

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 | | |

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Module 5 The Housing Crisis

01 What Caused the Housing Crisis?

What Caused the Housing Crisis?

Three distinct but not exclusive hypotheses

01

Bad behavior

02

Government failure

03

Bubble thinking

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02 3 Hypotheses

What Caused the Housing Crisis?

Three distinct but not exclusive hypotheses

01

Bad behavior

02

Government failure

03

Bubble thinking

Bad Behavior, Moral Hazard, “Inside Job”

**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

Bad behavior

02

Government failure

03

Bubble thinking

Government Failure

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

Bad behavior

02

Government failure

03

Bubble thinking

Bubble Thinking

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.

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03 Hypothesis 1: Bad Behavior, Part 1

Bad Behavior Hypothesis

Evidence does not support this hypothesis as the main driver

01

Nonprime loans
performed well for
many years

02

Mortgage defaults
unrelated to rate
resets

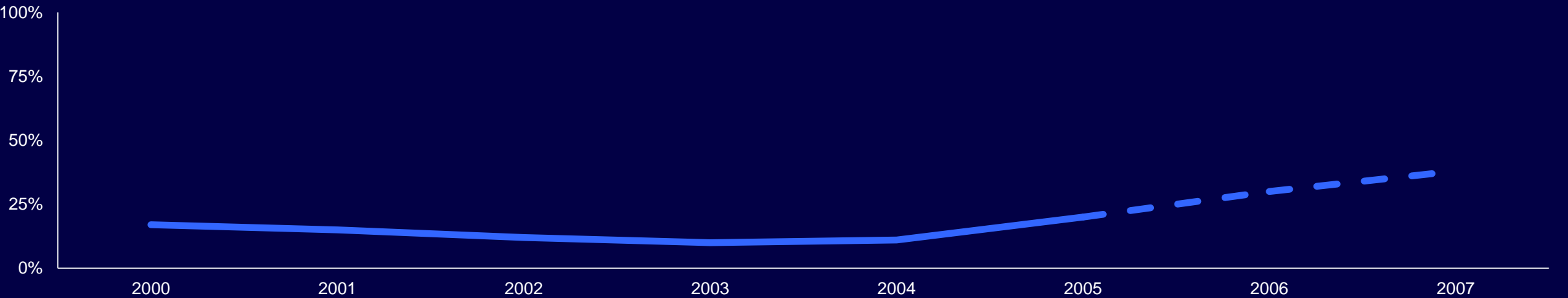
03

Insiders were
slammed by the
crisis

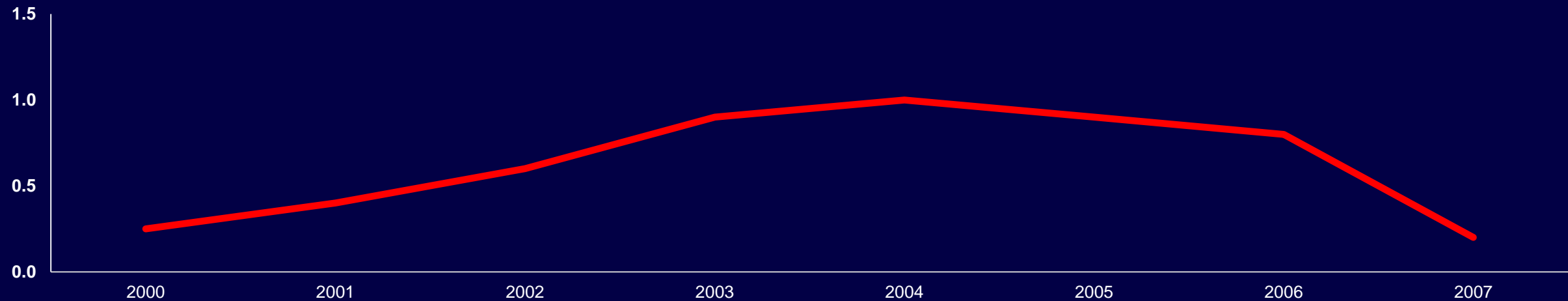
Nonprime loans performed well for many years

