The BofA RENO Barometer

Sequential improvement continues

Industry Overview

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Equity
United States
Retailing-Hardlines

BofA Data Analytics

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December RENO Barometer took another step higher

The BofA RENO Barometer for December '23 ticked up MoM to a score of 0.7 vs. 0.1 in November '23 (revised). After spending ten months in "Cloudy territory", the RENO Barometer finally flipped to "Fair" in November and climbed slightly higher in December. The RENO Barometer indicates sequential recovery in 4Q23 through 2Q24, continuing the longer-term trend of improvement from the trough in March '23.

Real-time spending metrics ("R") ticked lower

Looking at the four categories of the RENO Barometer, the MoM move in real-time spending metrics ("R") was a slight deterioration to (1.6) in December from (0.6) in November. The biggest driver of the deceleration was a (7.5)% YoY decline in BAC aggregated credit and debit card spending data for home improvement retailers, which was a slow-down from (4.6)% in November. See the most recent BofA on USA note published 11 January 2024 for an explanation of the methodology, disclaimers, and limitations with BAC aggregated credit and debit card data.

Economic drivers ("E") improved

Compared to the November RENO Barometer reading, Economic drivers ("E") improved sequentially from (2.6) in Nov '23 to (2.1) in Dec '23 due to a smaller YoY decline in housing completions.

National household financial health measures ("N") flattish

There was no material change in National household financial health measures ("N") in December '23 vs. November, and the category's score of 3.9 remained supportive to the overall RENO Barometer reading.

Opinions on housing ("O") flipped positive

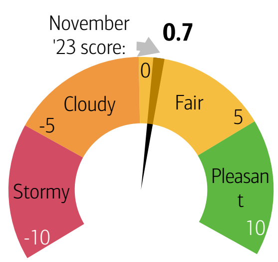
The biggest MoM change in RENO Barometer factors was in the lowest-weighted—Opinions on housing ("O")—where the category score flipped from (4.0) in Nov '23 to 15.2 in Dec '23. Both consumer confidence and expectations of home prices were stronger YoY and MoM on a 6-month leading basis.

Lack of turnover has been an underappreciated headwind

We recently highlighted that low housing turnover (see report) has been and may continue to be a headwind for home improvement retail spending for some time. Housing turnover is a catalyst for renovation activity, particularly larger-scale projects which the retailers have called out as being particularly slow. However, we expect improvement in housing turnover as mortgage rates continue to moderate. It should be noted that historically housing turnover and mortgage rates have not had a particularly strong correlation to HD & LOW's same-store sales (comp) growth, therefore both are excluded from the RENO Barometer inputs.

Exhibit 1: The BofA RENO Barometer for December '23 ticked up vs November, remaining "Fair"

Most recent BofA RENO Barometer reading



Source: BofA Global Research

The indicator identified above as the BofA RENO Barometer is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purpose, without the prior written consent of BofA Global Research. This indicator was not created to act as a benchmark.

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HD: The Home Depot

LOW: Lowe's

BofA RENO Barometer components

The BofA RENO Barometer is comprised of 14 factors, which in aggregate had a 0.85 historical correlation with Home Depot's (HD) and Lowe's (LOW) same-store sales growth (comps) from February 2009 to September 2018, according to our backtested analysis. Correlations between several economic and sentiment components broke down during the COVID-19 pandemic, resulting in an overall lower correlation between the BofA RENO Barometer and HD & LOW's average comps since the RENO Barometer was launched in Oct '18 to the present. See page 8 for a description of the scoring methodology as well as limitations of the RENO Barometer.

