Bank Failure

Charlotte Economics Club

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    - Federal Reserve Bank of Richmond
    - Federal Home Loan Bank System
  - Regulator
    - Federal Deposit Insurance Corporation
    - Federal Home Loan Bank Board
  - Lender
    National Bank of Detroit
  - Officer, United States Army

Past Problem Sectors in US

- **Emerging Market Debt - *"Countries Do Not Go Bankrupt"***
- **Agricultural Sector - *"We All Need Food"***
- **Oil Sector - *"We All Need Oil"***
- **Commercial Real Estate - *"You Have Collateral"***

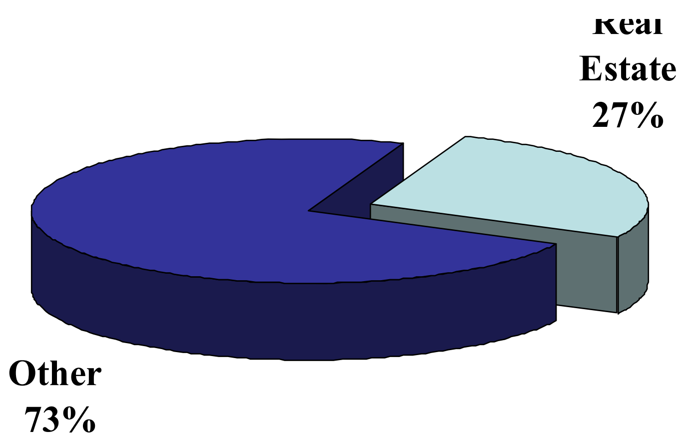
Home Ownership

- National Goal - 70% own home
- Provide shelter
- Promote community pride, safety and appearance
- Enhance self-worth and health
- Create jobs
- Support economic growth

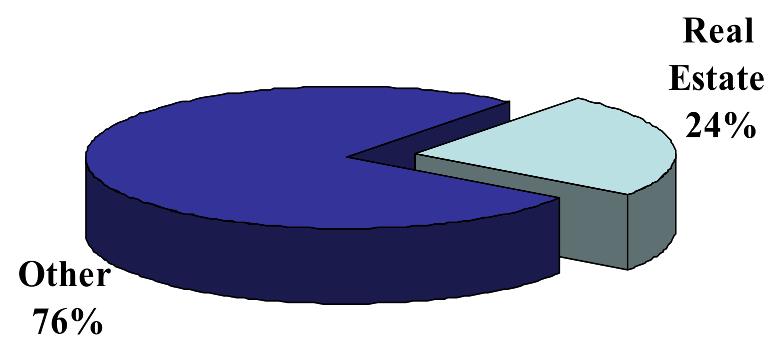



Importance of Real Estate

Household Sector Assets

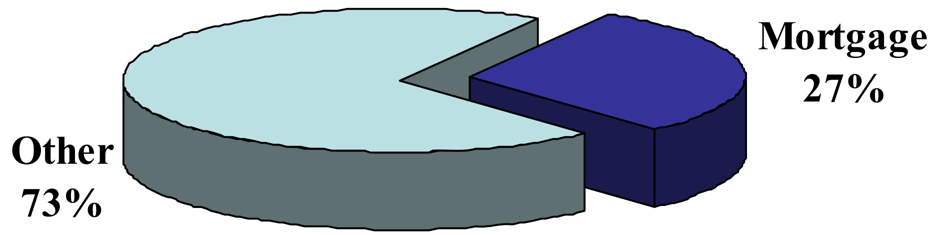


Business Sector Assets

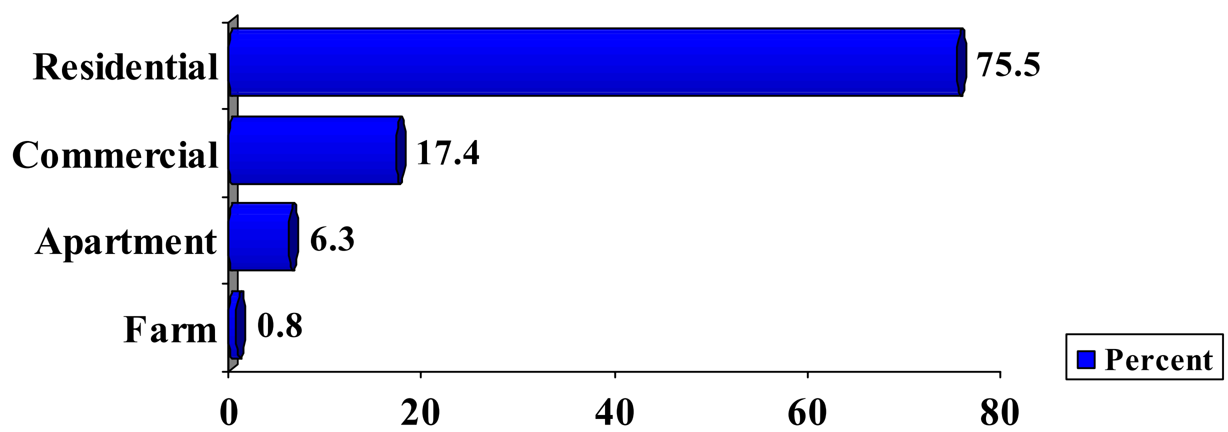


US Financial Market

US $52 trillion of Debt



US $14 trillion Mortgage Debt



Recent US "Failures" due to Housing Loan Losses

- AIG
- Bank United
- Bear Stearns
- Citibank
- Downey
- Fannie & Freddie
- GMAC
- Indy Mac
- Lehman Brothers
- WAMU
- 200 Smaller Banks
- Who will fail next Friday?

