NVR

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NVR – "*Unicorn*" Among Homebuilders – Provides Safe Haven as Global Tightening Risks Loom

We are issuing **NVR, Inc. (NVR)** a **BUY** rating. We assign the public homebuilder a price target of **$5,589 USD**. We cite favorable balance sheet and business model mechanics, consistent free cash flow and liquidity, as well as the possibility that the market is pricing into the equity an implied volatility that is far too draconian.

INVESTMENT THESIS

1) A business model and strategy that has been emulated by a majority of US public homebuilders, **NVR's ability to become "*Quasi-Monopoly*" players in the local regions in which they operate**, provides management with succinct competitive advantages relative to the rest of the industry.

2) Through an effective market strategy, **NVR's dominant positioning affords management a degree of latitude in leveraging its unique balance sheet dynamic to create superior liquidity and free cash flow generation relative to industry peers**. Should sales volume continue to decline through 2023, NVR appears well positioned to weather the storm at 0.33x *Debt/Equity*.

3) Lastly, **DCF and Financial Model assumptions indicate that NVR's Equity Market Beta (β_e) level is priced in excess given current volatility trend.** We are in the camp that this value should be lower – leaving ~ 20% in potential upside (0.61 vs. 0.95).

Company: NVR Incorporated (NVR)

Industry: Public Homebuilding

Current Price: $4,649

Price Target: $5,589

Investment Horizon (months): 12 - 18

P/E Multiple: 9.85x

P/B Multiple: 4.95x

Avg. Daily Volume (millions): 19,087

52-Week Range: $3576.01 - $5,982

Dividend Yield: -

Rolling Beta Estimate: 0.61x

PERFORMANCE RATING

BUY

Ryan Homes | NVHomes | HEARTLAND HOMES

Company Overview & Business Model

History: *NVR* (then *NV-Homes*) was established in 1980 in Virginia.[1] In 1986, NVHomes acquired Ryan Homes, founded in 1948, and renamed itself NVR.[2] After a few successful years, in 1989, demand for housing fell and NVR was left carrying land and housing inventory. Revenues decreased 48% between 1988 and 1991, and the company filed for bankruptcy in 1992. NVR started building homes that were ordered rather than by spec and moved into land options, a core feature of NVR that remains today. NVR also moved its financing options outside of Ryan and NVHomes and created its own business segment.[3]

Management: Executive Chairman Paul C. Saville started at Ryan Homes in 1981 and was promoted to CEO and President in 2005, until he stepped down in May 2022. He was replaced by Eugene J. Bredow, President of NVR Mortgage.[4][5]

Business Segments: NVR operates in two business segments: homebuilding and mortgage banking operations. The Homebuilding segment has three branches: *Ryan Homes*, *NVHomes*, and *Heartland Homes*, while the mortgage business is run mainly through their wholly owned subsidiary: *NVR Mortgage Finance, Inc*. (NVRM). Ryan Homes is for first-time and first-time move-up buyers, while NVHomes and Heartland Homes are specifically focused on move-up and luxury buyers. While Ryan Homes operates across segments, NVHomes is only in Delaware, Washington DC, Baltimore, and Philadelphia metro areas and Heartland Homes is only in Pittsburgh, PA.[6] Homes sold by NVR ranged from $140K to $2 million over 2021, with the average home price of $403,900, a 9% increase from 2021.[7] The mortgage segment services is primarily driven by NVRM, which provides mortgage loans to NVR customers. In 2021, NVRM provided 17,700 loans worth $6.1 billion.[8] The segment also provides broker title insurance and title searches, owned by other subsidiaries.

Operations: NVR purchases finished building lots – typically pieces of land that are suitable for building a house and do not need additional excavation or assistance. These are purchased with *Fixed Price Finished Lot Purchase Agreements* (LPAs), which require a deposit that are about 10% purchase price of the lots. On rare occasions, NVR sometimes engages in a joint venture agreement to acquire ground zoned for housing. NVR will then sell the land to a developer and enter an LPA or hire a developer. [9]

