

# **The Global Financial Crisis**

## **Module 5 The Housing Crisis**

**Andrew Metrick**

# Outline

## Module 5

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|----|------------------------------------|----|--|
| 01 | What caused the housing crisis?    | 06 | Hypothesis 2: Government failure, part 1 |
| 02 | 3 Hypotheses                       | 07 | Hypothesis 2: Government failure, part 2 |
| 03 | Hypothesis 1: Bad behavior, part 1 | 08 | Hypothesis 3: Bubble thinking            |
| 04 | Hypothesis 1: Bad behavior, part 2 | 09 | Summary                                  |
| 05 | Hypothesis 1: Bad behavior, part 3 |    |  |

# **The Global Financial Crisis**

## **Module 5 The Housing Crisis**

### **01 What Caused the Housing Crisis?**

# What Caused the Housing Crisis?

Three distinct but not exclusive hypotheses

**01**

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**Bad behavior**

**02**

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**Government failure**

**03**

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**Bubble thinking**

# **The Global Financial Crisis**

## **Module 5 The Housing Crisis**

### **02 3 Hypotheses**

# What Caused the Housing Crisis?

Three distinct but not exclusive hypotheses

**01**

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**Bad behavior**

**02**

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**Government failure**

**03**

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**Bubble thinking**

## **Bad Behavior, Moral Hazard, “Inside Job”**

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**Mortgage demand from confused/misled buyers,  
taking out mortgages that self-destructed.**

**Mortgage supply from conflict-ridden financial  
intermediaries with no skin in the game.**

**Facilitated by revolving door of  
government/industry/academia.**

# What Caused the Housing Crisis?

Three distinct but not exclusive hypotheses

**01**

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**Bad behavior**

**02**

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**Government failure**

**03**

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**Bubble thinking**



## **Government Failure**

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**Mortgage demand from explicit and implicit government subsidies trying to expand homeownership.**

**Mortgage supply from “government sponsored enterprises” (GSEs), eager to comply with affordable-housing goals and to exploit government guarantees.**

**Facilitated by ineffectual regulators and by regulatory arbitrage.**

# What Caused the Housing Crisis?

Three distinct but not exclusive hypotheses

**01**

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**Bad behavior**

**02**

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**Government failure**

**03**

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**Bubble thinking**

## **Bubble Thinking**

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**Mortgage demand from consumers, who view houses as a great investment that never goes down in value.**

**Mortgage supply from cash pools and intermediaries, who view mortgage-backed securities as “safe assets” (because housing prices could never fall by very much!) that satisfy their increasing demand for such assets for investment and collateral.**

**This “bubble thinking” made possible by the long quiet period since the last financial crisis in the United States, and the stability of housing prices during this time.**

# **The Global Financial Crisis**

## **Module 5 The Housing Crisis**

### **03 Hypothesis 1: Bad Behavior, Part 1**

## **Bad Behavior Hypothesis**

**Evidence does not support this hypothesis as the main driver**

**01**

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**Nonprime loans  
performed well for  
many years**

**02**

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**Mortgage defaults  
unrelated to rate  
resets**

**03**

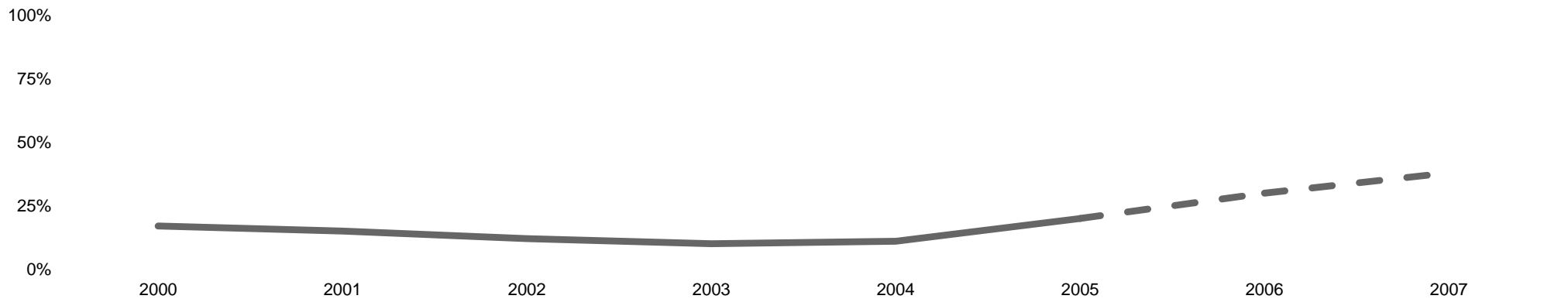
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**Insiders were  
slammed by the  
crisis**

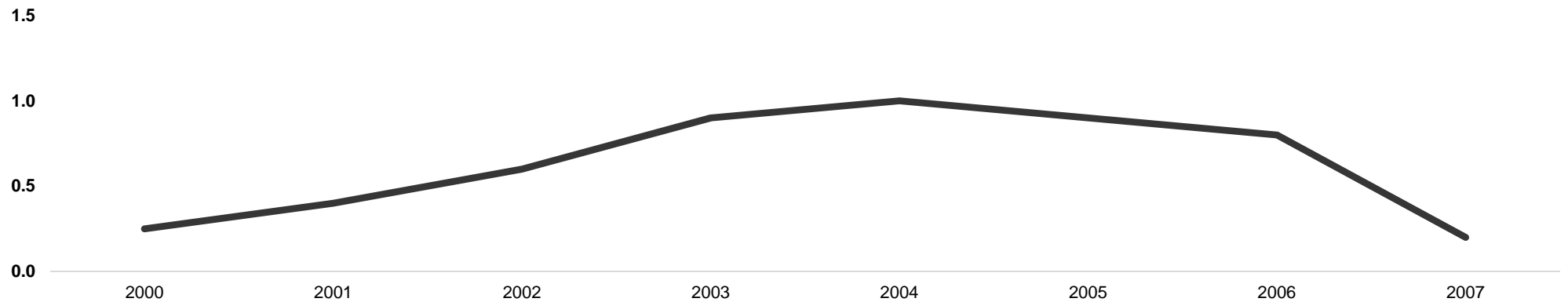
## Nonprime loans performed well for many years