Exhibit 3: The BofA RENO Barometer is comprised of 14 factors
Components of the BofA RENO Barometer

Component	Source	Correlation with HD & LOW avg comps from Feb '09-Sep '18	Correlation with HD & LOW avg comps from Oct '18-current	Weight in RENO barometer
Real-time spending		0.90	0.91	35.0%
BAC aggregated credit/debit card spend - home improvement stores	BAC internal data	0.80	0.97	10.5%
Retail sales of Building Material and Garden Supplies	US Census Bureau	0.85	0.83	10.5%
Building Material & Garden Equip & Supply Dealers*	SpendTrend by First Data Corporation	0.88	0.64	10.5%
AHAM T-6 (washers, dryers, fridges, dishwashers, ranges, freezers)	Association for Home Appliance Manufacturers	0.48	0.39	3.5%
Economic drivers		0.81	0.45	30.0%
Private Fixed Residential Investment (PFRI)	Bureau of Economic Analysis	0.80	0.47	7.5%
Residential construction payrolls	Bureau of Labor Statistics	0.76	(0.28)	7.5%
Personal Consumption Expenditures (PCE) furnishings & durable household equipment	Bureau of Economic Analysis	0.82	0.57	10.5%
Single-Family Housing completions (3 months prior)**	US Census Bureau	0.67	(0.02)	4.5%
National household financial health		0.74	(0.05)	30.0%
Employed population 25-54	Organisation for Economic Co-operation & Development	0.76	(0.68)	9.0%
Home prices (Case-Shiller index)	S&P/Case-Shiller	0.71	0.07	9.0%
Homeowner's equity	Federal Reserve	0.72	0.13	9.0%
Real wage growth	Bureau of Labor Statistics	0.40	0.67	3.0%
Opinions on housing		0.45	0.08	5.0%
Consumer confidence (6 months prior)	University of Michigan	0.36	0.00	2.5%
Expectation of home prices (6 months prior)	University of Michigan	0.48	0.14	2.5%
BofA RENO barometer		0.85	0.64	100.0%

Source: BofA Global Research
*SpendTrend data available starting in June 2012, so BAC aggregated credit/debit card data used as a proxy from Feb-09 to May-12 for the purpose of the correlation
** In the first publication of the BofA RENO Barometer (24 October 2018), total housing completions was used as an Economic driver. This was replaced by single-family housing completions as of the monthly note dated 16 November 2018, in order to improve the correlation.

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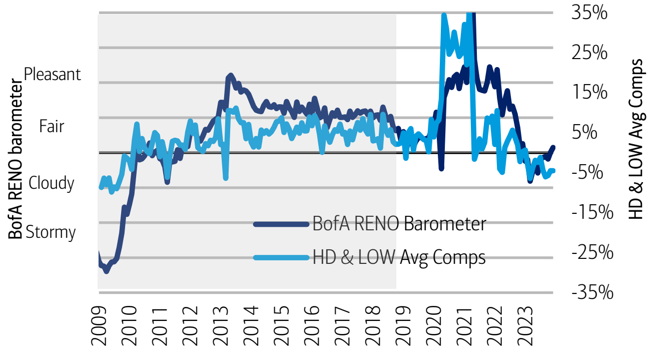
A note on backtesting

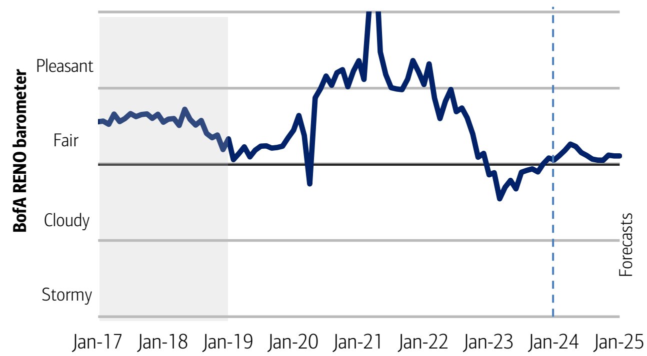
The analysis of the BofA RENO Barometer in this report is backtested and does not represent the actual performance of any account or fund. Backtested performance depicts the hypothetical backtested performance of a particular strategy over the time period indicated. In future periods, market and economic conditions will differ and the same strategy will not necessarily produce the same results. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. In fact, there are frequently sharp differences between backtested returns and the actual results realized in the actual management of a portfolio. Backtested performance results are created by applying an investment strategy or methodology to historical data and attempts to give an indication as to how a strategy might have performed during a certain period in the past if the product had been in existence during such time. Backtested results have inherent limitations including the fact that they are calculated with the full benefit of hindsight, which allows the security selection methodology to be adjusted to maximize the returns. Further, the results shown do not reflect actual trading or the impact that material economic and market factors might have had on a portfolio manager's decision-making under actual circumstances. Backtested returns do not reflect advisory fees, trading costs, or other fees or expenses.

