-Risk Strategy: “Reaching for Yield”

![Graph showing the relationship between Expected Return and Risk for different risk ratios. The graph illustrates two curves, one for a lower ratio and one for a higher ratio, with points labeled Z0, Z1, Z2, Z3, and Z4.]
High-Risk Strategy: “Reaching for Yield”

- Expected Return vs. Risk
- Points Z_0, Z_1, Z_2, Z_3, Z_4
- Lower ratio and higher ratio curves

Graph showing the relationship between expected return and risk.
Dichotomous Investment Strategies

- Expected Return vs. Risk

- Points: Z₀, Z₁, Z₂, Z₃, Z₄

- Lower ratio and higher ratio curves
Dichotomous Investment Strategies

Expected Return

Risk

lower ratio

higher ratio

Z_0, Z_1, Z_2, Z_3, Z_4
Incentives to Reach for Yield

• Marcus (1984): Value-maximizing capital strategy depends on value of investment opportunities
  – Banks with relatively high-valued investment opportunities: low risk to protect charter-value
Incentives to Reach for Yield

• Marcus (1984): Value-maximizing capital strategy depends on value of investment opportunities
  - Banks with relatively high-valued investment opportunities: **low risk** to protect charter-value
  - Banks with relatively low-valued investment opportunities: **high risk** to exploit safety net
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• Dichotomous capital strategies
  – Mid-range strategies are suboptimal.
Incentives to Reach for Yield

• Incentive to take risk
  – Keeley (1990): Links increased competition to the incentive to increase leverage

• Market Discipline and dichotomous capital strategies
  – Promote financial stability at banks with low-risk strategies – typically smaller banks
  – Work against financial stability at banks with high-risk strategies – typically larger banks
Incentives to Reach for Yield

- Papers that find evidence of dichotomous capital strategies
  - McConnell and Servaes (1995)
  - Hughes, Lang, Moon, and Pagano (1997)
  - DeJonghe and Vander Vennet (2005)
  - Calomiris and Nissim (2007)
  - Hughes, Mester, Moon (2016)
Incentives to Reach for Yield

- Hughes, Mester, Moon (2016)
  - 2013 data on 167 publicly traded BHCs
  - Performance measured by market value
  - Under-capitalized banks (more valuable IOs)
    - 132 of 167 BHCs improve financial performance by increasing capital ratio (97 statistically significant)
  - Over-capitalized banks (less valuable IOs)
    - 35 of 167 BHCs improve performance by reducing capital ratio (15 statistically significant)
  - Systemically important: assets > $50 billion
    - Over-capitalized: 15 of 21 improve financial performance by reducing the capital ratio (statistically different from zero).
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Agency Incentives

• Laeven and Levine (2009)
  - Regulatory restrictions differ in effect depending on ownership structure of banks.
  - Diversified large shareholders vs debtholders and non-shareholder managers
  - Risk-taking is positively related to large shareholdings.

• Cheng, Hong, and Schneinkman (2015)
  - High risk and high residual executive compensation related to institutional ownership.
Eliminating the Incentive to Reach for Yield

- Create costs of pre-financial-distress
  - Create expected pre-distress-costs for the largest financial institutions to make less risky investment strategies – e.g. higher capital ratios – value-enhancing.
Eliminating the Incentive to Reach for Yield

- **Create costs of pre-financial-distress**
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  - To give institutions the incentive to boost capital or shrink assets as capital erodes.
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Increase Pre-Distress Costs

• **Contingent convertible debt (CoCos)**
  - Calomiris & Herring 2013
  - Long-term debt that cannot run - equal to 10 percent of assets
  - Converts to equity
    • At a trigger based on a 90-day moving-average market capital-to-assets ratio of 8 percent
    • When trigger is reached twice
    • Where conversation rate into equity substantially dilutes existing shareholders
    • And recapitalizes bank with eroding equity
Increase Costs of Financial Distress

- Contingent convertible debt (CoCos)
  - Provides incentive to issue new equity or sell assets as capital erodes
    - long before insolvency
    - to avoid dramatic dilution of existing owners from CoCo conversion
Increase Costs of Financial Distress

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  – Provides a price signal of bank risk-taking
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  - Provides a price signal of bank risk-taking
  - Makes less risky strategies value-enhancing
  - Reverses shareholder discipline to enhance financial stability
Increase Costs of Financial Distress

• Contingent convertible debt (CoCos)

• Contingent executive compensation
  – Withhold a proportion of compensation for a substantial period of time
  – Withheld compensation is forfeited if bank experiences a CoCo conversion
  – Reduces risk-taking incentive
  – Improves market discipline
Conclusions

• Complex capital regulations create opportunities for arbitrage when banks reach for yield.

• Strategies to reduce risk-taking/arbitrage incentives of large financial institutions
  – Increased costs of pre-financial-distress
  – Enhanced market discipline that promotes financial stability

• Reduces need for and burden placed on complex capital regulations