**FICO<620**

**Failure Rate, Percent**



**Originations, millions**

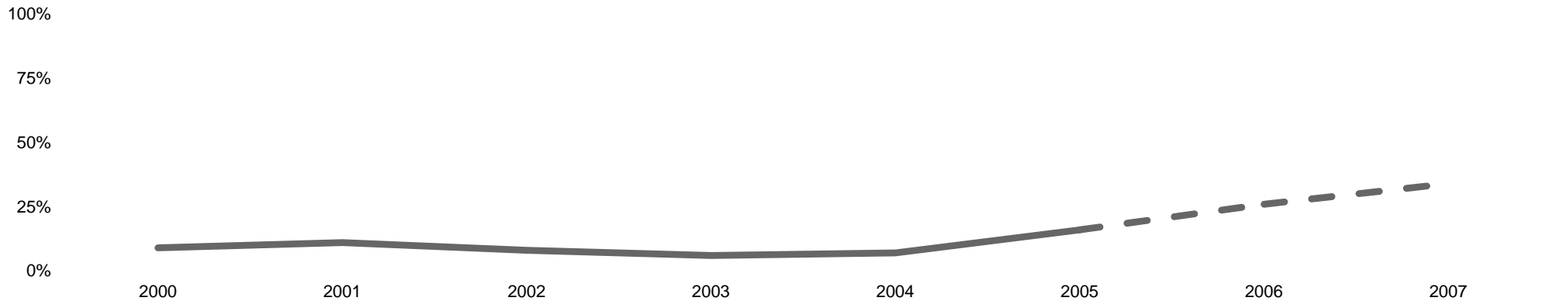


Source: Foote, Christopher L, Kristopher S Gerardi, and Paul S Willen, 2012, Why Did So Many People Make So Many Ex Post Bad Decisions? The Causes of the Foreclosure Crisis, Working Paper, National Bureau of Economic Research.

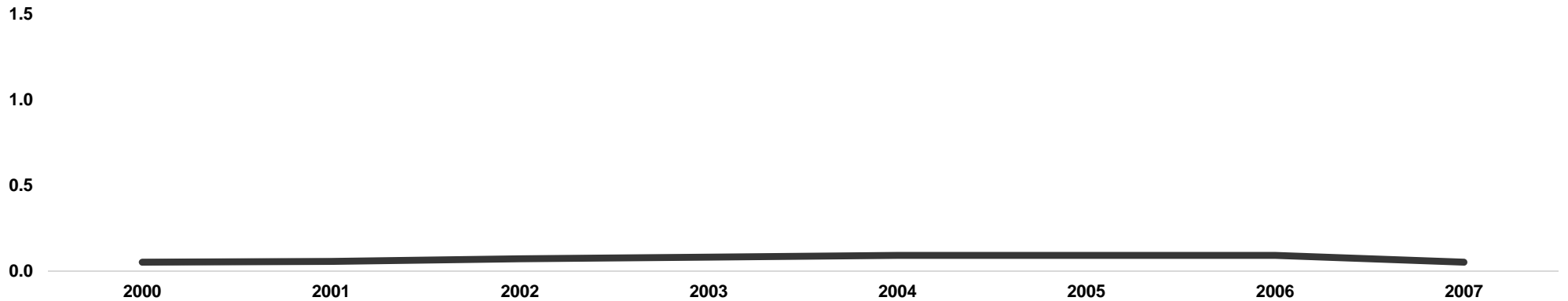
## Nonprime loans performed well for many years

