Opportunities in Today's Economy
Minority Depository Institutions
2008 Conference

William C. Handorf, Ph. D.

- Current
  - Professor of Finance
    - The George Washington University
  - Consultant
    - Banks
    - Central Banks
    - Expert Witness
  - Director
    - Federal Home Loan Bank of Atlanta

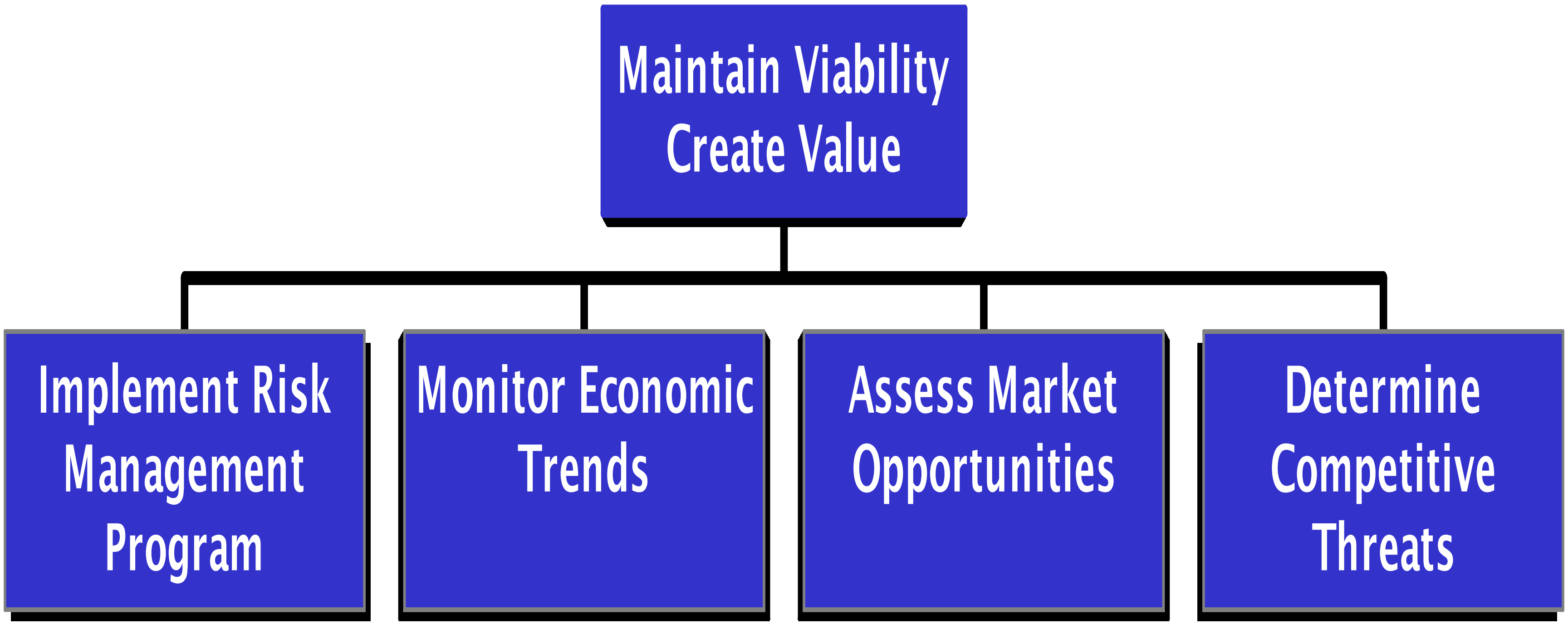
- Experience
  - Director
    - Federal Reserve Bank of Richmond
    - Federal Home Loan Bank System
  - Regulator
    - Federal Deposit Insurance Corporation
    - Federal Home Loan Bank Board
  - Lender
    National Bank of Detroit
  - Officer, United States Army

Business Planning Matrix

Products, Delivery Systems, Geographic Regions, Asset/Liability Focus

		Opportunity/Threat		
		Excellent	Acceptable	Poor
Strength/ Weakness	Strong	Expand	Increase	Monitor
	Average	Increase	Monitor	Decrease
	Weak	Monitor	Decrease	Retreat

Managerial Concerns



Share Value:
Return on Equity v. Cost of Equity

- Value Creation
  - ROE > COE
  - Price/Book Premium
  - Asset Growth
- Value Destruction
  - ROE < COE
  - Price/Book Discount
  - Asset Shrinkage

ROE = EM x ROA

- NI÷E = A÷E x NI÷A

COE =8% to 15%

Competitive Questions

- Market Research
  - Products and Services?
  - Pricing?
  - Promotion?
  - Delivery?
  - Market Share?
- Competitor Position
  - Profitability?
  - Risk?
  - Economies of Scale and Scope?

Bank Failure

Liquidation

Economic

Financial

Managerial

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

Bank Failure and Management

- High number and percentage of loans to insiders
- Passive Board of Directors
- Lack of coherent business plan
- Ineffective risk management
- Fraud
- Follow competition

Impact of Business Plan on Regulatory Viability (CAMELS)

Capital Adequacy

Asset Quality

Management

- Strategic
- Risk Management

Earnings

Liquidity

Sensitivity

US Banking Sector between 2008 and 2013

2 Biggest Issues for US Banks:

1. ______________________

2. ______________________

2 Biggest Issues for Minority Banks:

1. ______________________

2. ______________________

2009 Market

Robust Expansion

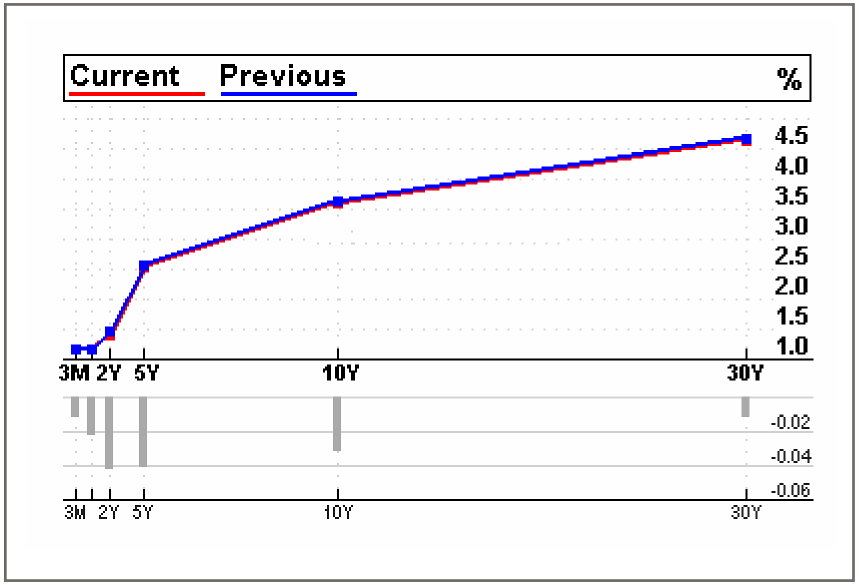
- Government actions provide catalyst
- Increased business investment
- Retail spending improves
- Rising employment
- Increased interest rates and value of USD
- Housing market stabilizes

