

## Chapter 1: The White Paper

At this time what is available is limited to the outline and some charts and commentary.  
The presentation is on the web.

### White Paper Objectives

- Analyze the Current Status and Historical Context for the Sub-prime Crisis
- Create and Evaluate Proposed and Prospective Short-term and Long-term Policy Options-Solutions
- Indicate Important Open Research Issues

### Presentation Outline

- Overview
- Subprime Crisis Status Report
- Policy Prospective
- Towards a Focused Research Agenda

### Elements for the Short-term and Long-term Resolution of the Subprime Crisis

- Devise Programs to Stabilize the Housing Market and Housing Finance System
- Engender Housing and General Financial Market Viability
- Implement Policies that Avoid Recurrence and Moral Hazards
- Prepare for Potential Wider Domestic Economic Implication of the Sub-prime Crisis
- Recognize and Plan for Potential Global Economic and Financial System Interactions

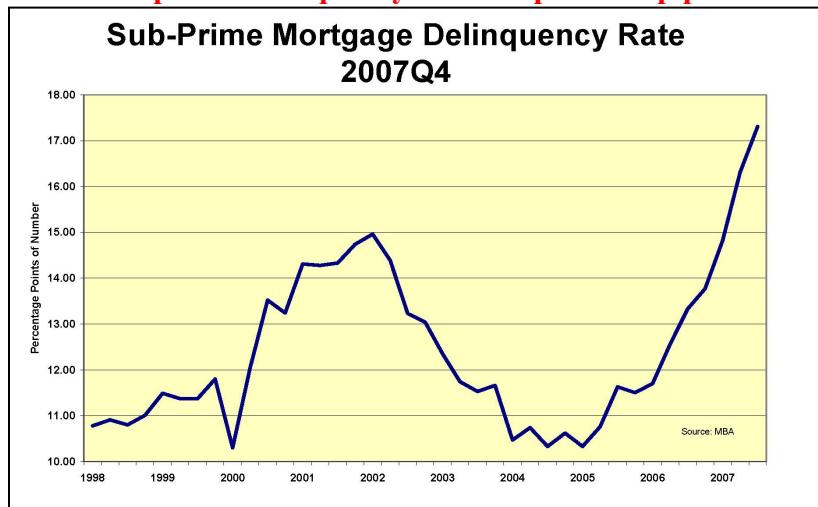
### Overview Subprime Issues

- **Direct Effects**
  - Delinquencies
  - Foreclosures
  - home prices
- **Lender Industry and Secondary Market Behavior**
  - New Profit Model
  - Underwriting Standards
  - Fee Structures
  - Accessibility of Secondary Market
- **Risk Contagion Effects**
  - New Construction
  - Real Estate Services
  - Equity Loans
  - Financial Institutions
- **Global Effects**
  - Risk Spread “Adjustments”
  - U.S. Consumption and International Trade, World-wide Stock Market/Bond Market

## Subprime Crisis: Selective Status Report

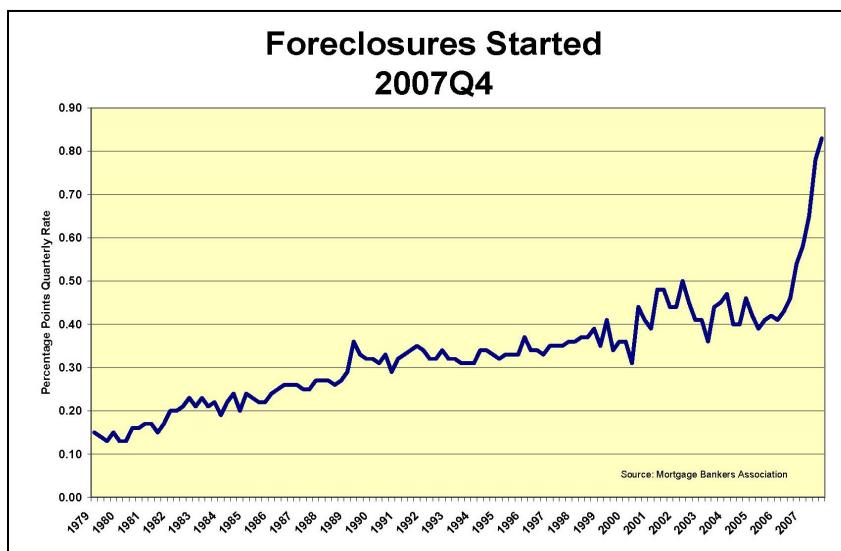
Prime Delinquency Rate is High

**The sub-prime delinquency rate has pushed up past 17%.**



Foreclosure Rate Is Rising Rapidly

**Foreclosures started in the fourth quarter represent 83 basis points of all outstanding mortgages. This is a quarterly rate.**

