Goldman Sachs

Hiking Rates in the Name of Financial Stability

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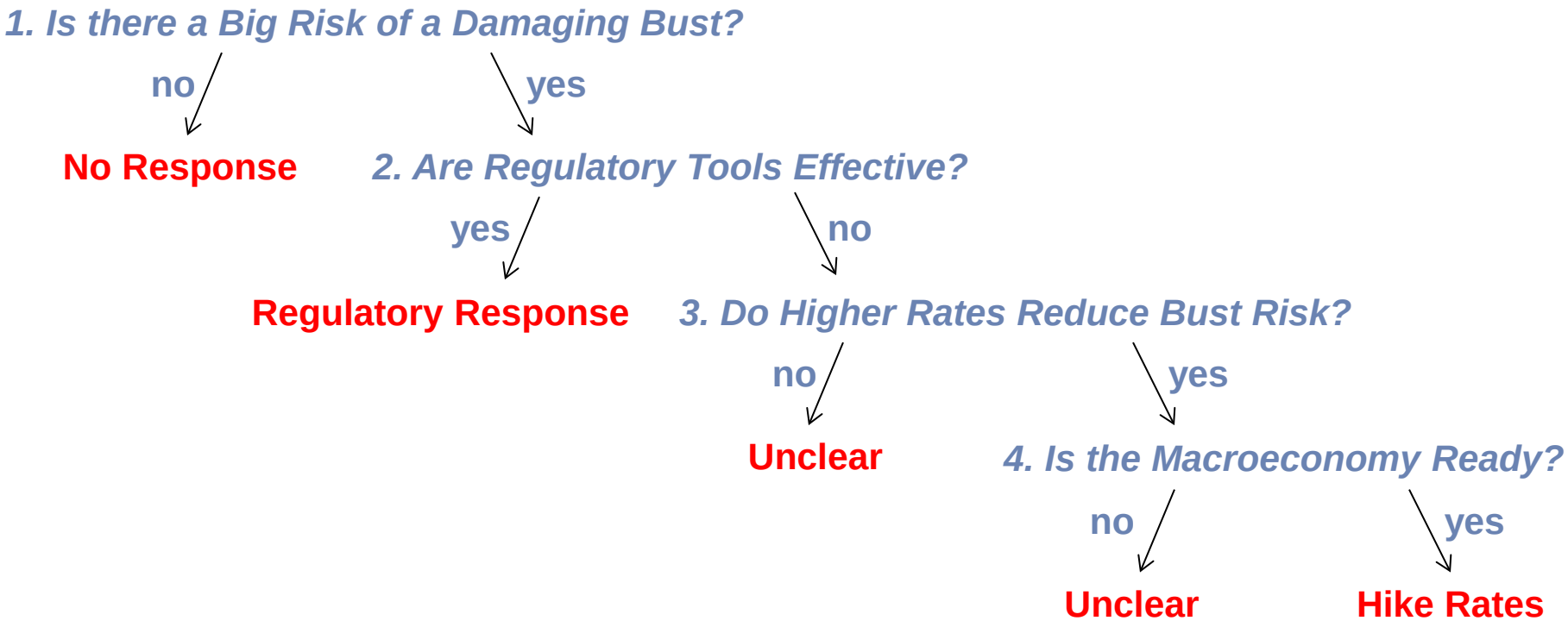
Some Simple Conceptual Thoughts