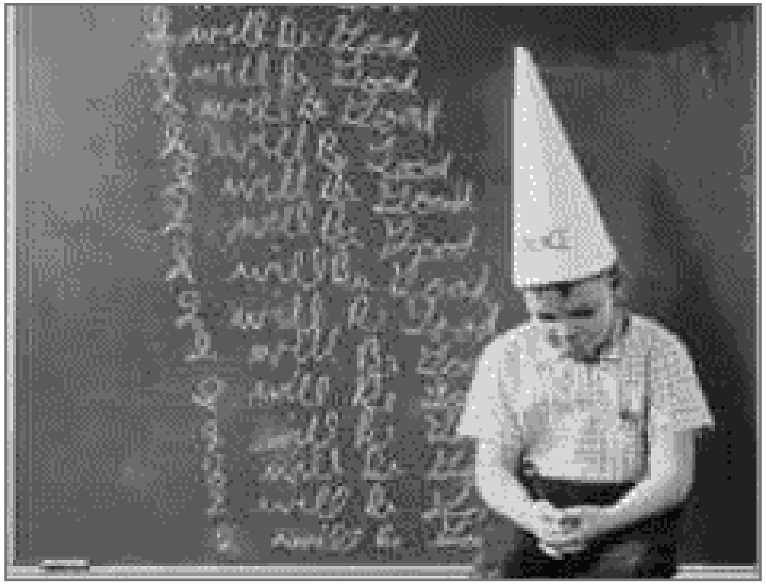
2009 Market
Alternate View

Recession

- Large fiscal deficit
- Weak car sales
- Poor home market
- Credit risk aversion
- Money growth and oil trigger inflation
- Global sale of US debt
- Return to "Stagflation"

Financial Market Information and Economic Trends





- US Treasury Yield Curve
  - Direction of interest rates
  - Strength of economy
- Poor Expert Forecasters
  - Economic
  - Weather

The Yield Curve and the Business Cycle

Interest Rate Spread

	Recession	Recovery	Expansion
10 Year	4.9	4.1	4.3
3 Month	- 5.8	- 1.2	-3.1
Spread	- 0.9	2.9	1.2

- US Curve Provides Recession Forecast for Next Year
- 10-year Yield minus 3-month Yield
- Spread Probability:

Spread	Probability
1.2%	5%
0.8%	10%
0.2%	20%
- 0.2%	30%
- 0.8%	50%

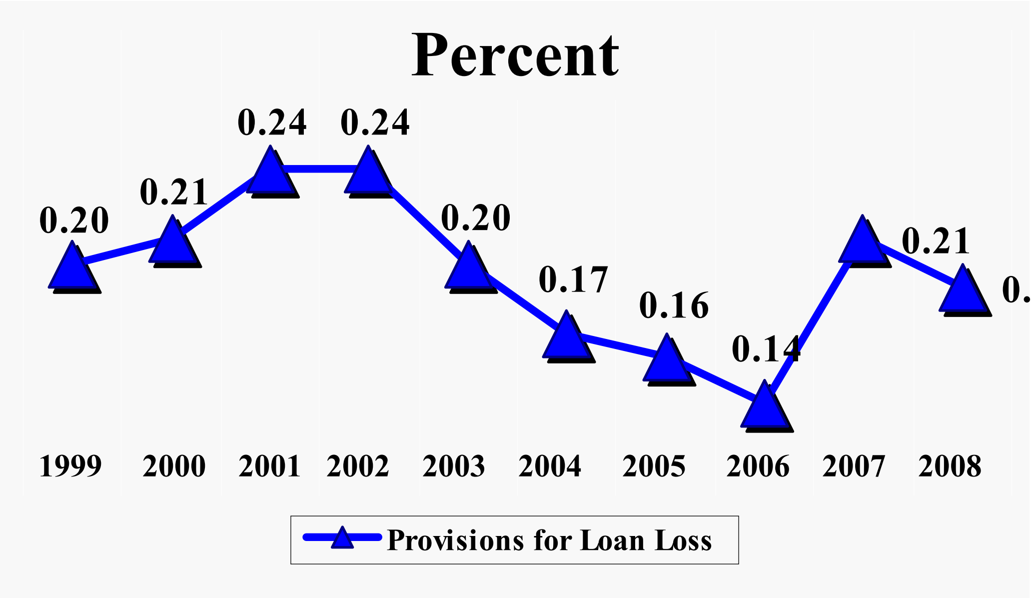
The Credit Spread and the Business Cycle

Credit Spread from Capital Market

	Recession	Recovery	Expansion
Low-grade	12.3	8.0	6.7
Treasury	- 5.8	- 5.0	-4.8
Spread	6.5	3.0	1.9

- Credit spread represents market's appetite for risk
- Spread widens when "seek safety" from recession
- Spread narrows when "reach for yield"

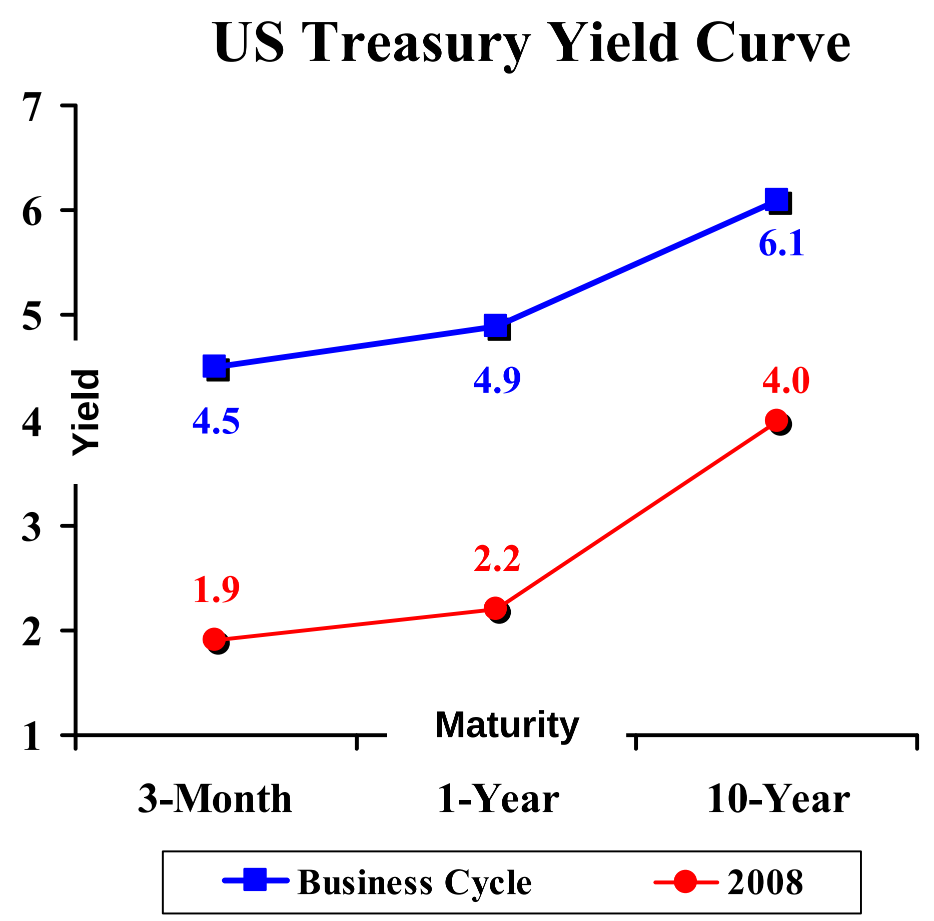
Credit Quality Implications of Business Cycle