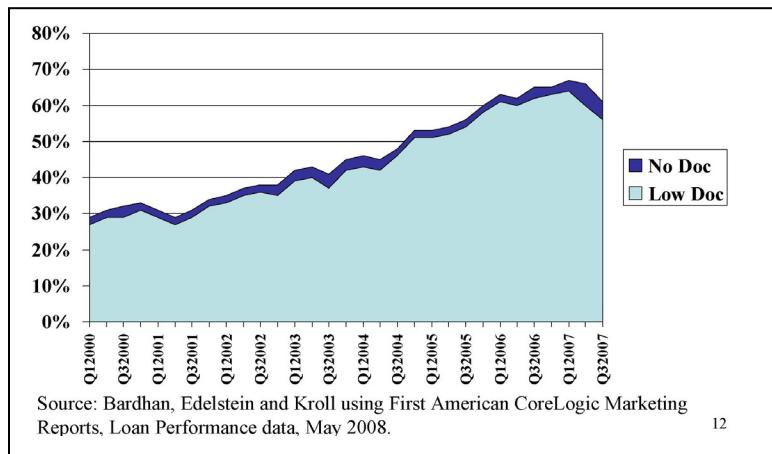


## Why Were We So Susceptible to the Subprime Crisis?

- Diminution of Underwriting Quality
- Inexperience of Owner-Borrowers
- Financial “Wizardry”
- Aggressive, Risk-Taking Investors

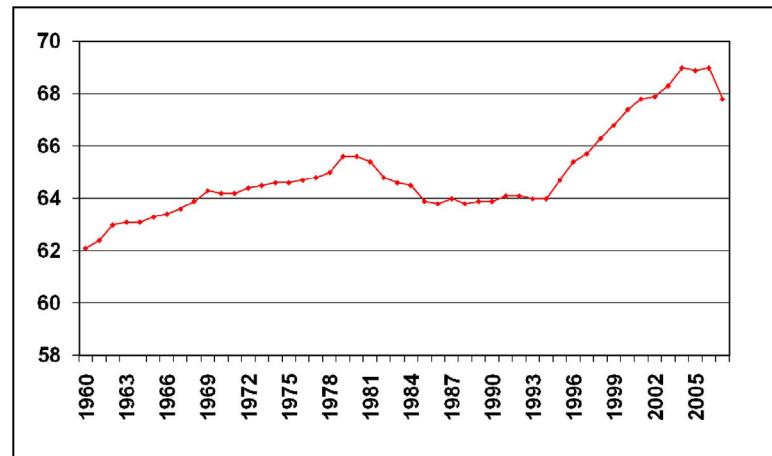
## Percent of Loan Value Low-Doc or No-Doc