**LTV=100**

**Failure Rate, Percent**



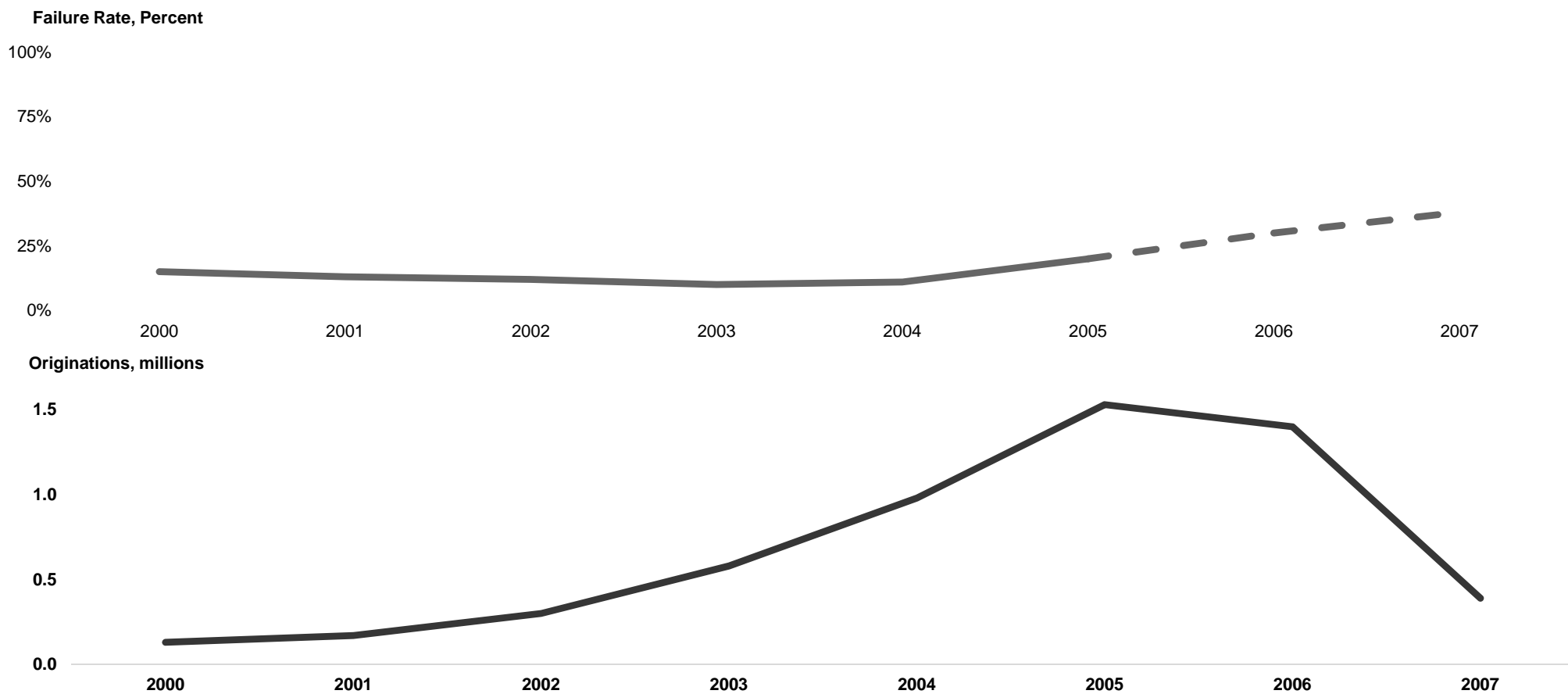
**Originations, millions**



Source: Foote, Christopher L, Kristopher S Gerardi, and Paul S Willen, 2012, Why Did So Many People Make So Many Ex Post Bad Decisions? The Causes of the Foreclosure Crisis, Working Paper, National Bureau of Economic Research.