Homebuilding vs. Mortgage Sales Revenue

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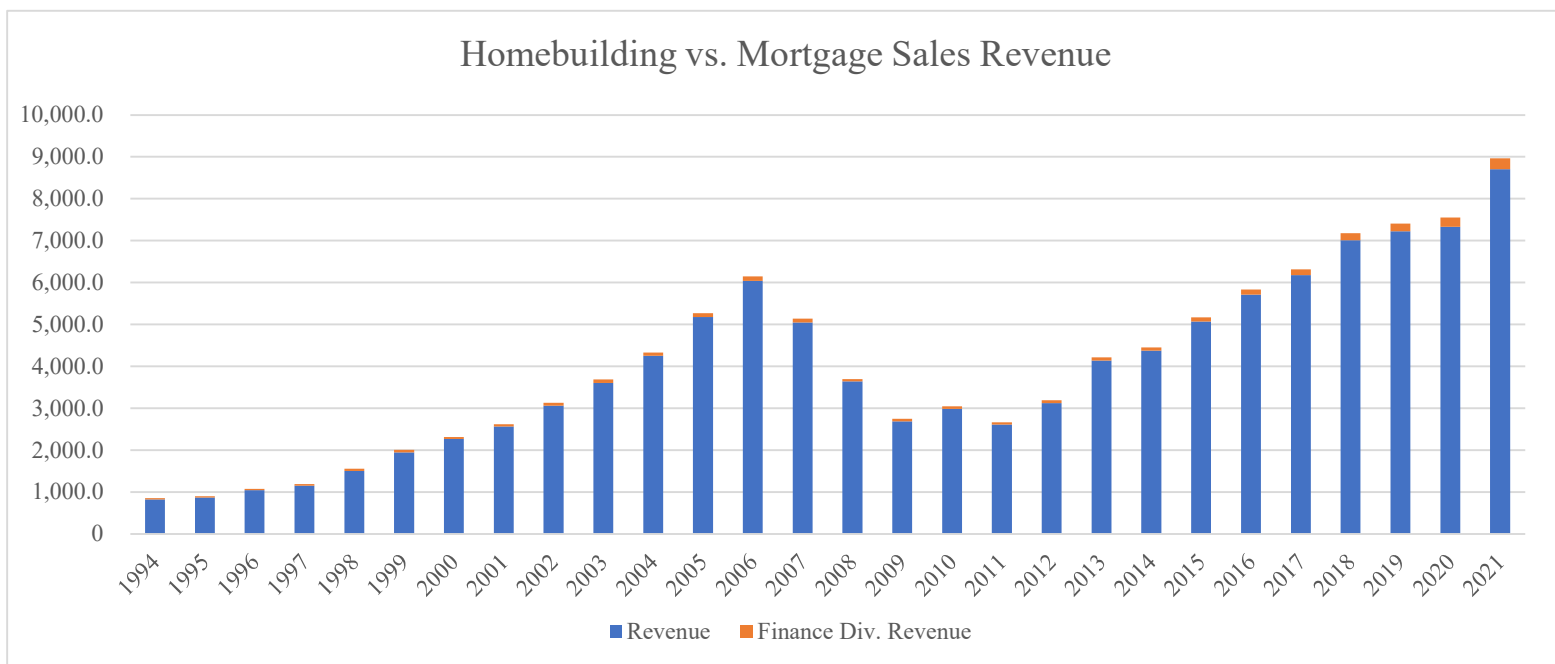
[1] NVR Company Website. "Corporate Profile". https://nvri.gcs-web.com/corporate-profile.
[2] Builder Online. "Ryan Homes Founder Dies at 88." https://builderonline.com.
[3] Funding Universe. "NVR Inc. History." http://www.fundinguniverse.com/company-histories/nvr-inc-history/.
[4] Forbes. "Paul Saville". https://www.forbes.com/profile/paul-saville/?sh=23f0b9a15e8f.
[5] "NVR CEO Paul Saville Leaves his Post." https://exechange.com/21616/nvr-ceo-paul-saville-leaves-his-post.
[6] NVR 2021 10K. "General".
[7] NVR 2021 10K. "Homebuilding Products".
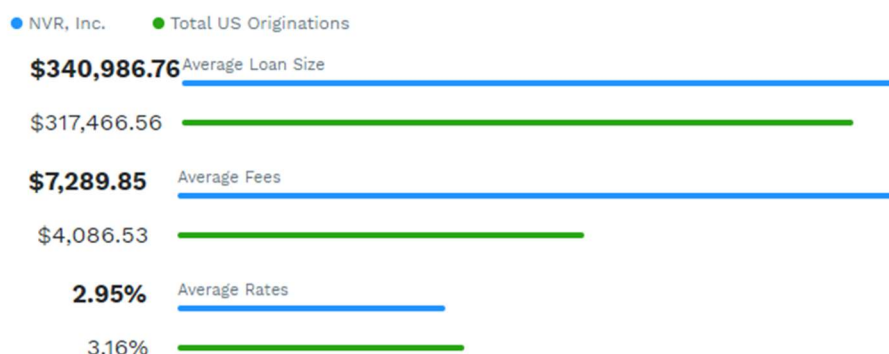[8] NVR 2021 10K. "Mortgage Banking".
[9] NVR 2021 10K. "General".