2000 Q1 to 2007 Q2

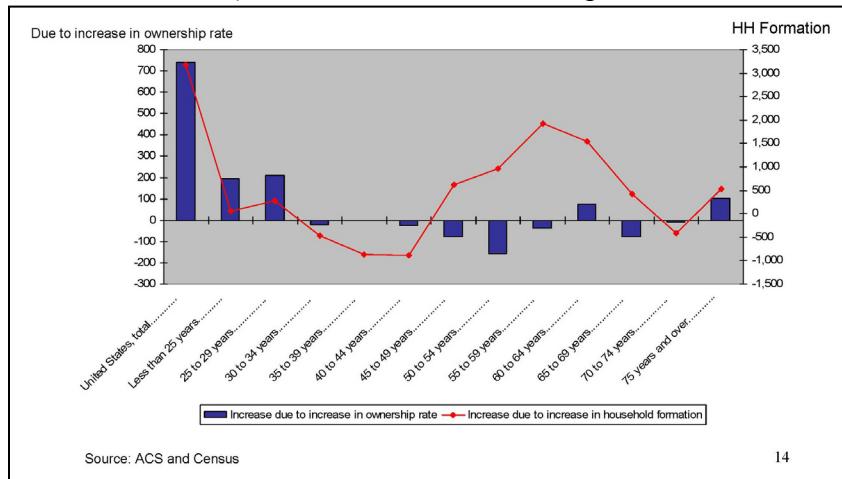


12

## Home Ownership Rates

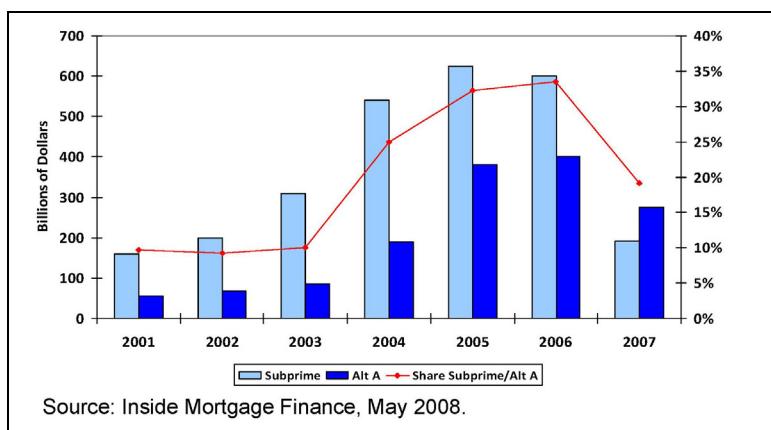


## Decomposition of Change in Number of Home Owners: a) Natural Growth of Households, vs. b) Pure Growth of Ownership Rate: 2000-2007



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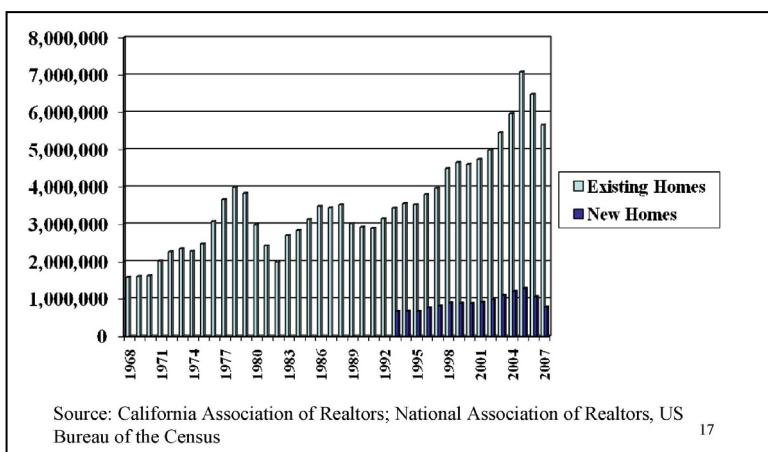
### Subprime and Alt A Mortgage Originations—Value and Share of Total Originations



#### How Exposed Are We?

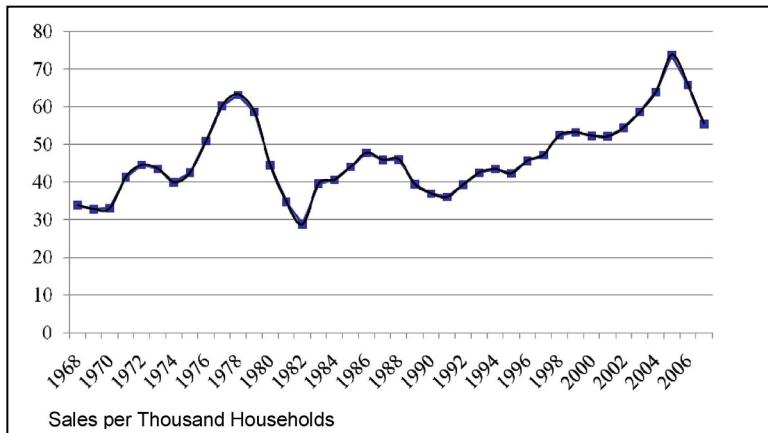
- Total US housing stock is 128 million units
- Annual sales since 2000 represent between 4-6% of stock
- States with high levels of price declines account for a large share of housing stock; and larger share of mortgages outstanding
- Nationwide, the ability to buy a home has not changed dramatically, but regional variations show large areas of vulnerability
- Subprime loans are 12 percent of all outstanding mortgages