Estimating Bust Risk

- **Probit model using quarterly data for 20 OECD countries for 1985-2013.**

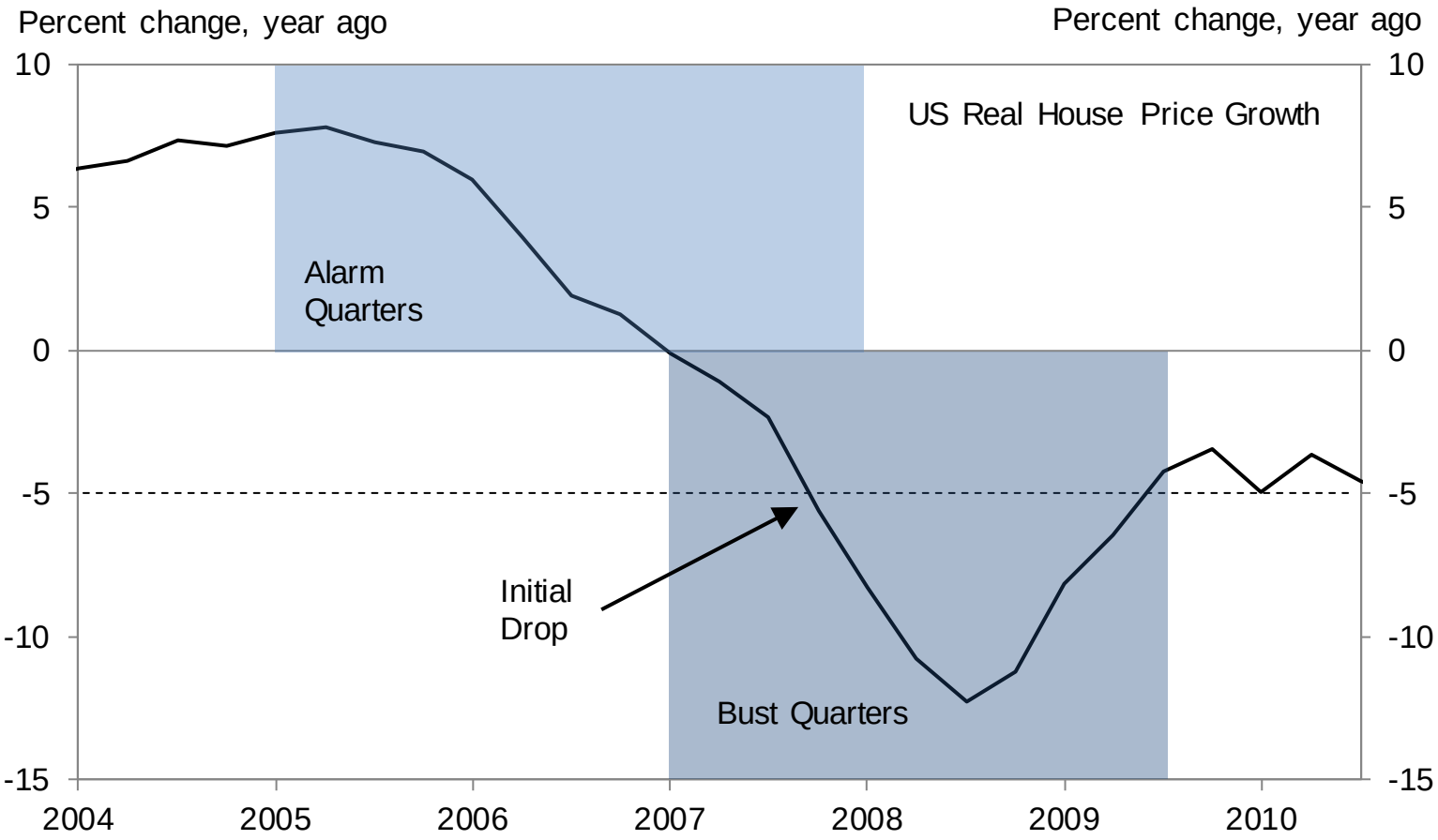
  Equity bust = real 20% yoy decline.
  Recessionary equity bust = equity bust + yoy real GDP decline
  Deeply recessionary equity bust = equity bust + yoy GDP decline of at least 2%

  Housing bust = real 5% yoy decline.
  Recessionary housing bust = housing bust + yoy real GDP decline
  Deeply recessionary housing bust = housing bust + yoy GDP decline of at least 2%