Bank Failure

Liquidation

Economic

Financial

Managerial

Bank Failure and Management

- High number and percentage of loans to insiders
- Passive Board of Directors
- Lack of coherent business plan
  - Quick growth funded by high cost funds offset by high yield assets
  - High dividend payouts and stock repurchase programs
  - Shrinkage to maintain capital ratios leads to even lower profits given fixed non-interest costs
- Ineffective risk management
- Fraud

Bank Failure and the Economy

- Economic Recession
- High and/or Increasing Unemployment
- High “Real” Interest Rates
- Regional “Boom to Bust”
- Low Confidence in Banks or the Central Bank

Bank Failure and Asset/Liability Management

- Low Capital
  - Losses
    - Loan Problems
    - Concentrated Portfolio
    - Loss of Cost Control
  - Quick Growth
- Liquidity
  - Non Core Fund Reliance
  - Lack of Good Collateral
  - Bad Press & Run
- High-yield Assets
- High Sensitivity

Empirical Analysis of Recent US Bank Failure

- **Leading Causes**
  - High problem loans to capital and ALLL
  - Large losses
    - High provision
    - Losses on securities
  - High non current loans
  - Portfolio concentration in high risk ADC loans
  - Low capital
  - Low Risk Index (<3)
  - High non core funding
- **Other Factors**
  - Prior quick growth
  - High yield assets

The Risk Index

Risk Index (RI) is number of standard deviations bank is from their capital ratio declining below a stated threshold

RI = (Capital Ratio + Mean ROA − Stated Threshold) ÷ ROA Sigma

- **As Risk Index declines, probability of capital problems increase due to:**
  - **Low Capital Ratio**
  - **Low (or negative) mean ROA**
  - **High Volatility of Earnings from Bad Loans, Shifting Strategy, Sensitivity, Illiquidity, etc.**

The Risk Index Applied

Implied Probability Tier 1 Equity < 5% in One Year

$$\boxed{\textbf{RI} = (\textbf{Equity} + \textbf{ROA} - 5.0\%) \div \textbf{Sigma ROA}}$$

	Tier 1 Equity	Average ROA	ROA Sigma	Risk Index	Probability < 5%
PNC	9.31	0.84	0.25	20.60	0.12
BB&T	8.89	1.21	0.48	10.63	0.44
Bank America	7.38	0.89	0.53	6.17	1.31
Citibank	8.31	0.37	0.79	4.66	2.30

Risk Index Inferences

- Normal Distribution
  - Use Normal Table
  - Little Regulatory Concern > 10 Sigma
- Non-normal (but symmetrical)
  - $\boxed{\text{Probability} = .5\ [(1 \div (RI)^2]}$

Risk Index	Probability
10	.5%
5	2.0%
3	5.5%
2	12.5%
1	50.0%

Resultant Governmental Actions

- US Treasury invests in low-cost preferred stock (US $250 billion)
- FDIC raises deposit insurance limit and guarantees bank debt (US $400 billion)
- Federal Reserve provides long-term loans and purchases securities (US $2 trillion)

Housing Problem History

- **Home prices rise quickly after dot.com bust and low interest rate engineered by the central bank encouraged ARM loans**
- **Investors earn 50+% returns with 10% annual appreciation and encourage speculators to purchase more property**
- **Mortgagors need "innovative" loans and "piggy-back" loans to afford a home prior to even higher prices**
- **Wall Street encourages brokers to originate more high-yield loans for MBS**
- **MBS losses trigger "dominoes" to fall**