# Nonprime loans performed well for many years

## Low-doc and No-doc

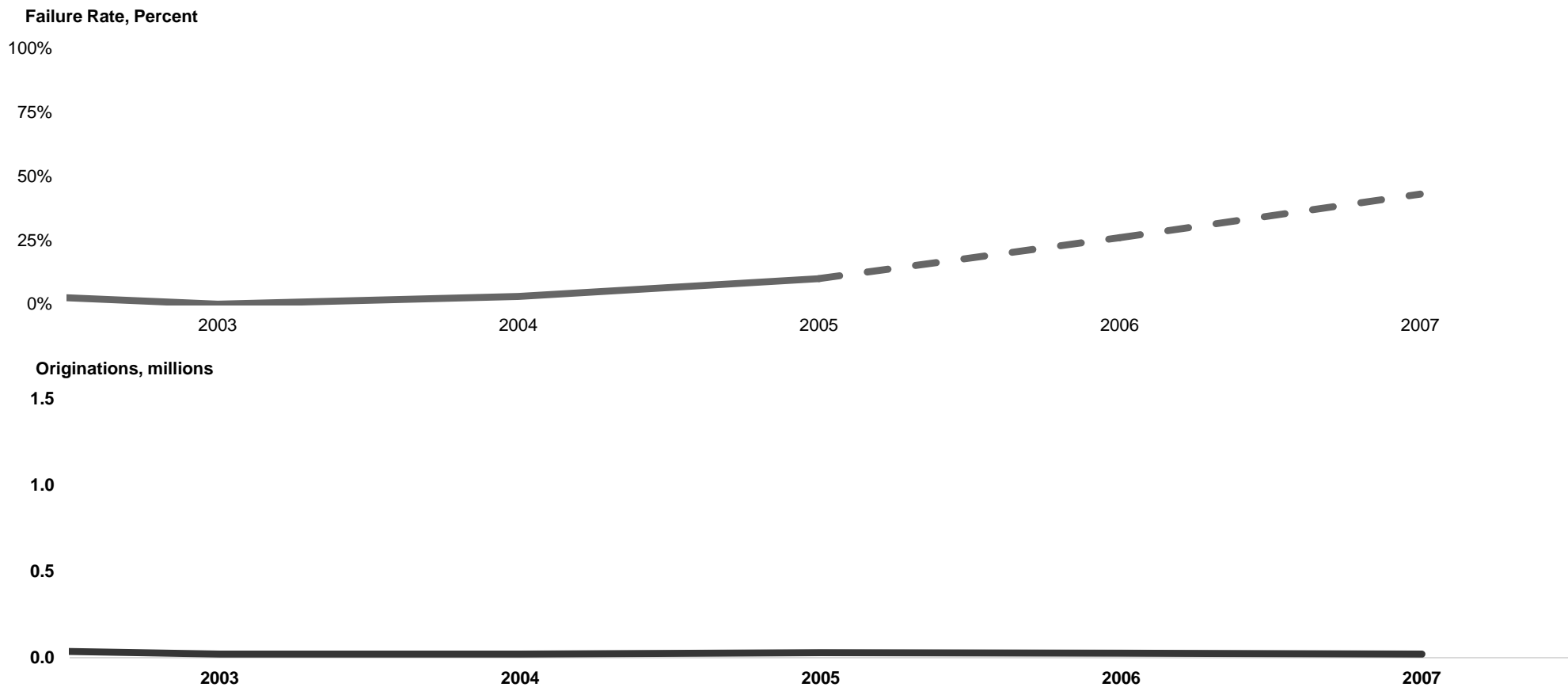


Source: Foote, Christopher L, Kristopher S Gerardi, and Paul S Willen, 2012, Why Did So Many People Make So Many Ex Post Bad Decisions? The Causes of the Foreclosure Crisis, Working Paper, National Bureau of Economic Research.



# Nonprime loans performed well for many years

## Negative Amortization + LTV>90 and Low-doc/No-doc



Source: Foote, Christopher L, Kristopher S Gerardi, and Paul S Willen, 2012, Why Did So Many People Make So Many Ex Post Bad Decisions? The Causes of the Foreclosure Crisis, Working Paper, National Bureau of Economic Research.

# **The Global Financial Crisis**

## **Module 5 The Housing Crisis**

### **04 Hypothesis 1: Bad Behavior, Part 2**

## **Bad Behavior Hypothesis**

**Evidence does not support this hypothesis as the main driver**

**01**

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**Nonprime loans  
performed well for  
many years**

**02**

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**Mortgage defaults  
unrelated to rate  
resets**

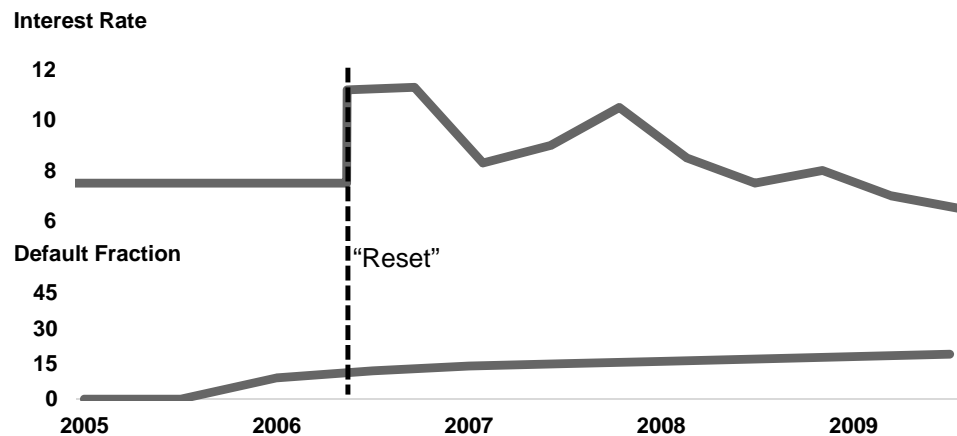
**03**

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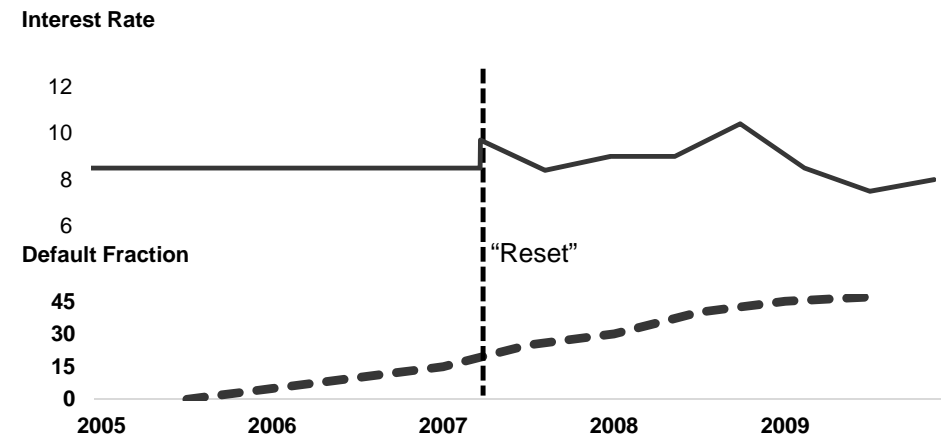
**Insiders were  
slammed by the  
crisis**