- **Define an "alarm" as any quarter 5-9 quarters before a "bust" quarter.**

- **Look for economic and financial variables that correlate with an "alarm."**

Dating Busts and Alarms



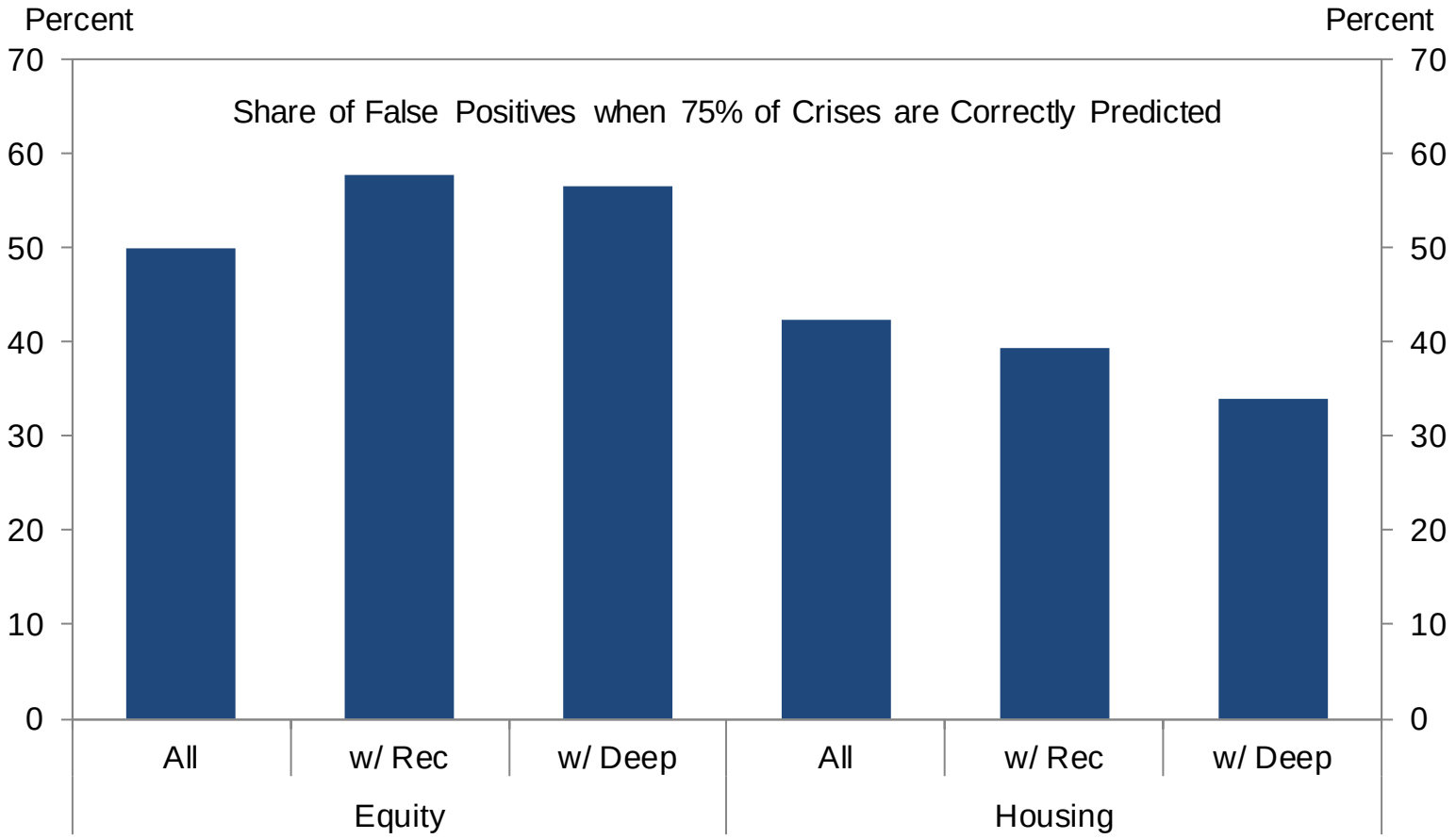
Source: OECD. Goldman Sachs Global Investment Research.

Drivers of Equity and Housing Bust Alarms

5-8Q-ahead Alarm	Equity Busts			Housing Busts		
	All	w/ Rec	w/ Deep	All	w/ Rec	w/ Deep
Equity Price Growth (*real, 5y % change*)	11.5 [8.6]**	4.1 [3.9]**	0.1 [0.1]	-2.6 [-2.2]*	-1.1 [-1.2]	0.4 [0.7]
House Price Growth (*real, 5y % change*)	3.2 [2.1]*	2.1 [1.7]	1.5 [1.4]	1.9 [1.5]	4.1 [4.4]**	4.1 [6.1]**
Credit/GDP (*priv. nonfin., 5y change*)	2.2 [1.5]	4.5 [3.7]**	4.2 [4.3]**	9.2 [8.0]**	10.2 [10.4]**	4.4 [6.8]**
Investment/GDP (*GFCF, 5y change*)	6.8 [4.1]**	6.4 [4.3]**	3.7 [3.0]**	1.9 [1.4]	1.1 [1.0]	0.7 [0.9]
Current Account (*% GDP, 1y mov.av.*)	-1.7 [-1.4]	0.8 [0.8]	-0.5 [-0.6]	-2.5 [-2.5]*	-0.7 [-0.9]	-2.3 [-3.9]**
Real GDP Growth (*% yoy*)	1.9 [1.5]	-1.1 [-1.0]	-0.5 [-0.6]	-1.4 [-1.3]	-0.1 [-0.2]	0.7 [1.1]
Inflation (*% yoy*)	1.3 [1.1]	-0.3 [-0.3]	0.5 [0.6]	5.9 [6.0]**	3.6 [4.6]**	2.4 [4.3]**
Equity Volatility (*realized, 1y mov.av.*)	4.8 [4.3]**	-3.8 [-3.4]**	-6.3 [-6.3]**	3.5 [3.6]**	0.3 [0.3]	-1.2 [-1.8]
Observations:	1908	1851	1848	1901	1869	1854
Pseudo R-squared:	0.10	0.05	0.07	0.11	0.17	0.19