FICO<620

Failure Rate, Percent



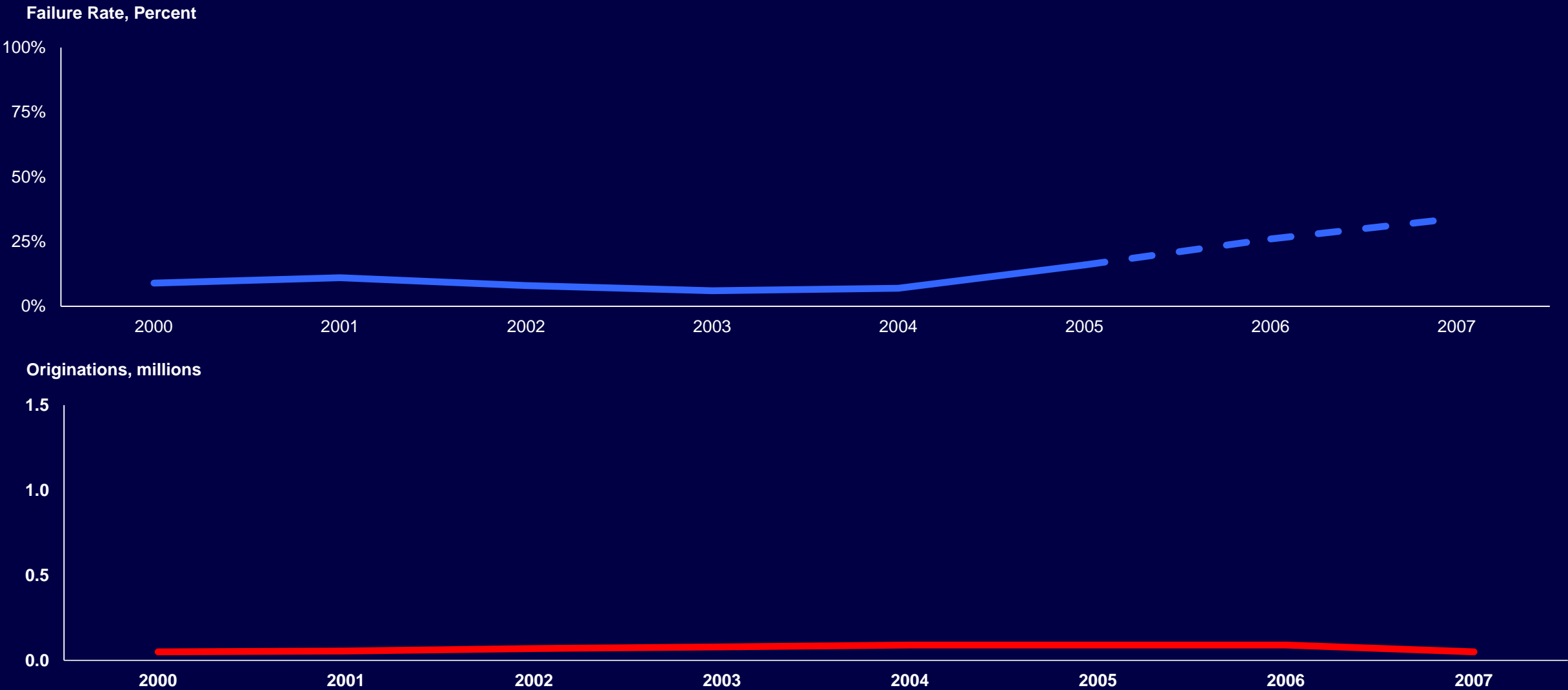
Originations, millions



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

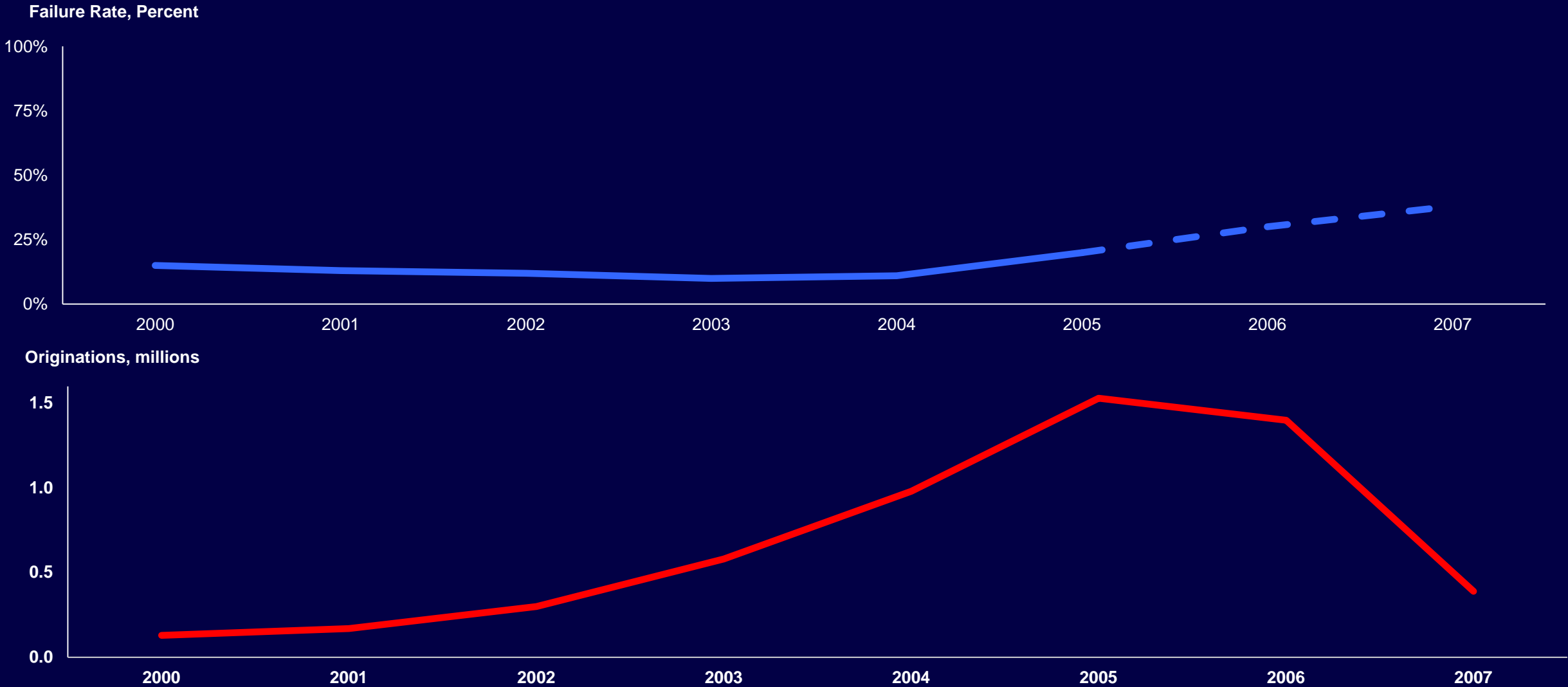
LTV=100



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