- Asset Quality
  - Slow Loans
  - Classified Assets
  - Troubled Debt Restructuring
  - Foreclosures and OREO (ORE)
  - Net Charge-off
  - Loan Loss Provision and General Valuation Allowance

Interest Rate and Repricing Risk

- Yield Curve is a graphical relationship between yield and maturity
- "Normal Curve" is upward sloping due to existence of a liquidity premium
- Incentives for banks to incur Repricing Risk by taking on:
  - Short Term Debt
  - Long Term Assets



Expert Rate Forecast

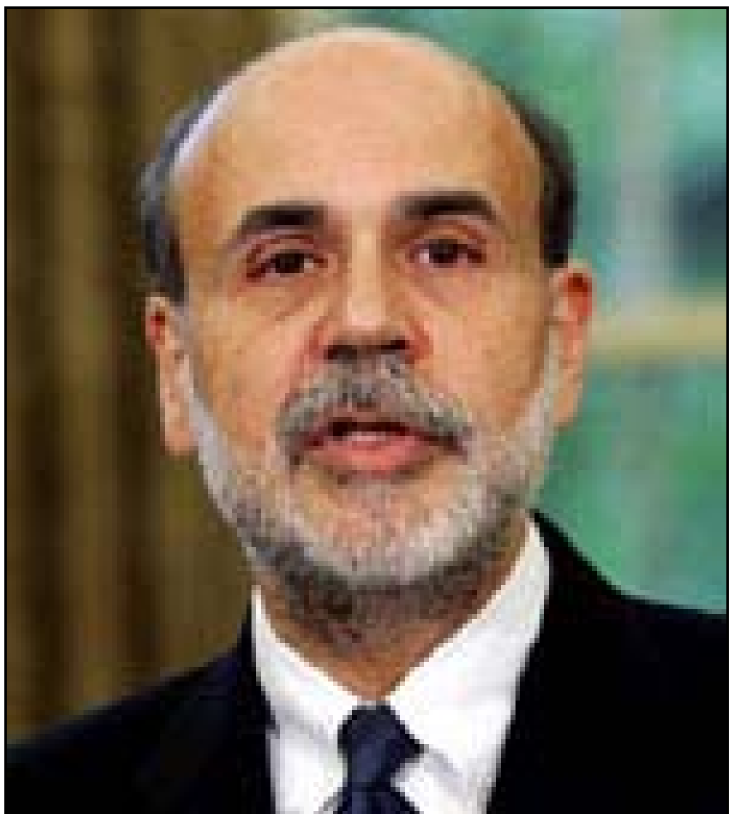
3-Month T-Bill 6 Months Hence (WSJ)

	Forecast	Realized	Error
Mid 1999	4.9	5.3	- 0.4
Late 1999	5.6	5.9	- 0.3
Mid 2000	6.1	5.9	0.2
Late 2000	5.4	3.6	1.8
Mid 2001	3.4	1.7	1.7
Late 2001	1.9	1.7	0.2
Mid 2002	2.2	1.2	1.0
Late 2002	1.4	0.8	0.6
Mid 2003	1.0	0.9	0.1

Expert Opinion

- Empirical Evidence
  - Forecast “Good” when Rates Do Not Change
  - Experts Miss Turning Points in Rate Cycle
  - “No Change” Forecast Better than Experts
  - Future’s Market Provides Better Forecast

The Federal Reserve and Monetary Policy



- Objectives
  - Low Inflation
  - Full Employment
  - Sustainable Growth
  - Stable Currency
- Tools
  - Federal Funds Rate
  - Open Market Operations
  - Reserve Requirement

Inflationary Expectations

FOMC Focus on
Core Inflation from PCE

Inflation Estimate is CPI

	Recession	Recovery	Expansion
10 Year Note	4.9	4.1	5.2
10 Year TIPS	-3.6	-2.5	-2.6
Inflation	1.3	1.6	2.6

- Nominal Yield (Note) includes Inflation
- Real Yield (TIPS) excludes Inflation
- The Difference in Yield reflects Inflation Expectations
  - Cost Pressure
  - Excess Money
  - Weak Dollar

Federal Reserve Release

Press Release

Release Date: March, 2004

“With inflation quite low and resource use slack, the Committee believes that it can be patient in removing its policy accommodation.”

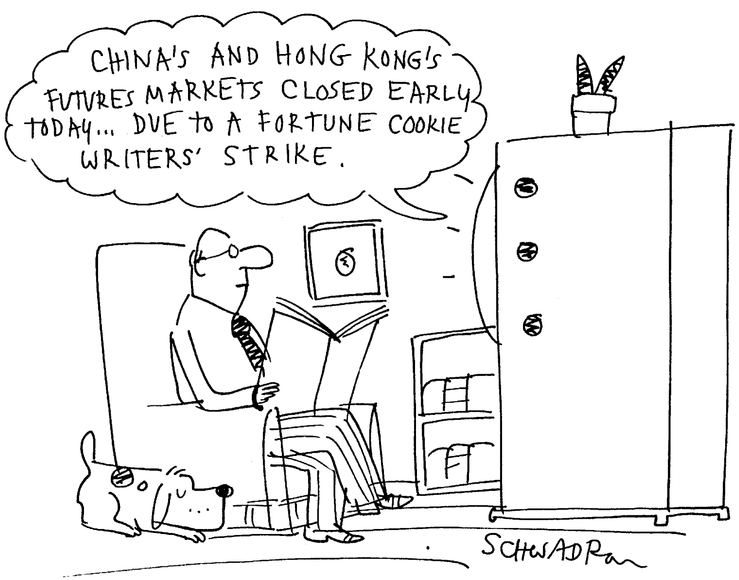
Release Date: June, 2004

“The Committee will respond to changes in the economic prospects as needed to maintain price stability.”