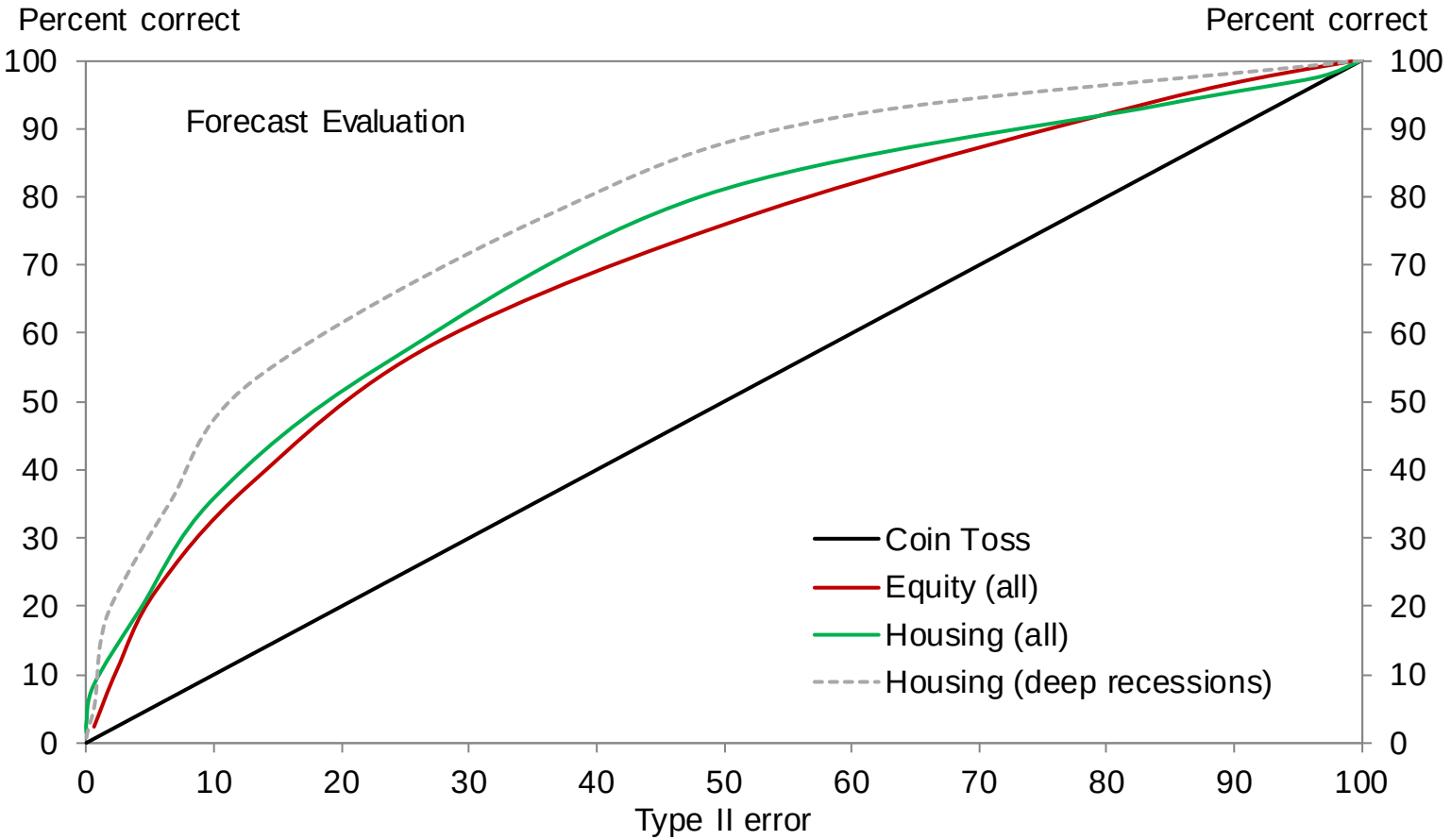
Note: brackets denote z-statistics. * and ** denote significance at 5% and 1% level, respectively.
Source: Goldman Sachs Global Investment Research.