#### US Annual Sales, Existing Homes

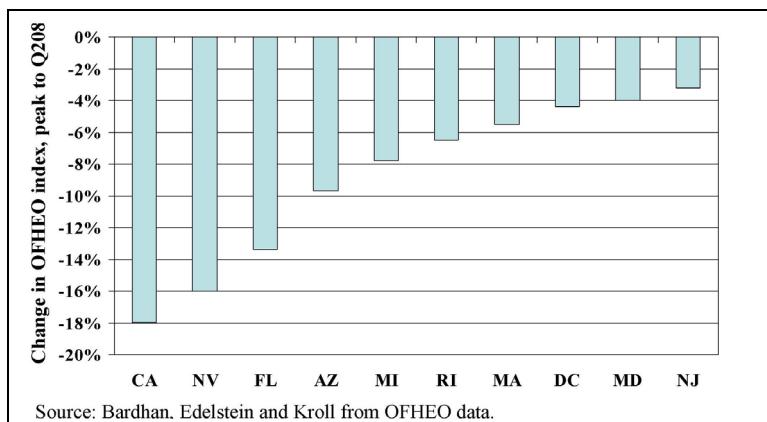


17

#### Sales to Households Ratio



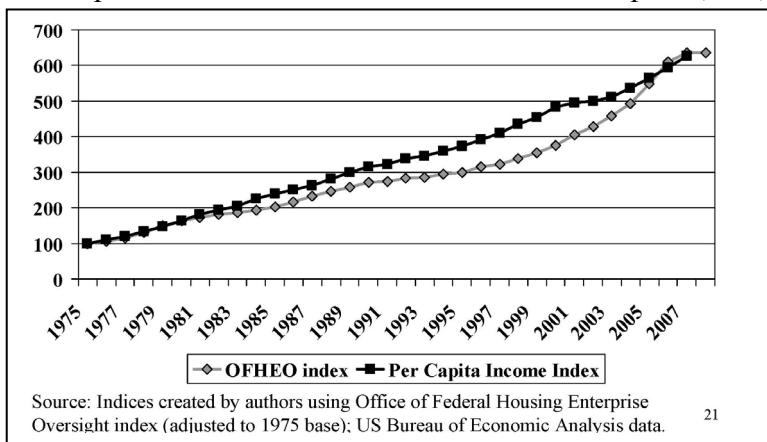
### States with Largest Loss in Home Value from Peak to Q2 2008



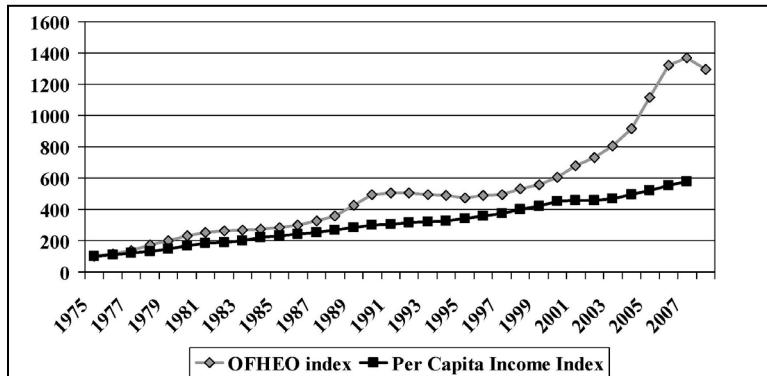
### Understanding Variation in Exposure and Experience Can Help Shape Policy

- Wide variation within the US in housing markets (median 2007 home value ranges from \$88,000 in Mississippi to \$536,000 in California)
- Wide variation in exposure to subprime loans (low of 6% in South Dakota, high of 20% in Nevada)
- Share of subprimes in foreclosure range from 3% in Utah to 18% in Michigan
- Factors, such as age, household size, ownership rates, and government regulation, can influence the level and outcome of exposure.