# Mortgage defaults unrelated to rate resets

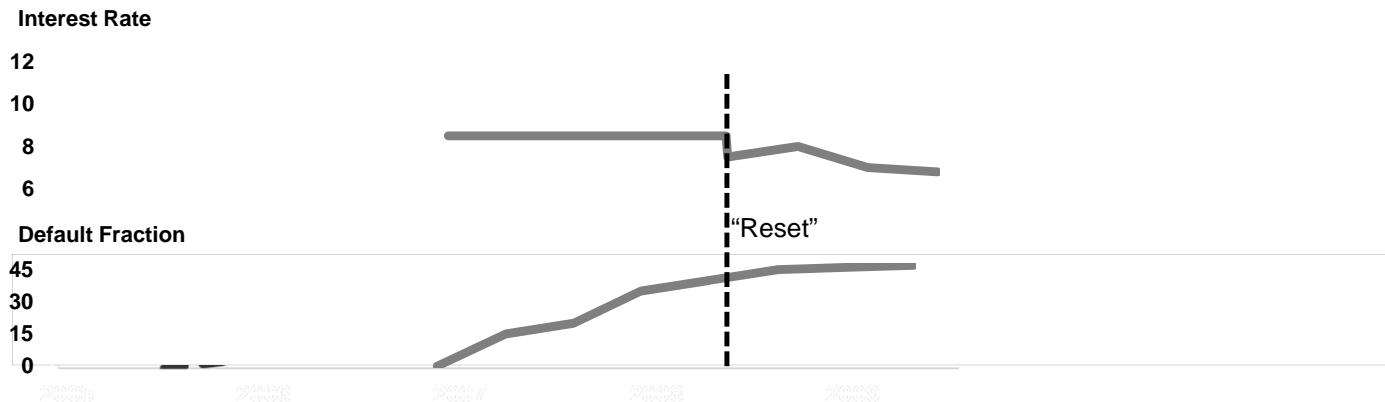
## January 2005 Vintage



## January 2006 Vintage



## January 2007 Vintage



Source: Foote, Christopher L, Kristopher S Gerardi, and Paul S Willen, 2012, Why Did So Many People Make So Many Ex Post Bad Decisions? The Causes of the Foreclosure Crisis, Working Paper, National Bureau of Economic Research.

# **The Global Financial Crisis**

## **Module 5 The Housing Crisis**

### **05 Hypothesis 1: Bad Behavior, Part 3**

## **Bad Behavior Hypothesis**

**Evidence does not support this hypothesis as the main driver**

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**02**

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**Mortgage defaults  
unrelated to rate  
resets**

**03**

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**Insiders were  
slammed by the  
crisis**

## Bad Behavior: Evidence

Insiders were slammed by the crisis

Institution	Losses (billions of dollars)
Citigroup	42.9
UBS	38.2
Merrill Lynch	37.1
HSBC	19.5
IKB Deutsche	15.9
Royal Bank of Scotland	15.2
Bank of America	15.1
Morgan Stanley	14.1
JPMorgan Chase	9.8
Credit Suisse	9.6
Washington Mutual	9.1
Credit Agricole	8.3
Lehman Brothers	8.2
Deutsche Bank	7.6
Wachovia	7.0
HBOS	7.0
Bayerische Landesbank	6.7
Fortis	6.6
Canadian Imperial	6.5
Barclays	6.3

Source: Foote, Christopher L, Kristopher S Gerardi, and Paul S Willen, 2012, Why Did So Many People Make So Many Ex Post Bad Decisions? The Causes of the Foreclosure Crisis, Working Paper, National Bureau of Economic Research.

## Bad Behavior: Evidence

Insiders had a lot of “skin in the game”

Entity	Loans	HELOC +2nds	Agency MBS	Non-Agency AAAs	CDOs (resi. subs)	Residential Subs	Total Exposure
Billion dollars							
US Banks/Thrifts	2,020	869	852	383	90	0	<b>4,214</b>
GSEs/FHLB	444	0	741	308	0	0	<b>1,493</b>
Broker/Dealers	0	0	49	100	130	24	<b>303</b>
REITs	0	0	82	10	0	0	<b>92</b>
Hedge Funds	0	0	50	51	0	24	<b>125</b>
Money Managers	0	0	494	225	0	24	<b>743</b>
Insurance Cos	0	0	856	125	65	24	<b>1,070</b>
Overseas	0	0	689	413	45	24	<b>1,171</b>
Financial Guarantors	0	62	0	0	100	0	<b>162</b>
Others	461	185	550	21	45	0	<b>1,262</b>
<b>Total</b>	<b>2,925</b>	<b>1,116</b>	<b>4,362</b>	<b>1,636</b>	<b>476</b>	<b>121</b>	<b>10,680</b>

Source: Foote, Christopher L, Kristopher S Gerardi, and Paul S Willen, 2012, Why Did So Many People Make So Many Ex Post Bad Decisions? The Causes of the Foreclosure Crisis, Working Paper, National Bureau of Economic Research.



# **The Global Financial Crisis**

## **Module 5 The Housing Crisis**

### **06 Hypothesis 2: Government Failure – Evidence, Part 1**

## **Government Failure Hypothesis**

**Evidence does not support this hypothesis as the main driver**

**01**

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**Government involvement in mortgage market began after WWII, not the 2000s**

**02**

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**Timing of activities cannot be explained by GSE policy changes**

**03**

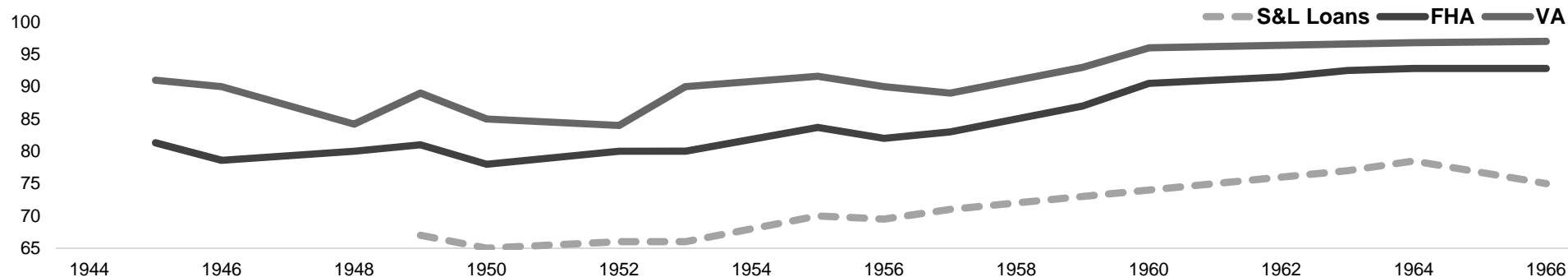
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**Many other countries had housing booms before the crisis**