False Alarms Are a Big Issue



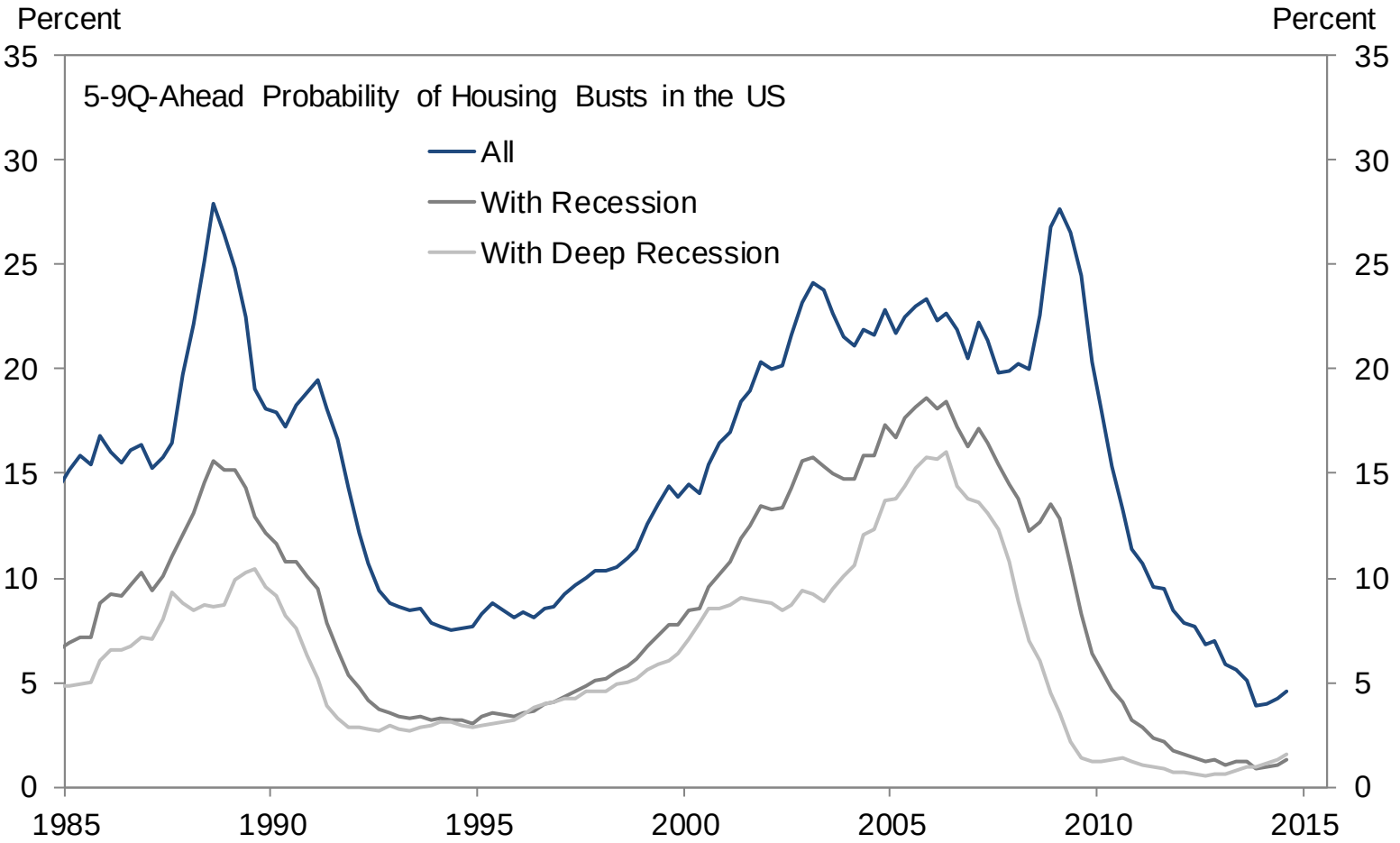
Source: Goldman Sachs Global Investment Research.