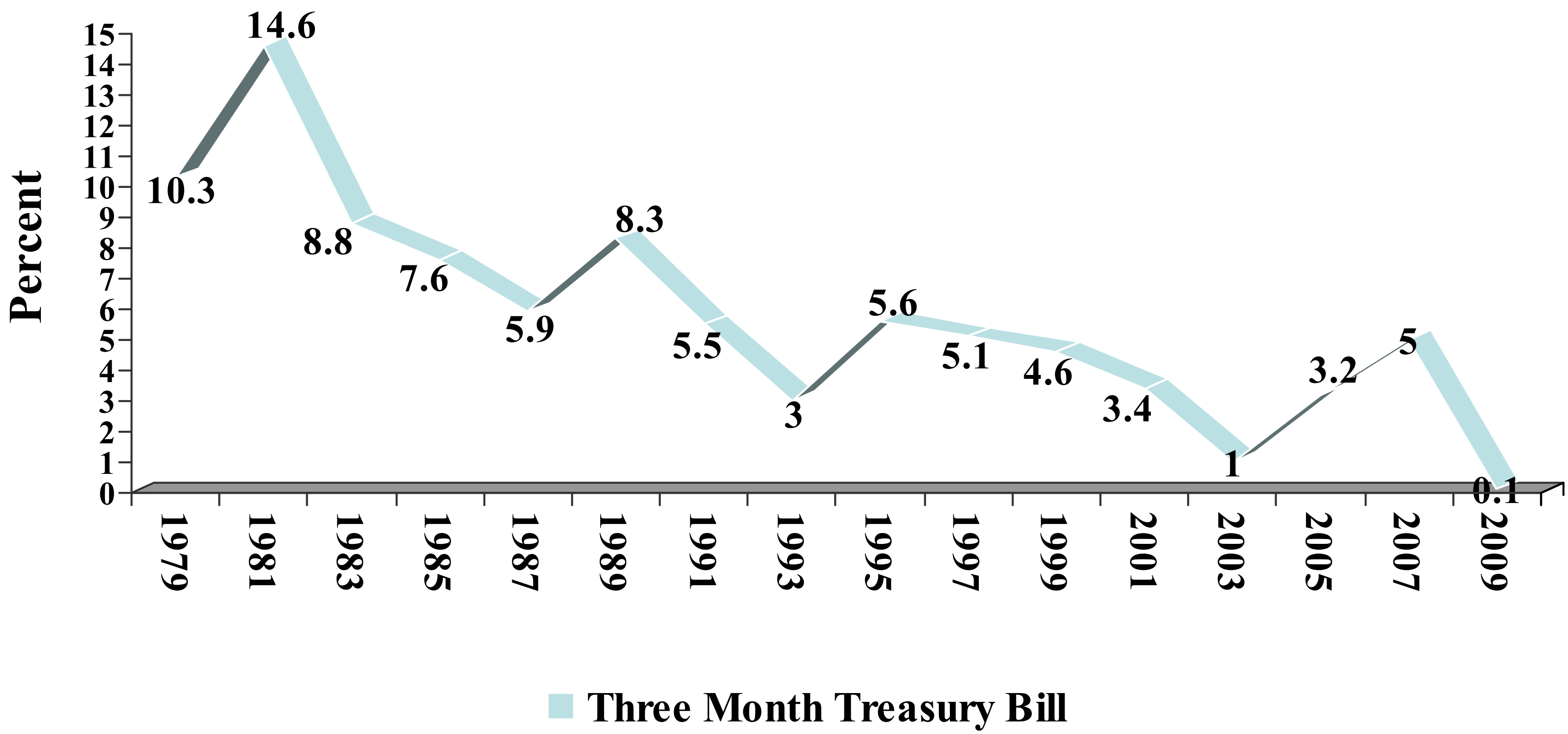
US Home Prices

- **Annual Price Change**
  - **2001: 8.9%**
  - **2002: 15.0%**
  - **2003: 13.4%**
  - **2004: 19.9%**
  - **2005: 14.8%**
  - **2006: 0.2%**
  - **2007: -9.7%**
  - **2008: -19.1%**
  - **2009: -2.5%**
  - **2010 Increasing**

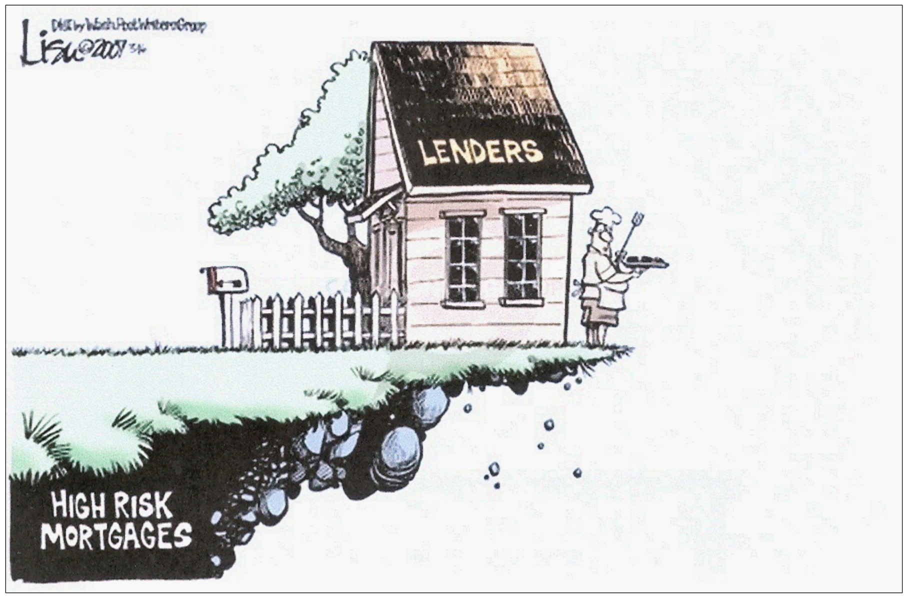
Accommodative Monetary Policy

- Reduce Interest Rates 13 Times 2001-2003
  - Reduce Cost of Short-term Borrowing
    - Consumer
    - Corporate
    - Fiscal
  - Stimulate Growth
  - Reduce Value of US$
  - Stimulate Inflation
  - Increase Rates Mid-2004

