

HOME PRICE EXPECTATIONS SURVEY

2016 PANELIST "TOP 10" RANKINGS

1 Year Horizon (2016)		Actual Change (Dec 2016 / Dec 2015)		Benchmark: US ZHVI 7.00%				
				Panelist Expectations, By Survey Edition:				
				Q1 2016	Q2 2016	Q3 2016	Q4 2016	
2016 Expectations	Rank	Panelist	Title	Affiliation				
	1	Barry Habib	CEO	MBS Highway	5.20%	6.60%	6.30%	5.80%
	2	Joel Naroff	President	Naroff Economic Advisors Inc	5.30%	5.50%	6.30%	6.00%
	3	Rajeev Dhawan	Director, Economic Forecasting Center	Georgia State University	5.50%	5.50%	6.00%	5.50%
	4	Matthew Pointon	Property Economist	Capital Economics Ltd	4.00%	6.00%	6.00%	6.00%
	5	Edward Pinto	Resident Fellow	American Enterprise Institute	5.00%	5.80%	5.40%	5.60%
	6	Bob Baur	Chief Global Economist	Principal Global Investors	5.00%	5.00%	6.00%	5.50%
	7	Joseph Carson	Chief Economist	Alliance Bernstein	5.00%	5.00%	6.00%	5.00%
	8	Amy Crews Cutts	Chief Economist	Equifax	4.60%	4.90%	5.60%	5.60%
	9	Doug Duncan	Chief Economist	Fannie Mae	5.20%	4.90%	5.20%	5.40%
10	Kenneth Rosen	Chairman	Rosen Consulting Group	4.80%	4.80%	5.30%	5.40%	

2-Year Horizon (2015-2016)		Actual Change (Dec 2016 / Dec 2014)		Benchmark: US ZHVI 12.84%				
				Panelist Expectations, By Survey Edition:				
				Q1 2015	Q2 2015	Q3 2015	Q4 2015	
2015 Expectations	Rank	Panelist	Title	Affiliation				
	1	Joel Naroff	President	Naroff Economic Advisors Inc	11.90%	12.63%	13.48%	12.53%
	2	Rajeev Dhawan	Director, Economic Forecasting Center	Georgia State University	14.95%	14.95%	14.11%	14.11%
	3	Paul Carrillo	Professor of Economics	George Washington University	10.74%	11.79%	10.74%	10.74%
	4	Bob Baur	Chief Global Economist	Principal Global Investors	9.68%	10.74%	11.26%	11.26%
	4	Ingo Winzer	President	Local Market Monitor	11.05%	11.37%	10.74%	9.79%
	4	David Wyss	Economist	Brown University	10.74%	11.79%	10.74%	9.68%
	5	Robert Dye	Chief Economist	Comerica Bank	11.47%	10.84%	9.15%	11.16%
	6	Peter Linneman	Founder and CEO	American Land Fund	10.74%	10.74%	10.74%	10.21%
	7	Michael Englund	Chief Economist	Action Economics LLC	10.74%	10.52%	10.63%	10.21%
8	Amy Crews Cutts	Chief Economist	Equifax	10.74%	9.68%	11.26%	10.00%	
9	Joseph Carson	Chief Economist	Alliance Bernstein	10.74%	10.74%	9.68%	10.21%	
10	Barry Habib	CEO	MBS Highway	8.63%	11.16%	11.37%	9.89%	

2014 Expectations				Benchmark: US ZHVI 12.84%			
				Panelist Expectations, By Survey Edition:			
				Q1 2014	Q2 2014	Q3 2014	Q4 2014
Rank	Panelist	Title	Affiliation				
1	Michael Englund	Chief Economist	Action Economics LLC	13.10%	13.10%	11.83%	10.15%
2	Peter Linneman	Founder and CEO	American Land Fund	10.25%	10.25%	12.35%	11.30%
3	Joel Naroff	President	Naroff Economic Advisors Inc	11.40%	11.40%	11.61%	9.52%
4	Ingo Winzer	President	Local Market Monitor	15.13%	15.13%	14.91%	13.63%
5	Robert Dye	Chief Economist	Comerica Bank	11.30%	11.30%	12.15%	8.99%
6	Andrea Heuson	Professor of Finance	University of Miami	9.20%	9.20%	11.30%	11.30%
6	Don Rissmiller	Chief Investment Strategist	Strategas Research Partners LLC	10.25%	10.25%	10.25%	10.25%
7	Grant Thrall	President	American Real Estate Society	14.92%	14.92%	14.92%	8.28%
8	Amy Crews Cutts	Chief Economist	Equifax	9.20%	9.20%	11.62%	9.99%
9	Jim Kleckley	Director, Bureau of Business Research	East Carolina University	10.17%	10.17%	9.11%	10.09%
10	James Smith	Chief Economist	Parsec Financial Management	9.51%	9.51%	9.51%	9.51%

