The Financial Crisis

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Discussion Outline

I. Situation Prior to 2006

II. Situation Changes

III. Crisis Issues

IV. Government Intervention Considerations

I. Situation Prior to 2006

- House prices had increased for many years
- Home ownership had become a national priority and so regulatory agencies became lenient
- Lenders were confident that house prices would continue to rise and so were less vigilant in their lending practices
- Subprime loans became prevalent

I. Situation Prior to 2006

- Subprime loans
  - Low, no, or negative down payment (25 years ago often required 20% down)
  - Back loaded payment schemes
  - Less emphasis on cash flow including documenting repayment capacity
  - Less rigorous credit checks
- Government policies, including direct subsidies reduced house mortgage interest rate

I. Situation Prior to 2006

- "Flip that house" rather than eventual payoff became more prevalent
  - Purchasing and reselling houses or refinancing to extract equity
  - Does not result in high equity accumulation
- Demand for housing expanded, driving up the price of houses

I. Situation Prior to 2006

- Low equity houses are more vulnerable to declining house prices

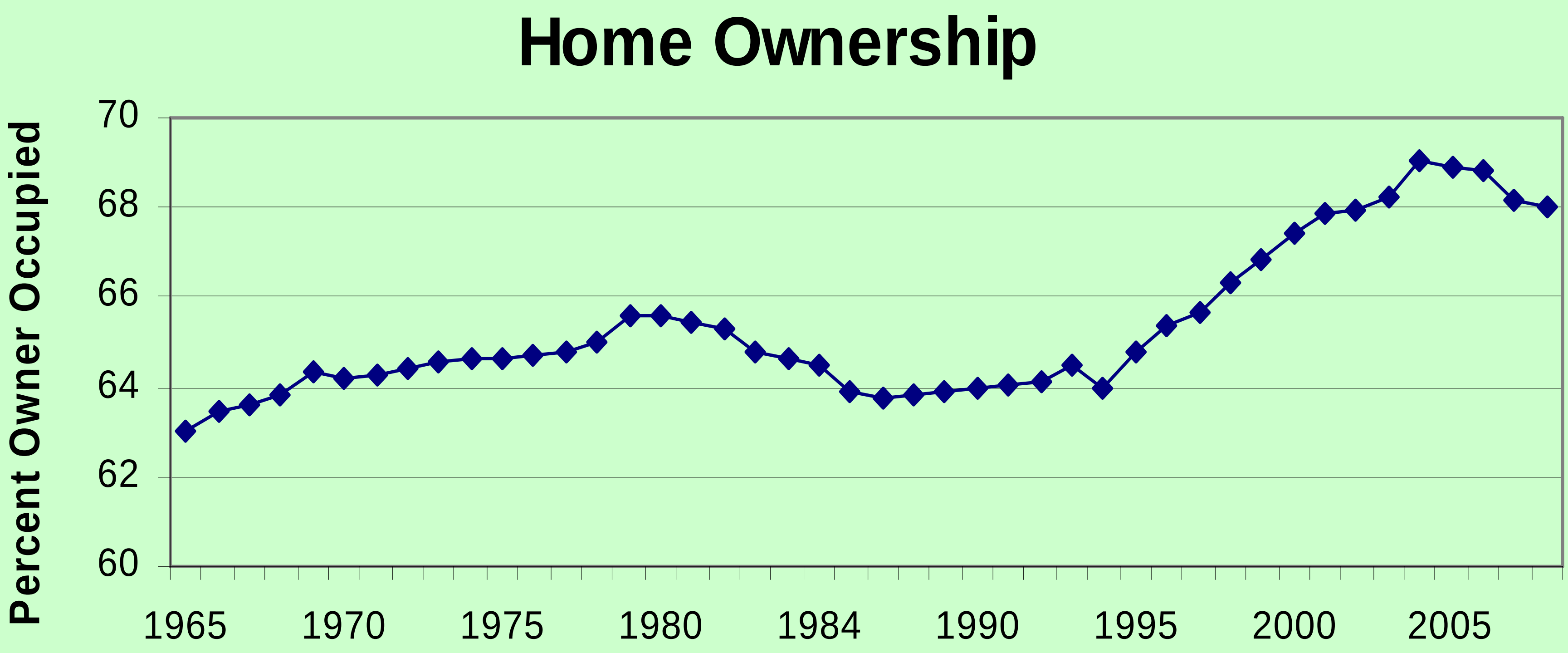
- Public policy pressured lenders to increase homeownership
  - "American Dream"
  - Redlining

II. Situation Changed

- Interest rates modestly increased
- Unemployment modestly increased
- House market became more saturated
- Savings rate low