Interest Rate Trends

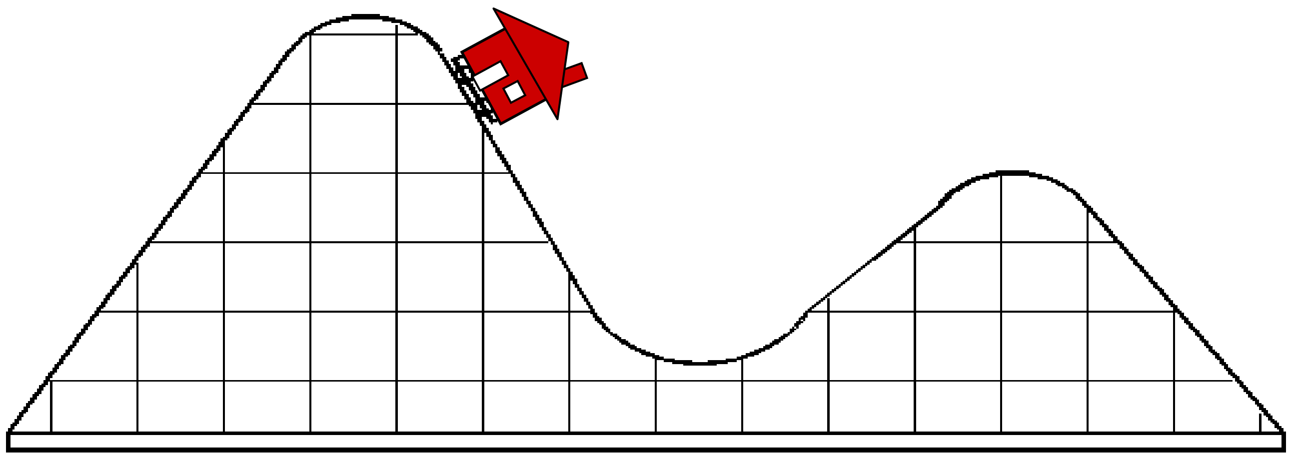


Mortgage Risk



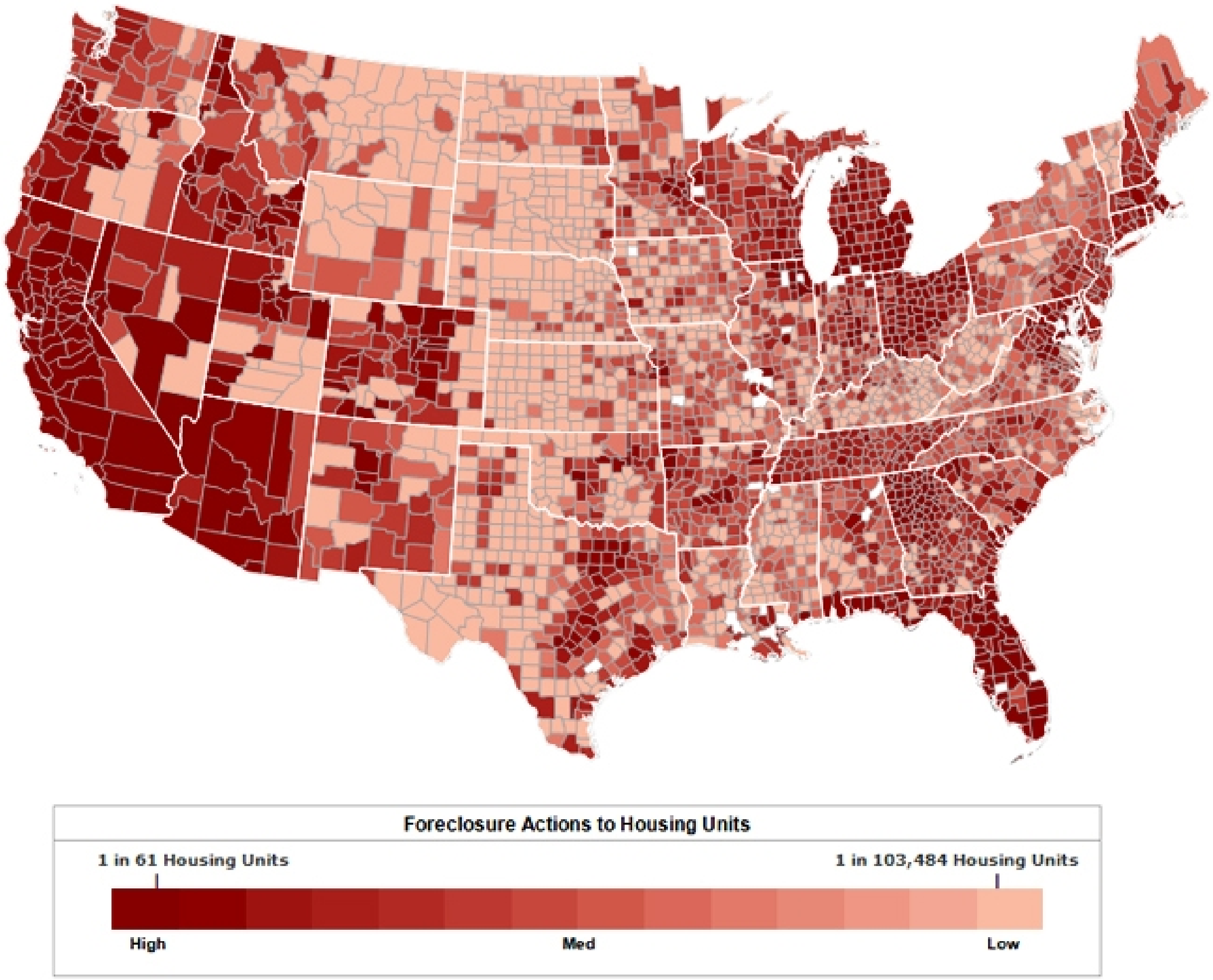
- A: Excellent Credit History (84% of Market); Prime Borrower
- Alt-A: Income not Verified or Property not Appraised (6% of Market); Higher Rate Loan
- B/C: Mediocre to Weak Credit History (10% of Market); Much Higher Rate Loan

Real Estate Loan Risk



- **Type - Balloon loans more risky than amortizing**
- **Interest Rate - Adjustable-rate more risky than fixed rate**
- **Amortization Period - Long-Term (40 years) amortization more risky than medium-term (15 years)**
- **Purpose - Equity refinance more risky than purchase**
- **Occupancy - Second home or investment home more risky than primary property**