End-Markets: NVR's Homebuilding segment – comprising ~ 97% of Total Revenue – is divided into four geographic regions. NVR's primary end-market operations are located mostly in the eastern parts of the US. The *Mid-Atlantic* region comprises Maryland, Virginia, West Virginia and Delaware. The *North East* region comprises New Jersey and Eastern Pennsylvania. The *Mid-East* region comprises Kentucky, New York, Ohio and Western Pennsylvania. The *South East* region comprises North Carolina, South Carolina, and Tennessee.[10]
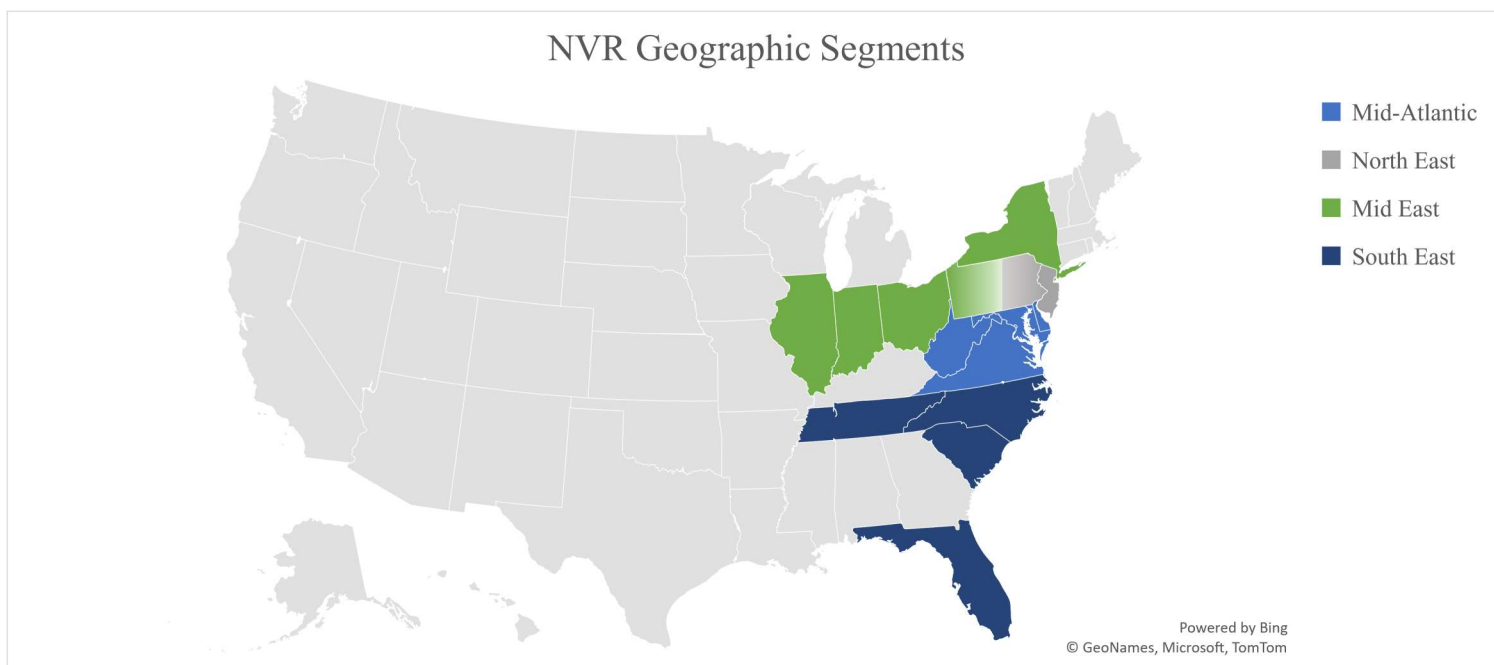
Mortgage Banking accounts for < 2% of total revenue. The model utilizes margin analysis to project revenues through 2026.[11]