Release Date: April, 2008

“The Committee will act in a timely manner as needed to promote sustainable economic growth and price stability.”

Federal Open Market Committee Projected Interest Rate Changes and the Futures' Market



E = Expected rate

i = Current or Existing rate

d = Change or delta of interest rate

p = Probability

- $E = (i + d)p + i(1 - p)$
- $E = ip + dp + i - ip$
- $E = dp + i$
- $p = (E - i) \div d$

Federal Funds Futures (CBOT)

- **Rate = 100 – Index:**

  December = 100 – 97.95 = 2.05%

  February = 100 – 97.48 = 2.52%

- **Probability Rate Change: 2.75%**

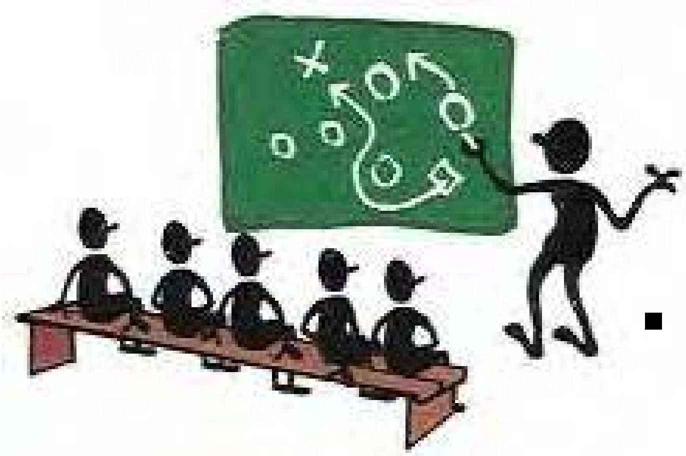
  E = 2.52%

  i = 2.00%

  d = +.75%

  p = 2.52 – 2.00 ÷ .75 = 69%

Interest Rate Trends and the Business Cycle



- **Rates Rise**
  - **Restrictive Monetary Policy**
  - **Inflation Threat**
  - **Strong Economic Growth**
- **Industry Impact**
  - **"S" Ratios Decline for Banks with Negative or Liability Sensitive Gap**

- **Rates Decline**
  - **Accommodative Monetary Policy**
  - **Recession or Slow Growth**
  - **High or Rising Unemployment**
- **Industry Impact**
  - **"S" Ratios Decline for Banks with Positive or Asset Sensitive Gap**

William C. Handorf

Global Indicators:

A quarterly perspective of US economy with market focus:

- **Inflation Spread**
- **Yield Curve Spread**
- **Corporate Bond Spread**

www.gwu.edu/~business/news/indicators.htm

US Economic Outlook 2008 to 2013?

2 Key Strengths:

1. ______________________

2. ______________________

2 Key Weaknesses:

1. ______________________

2. ______________________

Problem Asset Classes in the 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"***

Housing Problem History

- Home prices rise quickly after dot.com bust
- 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

Expert Forecast *The Economist*

The Economist

1999: "Will the equity market crash next year?" **NO** **(It declined 16%)**

2000: "Will the US enter a recession next year?" **NO** **(Recession between March and November 2001)**

2002: "Will US Treasury Bill rates fall below 1% next year? **NO** **(Yields fell to .8% in summer of 2003)**

2005: "Will home prices fall in the US next year after rising so quickly last two years due to housing bubble?