Trading Off Type I vs. Type II Errors



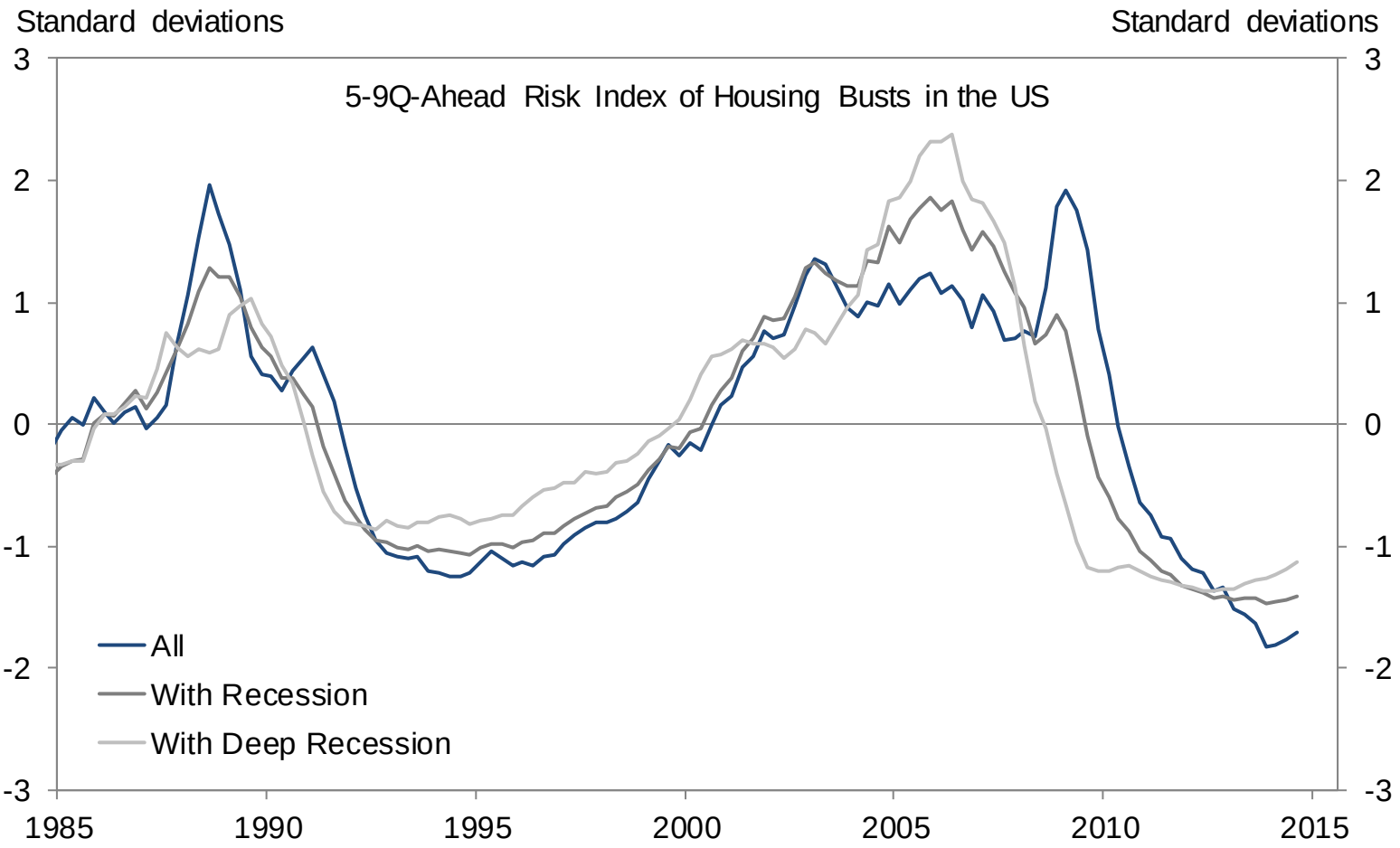
Source: Goldman Sachs Global Investment Research.