# Government Failure: Evidence

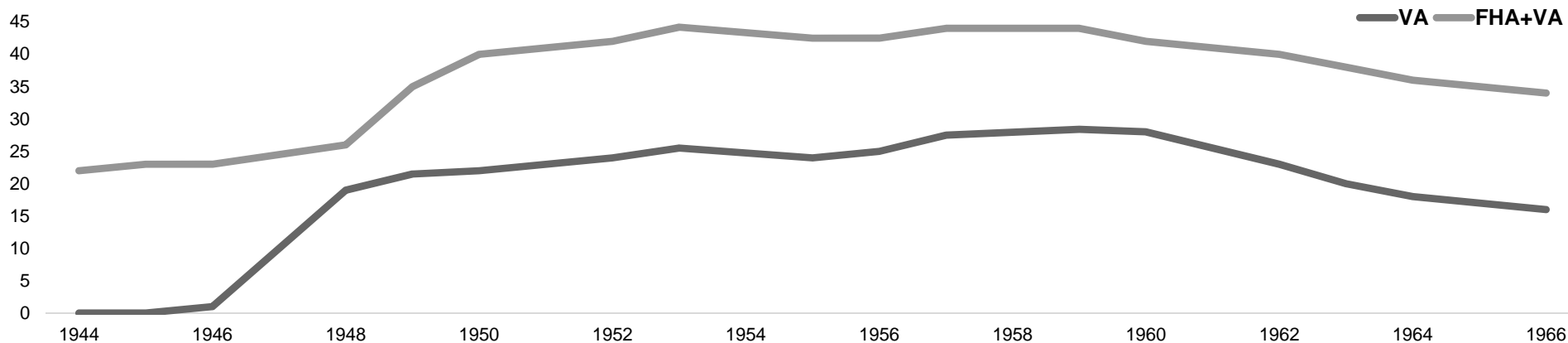
## Average LTV

Loan Value, Percent



## FHA and VA Market Share

Market Share, Percent



Source: Foote, Christopher L, Kristopher S Gerardi, and Paul S Willen, 2012, Why Did So Many People Make So Many Ex Post Bad Decisions? The Causes of the Foreclosure Crisis, Working Paper, National Bureau of Economic Research.

# **The Global Financial Crisis**

## **Module 5 The Housing Crisis**

### **07 Hypothesis 2: Government Failure – Evidence, Part 2**

## **Government Failure Hypothesis**

**Evidence does not support this hypothesis as the main driver**

**01**

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**Government involvement in mortgage market began after WWII, not the 2000s**

**02**

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**Timing of activities cannot be explained by GSE policy changes**

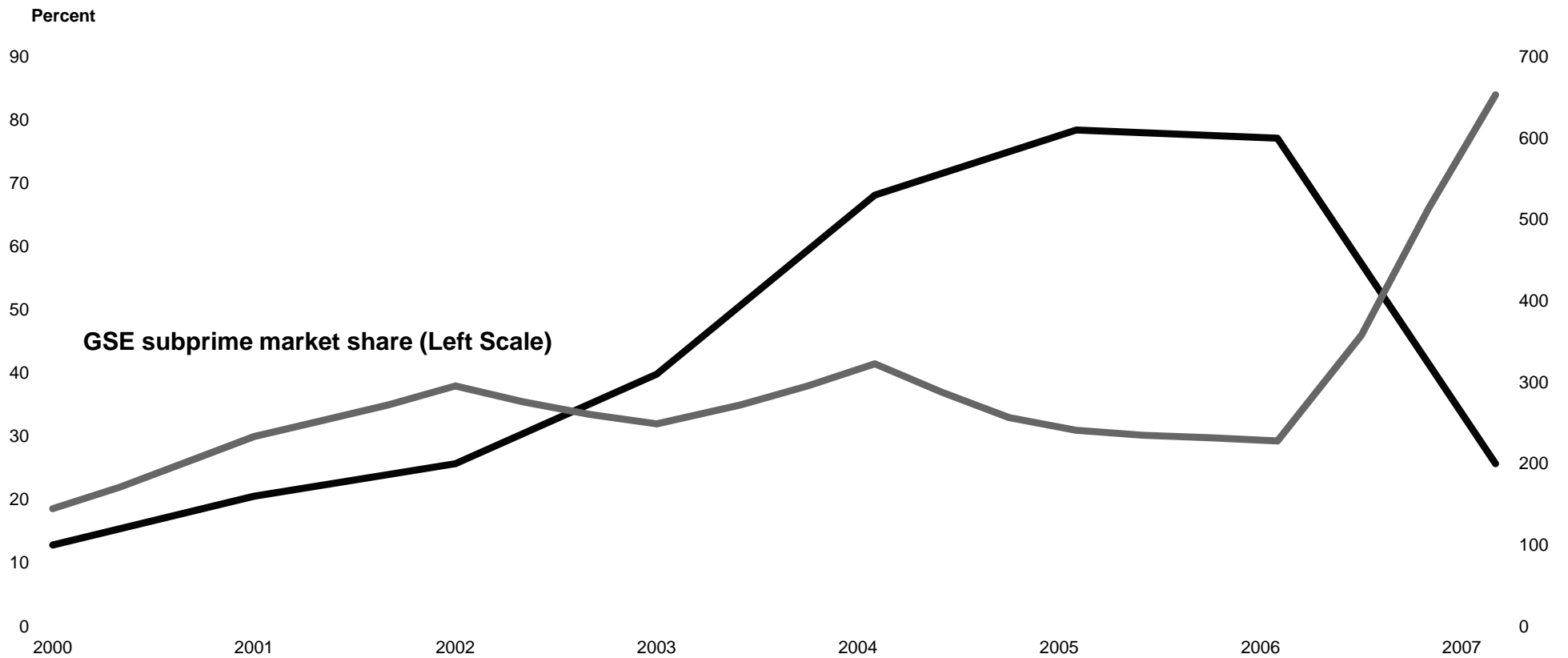
**03**

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**Many other countries had housing booms before the crisis**