U.S. Foreclosure Market Report Heat Map 2010



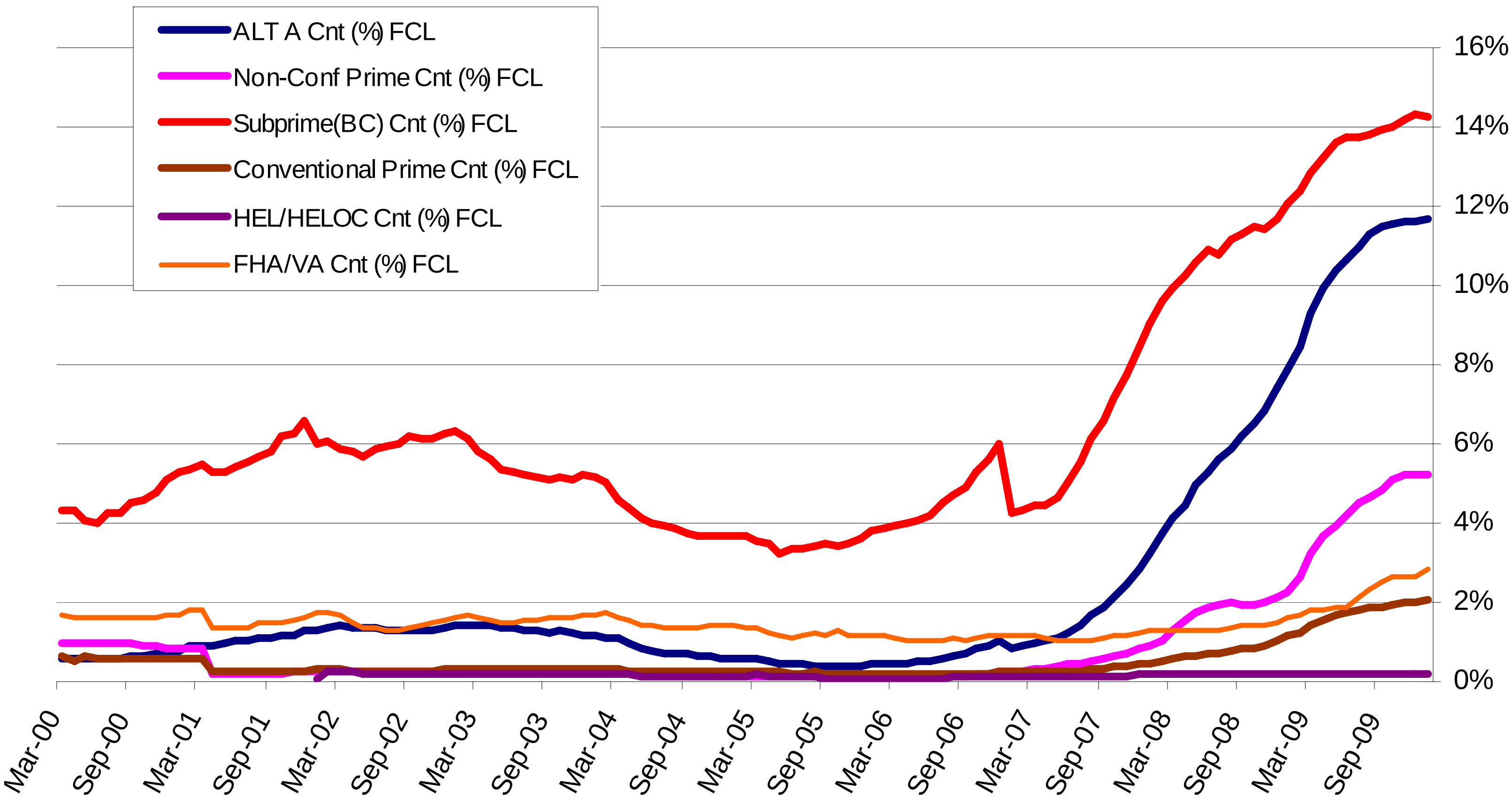
Major Metropolitan Areas: What Goes Up Most Comes Down Hardest

- **Home Prices Increased 100% (since 2000 to peak)**
  - Miami
  - Los Angeles
  - Washington, DC
  - San Diego
  - Tampa
  - Las Vegas
  - Phoenix
  - San Francisco
  - New York

- **Home Prices Declined at least 40% (peak to trough)**
  - Las Vegas (boom)
  - Phoenix (boom)
  - Miami (boom)
  - Tampa (boom)
  - Detroit (bust)