Probability of a Housing Bust



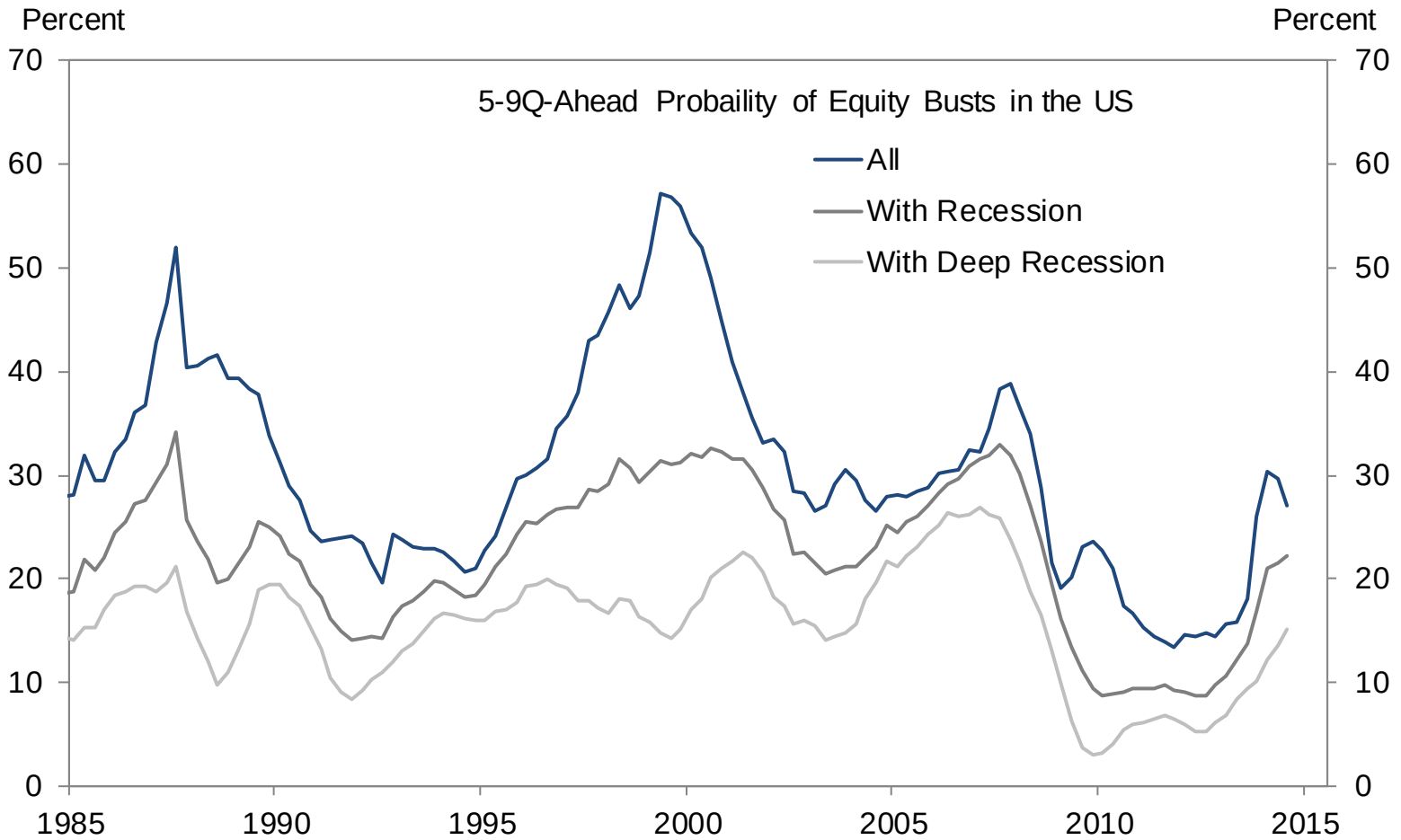
Source: Goldman Sachs Global Investment Research.