2013 Expectations				Benchmark: US ZHVI 12.84%			
				Panelist Expectations, By Survey Edition:			
				Q1 2013	Q2 2013	Q3 2013	Q4 2013
Rank	Panelist	Title	Affiliation				
1	Jack Kleinhenz	Chief Economist	Kleinhenz & Associates, Inc.	12.36%	12.36%	12.15%	12.15%
2	Ingo Winzer	President	Local Market Monitor	12.57%	12.57%	12.78%	14.70%
3	Michael Englund	Chief Economist	Action Economics LLC	11.09%	12.57%	12.36%	13.10%
4	Jim Kleckley	Director, Bureau of Business Research	East Carolina University	12.72%	11.39%	11.64%	10.20%
5	Don Rissmiller	Chief Investment Strategist	Strategas Research Partners LLC	12.36%	10.25%	14.49%	10.25%
6	David Wyss	Economist	Brown University	14.48%	14.49%	14.48%	15.56%
7	Chris Mayer	Sr Vice Dean, Paul Milstein Professor of Real Estate	Columbia Business School	12.35%	11.30%	11.30%	8.15%
8	Andrea Heuson	Professor of Finance	University of Miami	11.30%	10.25%	11.30%	8.16%
9	Peter Linneman	Founder and CEO	American Land Fund	10.25%	7.12%	10.25%	12.36%
10	Joseph Carson	Chief Economist	Alliance Bernstein	10.25%	10.25%	8.16%	10.25%

2012 Expectations				Benchmark: SPCSI US National 11.40%			
				Panelist Expectations, By Survey Edition:			
				Q1 2012	Q2 2012	Q3 2012	Q4 2012
Rank	Panelist	Title	Affiliation				
1	Mark Zandi / Celia Chen	Chief Economist / Senior Director	Moody's Analytics	10.92%	9.86%	9.26%	9.09%
2	Andrea Heuson	Professor of Finance	University of Miami	9.20%	10.25%	9.20%	10.25%
3	Joel Naroff	President	Naroff Economic Advisors Inc	9.61%	9.93%	14.27%	10.36%
4	Joseph Carson	Chief Economist	Alliance Bernstein	8.16%	9.20%	10.25%	12.36%
5	James Smith	Chief Economist	Parsec Financial Management	9.51%	9.51%	9.51%	9.51%
6	Michael Englund	Chief Economist	Action Economics LLC	9.20%	9.41%	9.73%	9.52%
7	Rajeev Dhawan	Director, Economic Forecasting Center	Georgia State University	10.25%	13.42%	11.83%	16.63%
8	Stephen Stanley	Chief Economist	Amherst Pierpont Securities	10.25%	10.25%	8.16%	7.12%
9	Esmael Adibi	Director	Chapman University	8.86%	8.86%	9.17%	8.04%
10	Kenneth Rosen	Chairman	Rosen Consulting Group	8.68%	8.68%	8.68%	8.68%

HOME PRICE EXPECTATIONS SURVEY

2016 PANELIST "TOP 10" RANKINGS

3-Year Horizon (2014-2016) Actual Change (Dec 2016 / Dec 2013)

				Benchmark: US ZHVI 17.63%				
				Panelist Expectations, By Survey Edition:				
				Q1 2014	Q2 2014	Q3 2014	Q4 2014	
2014 Expectations	Rank	Panelist	Title	Affiliation				
	1	Joel Naroff	President	Naroff Economic Advisors Inc	17.31%	17.31%	17.64%	14.77%
	2	James Smith	Chief Economist	Parsec Financial Management	16.51%	16.51%	16.51%	16.51%
	3	Peter Linneman	Founder and CEO	American Land Fund	15.76%	15.76%	20.21%	17.53%
	4	Amy Crews Cutts	Chief Economist	Equifax	15.75%	15.75%	18.43%	15.76%
	5	Jim Kleckley	Director, Bureau of Business Research	East Carolina University	16.27%	16.27%	14.68%	16.84%
	6	Andrea Heuson	Professor of Finance	University of Miami	14.66%	14.66%	17.98%	17.98%
	7	Don Rissmiller	Chief Investment Strategist	Strategas Research Partners LLC	16.87%	16.87%	14.66%	15.21%
	8	Robert Dye	Chief Economist	Comerica Bank	19.09%	19.09%	18.20%	12.15%
	9	Doug Duncan	Chief Economist	Fannie Mae	15.08%	15.08%	14.54%	15.53%
10	Chris Rupkey	Chief Financial Economist	MUFG Union Bank	14.07%	14.07%	16.86%	15.21%	
		Nathaniel Karp	Chief U.S. Economist	BBVA Research	14.11%	14.11%	14.39%	16.98%