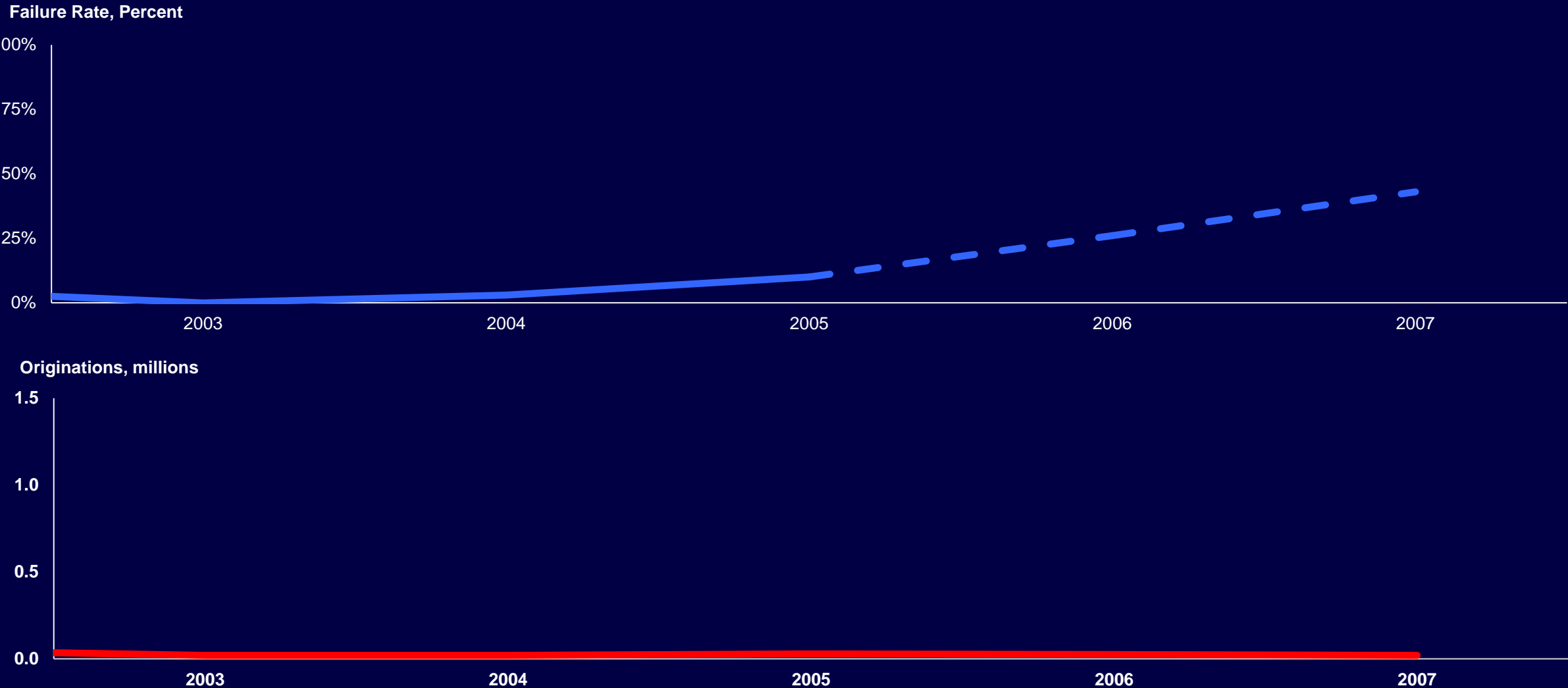
Low-doc and No-doc



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.

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04 Hypothesis 1: Bad Behavior, Part 2