State	Total Loan Volume $(000)	Number of Loans	Avg Loan Size $(000)	Market Share %	Market Size $(000)
Virginia	1,198,435	2,961	405	0.03	1,001,177,360
Maryland	1,139,845	2,451	465	0.02	314,651,650
Pennsylvania	753,465	2,091	360	0.02	304,654,105
Ohio	652,790	2,376	275	0.01	207,213,145
Florida	497,330	1,696	293	0.01	191,837,580
North Carolina	467,035	1,543	303	0.01	161,674,345
Delaware	381,085	1,163	328	0.01	158,892,015
South Carolina	245,360	1,074	228	0.01	146,091,630
Tennessee	219,595	677	324	0.00	142,047,730
New Jersey	178,140	572	311	0.00	141,987,910
Illinois	106,805	367	291	0.00	139,156,460
Indiana	94,835	341	278	0.00	134,301,680
West Virginia	82,150	300	274	0.00	131,974,050
New York	56,260	202	279	0.00	116,676,960
District Of Columbia	3,595	7.00	514	0.00	113,692,115

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[10] NVR 2021 10K. "Markets".
[11] FactSet. "NVR – Mortgage Banking Segment Data". 2022

As mentioned in both NVR's investment memo and its accompanying *US Homebuilding Industry Report*, a vital tenet of NVR's business model relies on regional market dominance. Local dominance is crucial for NVR, as well as for the majority of US public builders, allowing one major player to become the 'quasi-monopoly' in that given region. This is important as it grants the builder immense leverage in negotiating supply price with local distributors, as well as labor contracts with sub-contractors in the area. Other land and real-estate development firms are left with no choice but to accept the terms which are put forth.

The overall US homebuilding industry is highly fragmented and nearly perfectly competitive, with most competitors having at least some exposure to a majority of domestic housing markets. Through the 1960s and 1980s, NVR had been the first homebuilder to employ the local market consolidation strategy. As a reward for these past efforts, NVR currently operates as the quasi-monopoly player within the northeast midatlantic. Having a firm foothold in markets like Washington D.C., Philadelphia, and New York – NVR enjoys an industry absolute competitive advantage in its degree of pricing leverage and cost structure. NVR's competitive advantage affords the firm consistent free cash flow generation, as well as extra liquidity and debt coverage measures, as the firm stabilizes *Gross Margin* ~ 20% and revenue growth ~ 9% *5-Year CAGR*.[12] These implications will be discussed further in detail in this memo. The following graphics portray builder market exposures as of January 1st, 2022.[13]

Recent Proprietary Field Research

WASHINGTON D.C. – June 2021 – ★ ★ ★ ★	Heavy Builder Competition, Volume and Pricing Very Strong
NVR, Lennar, Tri Pointe	

Builder Exposure to Top Performing Markets

	% '20 Closings	Total	Naples	San Antonio	Sacramento	Albuquerque	Indianapolis	Columbia, SC	Jacksonville	Tampa	Las Vegas	Chicago
KBH	27%	2871	-	1048	336	-	-	-	-	-	1487	-
TMHC	24%	2980	-	-	427	-	-	-	2240	313	-	-
LEN	21%	11372	-	2189	1516	-	1209	-	539	3587	1526	806
PHM	18%	5890	-	1071	-	-	755	-	1487	855	1261	461
TPH	16%	525	-	-	-	-	-	-	-	-	525	-
DHI	14%	8856	-	2687	388	-	688	391	440	2120	1403	739
MDC	12%	944	-	-	-	-	-	-	-	-	944	-
TOL	10%	331	-	-	-	-	-	-	-	-	331	-
MTH	9%	1022	-	711	-	-	-	-	-	311	-	-
LGIH	7%	1185	-	603	-	-	-	59	523	-	-	-

Builder Exposure to Bottom Performing Markets

	% '20 Closings	Total	Washington DC	Seattle	San Jose	Baltimore	Riverside
TPH	28%	1441	383	286	-	59	713
NVR	19%	3852	2750	-	-	1102	-
KBH	10%	1043	-	-	-	-	1043
MDC	9%	762	-	260	-	-	502
LEN	9%	4718	987	654	-	703	2374
TOL	9%	736	638	-	-	98	-
PHM	6%	1585	470	370	-	113	632
TMHC	5%	688	-	248	-	-	440
DHI	4%	3067	-	1358	-	379	1330
LGIH	4%	336	-	336	-	-	-
MTH	2%	258	-	-	-	-	258

| Builder	CA	FL	AZ	GA	NC
DHI	5%	21%	5%	6%	6%
KBH	30%	16%	9%	0%	2%
LEN	14%	28%	5%	3%	6%
LGIH	3%	12%	6%	5%	11%
MDC	15%	11%	17%	0%	0%
MTH	8%	12%	19%	6%	8%
NVR	0%	9%	0%	0%	7%
PHM	5%	22%	8%	4%	5%
TMHC	17%	20%	14%	4%	5%
TPH	42%	0%	9%	0%	0%
TOL	15%	6%	3%	3%	4%

[12] FactSet. "NVR – Summary."