Exhibit 3: The 1Q trough in the BofA RENO Barometer and gradual improvement thereafter was echoed by HD & LOW's results
The BofA RENO Barometer vs Home Depot and Lowe's average monthly same-store sales growth (comps)



Source: BofA Global Research, company filings. The shaded area represents backtested results from Feb 2009-Sep 2018. The unshaded area represents actual performance since Oct 2018. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. HD & LOW avg comps for Nov-Dec '23 represent BofA estimates

Exhibit 4: The BofA RENO Barometer is moving past the 1H23 trough
BofA RENO Barometer recent readings and forecasts



Source: BofA Global Research. The shaded area represents backtested results from Feb 2009-Sep 2018. The unshaded area represents actual performance since Oct 2018. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein.

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Real-time spending metrics

Spending is climbing out of a trough

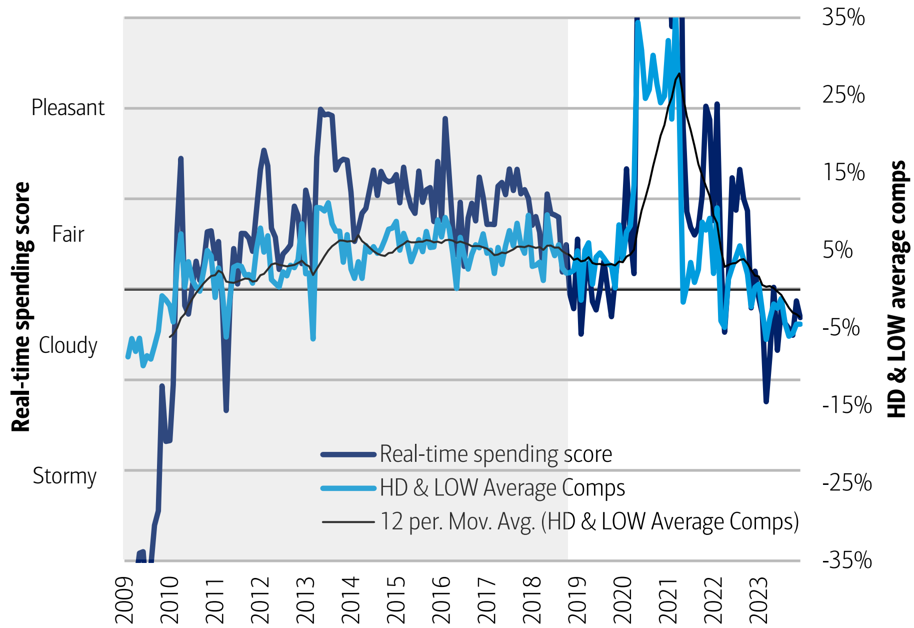
The Real-time spending score in December '23 was (1.6), which deteriorated from (0.6) in November '23 (revised) and continued to improve from the trough of (6.2) in March '23. We expect trends to improve into the +LSD range by 2H24, maintaining a gradually improving trajectory. Home improvement has maintained elevated levels of spending vs 2019. The overall Real-time spending score had a 0.90 correlation with the average monthly comps of HD and LOW from February 2009 to September 2018, according to our backtested analysis. This correlation remained high since the launch of the BofA RENO Barometer in Oct '18 to the present at 0.91.