Personal Savings (BEA)
% of Personal Income
30
25
20
15
10
5
0
-5
1929
1934
1939
1944
1949
1954
1959
1964
1969
1974
1979
1984
1989
1994
1999
2004
2009
Year

II. Situation Changed



Bureau of the Census, CPS, Series H-111

II. Situation Changed

- Down Payment
  - 1989
    - Average down payment – 20%
    - Almost no loans without down payment
  - 2008
    - Average down payment – 9%
    - 29% no down payment

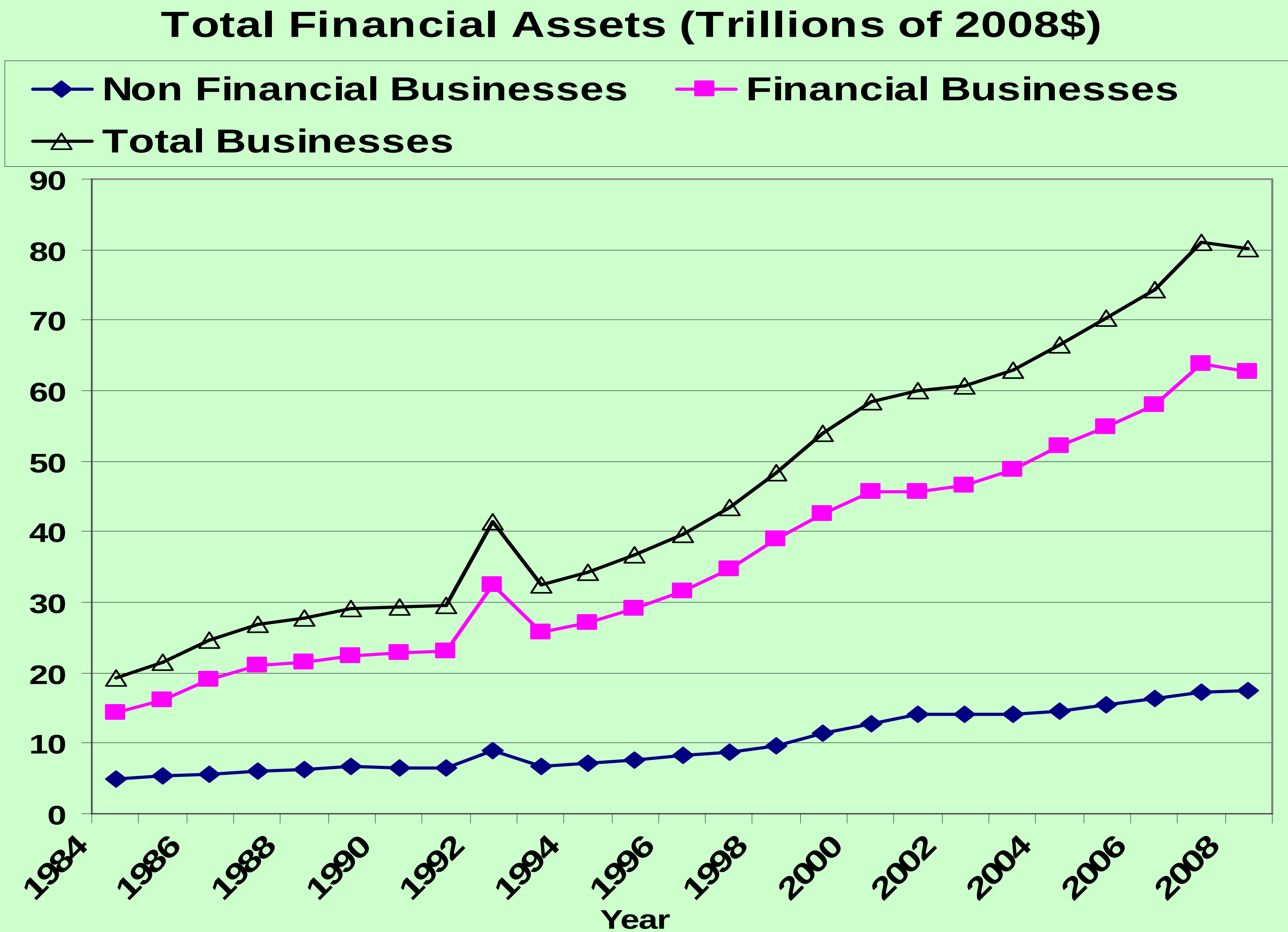
II. Situation Changed

- House payments became more difficult
- Therefore more houses came on the market
- As the number of houses on the market increased, home prices were driven down resulting in less equity in houses
- House building continued because of lengthy and expensive subdivision approval process further driving house prices down
- "Walk Away": Some home owners "walked away" from houses because they were "upside down" even though they had repayment capacity