Foreclosure

All Mortgage Products



Source: First American CoreLogic, all Loan Performance databases

Supply Factors

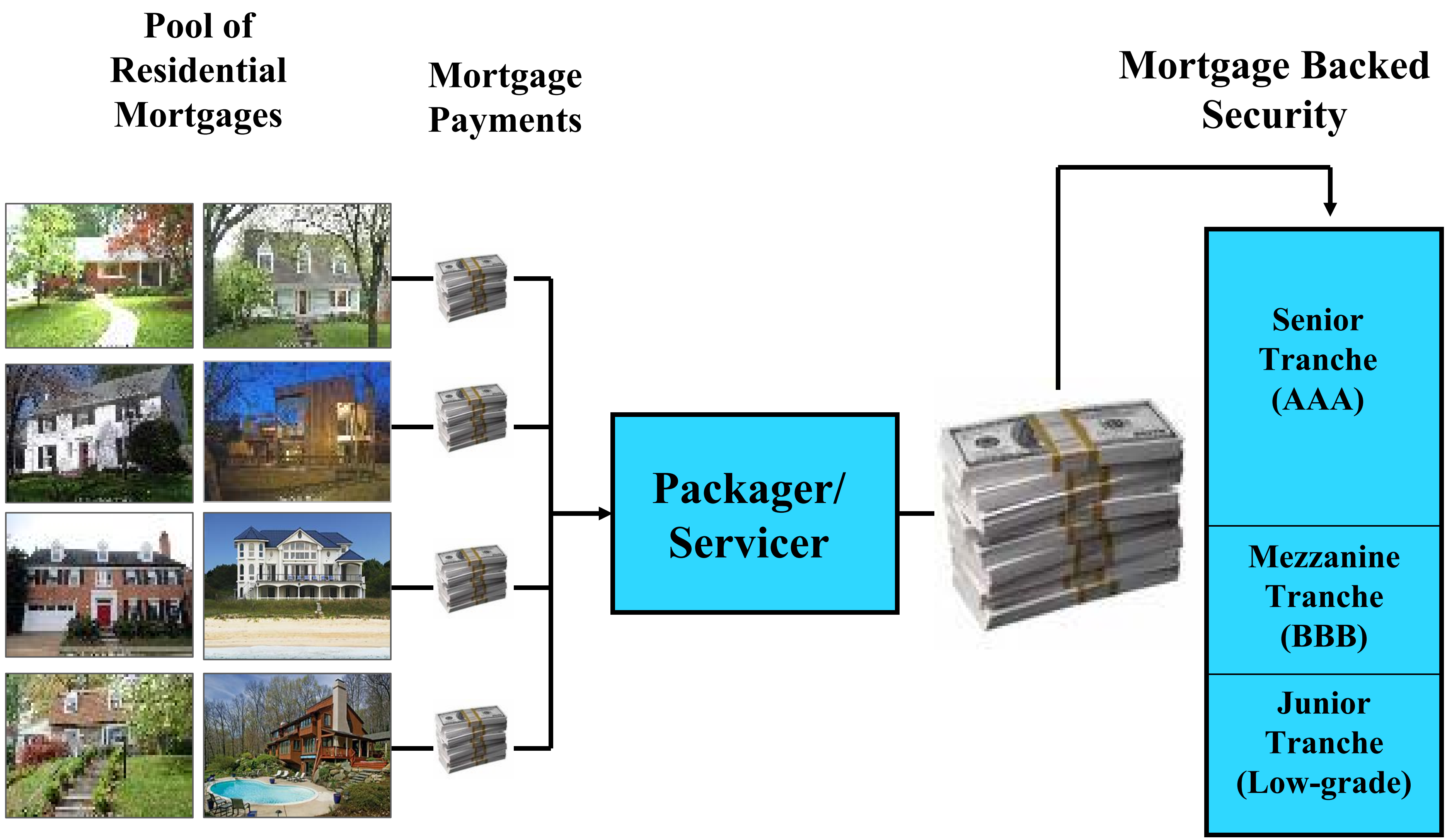
Investment Banks
Sell Highly-Rated Securities
backed by High-Yield Loans

Mortgage Brokers
Originate High-Yield Loans
then Sold to Banks

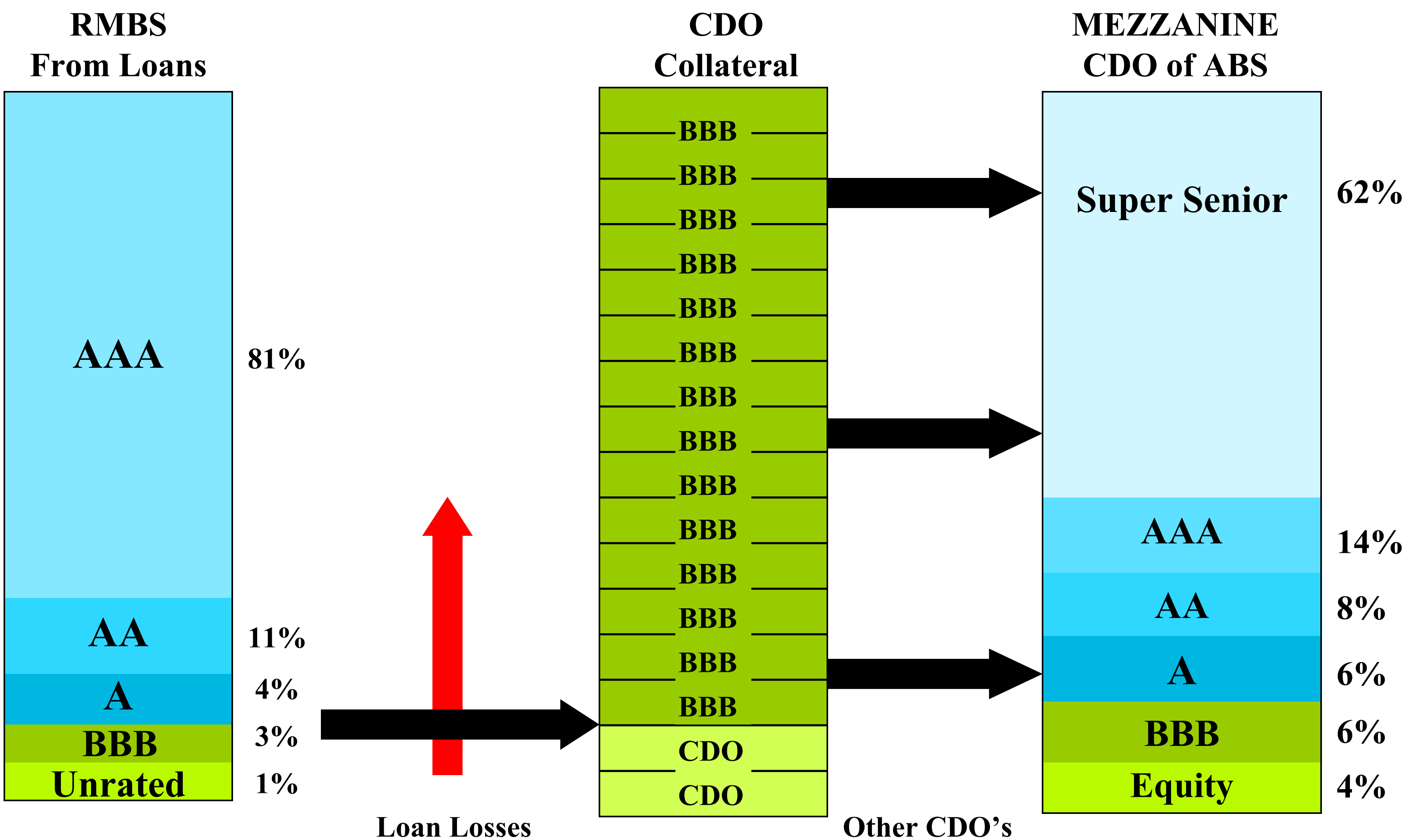
Mortgagors Require
Credit to Afford Homes
Prior to Higher Prices