Bad Behavior Hypothesis

Evidence does not support this hypothesis as the main driver

01

Nonprime loans
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many years

02

Mortgage defaults
unrelated to rate
resets

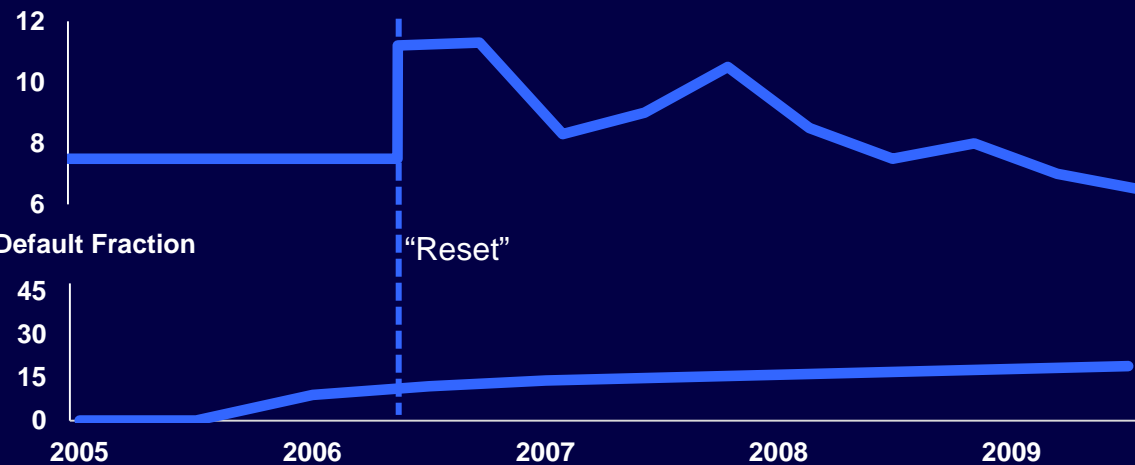
03

Insiders were
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crisis

Mortgage defaults unrelated to rate resets

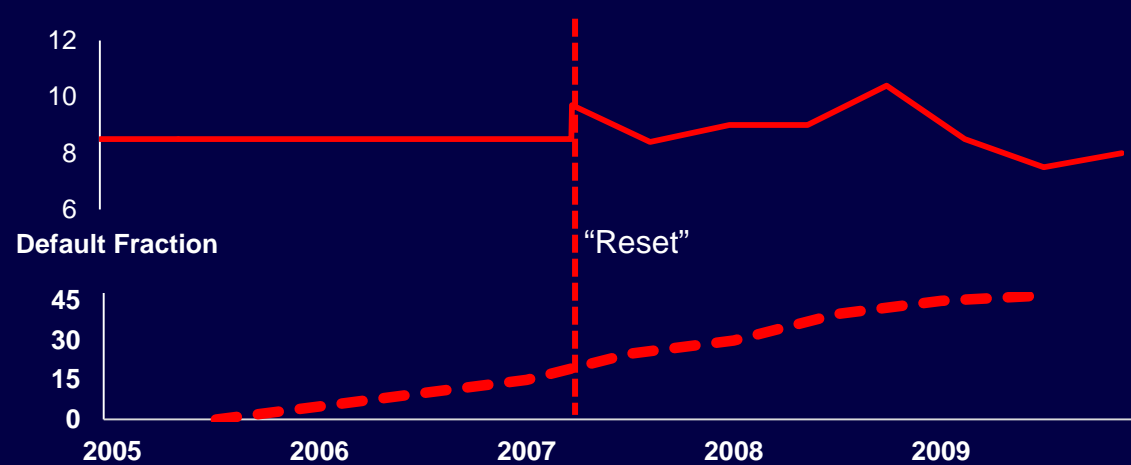
January 2005 Vintage

Interest Rate



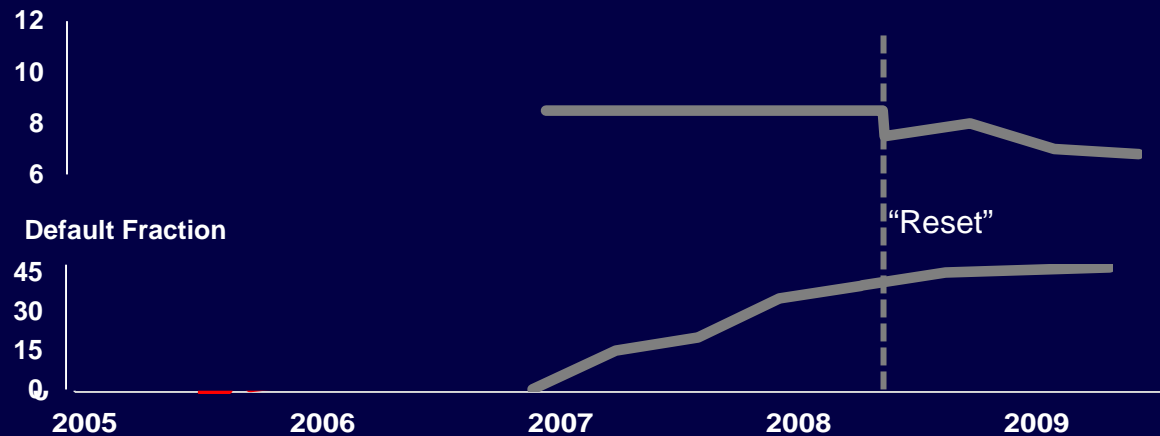
January 2006 Vintage

Interest Rate



January 2007 Vintage

Interest Rate



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05 Hypothesis 1: Bad Behavior, Part 3

Bad Behavior Hypothesis

Evidence does not support this hypothesis as the main driver

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Mortgage defaults
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resets

03

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

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/Thriffs	2,020	869	852	383	90	0	4,214
GSEs/FHLB	444	0	741	308	0	0	1,493
Broker/Dealers	0	0	49	100	130	24	303
REITs	0	0	82	10	0	0	92
Hedge Funds	0	0	50	51	0	24	125
Money Managers	0	0	494	225	0	24	743
Insurance Cos	0	0	856	125	65	24	1,070
Overseas	0	0	689	413	45	24	1,171
Financial Guarantors	0	62	0	0	100	0	162
Others	461	185	550	21	45	0	1,262
Total	2,925	1,116	4,362	1,636	476	121	10,680

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.

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06 Hypothesis 2: Government Failure – Evidence, Part 1