### Per Capita Income and Home Price Indices Compared, US, 1975-2008

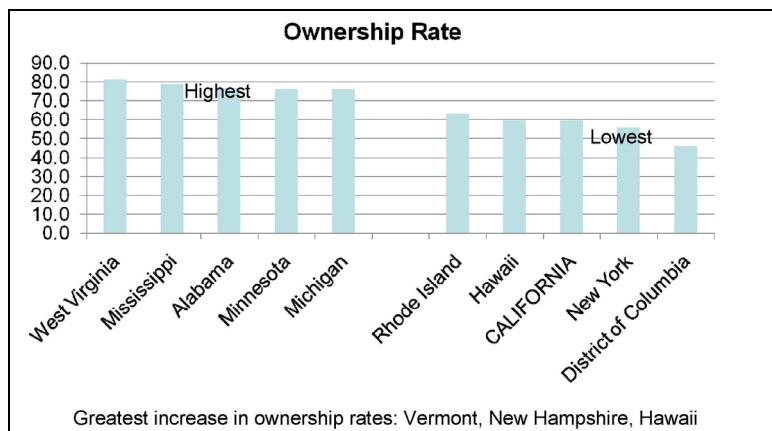


### Per Capita Income and Home Price Indices Compared, Far West, 1975-2008

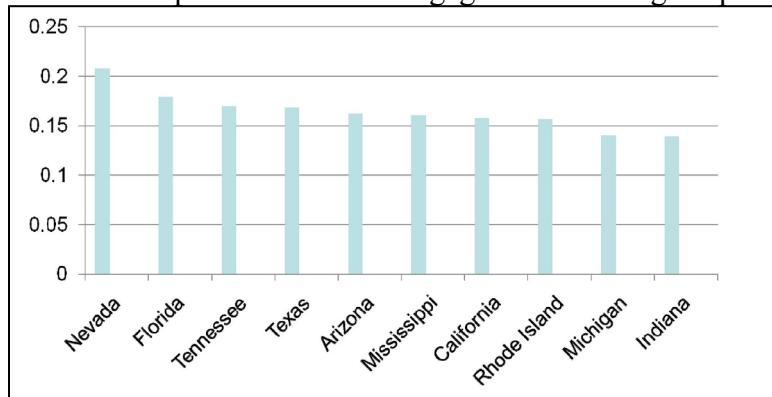


Source: Indices created by authors using Office of Federal Housing Enterprise Oversight index (adjusted to 1975 base); US Bureau of Economic Analysis data. 22

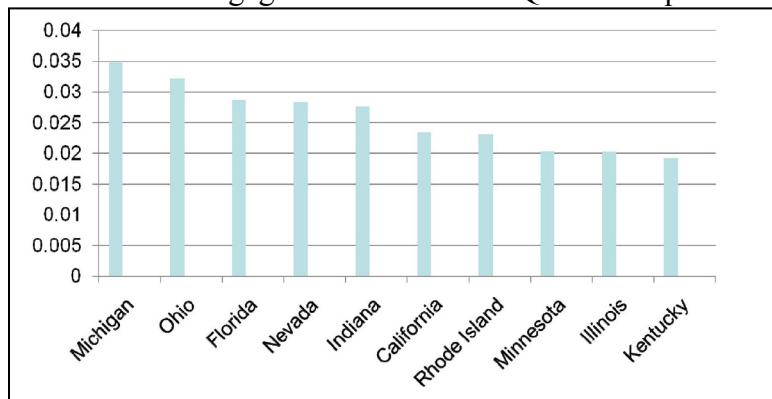
### Selected Ownership Rates by State: 2006



### Share of Subprime in Total Mortgages Outstanding: Top Ten States



### Share of all Mortgages in Foreclosure 4Q 2007: Top ten states



### Cross-State Regression Results:

#### Determinants of Subprime Share in Total Mortgages

- Negatively related to median age
- Positively related to home price and price growth rate, and minority population
- Negatively related to per capita income
- Negatively related to state regulatory proxies (financial administrative expenditures; state employment, etc.)

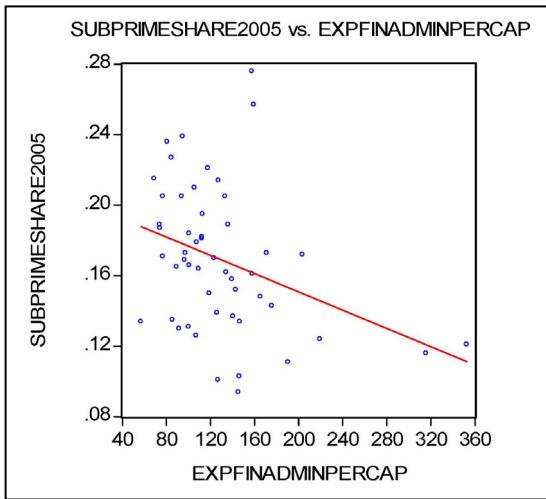
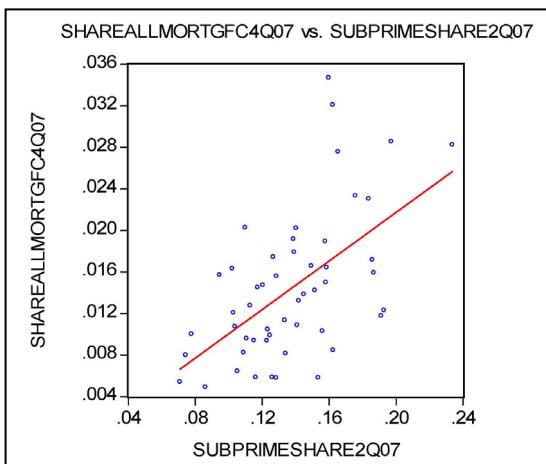
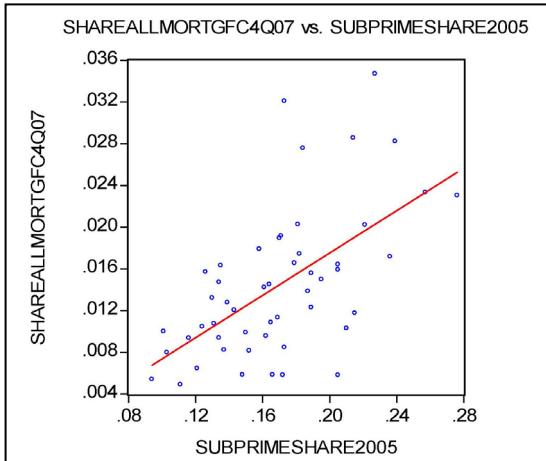
## Cross-State Regression Results:

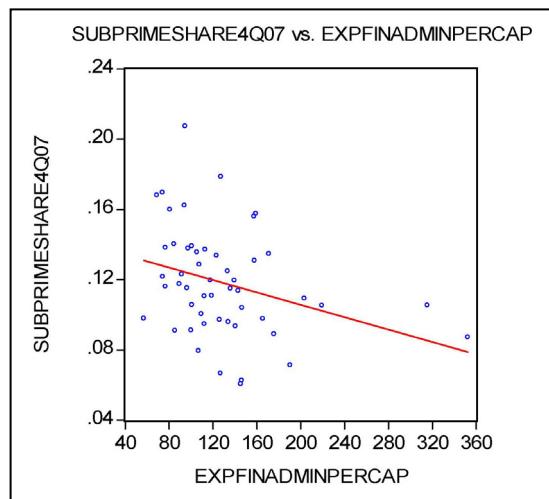
### Determinants of Foreclosure Share in Total Mortgages

- Foreclosures related to earlier subprime share
- Negatively Related to Regulatory Stance
- Positively related to Minority Share and Age
- Complex relationship between subprime share and foreclosure share on one hand, and home price change and age on the other

Dependent Variable: SUBPRIMESHARE2005				
Method: Least Squares				
Date: 09/11/08 Time: 11:52				
Sample (adjusted): 1 51				
Included observations: 51 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.405437	0.084594	4.792751	0.0000
MEDIANAGE	-0.004883	0.002251	-2.169288	0.0353
MEDIANHOMEPRICE	2.15E-07	6.21E-08	3.457636	0.0012
PERCAPINCOME	-1.74E-06	1.20E-06	-1.447246	0.1546
EXPFINADMINPERCAP	-0.000312	9.33E-05	-3.338814	0.0017
R-squared	0.377095	Mean dependent var	0.169196	
Adjusted R-squared	0.322929	S.D. dependent var	0.041072	
S.E. of regression	0.033796	Akaike info criterion	-3.844082	
Sum squared resid	0.052538	Schwarz criterion	-3.654687	
Log likelihood	103.0241	F-statistic	6.961877	
Durbin-Watson stat	2.028090	Prob(F-statistic)	0.000181	

Dependent Variable: SHAREALLMORTGFC4Q07				
Method: Least Squares				
Date: 09/11/08 Time: 11:00				
Sample (adjusted): 1 51				
Included observations: 51 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.048532	0.015936	-3.045429	0.0038
SUBPRIMESHARE2Q07	0.158031	0.026700	5.918826	0.0000
EXPFINADMINPERCAP	1.45E-05	1.66E-05	0.875280	0.3860
HOMEPRCHGOFHEO	-0.007125	0.002758	-2.583392	0.0130
MEDIANAGE	0.001185	0.000377	3.140457	0.0029
R-squared	0.477226	Mean dependent var	0.014410	
Adjusted R-squared	0.431768	S.D. dependent var	0.007050	
S.E. of regression	0.005314	Akaike info criterion	-7.543936	
Sum squared resid	0.001299	Schwarz criterion	-7.354541	
Log likelihood	197.3704	F-statistic	10.49804	
Durbin-Watson stat	1.522456	Prob(F-statistic)	0.000004	





### Some Troubling Conclusions

- Regional differences are significant?
- Ownership at what social costs?
- Credit tightening needs to be selective, especially where economies are weak?