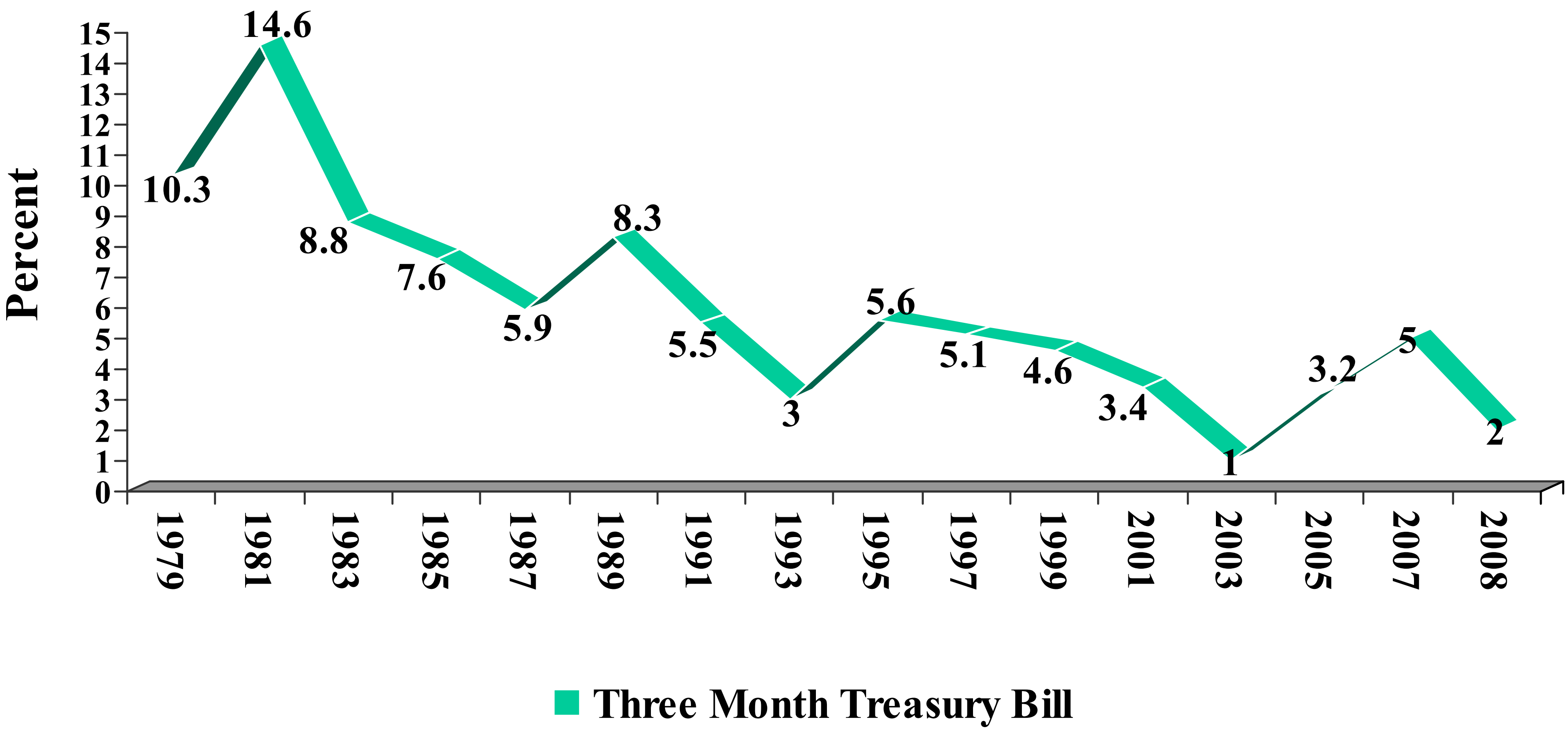
US Home Prices

- **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: Negative**

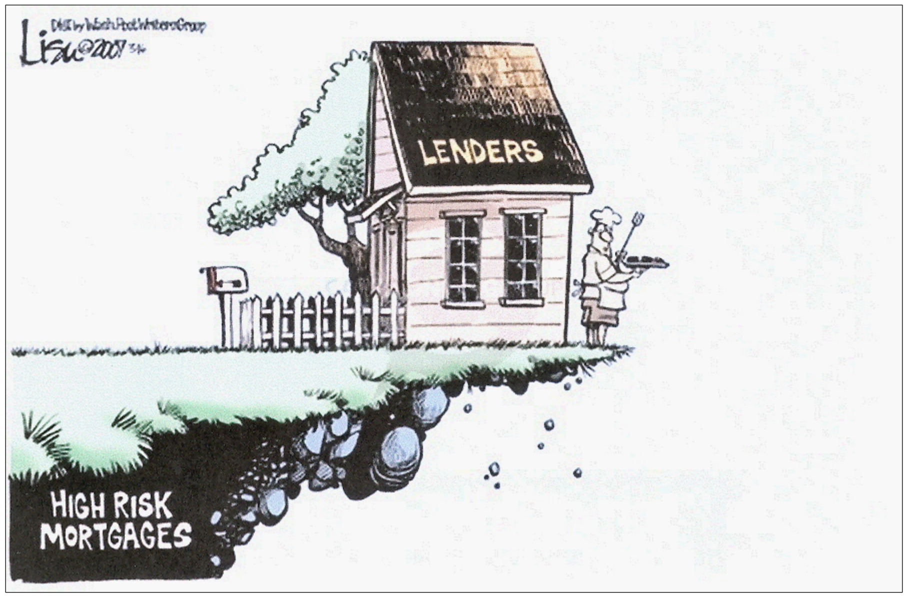
Accommodative Monetary Policy

- 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

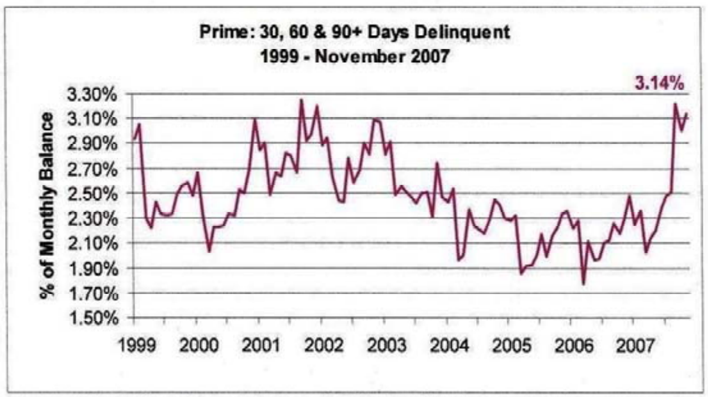


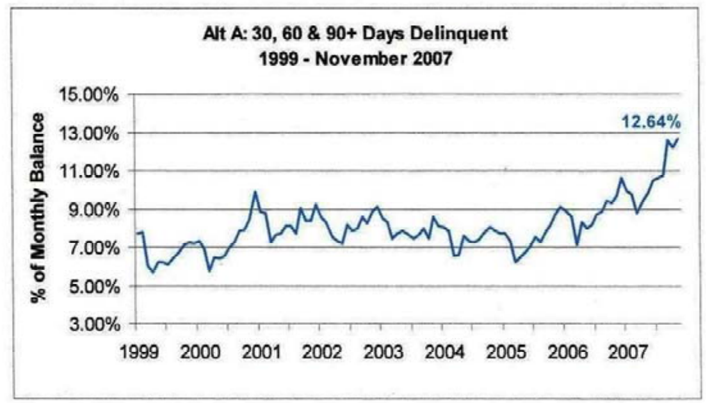
Mortgage Risk

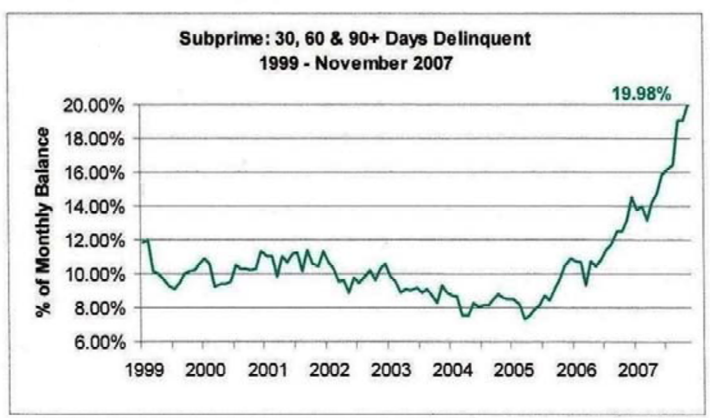


- A: Excellent Credit History; Prime Borrower
- Alt-A: Income not Verified or Property not Appraised; Higher Rate Loan
- B/C: Mediocre to Weak Credit History; Much Higher Rate Loan