- **BAC aggregated credit and debit card spend** at home improvement stores was (7.5)% YoY in December vs (4.6)% YoY in November. See our most recent Monthly hardline retail spending snapshot, and the latest BofA on USA note for an explanation of the methodology, disclaimers and limitations with BAC card data.
- **The Census Bureau's** adjusted retail sales in home improvement categories fell (2.4)% YoY in December vs (2.1)% YoY in November (revised).
- **SpendTrend** data for building materials and garden equipment grew 2.5% YoY in December vs 2.3% YoY in November.
- **T-6 category appliance sales** (washers, dryers, refrigerators, dishwashers, ranges and freezers) as measured by Association for Home Appliance Manufacturers grew 6.8% YoY in 3Q23 (latest available) with a monthly cadence of +8.2% YoY in July, +5.7% YoY in August, and +6.6% YoY in September. See our most recent Chore Charts note published 10 January 2024 for more detail on the US appliance market.

Upward momentum in spending

We expect continued sequential improvement from the temporary drop in spending at home improvement retailers that troughed in the Spring of 2023. Ongoing recovery in YoY sales growth in 2024 will come from alleviated pressure on the consumer from inflation, and ultimately less pressure on the housing market from high mortgage rates and low housing turnover.

Exhibit 5: Real-time spending metrics ticked slightly lower in December vs November '23
Real-time spending score vs HD and LOW average monthly comps



Source: BAC internal data, US Census Bureau, SpendTrend, Association for Home Appliance Manufacturers, BofA Global Research, company filings. The shaded area represents backtested results from Feb 2009-Sep 2018. The unshaded area represents actual performance since Oct 2018. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. HD & LOW avg comps for Nov-Dec '23 represent BofA estimates

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Economic drivers

Economic indicators softened MoM

The Economic drivers score of (2.1) in December improved from (2.6) in November (revised) but remained in "Cloudy" territory (scoring between 0 and -5). The overall Economic drivers score had a 0.81 correlation with the average monthly comps of HD and LOW from February 2009 to September 2018, according to our backtested analysis. However, during the COVID-19 pandemic this correlation broke down due to the disconnect between weak economic growth and high consumer spending on home improvement. Therefore, from the launch of the BofA RENO Barometer in Oct '18 to the present, the Economic drivers score had only a 0.45 correlation with the average monthly comps of HD & LOW.

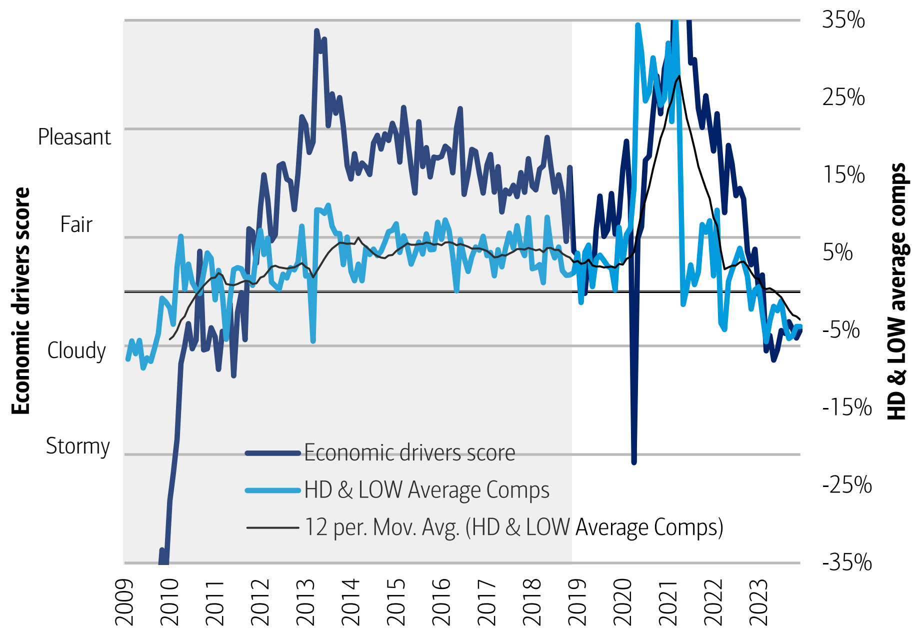
- **Private Fixed Residential Investment** on a seasonally adjusted annualized basis (SAAR) was down (5.8)% YoY in 3Q23 (latest available), improving from (13.4)% YoY in 2Q23. PFRI as reported by the Bureau of Economic Analysis includes permanent improvements to existing structures (homes) as well as new home construction.