Government Failure Hypothesis

Evidence does not support this hypothesis as the main driver

01

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

02

Timing of activities cannot be explained by GSE policy changes

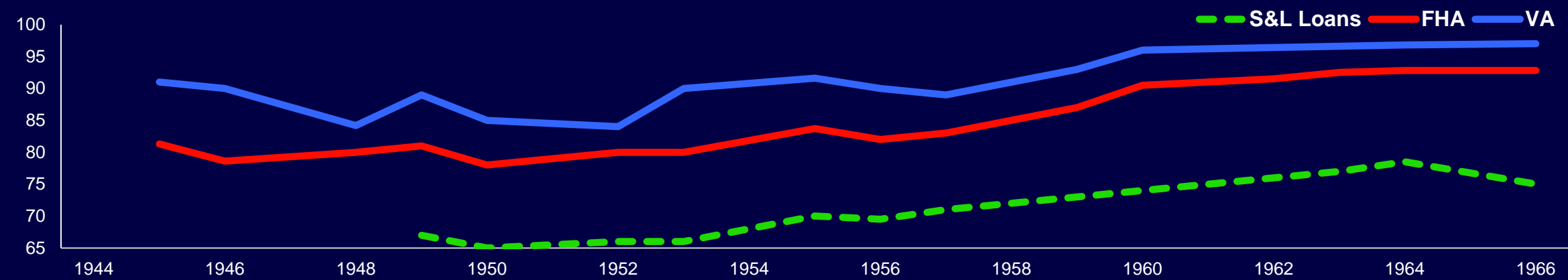
03

Many other countries had housing booms before the crisis

Government Failure: Evidence

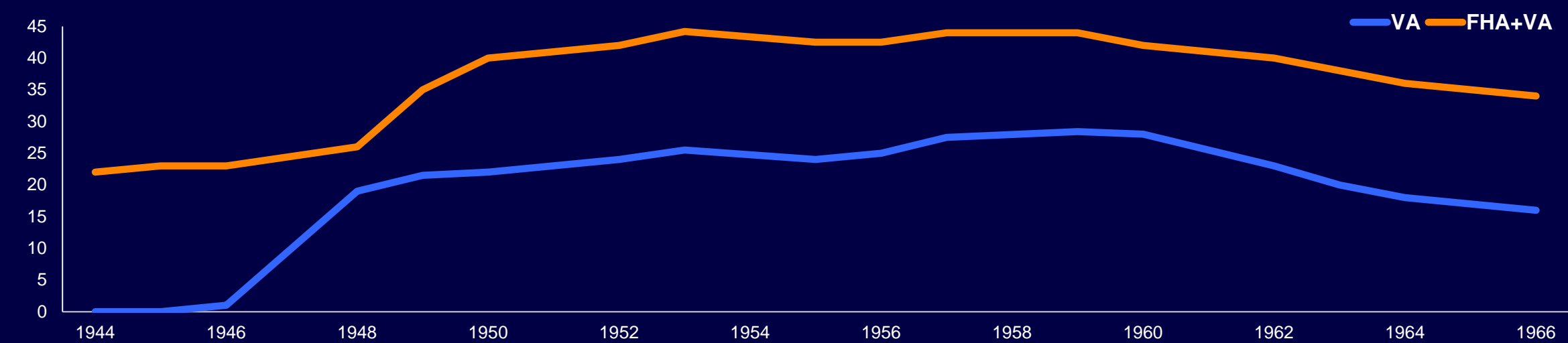
Average LTV

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.