National Delinquency Rates: Prime, ALT-A and Subprime Loans

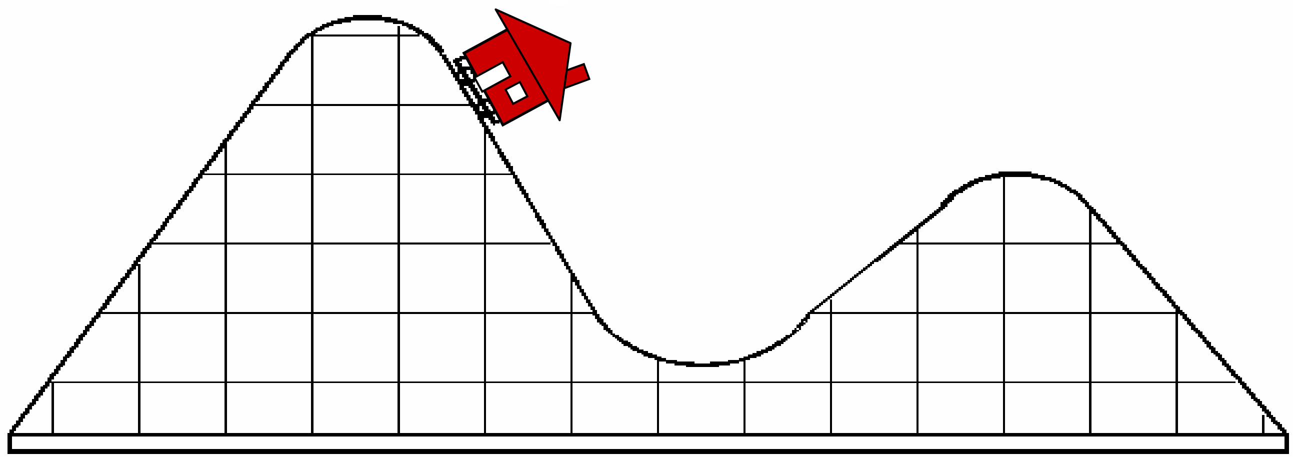






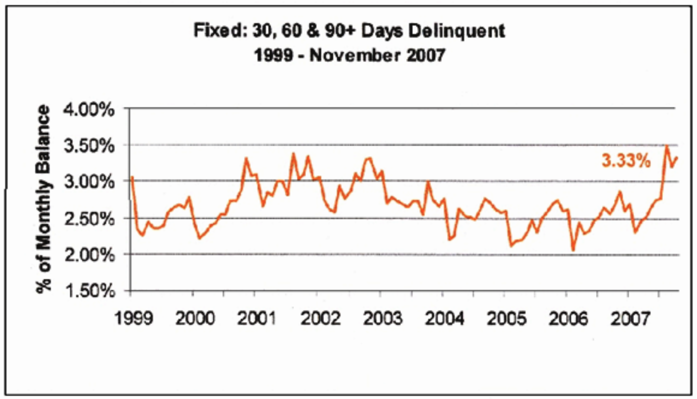
Office of Thrift Supervision • 1700 G Street, NW • Washington, DC 20552 • 202.906.6000

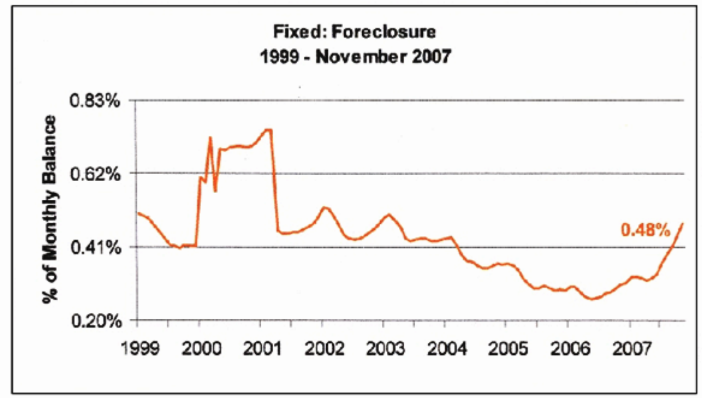
Real Estate Loan Risk

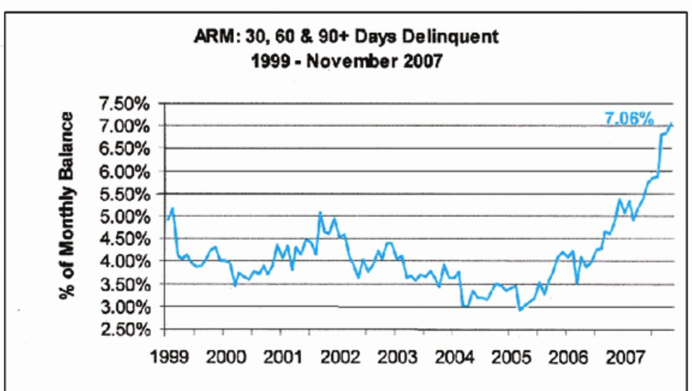


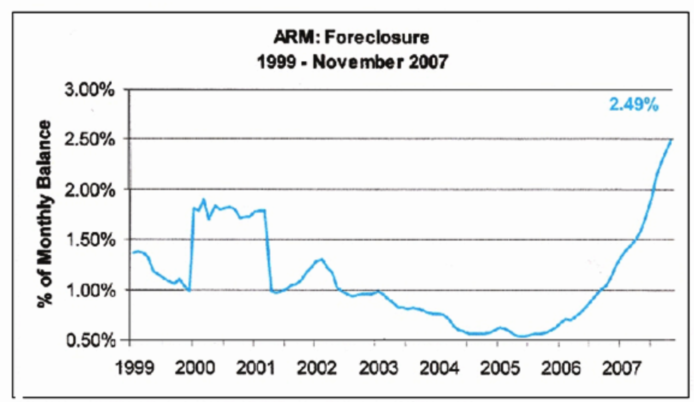
- **Type - Balloon loans more risky than amortizing**
- **Interest Rate - Adjustable-rate more risky than fixed rate**
- **Amortization Period - Long-Term (40 years) amortization more risky than medium-term (15 years)**
- **Purpose - Equity refinance more risky than purchase**
- **Occupancy - Second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