- **Residential construction payrolls** were up 0.2% YoY in December vs 0.3% YoY in November (revised), as reported by the Bureau of Labor Statistics.

- **Personal Consumption Expenditure (PCE)** on furnishings & durable household equipment improved 0.2% YoY in November '23 (latest reported) vs (2.3)% YoY in October '23 (revised).

- **Single-family housing completions**, as reported by the US Census Bureau declined (5.3)% YoY in September '23 vs (8.4)% YoY in August '23. We lag this indicator by 3 months resulting in a higher historical correlation with HD and LOW's monthly comps.

Exhibit 6: The Economic drivers score stayed in "Cloudy" territory in December
Economic drivers score vs HD and LOW average monthly comps



Source: BEA, BLS, US Census Bureau, BofA Global Research, company filings. The shaded area represents backtested results from Feb 2009-Sep 2018. The unshaded area represents actual performance since Oct 2018. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. HD & LOW avg comps for Nov-Dec '23 represent BofA estimates

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National household financial health

Households remain financially comfortable

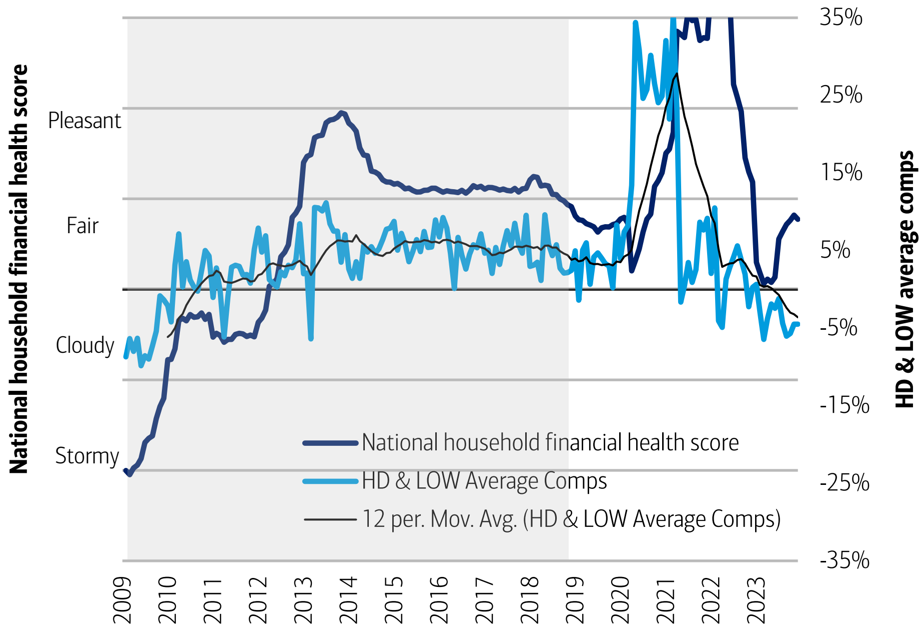
The National household financial health measures score of 3.9 in December '23 was fairly consistent with 4.1 in November '23 (revised). In 2024 we expect the National household financial health score to remain in +LSD to MSD ("Fair" territory).