II. Situation Changed

- Lower equity encouraged more defaults and even more houses came onto the market
- House prices spiraled downward and defaults increased making lenders susceptible to the subprime market and ultimately led to many failures
- However corporate financial assets remain relatively high
- The financial assets are not distributed evenly across all corporations

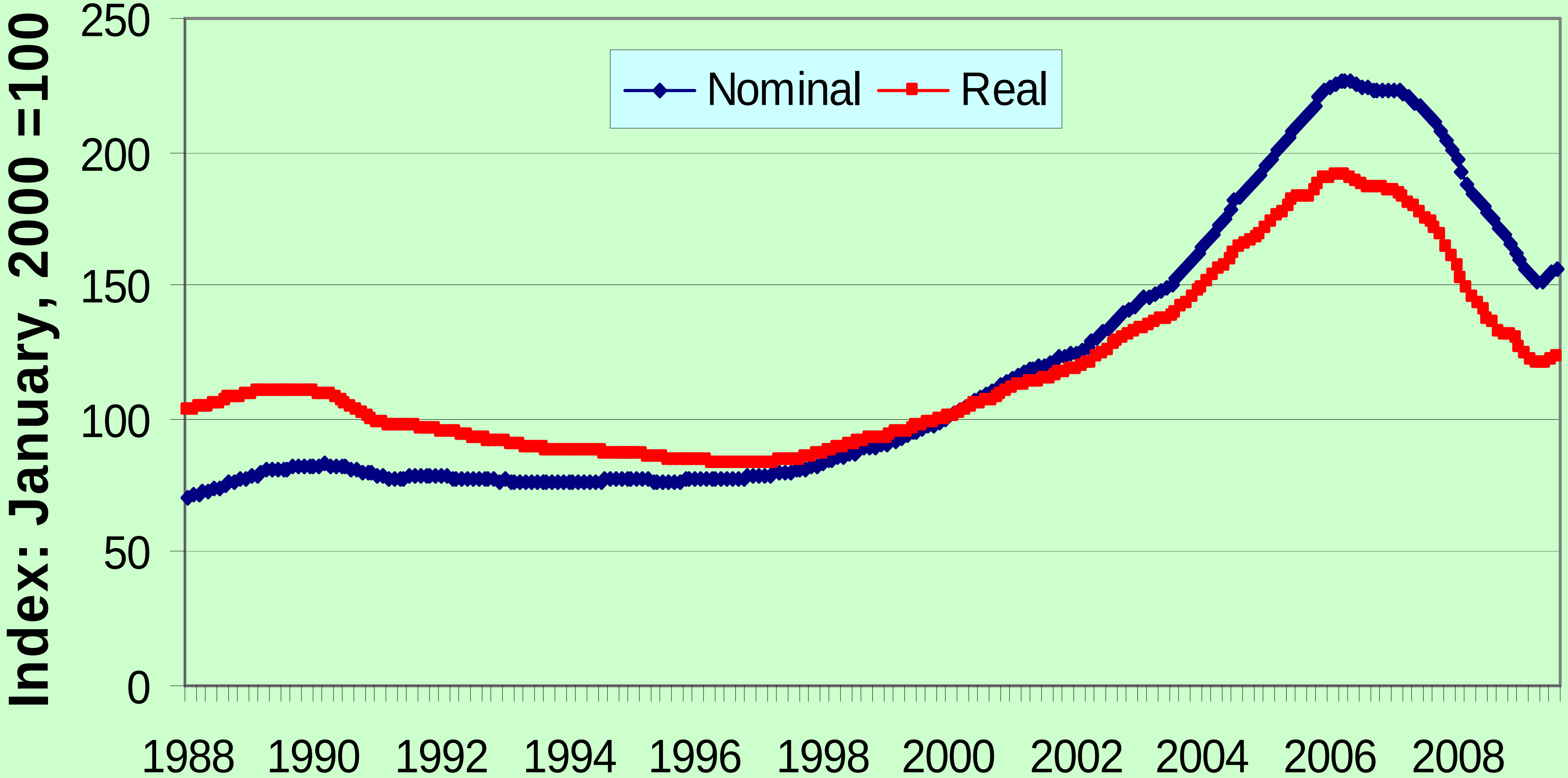
II. Situation Changed



III. Crisis Issues

- Home prices (Nationwide)
  - Home prices have declined by over 30% in the last 2 years
  - Historical annual home price appreciation after inflation
    - ✓ 1890 to 2007 0.4%
    - ✓ 1960 to 2000 0.2%
    - ✓ 2000 to 1/1/06 11.2%
    - ✓ 1/1/06 to Present -30.0%

Case-Shiller 10 City House Price Index



Latest data: August, 2009

Case-Shiller & BLS

III. Crisis Issues

- Foreclosure and Serious Delinquency

	All Loans	Subprime Loans
In Foreclosure	3.30%	13.71%
Serious Delinquency	3.74%	23.11%

- Subprime loans equals about 13% of all loans.