				Benchmark: US ZHVI 17.63%				
				Panelist Expectations, By Survey Edition:				
				Q1 2013	Q2 2013	Q3 2013	Q4 2013	
2013 Expectations	Rank	Panelist	Title	Affiliation				
	1	Jack Kleinhenz	Chief Economist	Kleinhenz & Associates, Inc.	18.54%	18.82%	18.60%	18.60%
	2	James Smith	Chief Economist	Parsec Financial Management	16.51%	16.51%	16.51%	16.51%
	3	Jim Kleckley	Director, Bureau of Business Research	East Carolina University	20.10%	18.14%	18.54%	15.98%
	4	Ingo Winzer	President	Local Market Monitor	17.41%	17.41%	17.07%	22.62%
	5	Don Rissmiller	Chief Investment Strategist	Strategas Research Partners LLC	17.98%	16.87%	21.36%	15.76%
	6	Andrea Heuson	Professor of Finance	University of Miami	16.87%	15.76%	17.98%	13.57%
	7	Chris Mayer	Sr Vice Dean, Paul Milstein Professor of Real Estate	Columbia Business School	19.09%	17.98%	17.98%	11.39%
	8	Joseph Carson	Chief Economist	Alliance Bernstein	15.76%	16.87%	13.57%	14.66%
	9	Peter Linneman	Founder and CEO	American Land Fund	16.87%	12.48%	14.66%	20.78%
10	Brad Hunter	Chief Economist	HomeAdvisor	11.73%	17.41%	17.64%	10.86%	

				Benchmark: SPCSI US National 16.44%				
				Panelist Expectations, By Survey Edition:				
				Q1 2012	Q2 2012	Q3 2012	Q4 2012	
2012 Expectations	Rank	Panelist	Title	Affiliation				
	1	Mark Zandi / Celia Chen	Chief Economist / Senior Director	Moody's Analytics	18.44%	17.18%	15.17%	13.67%
	2	Andrea Heuson	Professor of Finance	University of Miami	13.57%	14.66%	13.57%	15.76%
	3	James Smith	Chief Economist	Parsec Financial Management	14.10%	14.10%	14.10%	14.10%
	4	Stephen Stanley	Chief Economist	Amherst Pierpont Securities	14.66%	15.76%	13.57%	11.40%
	5	Douglas Poutasse	Head of Strategy and Research	Bentall Kennedy	13.56%	14.66%	14.66%	12.49%
	6	Joseph Carson	Chief Economist	Alliance Bernstein	11.40%	12.48%	15.76%	17.98%
	7	Rajeev Dhawan	Director, Economic Forecasting Center	Georgia State University	15.21%	19.09%	17.42%	23.04%
	8	Joel Naroff	President	Naroff Economic Advisors Inc	12.79%	13.12%	20.67%	17.31%
	9	Esmael Adibi	Director	Chapman University	13.54%	13.54%	13.87%	12.69%
10	Michael Englund	Chief Economist	Action Economics LLC	12.48%	13.13%	13.46%	13.13%	

4-Year Horizon (2013-2016) Actual Change (Dec 2016 / Dec 2012)

				Benchmark: US ZHVI 25.05%				
				Panelist Expectations, By Survey Edition:				
				Q1 2013	Q2 2013	Q3 2013	Q4 2013	
2013 Expectations	Rank	Panelist	Title	Affiliation				
	1	Jack Kleinhenz	Chief Economist	Kleinhenz & Associates, Inc.	25.06%	25.65%	25.42%	25.42%
	2	James Smith	Chief Economist	Parsec Financial Management	25.60%	25.60%	25.60%	25.60%
	3	Don Rissmiller	Chief Investment Strategist	Strategas Research Partners LLC	23.88%	22.71%	27.43%	25.02%
	4	Joseph Carson	Chief Economist	Alliance Bernstein	23.87%	22.71%	22.65%	23.83%
	5	Jim Kleckley	Director, Bureau of Business Research	East Carolina University	29.75%	24.53%	25.87%	22.63%
	6	Chris Mayer	Sr Vice Dean, Paul Milstein Professor of Real Estate	Columbia Business School	26.24%	23.88%	23.88%	18.08%
	7	Andrea Heuson	Professor of Finance	University of Miami	22.71%	21.55%	23.88%	20.38%
	8	Bill Watkins	Exec Director, Economic Forecasting and Research Center	California Lutheran University	25.57%	25.57%	30.20%	17.70%
	9	Kenneth Rosen	Chairman	Rosen Consulting Group	20.36%	20.36%	20.36%	23.11%
10	Brian Wesbury / Robert Stein	Chief Economist / Senior Economist	First Trust Advisors	20.39%	20.51%	22.08%	21.02%	