### Developing a Policy Prospective

#### Policy Objectives

- Stability in Housing Market
  - Retaining high home ownership rates
  - Arresting drastic value slide
  - Maintaining ownership incentives for households with negative equity
  - Normalizing new and existing market activity
- Liquidity in Mortgage Market
  - Stabilizing financial markets
  - Efficient securitization
  - Reorganizing Fannie and Freddie to be viable entities (at low social costs)

#### Framework for Response

- Short Term
  - Housing market
    - Loan workout process
    - Stabilize home prices
  - Mortgage market
    - Underwrite financial system
    - Demand appropriate upside reward for risks taken
    - Dilute existing equity and debt participants fairly

#### Framework for Response

- Long Term
  - Housing market
    - Rebalance renter and homeowner subsidies
    - Develop revised standards for “subprime” low income borrowers (based on repayment experience)

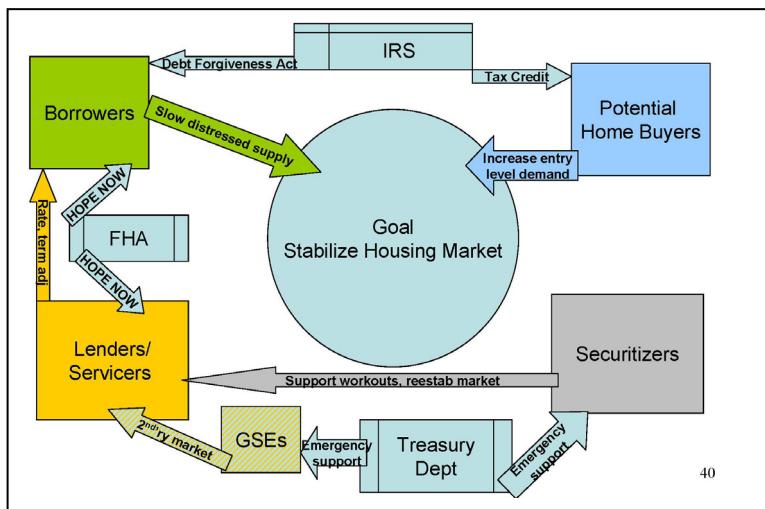
- Mortgage market

- Reduce moral hazard and adverse selection by synchronizing cash flow with longer term outcomes
- Expand regulation of financial markets
  - Insurance funds
  - Underwriting standards
  - Capital requirements

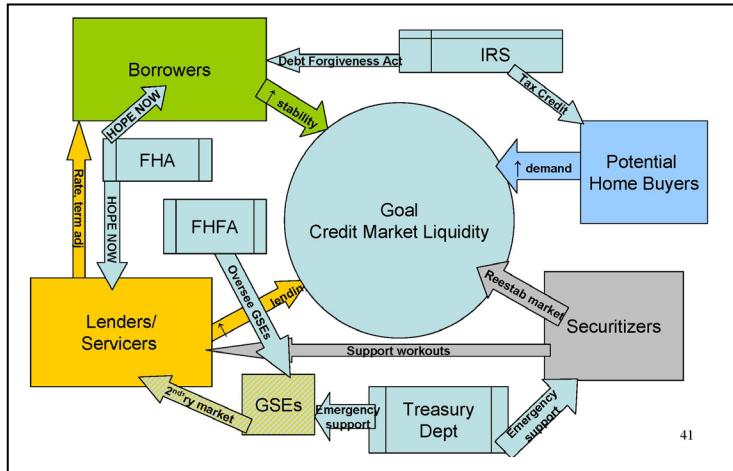
### Whose Problem?

- Homeowners/Borrowers
- Homebuyers
- Home-sellers
- Builders
- Lenders
- Securitizers
- Investors
- Regulators
- Taxpayers
- Government sector
- International Components

### Housing Market Recovery Strategies



## Credit Market Recovery Strategies



### Policy Evaluation Criteria/Benchmarks

- Moral Hazard Issue or Chance of Recurrence
- Fairness and Equity
- Bang for the Buck (Efficiency)
- “Good” vs. “Bad” Subprime Loans
- Distributional (Income and Geographic) Impact
- Linkages of Housing finance System with Broader Financial System and Economy

### Policy Tool Kit

- Subsidies (Owners, lenders/originators)
- Regulatory Intervention (state/federal)
- Persuasion (Haircuts?)
- Coordination
- Liquidity/Funding
- Taxation
- Counseling
- Special Incentives – e.g. skin in the game requirement