National Delinquency and Foreclosure Rates: Fixed and ARM Loans





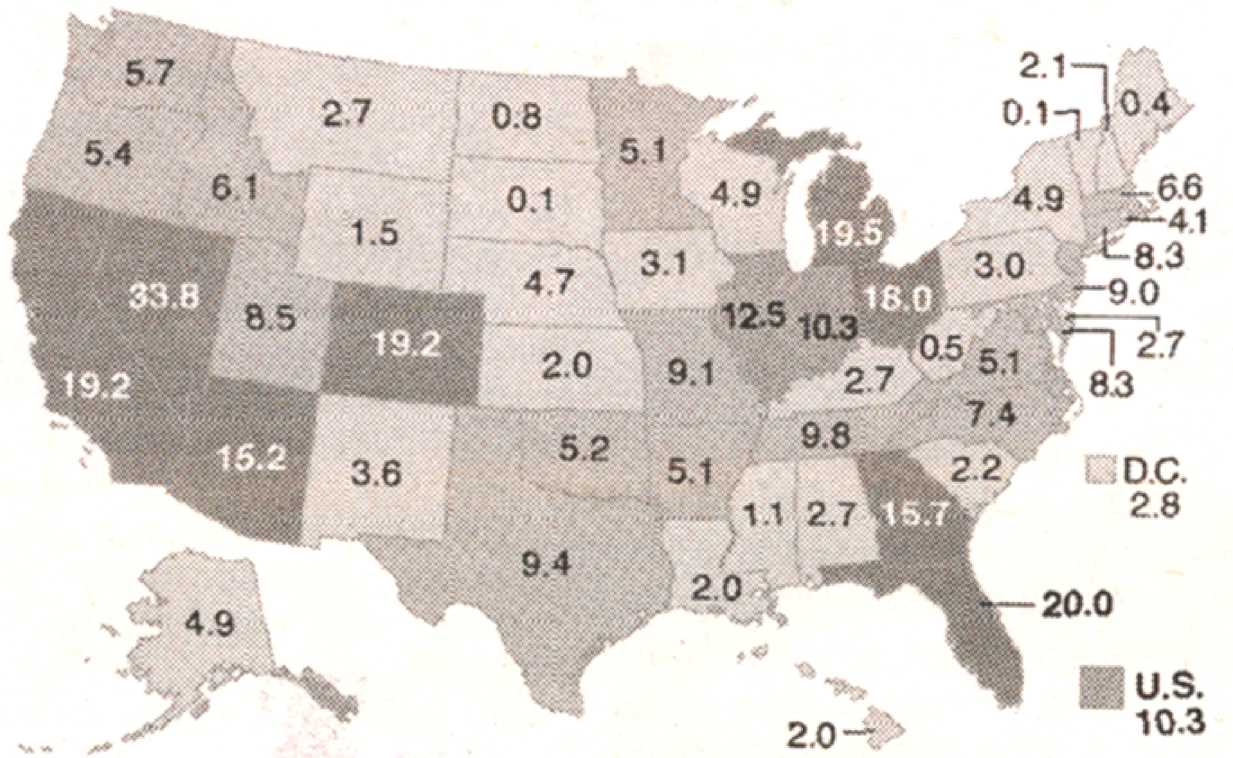




Regional Foreclosure

Foreclosures up 75 percent in 2007

Eight states ended last year with full-year foreclosure rates of more than 15 per 1,000 households.



SOURCE: RealtyTrac

AP

2007 foreclosure rate per 1,000 households

0 5.0 10.0 15.0 34.0

Apply the "Five C's of Credit"

Loan Purpose Analysis
Amount, Use and
Term of Request?
Character of Debtor is Key

Loan Repayment Analysis
Sources of Repayment?
Capacity and Capital
Important

Loan Structure
Analysis Pricing,
Collateral and Conditions?
Structure is Function
of Risk

Loan Monitoring Analysis
Timely Payment and
Conditions Satisfied?
Systems and
Review Critical

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

Financial Market "Flight-to-quality"

- **Unexpected losses on highly-rated mortgage-backed securities lead to:**
  - **Wall Street unable to sell new MBS and stop buying loans from mortgage brokers**
  - **Mortgage brokers incur liquidity problems and fail when unable to sell loans and correspondent banks cut lines of credit**
  - **Sub-prime, Alternative-A and investment mortgagors unable to obtain credit**
  - **Prime mortgagor loans underwritten more carefully**
  - **Stock of unsold homes increase, absorption periods lengthen and prices fall**

Implications of Home Loan Problems

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

Key Risks to the US Housing Market

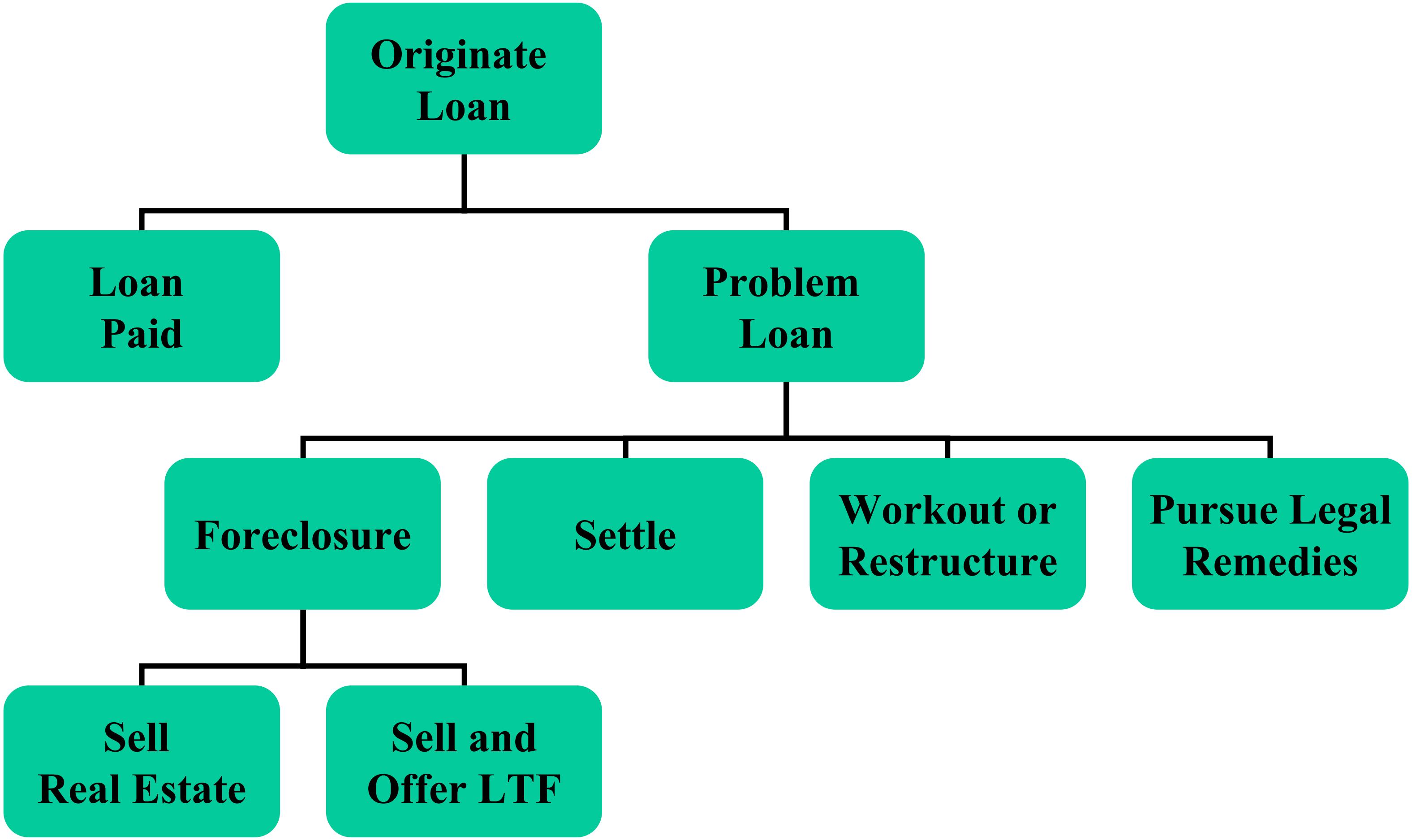
- Rising Unemployment Rates
- Long or Severe Recession
- Sharply Higher Inflation and Interest Rates
- Plummeting Home Values
- GSE Bankruptcy
- Elimination of Tax Deduction due to Fiscal Deficit

Mortgage Loan and MBS Prepayment Model Errors

- Prepay Factors
  - Age of loan
  - Market interest rate versus contract rate
  - Consumer confidence
  - Unemployment trends
  - Home price trends
  - Legal covenants
    - Due on sale
    - Balloon payment
    - Prepay penalty