[13] Patterson, Truman et al. "Housing – Homebuilding & Building Products Compendium." Wolfe Research. January 2022.

Business Segments Revenue Forecast

Homebuilding: Heralded as an industry 'unicorn' – we wanted to put NVR's reputation as the industry's juggernaut to test. Our financial model assumes a 2023 recession and utilizes the housing market recessions which transpired in the early 1980s and 1990s, as well as *The Great Financial Crisis of 2008* (GFC), to proxy sales volume decline and pricing downturn in our 2023 scenario. We believe that by baking in draconian assumptions will further validate our belief in NVR's superior earning potential among the builders. The modeled segmented revenue build, earnings forecasts, and relevant projections should illustrate that unique leverage NVR management has in its strong balance sheet mechanics further solidify the firm's ability to leverage said mechanics to drive elevated ROE and ROIC figures. These factors aid NVR and its management in producing higher normalized gross margin, consistent FCF generation, as well as a more than adequate liquidity position capable of navigating any macroeconomic or recessionary pressure through 2024.

In order to accurately replicate these conditions, we first looked to YoY delta *FRED Data* in modeling NVR's consolidated revenue build. We opted to leverage FRED Data from the first few periods of the 80s, 90s, and GFC to bake in historically justified assumptions to further solidify confidence in the figures we used to project NVR's revenue through 2026.1st – we used **Average Sales Price of Houses Sold in the US** as a proxy to project 2023 *Pricing Decline* through Q2 of FY24. We took the average of the 1982, 1990, and 2008 housing market recessions *YoY % Price Δ* to arrive at a ~ **-6%** decline in ASP. We used this as a proxy pricing decline through 2023.[14]
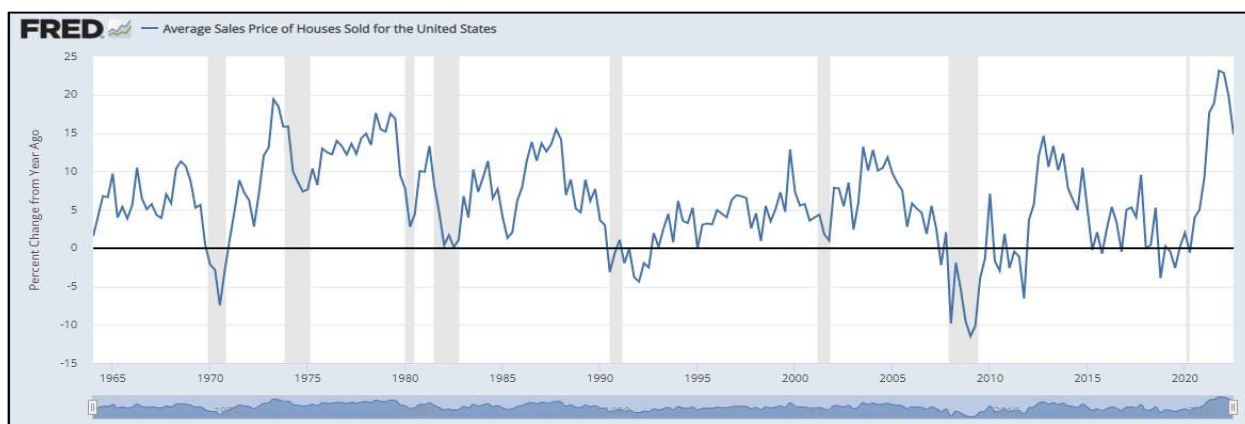
Similarly, we looked at **US Single-Family Housing Units** as a proxy to project 2023 *Sales Volume* decline through Q2 of FY24. In referencing the same time frame, we derived the average *YoY % Price Δ* of these three time series to arrive at a ~ **-41%** decline in unit demand. Both price and volume assumptions are reflected below in NVR's consolidated revenue build.[15]