### The Secondary Market Enigma

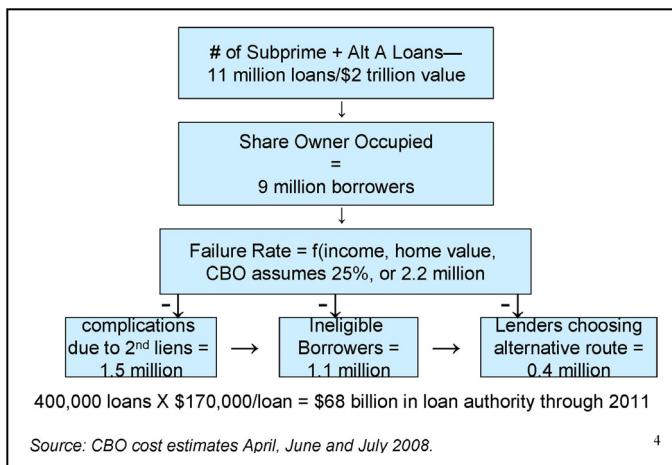
1. FNMA and FHLMC
2. FDIC and Banks
3. IB and Securitization
4. Monoline Insurers
5. CDS

### Real Sector Constraints for Policy

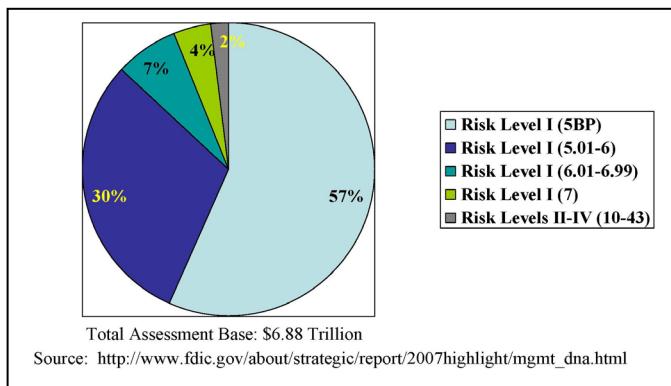
- Economic Environment
- Job Creation
- Household Formation
- Wage Growth Prospects

## Measuring The Costs

## FHA Loan Program: 2008-2011 Subprime Vulnerability—CBO Estimate



### Institutions Covered by FDIC, by Risk Category (Share of Assessment Base)



## Impact Evaluation Matrix

Participants/Criteria			
Policies		Homeowner/ Borrower	Originator
House Bill	Shared Appreciation		
	Licensing etc.		
Bankruptcy Bill			
Private sector proposals			
FNMA & FHLMC			

### Targeting Policy

- Economic Slow-downs
- Credit Tightening
- Loss of Confidence in System

### Policy Perspective

- No Single Policy is the Silver Bullet
- Complex Benefits-Costs Require Multi-faceted Solutions
- Regional-State Differences Require Regionally Differentiated Approaches
- Reinvigorate Securitization Process
- Triage “Bad” Loans

### Selected Open Research Issues

#### Expanded Academic Research for Policy Implementation

- Why are there large regional differences in mortgage performance?
- What is the significance of state regulatory systems?
- How are age-income-ethnic characteristics related to ownership, and loan issuance and performance?
- How important are distorting incentives (Fee structure; ratings agencies)?
- How extensive are risk externalities?

#### How Can We Explain Local-State and Regional Mortgage Performance Differences?

- Housing Market Differences
- State Regulatory Behavior
- State-Regional Economic Industrial Organization Impacts

#### How are Ownership and Loan Performance Related to Household Characteristics?

- Ownership Rates, Income, Age and Ethnicity
- Loan Issuance and Household Characteristics
- Loan Performance and Household Features

#### How Important Are Risk Externalities Generated By the Housing Market – Subprime Financial Crisis?

- Linkages between Housing Market and Housing Financial System
- Real Sectors – Financial Sectors Interactions
- Potential Complex Geographic Contagion Effects (Local, State, National, International)

#### What Role Did “Incentives” Play in Lending Behavior

- Fee Structures, Moral Hazard and Adverse Selection
- Rating Agency Gate-keeping
- Investor Perceptions

#### Does State and Local Regulatory Behavior Affect Loan Behavior?

- Borrower Oriented Programs
- Employment-Income Programs
- Financial Institution Monitoring and Control