- Prepayment Cause
  - Home Sale
  - Loan Refinancing
    - Lower Payment
    - Shorter term
    - Equity takeout
  - Partial prepayment
  - Foreclosure
  - Catastrophic Event

Mortgage Loan Resolution Problems Remain until the Market Clears



Bank Lending and Capital Rules

BANK FOR INTERNATIONAL SETTLEMENTS

- **Pre-Basel Capital**
  - **Banks need capital equal to 5% of Loans**
- **1988 Basel Accord**
  - **Banks need risk-based capital equal to 4% of Mortgage Loans: 50% Risk Weight**
- **Basel II (Standardized)**
  - **Banks need risk-based capital equal to 2.8% of Mortgage Loans; 35% Risk Weight**

The Model

Retail	**Capital Requirement (K) Non-Defaulted Exposures**	$K = \left[LGD \times N\left(\frac{N^{-1}(PD) + \sqrt{R} \times N^{-1}(0.999)}{\sqrt{1-R}} \right) - (ELGD \times PD) \right]$
	Correlation Factor (R)	For residential mortgage exposures: $R = 0.15$ For qualifying revolving exposures: $R = 0.04$ For other retail exposures: $R = 0.03 + 0.13 \times e^{-35 \times PD}$
Wholesale	**Capital Requirement (K) Non-Defaulted Exposures**	$K = \left[LGD \times N\left(\frac{N^{-1}(PD) + \sqrt{R} \times N^{-1}(0.999)}{\sqrt{1-R}} \right) - (ELGD \times PD) \right] \times \left(\frac{1 + (M - 2.5) \times b}{1 - 1.5 \times b} \right)$
	Correlation Factor (R)	For HVCRE exposures: $R = 0.12 + 0.18 \times e^{-50 \times PD}$ For wholesale exposures other than HVCRE exposures: $R = 0.12 + 0.12 \times e^{-50 \times PD}$
	Maturity Adjustment (b)	$b = (0.11852 - 0.05478 \times \ln(PD))^2$

Implied Residential Mortgage Loan Risk Weights

	10% LGD	30% LGD
.25% PD	5	14
.50% PD	8	23
1.00% PD	13	38
5.00% PD	33	99
10.00% PD	45	136
25.00% PD	58	174

FHLBank System

FHLBank System
(Aaa-rated)
12 Regional Banks

Borrows Funds from Domestic and Global Financial Markets at Low Rate

Lends Funds to Banks at Low Rate (+ Spread) to Make Home Loans

FHLBank Loans (Advances)

- Allow Member Banks to Manage Liquidity & Sensitivity and Support Profitable Growth with Good Collateral
  - Overnight to long-term
  - Fixed-rate or Floating-rate
  - Fixed-term, Callable or Extendible
  - Easily Hedged given Fixed-rate or LIBOR

Bond Rating Agencies

Moody's (1, 2, 3)

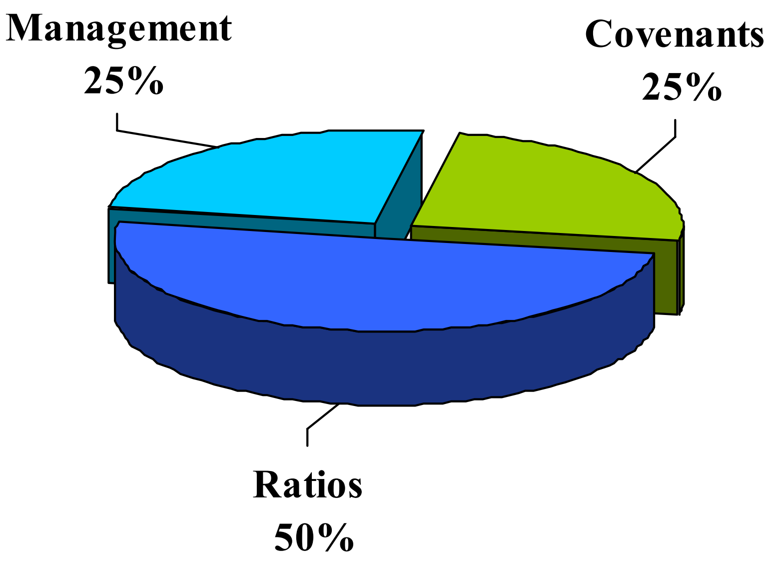
Aaa:	Best Quality
Aa:	High Quality
A:	Upper Medium
Baa:	Medium Grade
Ba:	Speculative Elements
B:	Lack Desirable Investment Quality
C:	Extremely Poor Prospects; May be in Default

S & P (+ , -)

AAA:	Extremely Strong Capacity
AA:	Very Strong Capacity
A:	Strong Capacity
BBB:	Adequate Capacity
BB:	Uncertainties Could Lead to Default
B:	Vulnerable
D:	In Default

Bank Bond Rating Process

- Key Issues
  - Probability of Default
  - Loss Given Default
- Rating Factors
  - Quantitative
    - Financial Ratios
  - Qualitative
    - Management
    - Industry
  - Support
    - Collateral
    - Guarantee
    - Subordination



Studies of Bank Bond Ratings

- Higher Grade
  - High Capital
  - High ROA
  - Low Earnings Variability
  - Large Companies
  - Low Risk Portfolio
  - Full Disclosure

Moody's Financial Strength

Ratings –

- A: Exceptional
- B: Strong
- C: Good
- D: Adequate to Vulnerable
- E: Very Weak

Likelihood bank will require assistance –

- A- Netherlands
- B+ United States
- B Canada
- C+ New Zealand
- C South Africa
- C- Kuwait
- D+ Brazil
- D India
- D- Japan
- E+ Ecuador

Bank Credit Ratings and Financial Strength

Bank	Credit Rating	Strength
Bank America	Aaa	A-
Citibank	Aa1	B
PNC	Aa3	B
Comerica	A1	B-
Sovereign	A3	C-
Countrywide	Baa1	D
WAMU	Baa2	C-
Downey	Baa3	D+
E-Trade	Ba2	D

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

RI = (Equity + ROA – 5.0%) ÷ Sigma ROA

	Tier 1 Equity	Average ROA	ROA Sigma	Risk Index	Probability < 5%
Comerica	9.39	1.48	0.22	26.7	0.1
Bank America	5.91	1.33	0.24	9.3	0.6
Citibank	6.65	1.12	0.54	5.1	1.9
PNC	6.17	1.09	0.52	4.3	2.7

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%

Summary

- Market conveys economic information
- Interest rates projected to rise
- Current economic problems identified more than one year ago
- Housing problems affect capital, prepayment models, asset quality and liquidity of the banking sector until market "clears"

Mission
Luck
Threats, Opportunities, Strengths & Weaknesses
Objectives
Problems
Intuition
Forecasting
Research
Strategy
Products and/or Markets
Opportunism
Business Planning Process