## Timing doesn't match GSE policy changes

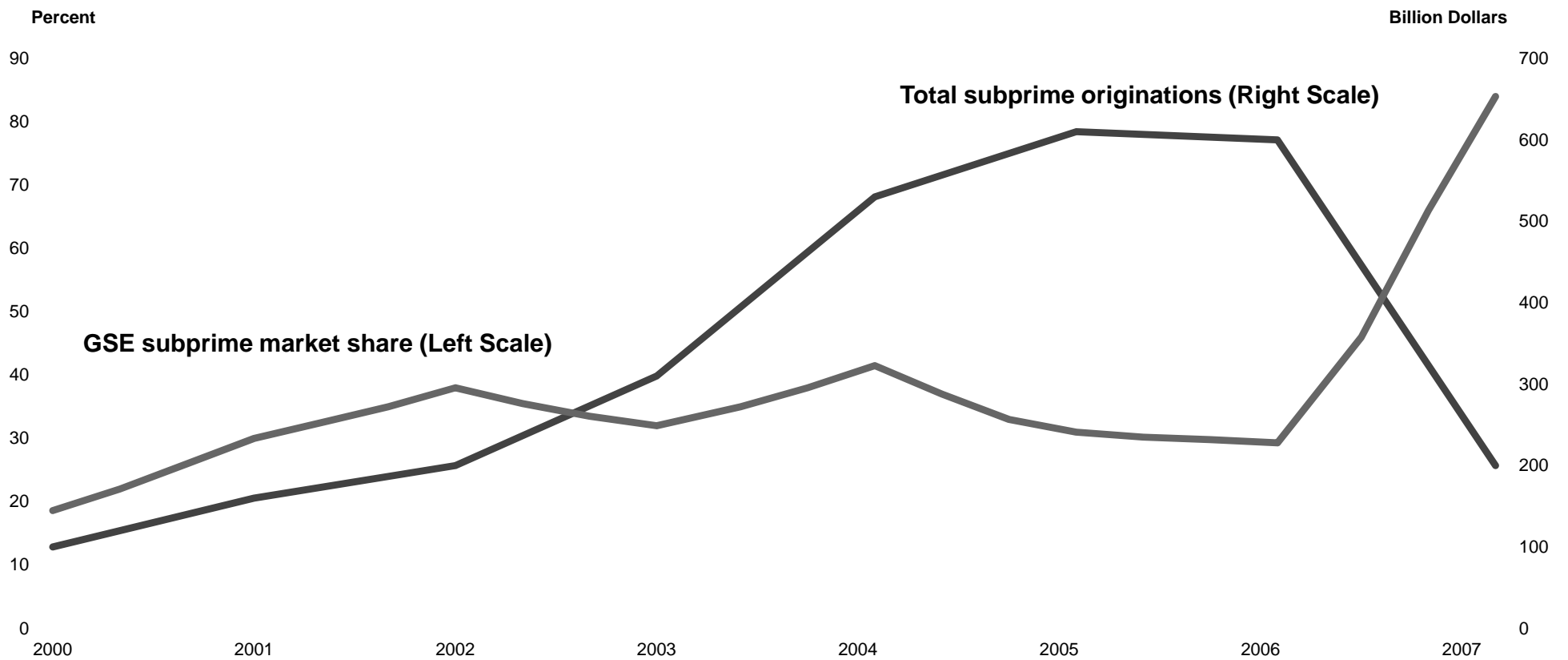
### GSE involvement in subprime



Source: Foote, Christopher L, Kristopher S Gerardi, and Paul S Willen, 2012, Why Did So Many People Make So Many Ex Post Bad Decisions? The Causes of the Foreclosure Crisis, Working Paper, National Bureau of Economic Research.

## Timing doesn't match GSE policy changes

### GSE involvement in subprime



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# **The Global Financial Crisis**

## **Module 5 The Housing Crisis**

### **08 Hypothesis 3: Bubble Thinking – Evidence**



## **Bubble Thinking**

Consistent with a preponderance of the evidence

**01**

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**Housing as a great investment that never goes down in value**

**02**

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**Mortgage supply from cash pools and intermediaries who saw MBS as “safe assets”**