Investors and Speculators Seek
Credit to Purchase Real Estate
and Enhance Returns

Securitization



CDO's
(Collateralized Debt Obligations)

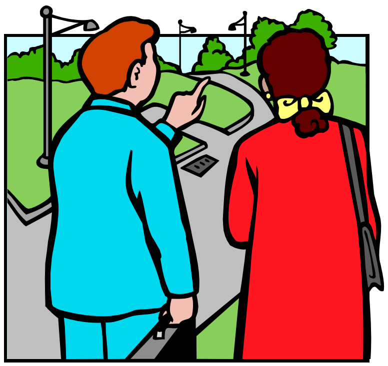


Projected v. Actual CDO Default over 3 Years backed by Sub prime

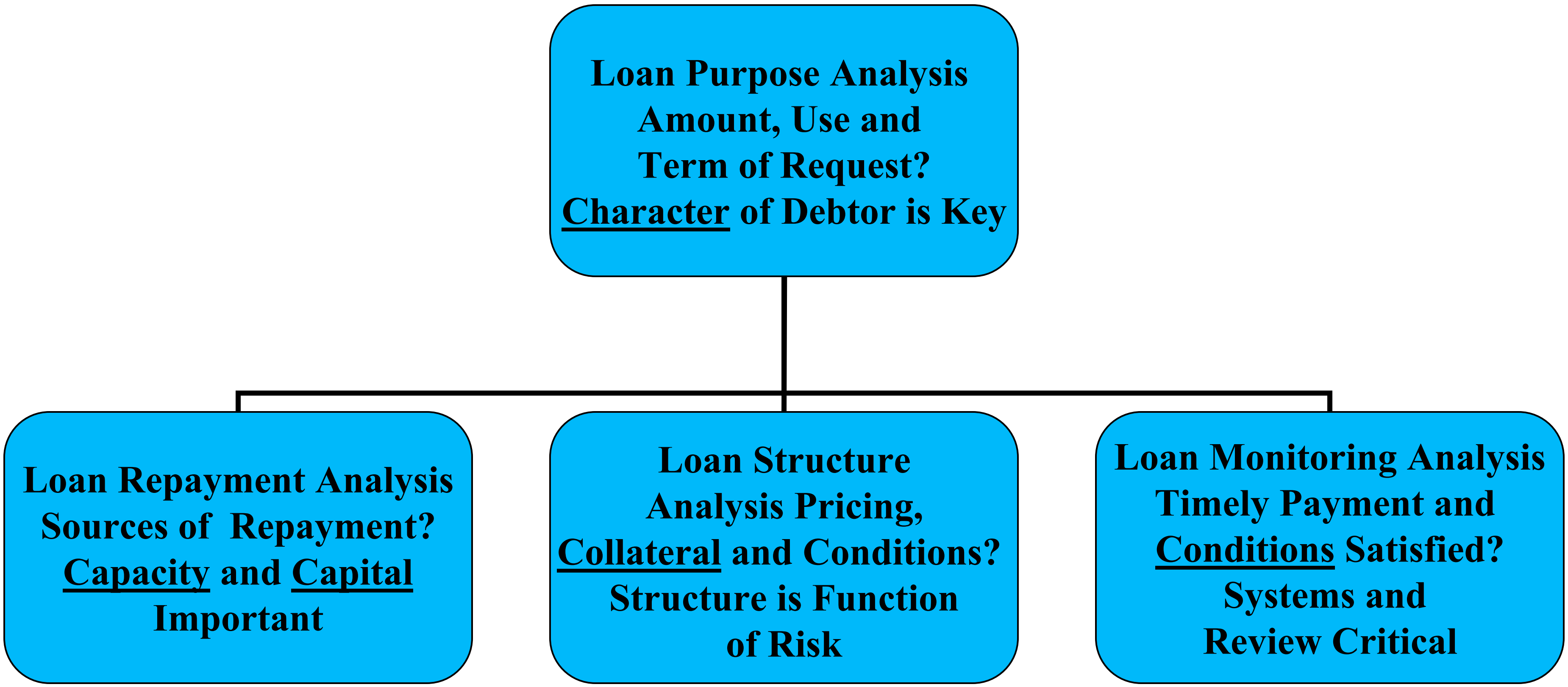
Rating	Projected 3-year Default	Actual Default Rate
AAA	Nil	0.10
AA	0.04	8.16
A	0.09	29.21
BBB	0.49	56.10