- **The employed population of 25–54-year-olds** per the OECD improved 1.2% YoY in December, decelerating from 2.0% YoY in November. Growth in this population of consumers is a key tenet of our thesis that Millennials entering the housing market will support the renovation cycle. See our annual Millennial housing survey 05 May 2023.
- **National home prices** per the S&P CoreLogic Case-Shiller index increased 5.2% YoY in November (latest reported), improving from 4.7% YoY in October and remaining surprisingly resilient.
- **Homeowners' equity** grew 5.3% YoY in 3Q23 (latest reported) vs (0.9)% YoY in 2Q23.
- **US real average weekly earnings growth** as reported by the Bureau of Labor Statistics was up 3.8% YoY in December vs 3.7% YoY in November.

Looking ahead: a slight tailwind

The BofA US Mortgage and Structured Finance Research team projects US home price appreciation (HPA) to be +4% in 2024. Strength in home values should lend longer-term stability for home improvement demand.

Exhibit 7: The National household financial health score held steady MoM in Dec '23
National household financial health score vs HD and LOW average monthly comps



Source: OECD, S&P/Case-Shiller, Federal Reserve, BLS, BofA Global Research, company filings. The shaded area represents backtested results from Feb 2009-Sep 2018. The unshaded area represents actual performance since Oct 2018. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. HD & LOW avg comps for Nov-Dec '23 represent BofA estimates

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Opinions on housing

Leading sentiment score went from headwind to tailwind

Although not as highly correlated to home improvement comps, we believe that indications of sentiment are important factors for consideration of the renovation cycle. These factors are leading indicators, and therefore we use the six-month prior reading for our scoring to improve the correlation with HD and LOW's average comps. Opinions on housing flipped from a headwind on the RENO Barometer in November '23 to a tailwind in December '23. The category should remain favorable into 2024.

- **Consumer confidence** has led HD and LOW's comps by six months, according to our backtested analysis. The University of Michigan's consumer sentiment index improved sequentially in June '23 to 64.2 vs 59.0 in May '23. Next month's input for the January '24 RENO Barometer scoring will be the consumer confidence reading from July '23, which ticked higher MoM.

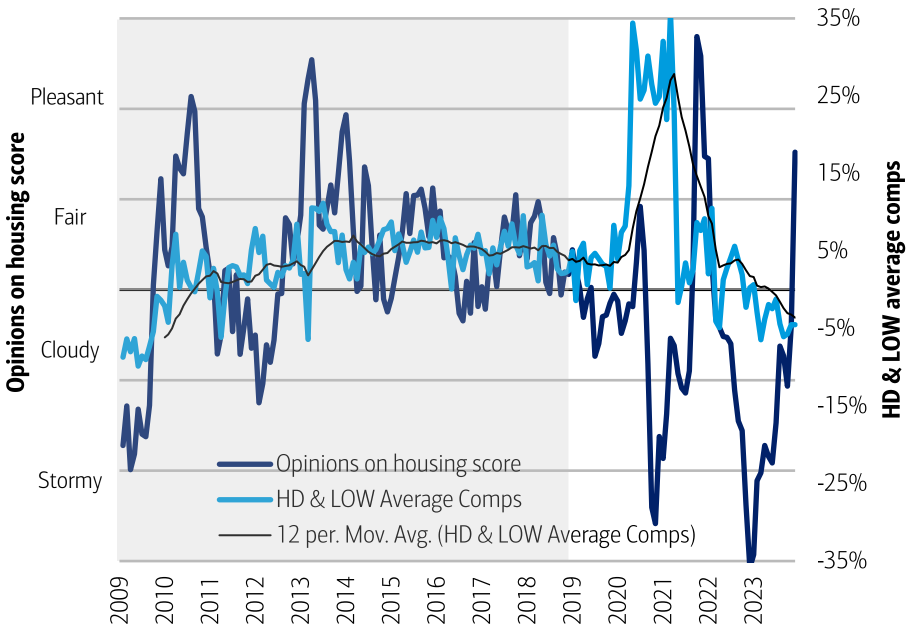
- **Expectations of home prices** as reported by the University of Michigan also tend to lead HD and LOW's average comps by about six months, according to our backtested analysis. In June '23 the percentage of survey respondents who expected home prices to rise in the next year was 43%, up from 38% in May '23. We estimate that January '23 was the trough in consumer sentiment around home prices, and this input to the overall RENO Barometer will get even more favorable in the coming months.