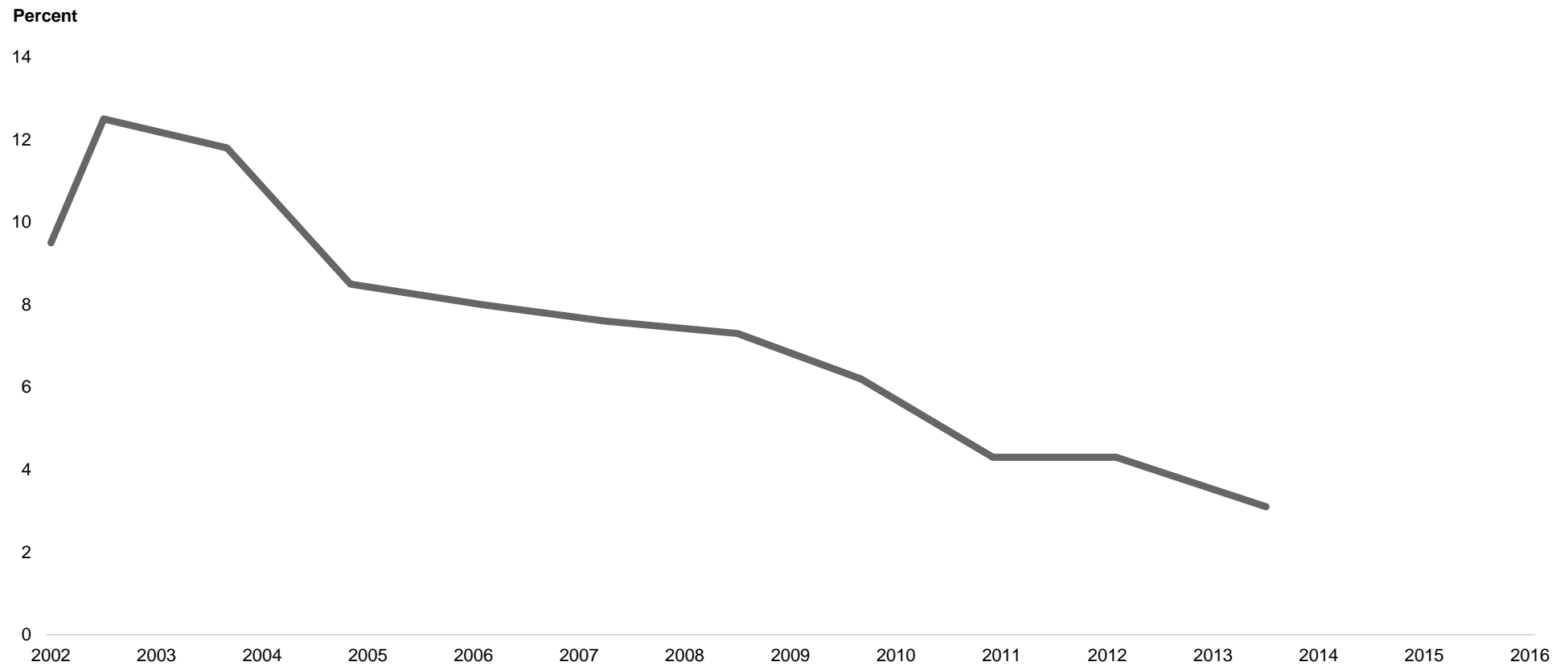
**03**

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**Long period of relative stability in the U.S.**

## Ten-Year Home Price Expectations

Homeowners are prone to extrapolate recent trends



Source: Robert Shiller; Pulsenomics

## **Bubble Thinking**

Consistent with a preponderance of the evidence

**01**

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**Housing as a great investment that never goes down in value**

**02**

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**Mortgage supply from cash pools and intermediaries who saw MBS as “safe assets”**

**03**

---

**Long period of relative stability in the U.S.**

# Risks of Housing Downturn and MBS Prices

Sophisticated investors understood risks, but didn't think it was likely

Conditional Forecasts of Losses on Subprime Investments from Lehman Brothers, August 15, 2005

Name	Scenario	Probability (%)	Cumulative Loss (%)
Aggressive	11% HPA over the life of the pool	15	1.4
	8% HPA for life	15	3.2
Base	HPA slows to 5% by end-2005	50	5.6
Pessimistic	0% HPA for the next 3 years, 5% thereafter	15	11.1
Meltdown	-5% for the next 3 years, 5% thereafter	5	17.1

View on House Price Appreciation from JPMorgan Analysts

Date of	Data from	Title
12/8/2006	Oct-06	"More widespread declines with early stabilization signs"
1/10/2007	Nov-06	"Continuing declines with stronger stabilization signs"
2/6/2007	Dec-06	"Tentative stabilization in HPA"
3/12/2007	Jan-07	"Continued stabilization in HPA"
9/20/2007	Jul-07	"Near bottom on HPA"
11/2/2007	Sep-07	"UGLY! Double digit declines in August and September"

Source: Foote, Christopher L, Kristopher S Gerardi, and Paul S Willen, 2012, Why Did So Many People Make So Many Ex Post Bad Decisions? The Causes of the Foreclosure Crisis, Working Paper, National Bureau of Economic Research.

## **Bubble Thinking**

Consistent with a preponderance of the evidence

**01**

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**Housing as a great investment that never goes down in value**

**02**

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**Mortgage supply from cash pools and intermediaries who saw MBS as “safe assets”**

**03**

---

**Long period of relative stability in the U.S.**

**Why did the bubble take hold in 2003-2007?**

**Housing bubbles are always lurking.**

**The precipitating force this time was the demand for safe assets coming from macroeconomic forces.**

# **The Global Financial Crisis**

## **Module 5 The Housing Crisis**

### **09 Summary**

# Summary

## Module 5

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**01** Popular explanations focus on three hypotheses:

- Bad behavior
- Government failure
- Bubble thinking

**02** Evidence is weak for bad behavior and government failure

**03** Rather, market participants were afflicted with bubble thinking, and the macroeconomic forces of the early 2000s allowed this bubble thinking to lead to a crisis.