Capital Constraints and Systemic Risk

Dmytro Holod and Yuriy Kitsul

Nada Mora, Discussant

6 January 2011

What they do and find

- Useful study of market risk capital amendment
  - Topical (e.g., 12/14/2010 FR/OCC/FDIC request for comment on changes to market risk rule)
- Main results – Systematic risk (equity beta) $\uparrow$ after 1998 for banks expected to be most sensitive to requirement
  1. $After98 \times Common\ Factor \times High\ Trading > 0$
  2. $After98 \times Common\ Factor \times High\ Trading \times High\ Capital < 0$

Comment 1 – Systematic vs Systemic Risk

Terms are interchangeably used throughout paper, but...

- Systematic (aggregate) risk is average covariance with market
- Systemic risk is externality from joint actions of fin. inst.
  - Interconnections; Correlated exposures w/ losses in bad states $\longrightarrow$ greater externality when aggregate capital shortfall, when more leverage, when liquidity spirals..
  - Acharya, Pedersen, Philippon and Richardson (2010)

Comment 1 – Systematic vs Systemic Risk (cont'd)

Mechanism in paper:

1. Macro shock
2. Higher VaR
3. Banks more capital constrained than before market risk req.
4. Sell (trading) assets because can't raise capital
5. H_0 : *Systematic risk of bank stocks* $\uparrow$ *after 1998*
6. *Systemic externality* : *If* magnified and spillovers to other inst.

$\Rightarrow$ suggest to focus paper

Comment 2 – Capital amendment as an exogenous event

Authors exploit differences bet. high and low trading banks, but

1. East Asian/Russian/LTCM 1998 crisis
   - Chava and Purnanandam (2011)
   - Market risk rule was applied to internationally active banks
2. Deregulation (repeal of Glass-Steagall 1999) and financial innovation may have increased sensitivity to common shocks
   - Houston and Stiroh (2006)
     Billio, Lo, Getmansky and Pelizzon (2010)
   - High trading banks more affected by these developments

Comment 2 – Capital amendment as an exogenous event (cont'd)

Possible remedies

- Rather than comparing high/low trading activity, go granular – relate to market risk capital (1651)?
  –or to VaR split by different risk factors (10-Q)?
- Limit to banks around reporting threshold for market risk – even w/ $>$ \$5 bn, few are high trading (14%)
- Table 11 set of controls – activity diversification (e.g., investment banking), geographical diversification

Comment 3 – Economic significance of capital amendment

- How important was the market risk capital constraint? E.g., Hirtle (2003) shows that the regulatory capital for market risk was a small share of overall minimum regulatory capital ($< 2\%$ for median bank)
- Announcement/implementation effect? If unexpected, are high trading banks perceived to be most capital constrained in 1998 before adjust over time?

Comment 4 – Equity market index as only aggregate factor

- Market risk is risk of loss from movements in financial factors – incl. interest rates, exchange rates, commodity prices, credit spreads, in addition to equity market return
  - $\Rightarrow$ Expect a bank with more U.S. treasuries in trading account to be more sensitive to interest rate risk than a bank with more commodity derivatives
    - Flannery and James (1984) relate stock returns to i-rates
    - Adrian and Brunnermeier (2008) CoVaR; stock returns conditional on systematic factors incl. yield curve, VIX, credit spread,...

Comment 5 – Specification issues with triple interaction terms

- Need to also include double interaction terms in regression, even if triple interaction is the coefficient of interest (see Bertrand, Schoar and Thesmar (2007) on French banking deregulation for a good example)
  - E.g., could gradually build up story in a similar way – start with $After98 \times Common\ Factor$.
    then $After98 \times Common\ Factor \times HTA$, including $After98 \times HTA$ in addition to $Common\ Factor \times HTA$

Comment 6 – Robustness to alternative methods

- Campbell et al (2001) / Houston and Stiroh (2006) method to decompose equity return volatility into market and idiosyncratic components. Advantage – components can be quantified without estimating firm-specific betas
  - E.g., Separate into high/low trading activity and test if common sector volatility contributes a higher share of return volatility of high trading banks after 1998?
  - How to reconcile increasing importance over time of common factor in Houston and Stiroh (2006) and Billio et al (2010) with -ve coeff. on $After98 \times Common\ Factor$?

Minor comments

- Why capital threshold based on capital-to-assets ratio and not regulatory capital to risk-weighted assets?
- Authors state that CRSP series are monthly (use to construct quarterly holding period returns). But aren't CRSP series available daily?