III. Crisis Issues

- States with Highest Foreclosures and Serious Delinquencies
  - California
  - Florida
  - Nevada
  - Arizona
  - Michigan

III. Crisis Issues

Definitions

- Secondary Mortgage Market
  - Market for a bundle of primary mortgages
  - Usually mortgages with similar risk bundled together
- Collateralized Mortgage Obligation (CMO) - A type of mortgage-backed security that creates separate pools of pass-through rates for different classes of bondholders with varying maturities
- Collateralized Debt Obligations (CDO), Mortgaged Backed Securities (MBS), Credit Default Swaps (CDS), and a variety of other perturbations are based on payment performance of a collection of mortgages

III. Crisis Issues

- These securities will be termed "secondary mortgage securities" (SMS)
- "SMS" are often sold to multiple buyers
- Holders of secondary mortgage securities may have two types of financial relationships (simplification)
  - Co-mortgages or vertical slice: each payment is shared proportionate to ownership
  - Tranched, layered, stacked, or horizontal slice: payments are distributed in a hierarchical manner (i.e., one security owner is paid off prior to the next owner)

III. Crisis Issues

Example situation

- A primary bank bundles one hundred million dollars of subprime mortgages into a secondary mortgage security (originally 100% of houses value)
- Firms A, B, C buy the secondary mortgage security with Firm A buying 20%, Firm B buying 30%, and Firm C buying 50%
- Firm A is the leading secondary mortgager
- Houses backing the secondary mortgage security decline in value 25%

III. Crisis Issues

Co-mortgage Example (all paid proportionately)

Firm A Balance Sheet

	Initial	Now
Assets		
Secondary Mortgage Security	\$20 mil	\$15 mil
Liabilities		
Bonds Payable	\$15 mil	\$15 mil
Equity	\$5 mil	\$ 0

III. Crisis Issues

Secondary Mortgage Security: Tranched, layered, or stacked,

- Firm A is the lead firm
  - Responsible for managing the security
  - Last firm to get paid (junior creditor)
  - Highest risk, highest contractual interest rate
- Firm C is the first to get paid and has the lowest contractual interest rate (most senior creditor)
- Firm B is the second to get paid and has an intermediate contractual interest rate (least senior creditor)

III. Crisis Issues

Layered, Stacked, or Tranched Mortgages Example

Firm A Balance Sheet

	Initial	**Now**
Assets		
Secondary Mortgage Security	$20 mil	$0
Liabilities		
Bonds Payable	$15 mil	$15 mil
Equity	$5 mil	$-15 mil

III. Crisis Issues

Firm Description

- Firm A – High Risk
  - Hedge funds
  - Investment banks
  - Some holding companies
  - Some retirement funds
  - Some primary lenders
- Firm B & C – Low Risk
  - Insurance companies
  - Most retirement funds
  - Other risk averse large investors
- Montana banks appear to have purchased few SMS

III. Crisis Issues

- Mortgage management and collateral capture
  - The fragmented nature of the ownership of the mortgages reduces individual investor incentive to recover the value of the collateral
  - No individual holder of the security has a large enough claim on the asset to offset recovery costs
  - Simply tracing ownership of the mortgage has high transaction costs

III. Crisis Issues

- The secondary mortgage security may decline much more than the decline in value of the assets (for fully mortgaged home loans) because of
  - Collection costs
  - Transaction costs associated with nonfunctional other entities in the spider web of secondary mortgage security ownership

IV. Government Intervention Considerations

- Liquidity
- Who will bear the loss
  - Home owner
  - Savings and retirement funds
  - Financial institutions
  - Government/tax payers
- Principal agent problem - CEOs

IV. Government Intervention Considerations

- Limit spreading of financial difficulties
- Transaction costs
- Incentives
  - Future lending practices
  - Private sale and reorganization

IV. Government Intervention Considerations

- Own home policy placed unfair pressure on lenders
- How to intervene with banks
  - Buy stock
  - Loans
  - Buy mortgage securities
    - ✓ Market value
    - ✓ Face value
  - “Filling the hole”

IV. Government Intervention Considerations

- Coerced merger of financial institutions
- Financial institution bankruptcy approach
  - Debt for equity swap
  - Debt cram down
    - No compensation
    - Partial compensation
    - Total compensation

IV. Government Intervention Considerations

- SMS management must become effective which may require reconstitution of ownership into a single or limited number of owners to manage
  - Home foreclosures
  - Renegotiate debt and/or loan terms
  - Usual transactions
- 7.3 Million homeowners default 2008-10
- 4.3 Million lose homes
- Housing stock, 128 million houses