Implications for Acquisition, Development and Construction (ADC) Loans

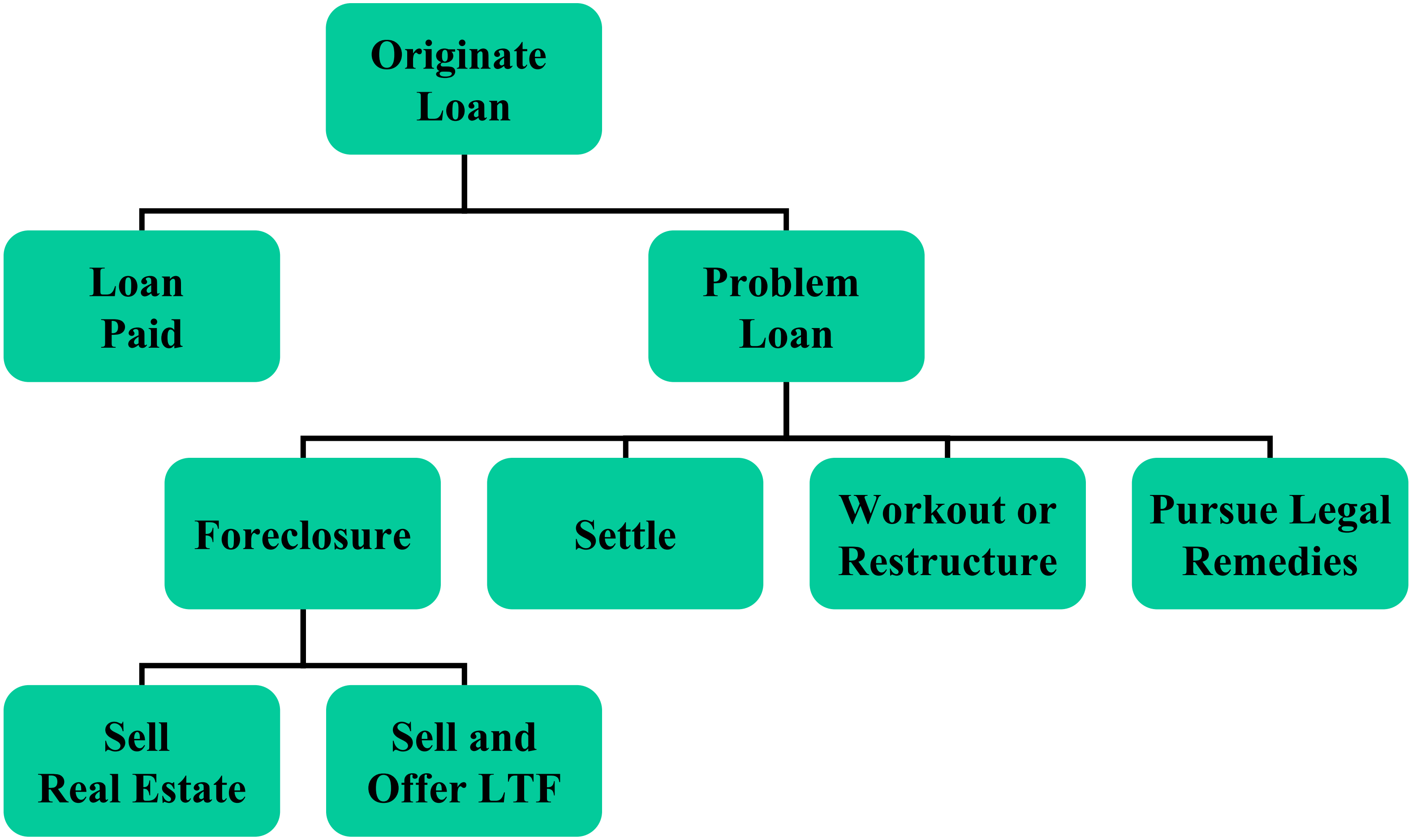
- Excess housing inventory eliminates demand for new home lots by builders
- Expectations of falling home prices stem demand for new homes
- Strict underwriting limits potential buyers
- As a result, land sells for 20% of cost; banks incur substantial losses on ADC loans



"Five C's of Credit"



Mortgage Loan Problem Resolution



Implications of Home Loan Problems

- Lower tax base
- Higher homelessness
- Urban blight
- Lost real estate wealth and MBS investment value and endowment
- More difficult to refinance or obtain home equity loan
- Lost employment and retail spending

Housing Crisis Culprits

- Central bank
- Unregulated mortgage brokers
- Bank risk managers
- Bank management and board of directors
- Credit rating agencies
- Bank regulators
- Investors seeking high yield without recognition of risk
- Federal government efforts to support affordable housing

Congressional and Regulatory Implications

- Strict loan underwriting
- Higher FDIC deposit insurance fee
- Higher capital requirements
- More focus on Tier 1 capital v. Tier 2 capital
- More attention to liquidity
- Federal Reserve and FDIC became a lender of “first resort” and now need to extricate their support

Summary

- Credit risk must be managed well to remain a safe and sound bank
- "Five C's of Credit" still provide foundation for underwriting loans
- Quick growth, high yielding assets and concentration contributed to failure
- Another US banking crisis will occur in about 20 years as recent experience is confined to history