				Benchmark: SPCSI US National 28.95%				
				Panelist Expectations, By Survey Edition:				
				Q1 2012	Q2 2012	Q3 2012	Q4 2012	
2012 Expectations	Rank	Panelist	Title	Affiliation				
	1	Rajeev Dhawan	Director, Economic Forecasting Center	Georgia State University	19.24%	22.07%	21.53%	27.97%
	2	Chris Mayer	Sr Vice Dean, Paul Milstein Professor of Real Estate	Columbia Business School	24.92%	15.83%	25.02%	25.02%
	3	Joel Naroff	President	Naroff Economic Advisors Inc	14.71%	14.37%	25.26%	25.75%
	4	Mark Zandi / Celia Chen	Chief Economist / Senior Director	Moody's Analytics	23.41%	21.81%	17.03%	14.90%
	5	James Smith	Chief Economist	Parsec Financial Management	19.01%	19.01%	19.01%	19.01%
	6	Joseph Carson	Chief Economist	Alliance Bernstein	14.75%	15.85%	21.55%	23.88%
	7	Andrea Heuson	Professor of Finance	University of Miami	16.98%	19.25%	18.11%	20.39%
	8	Stephen Stanley	Chief Economist	Amherst Pierpont Securities	16.95%	20.39%	19.25%	15.86%
	9	Abdullah Yavas	Professor, Real Estate and Urban Land Economics	University of Wisconsin	14.74%	19.22%	19.22%	19.22%
10	Amy Crews Cutts	Chief Economist	Equifax	16.98%	15.86%	15.86%	17.77%	



HOME PRICE EXPECTATIONS SURVEY

2016 PANELIST "TOP 10" RANKINGS

5-Year Horizon (2012-2016) Actual Change (Dec 2016 / Dec 2011)

2012 Expectations

Rank	Panelist	Title	Affiliation	Benchmark: SPCSI US National 37.26%			
				Panelist Expectations, By Survey Edition:			
				Q1 2012	Q2 2012	Q3 2012	Q4 2012
1	Chris Mayer	Sr Vice Dean, Paul Milstein Professor of Real Estate	Columbia Business School	22.42%	12.35%	30.02%	30.02%
2	James Smith	Chief Economist	Parsec Financial Management	23.53%	23.53%	23.53%	23.53%
3	Rajeev Dhawan	Director, Economic Forecasting Center	Georgia State University	21.03%	21.46%	21.77%	29.50%
4	Stephen Stanley	Chief Economist	Amherst Pierpont Securities	18.12%	22.80%	27.59%	22.81%
5	Joseph Carson	Chief Economist	Alliance Bernstein	17.04%	18.17%	25.20%	30.07%
6	Andrea Heuson	Professor of Finance	University of Miami	20.48%	22.82%	21.65%	25.21%
7	Joel Naroff	President	Naroff Economic Advisors Inc	15.28%	14.14%	26.64%	33.93%
8	Mark Zandi / Celia Chen	Chief Economist / Senior Director	Moody's Analytics	22.42%	21.55%	20.44%	19.82%
9	Michael Englund	Chief Economist	Action Economics LLC	15.05%	17.12%	21.51%	25.91%
10	Brian Wesbury / Robert Stein	Chief Economist / Senior Economist	First Trust Advisors	19.11%	15.93%	18.18%	26.29%

Ranking Eligibility

Panelists eligible for a 2016 ranking were those who participated in at least one of the four 2016 quarterly surveys AND in all four of the quarterly surveys that comprise a given year's set of expectations data (e.g., to be eligible for a 2016 award pertaining expectations made in 2014, a panelist would have had to submit forecast data for each of the four quarterly surveys that Pulsenomics conducted in 2014).

Ranking Methodology

The expectations data submitted by eligible panelists for each of the four survey editions in each calendar year were compared to the actual (Q4/Q4, or Dec/Dec) home price percentage changes for the five time horizons that ended in 2016:

Time Horizon	Expectations Vintage(s)
2016 (1 year horizon)	2016
2015-2016 (2 year horizon)	2012, 2013, 2014, 2015
2014-2016 (3 year horizon)	2012, 2013, 2014
2013-2016 (4 year horizon)	2012, 2013
2012-2016 (5 year horizon)	2012

Rankings are based on a comparison of each panelist's expectations for home price changes to the actual change as measured by the applicable survey benchmark used at the time the expectations data was submitted (i.e., S&P/Case-Shiller U.S. National HPI for 2012 expectations, and the Zillow U.S. Home Value Index for 2013-2016 expectations). These calculations are based upon index values as published by Standard & Poor's and Zillow on 2/28/2017 and 2/23/2017, respectively.

For each time horizon and expectations vintage, the sum of the absolute differences between (a) each of the four sets of quarterly expectations data submitted by eligible panelists in a calendar year and (b) the actual (Dec/Dec) percentage change in the applicable benchmark data was computed. These sums were then sorted in ascending order to generate rankings (i.e., the lowest sum represents the least average error/highest rank).