pulsenomics®

2020 CRYSTAL BALL AWARD WINNERS

In Recognition of Outstanding Performance in The Zillow ® Home Price Expectations Survey

FIRST PLACE - OUTSTANDING PERFORMANCE

Horizon	Year Expectations Were Formulated	Panelist	Affiliation
5 Year (2016-2020)	2016	Ingo Winzer	Local Market Monitor
4 Year (2017-2020)	2016	Ingo Winzer	Local Market Monitor
	2017	Raymond Hodgdon	Enlightened Economics
3 Year (2018-2020)	2016	Ingo Winzer	Local Market Monitor
	2017	Raymond Hodgdon	Enlightened Economics
	2018	Stacy Sirmans	FSU Center for Real Estate Education & Research
2 Year (2019-2020)	2016	Ingo Winzer	Local Market Monitor
	2017	Raymond Hodgdon	Enlightened Economics
	2018	Stacy Sirmans	FSU Center for Real Estate Education & Research
	2019	Stacy Sirmans	FSU Center for Real Estate Education & Research
1 Year (2020)	2020	Jim Kleckley	East Carolina University

OUTSTANDING CONSISTENCY

For the 11 performance categories:

Number of Top-10 Rankings*	Number of Top-5 Rankings**	Number of Top-3 Rankings***	Number of #1 Rankings	Panelist	Affiliation
11	5	2	0	Michael Englund	Action Economics LLC
10	9	5	1	Jim Kleckley	East Carolina University
9	4	0	0	Mark Fleming	First American Financial Corporation
8	4	4	4	Ingo Winzer	Local Market Monitor
7	6	6	3	Stacy Sirmans	FSU Center for Real Estate Education & Research
6	2	0	0	James Smith	Parsec Financial Management
5	5	5	0	Barry Habib	MBS Highway
5	3	3	0	Edward Pinto	American Enterprise Institute
5	4	2	0	Matthew Fienup	California Lutheran Univ. Ctr for Economic Forecasting & Research
5	2	0	0	Paul Carrillo	George Washington University
4	4	4	3	Raymond Hodgdon	Enlightened Economics

*Includes Top-5, Top-3, and #1 ranking counts.   **Includes Top-3 and #1 ranking counts.   ***Includes #1 ranking count.

Ranking Eligibility

Panelists eligible for a 2020 ranking were those who participated in at least one of the four 2020 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 2020 award pertaining to expectations made in 2017, a panelist would have had to submit forecast data for each of the four quarterly surveys that Pulsenomics conducted in 2017).

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 2020:

Time Horizon	Expectations Vintage(s)
2020 (1 year horizon)	2020
2019-2020 (2 year horizon)	2016, 2017, 2018, 2019
2018-2020 (3 year horizon)	2016, 2017, 2018
2017-2020 (4 year horizon)	2016, 2017
2016-2020 (5 year horizon)	2016

Rankings are based on a comparison of each panelist's expectations for home price changes to the actual change as measured by the Zillow U.S. Home Value Index ("ZHVI", the survey benchmark).

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) .