Looking ahead: sentiment remains a tailwind in 2024

We estimate that the Opinions on housing score will remain favorable into 2024.

Exhibit 8: Sentiment indicators (6 months leading) turned from unfavorable in Nov '23 to favorable in Dec '23

Opinions on housing score vs HD and LOW average monthly comps



Source: University of Michigan, Conference Board, BofA Global Research, company filings. The shaded area represents backtested results from Feb 2009-Sep 2018. The unshaded area represents actual performance since Oct 2018. This performance is back-tested and does not represent the actual performance of any account or fund. Back-tested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. HD & LOW avg comps for Nov-Dec '23 represent BofA estimates

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Appendix

Methodology

Each individual component is translated into a score, which is the year-over-year percentage change in the metric for the reported month (e.g. if residential construction payrolls increase by 2% YoY in a given month, this metric would have a score of 2 for that month). The exception is the component scoring for expectation of home prices, which is calculated using the year-over-year percentage point change (since this metric is already a percentage).

The individual component scores are weighted and averaged to generate the scores for each category, as well as the overall BofA RENO Barometer score for each month.

Limitations

Given the volatile nature of same-store sales growth for Home Depot and Lowe's, which can be impacted by microeconomic factors as well as weather and other non-macro factors, there have been periods in our backtesting when the BofA RENO Barometer has not been highly correlated with the average comps of HD and LOW.

- **2009:** BofA RENO Barometer "broke the scale" and was worse than the implied YoY comp declines for HD and LOW. Over the course of 2009, the Economic drivers score and National household financial health score were particularly draconian, with metrics like homeowner equity and housing completions falling over 30% YoY in some months.

- **November 2010:** The average comps of HD and LOW showed meaningful sequential improvement while the BofA RENO Barometer declined MoM. The sequential improvement was driven primarily by HD, which ran a Black Friday appliance promotion that contributed approximately 120bp to comps in the month.

- **March 2013:** BofA RENO Barometer only dipped slightly, while the comps of HD and LOW were negative due to unseasonably cold weather than delayed spring selling season. The timing of Easter also impacted the March 2013 comps.

- **May 2016:** The average home improvement comp was dragged down by LOW in May 2016, which experienced a 2.8% negative comp for the month due to "project pull-forward" (LOW had stronger 1Q comps driven by promotional initiatives that faded in 2Q). In this month the BofA RENO Barometer declined sequentially, but significantly less severely.

- **December 2017:** The average comps of HD and LOW rebounded while the BofA RENO Barometer softened sequentially. The December reported comps for HD and LOW were boosted by unusual Christmas timing, which fell in fiscal January in 2017 versus December in 2016.

- **April 2020:** The average comps of HD and LOW grew at a double-digit pace throughout much of 2020 and 2021 while the BofA RENO Barometer dipped due to broader weak US economic conditions and unemployment.

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Methodology explained

Readers should be aware that although the BAC datasets utilized in our analysis represent a significant number of data points, they nevertheless present a degree of selection bias, including but not limited to income levels and geographies. In addition, the data are limited to debit and credit cards and does not include other payment methods such as cash or checks.

Data regarding merchants who receive payments are identified and classified by the Merchant Categorization Code (MCC) defined by financial services companies. The data are mapped using proprietary methods from the MCCs to the North American Industry Classification System (NAICS), which is also used by the Census Bureau, in order to classify spending data by subsector. Spending data may also be classified by other proprietary methods not using MCCs. The subsector data are adjusted to control for seasonality and other factors.

Additional information about the methodology used to aggregate the data is available upon request.

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