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07 Hypothesis 2: Government Failure – Evidence, Part 2

Government Failure Hypothesis

Evidence does not support this hypothesis as the main driver

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

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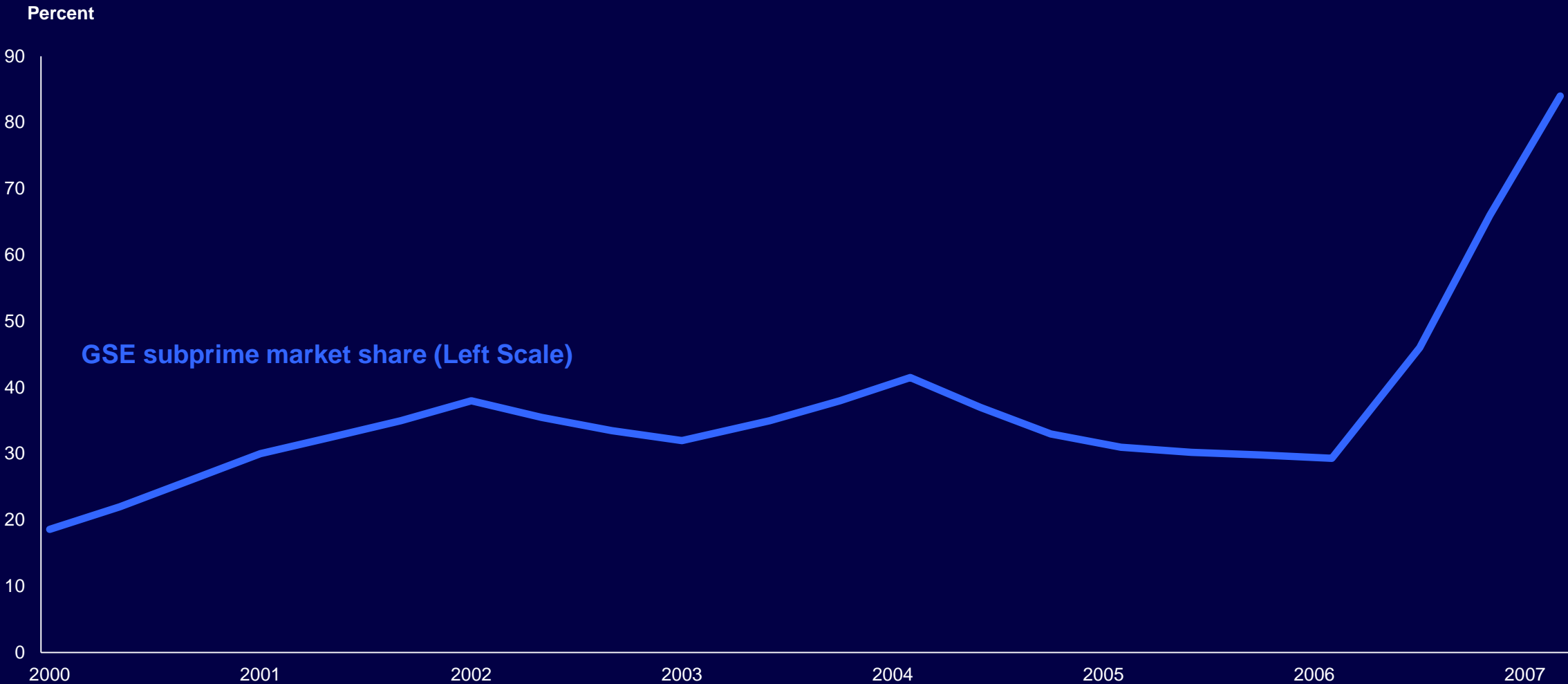
Timing of activities cannot be explained by GSE policy changes

