



**2021 CRYSTAL BALL AWARD WINNERS**

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

<b>FIRST PLACE - OUTSTANDING PERFORMANCE</b>			
Horizon	Year Expectations Were Formulated	Panelist	Affiliation
5 Year (2017-2021)	2017	Raymond Hodgdon	Enlightened Economics
	2018	Raymond Hodgdon	Enlightened Economics
4 Year (2018-2021)	2017	Raymond Hodgdon	Enlightened Economics
	2018	Jim Kleckley	East Carolina University
3 Year (2019-2021)	2017	Raymond Hodgdon	Enlightened Economics
	2018	Grant Thrall	American Real Estate Society
	2019	Raymond Hodgdon	Enlightened Economics
2 Year (2020-2021)	2017	Raymond Hodgdon	Enlightened Economics
	2018	Jim Kleckley	East Carolina University
	2019	Raymond Hodgdon	Enlightened Economics
	2020	Jim Kleckley	East Carolina University
1 Year (2021)	2021	Steven Katz	Arbor Realty Trust

<b>OUTSTANDING CONSISTENCY</b>					
<i>For the 11 performance categories:</i>					
Number of #1 Rankings	Number of Top-3 Rankings*	Number of Top-5 Rankings*	Number of Top-10 Rankings*	Panelist	Affiliation
6	1	2	1	Raymond Hodgdon	Enlightened Economics
3	4	3		Jim Kleckley	East Carolina University
	5	1	4	Stacy Sirmans	FSU Center for Real Estate Education & Research
	3	3		Edward Pinto	American Enterprise Institute
	2	4	1	Mark Fleming	First American Financial Corporation
		4	3	Matthew Fienup / Dan Hamilton	California Lutheran University Center for Economic Research & Forecasting
		1	9	Michael Englund	Action Economics LLC

\*Excludes number of placements in higher-rank categories

**Ranking Eligibility**

Panelists eligible for a 2021 ranking were those who participated in at least one of the four 2021 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 2021 award pertaining to expectations made in 2018, a panelist would have had to submit forecast data for each of the four quarterly surveys that Pulsenomics conducted in 2018).

**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 2021:

Time Horizon	Expectations
2021 (1 year horizon)	2021
2020-2021 (2 year horizon)	2017, 2018, 2019, 2020
2019-2021 (3 year horizon)	2017, 2018, 2019
2018-2021 (4 year horizon)	2017, 2018
2017-2021 (5 year horizon)	2017

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).