Commercial Bank Charge Offs – The Need for a System View

February 8th, 2011
Key Points

- Commercial Bank Asset Correlations Change in Time
  - Risk Diversification Changes in Time
  - Lack of Risk Diversity Can Hurt at the Wrong Time

- Reversion to Trend Has Long Cycles

- Views of Networks of Relationships are Needed
  - Asset Correlations Changing in Time
  - Client/Customer Cash Flows Changing in Time
  - Quasi and True Experimental Designs to Understand Network Effects
  - Cause and Effect Relationships Among Agents – Predictive not just Descriptive
Most Importantly: A Taxonomy of Uncertainty May Be In Order

- Level 1: Complete Certainty
- Level 2: Risk Without Uncertainty
- Level 3: Fully Reducible Uncertainty
- Level 4: Partially Reducible Uncertainty
- Level 5: Irreducible Uncertainty

Video lecture available at http://mitworld.mit.edu/video/794

Source: Federal Reserve
Commercial Bank Asset Correlations Change in Time

Commercial Bank
Charge Off Experience
1985-2011

Source: Federal Reserve
Reversion to Trend Has Long Cycles

![Graph showing Commercial Bank Moving Cumulative Charge Off Rate (10-year Sum) from 1995Q4 to 2011Q4.](image)

Source: Federal Reserve
Various Asset Categories show correlations among themselves during any given period of time.

For example: Late 1991 through 1992 shows strong, positive correlations between business loans, leases and agricultural loans. The business sector shows strength in this period with respect to charge offs – lower charge-offs (green) means better creditworthiness.

*Note: Correlations are tied to % of assets charged off in each asset class*
Mid 1993 through beginning of 1995 have benign, positive correlations.
There is a bit of credit deterioration in the mid-cycle among consumers. A diverse portfolio dampens the effect on a portfolio of bank loans and leases.
Assets are largely unchanged from mid-1997 through the beginning of 1999. Diversification continues to help.
Strong positive correlations among deteriorating assets offer little diversification through the recession – both consumer and commercial loans and leases deteriorate.
Portfolios diversify a bit…
Views of Networks of Relationships are Needed (7/11)

Positive benign correlations mark the mid-cycle once more...
Portfolios diversify a bit, but there is a bit of deterioration in some asset classes...
Views of Networks of Relationships are Needed (9/11)

As went residential real estate, so went other assets through the credit and liquidity crisis...

Studying dynamic system relationships, especially as agents adapt with new behaviors, is a promising frontier for managing risk and optimizing risk-adjusted returns.

Source: Federal Reserve
Positive benign correlations helped the recovery of bank balance sheets...
Views of Networks of Relationships are Needed (11/11)

Positive benign correlations mark the mid-cycle once more...

Correlation Matrix
Quarterly Change of Charge-off Levels Over 8 Rolling Quarters
2009Q4 -> 2011Q3

Source: Federal Reserve