03

Many other countries had housing booms before the crisis

Timing doesn't match GSE policy changes

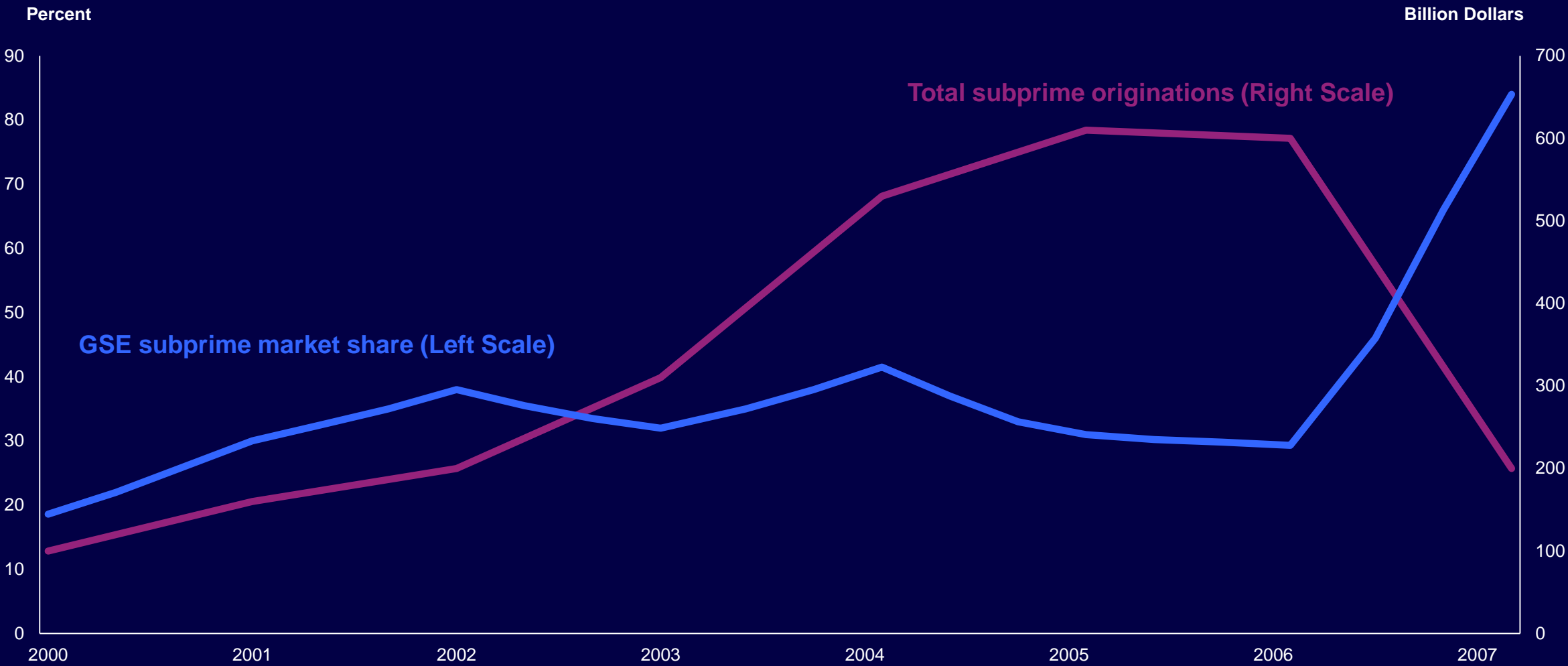
GSE involvement in subprime



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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08 Hypothesis 3: Bubble Thinking – Evidence

Bubble Thinking

Consistent with a preponderance of the evidence

01

Housing as a great investment that never goes down in value

02

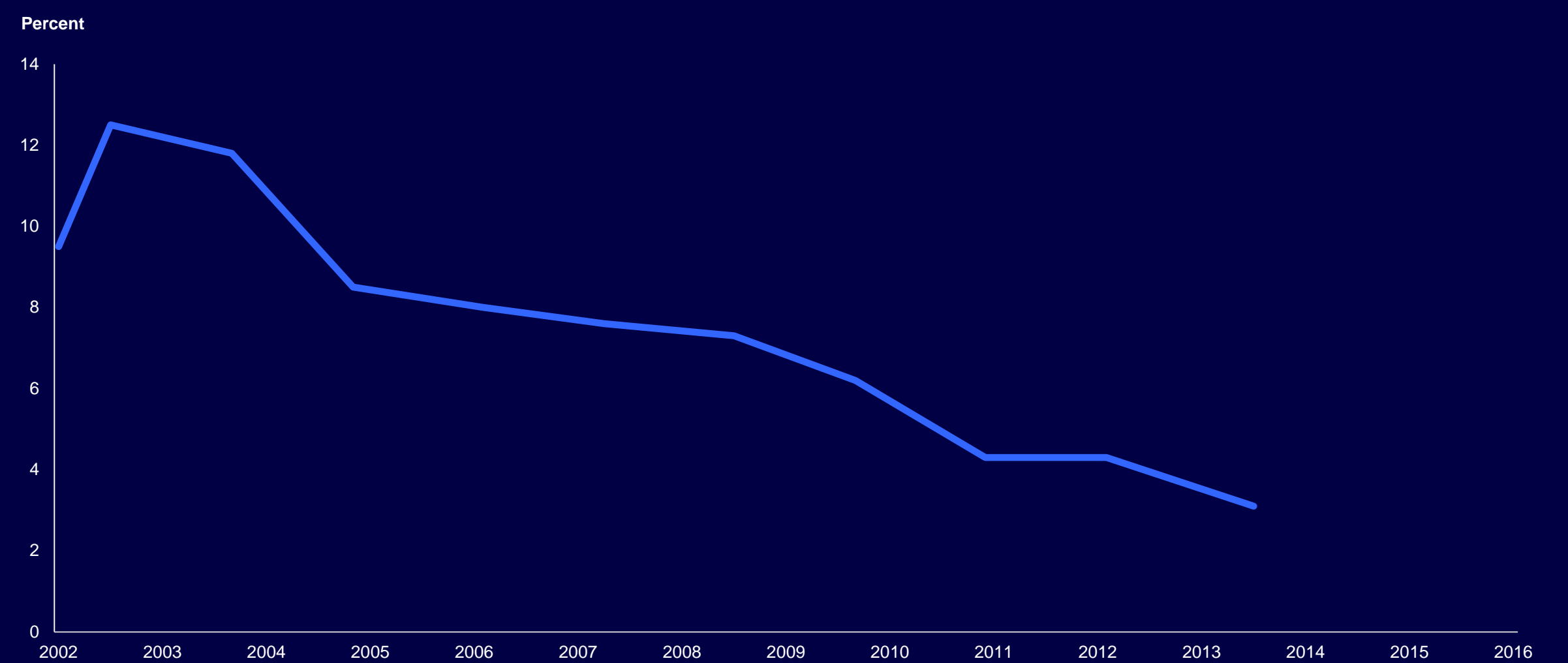
Mortgage supply from cash pools and intermediaries who saw MBS as “safe assets”

03

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

Housing as a great investment that never goes down in value

02

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"

Bubble Thinking

Consistent with a preponderance of the evidence

01

Housing as a great investment that never goes down in value

02

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.

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09 Summary

Summary

Module 5

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.