Housing Bust Risk Index



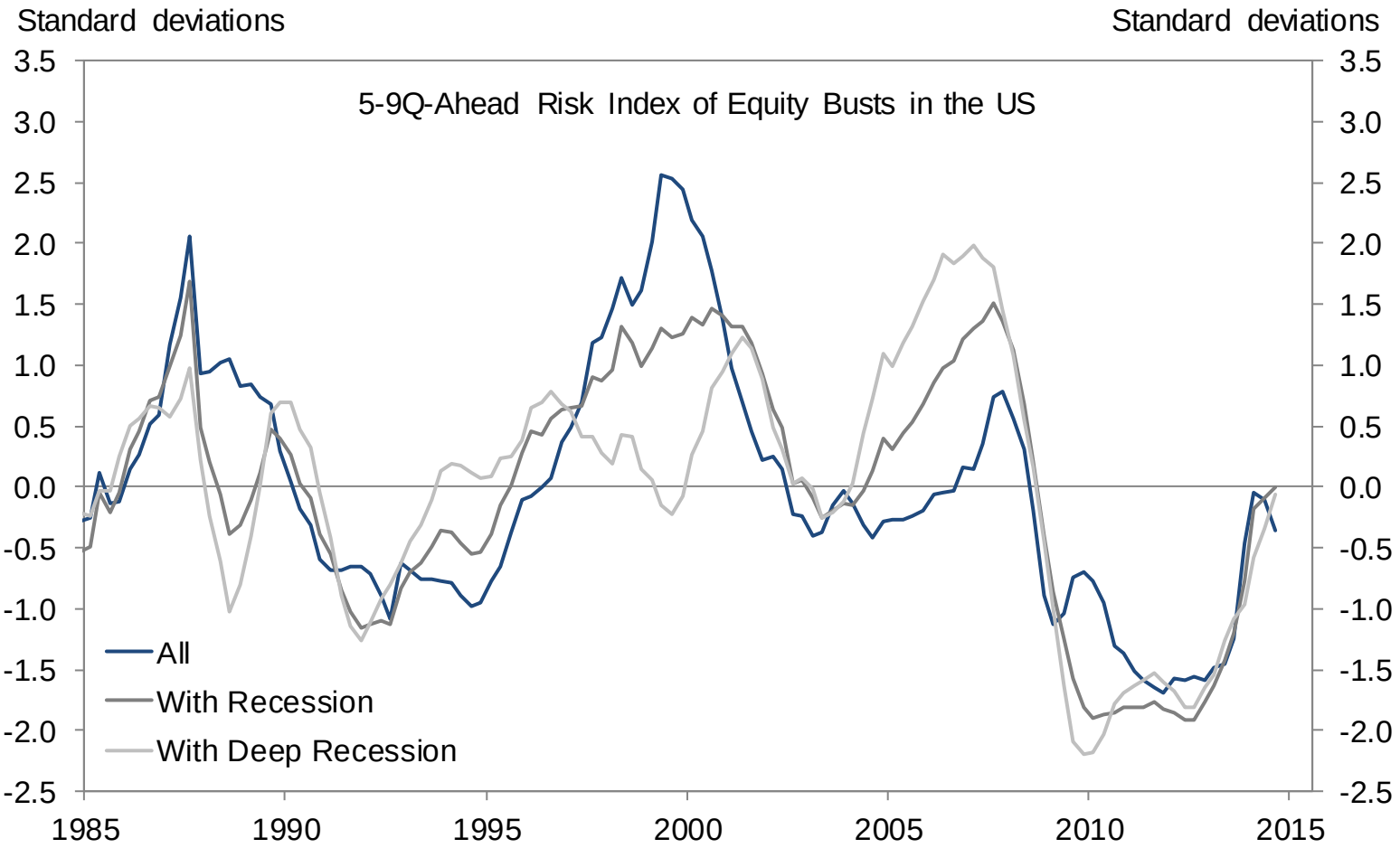
Source: Goldman Sachs Global Investment Research.

Probability of an Equity Bust



Source: Goldman Sachs Global Investment Research.

Equity Bust Risk Index



Source: Goldman Sachs Global Investment Research.

The Macroeconomy May Not Be Ready Yet

- **While some job market measures such as job openings and headline unemployment have tightened a lot, broad measures such as U6 and E/P still show substantial slack.**
- **The continued weakness of nominal wage growth supports a focus on broad as opposed to narrow slack measures.**
- **Core inflation remains well below the 2% target, and only some of this is explained by oil and dollar pass-through.**
- **The risks to global growth and inflation remain on the downside.**
- **At the ZLB, hiking too early is riskier than hiking too late.**
- **Uncertainty around r* is an argument for a later (but potentially steeper) liftoff.**

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