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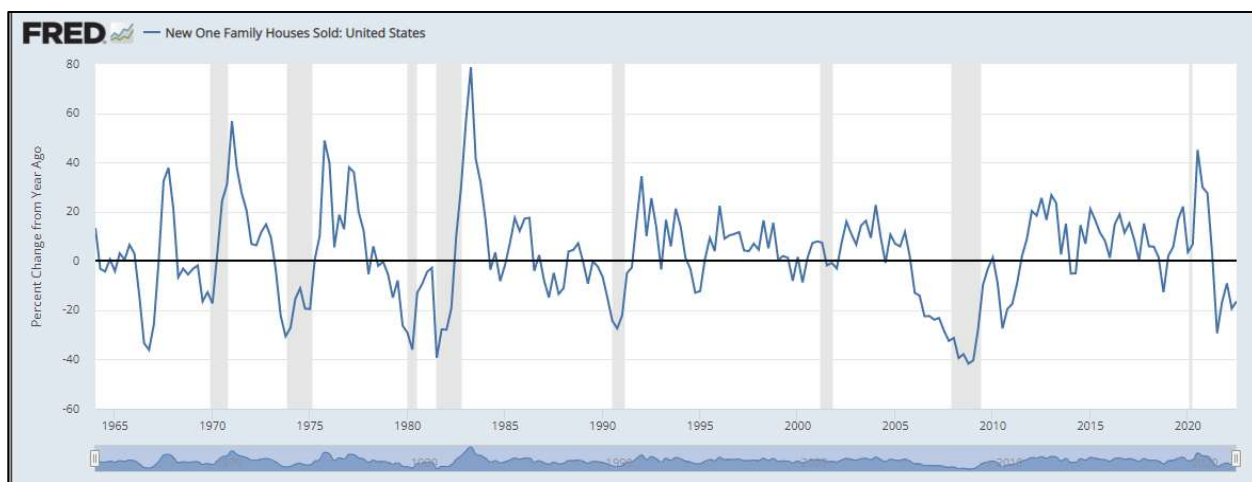
[14] "Average Sales Price of Houses Sold for the United States." FRED Economic Data St. Louis Fred. https://fred.stlouisfed.org/series/ASPUS
[15] "New Privately Owned Housing Units Started: Total Units." FRED Economic Data St. Louis Fred. https://fred.stlouisfed.org/series/HOUST

FY23 pricing and volume assumptions are reflected below in the model's consolidated revenue build. 2nd – we used GFC's **18% Gross Margin** as a proxy for 2023. Given that NVR's margin has continued its steady expansion since 2016, we feel that this estimate is fair. We also think that NVR's normalized gross margins will remain elevated at ~ **22%** through cycle after FY23.

NVR — USD - Millions Fiscal Year - 12/31 — REVENUE BUILD

	2022E Q1 (3/31)	Q2 (6/30)	Q3 (9/30)	Q4 (12/31)	2022	2023E Q1 (3/31)	Q2 (6/30)	Q3 (9/30)	Q4 (12/31)	2023	2024E Q1 (3/31)	Q2 (6/30)	Q3 (9/30)	Q4 (12/31)	2024
Consolidated Earnings Drivers															
Home Sales Revenue	$2,310	$2,609	$2,740	$2,090	$9,749	$1,448	$1,322	$1,226	$1,092	$5,088	$1,138	$1,215	$1,281	$1,285	$4,920
% Change	18%	17%	17%	2%	11%	-37%	-49%	-55%	-48%	-51%	-21%	-8%	5%	18%	0%
Units Closed	5,214	5,820	5,949	4,711	21,694	3,416	3,093	2,828	2,608	11,945	2,800	2,929	2,890	2,969	11,588
% Change	3%	2%	5%	-8%	1%	-34%	-47%	-52%	-45%	-45%	-18%	-5%	2%	14%	-3%
Average Selling Price (Sales)	443	448	461	444	444	424	427	433	419	419	406	415	443	433	433
% Change	15%	15%	13%	10%	10%	-3%	-2%	-3%	-3%	-6%	-3%	-3%	2%	4%	3%
Net Orders Value	$2,761	$2,199	$2,004	$1,476	$8,440	$1,441	$1,161	$1,299	$1,275	$5,176	$1,384	$1,185	$1,351	$1,353	$5,273
% Change	7%	-15%	-17%	-41%	-14%	-48%	-47%	-35%	-14%	-39%	-4%	2%	4%	6%	2%
Units Ordered	4,989	3,939	3,618	2,863	15,410	2,854	2,326	2,569	2,564	10,313	2,765	2,352	2,627	2,651	10,394
% Change	-3%	-23%	-18%	-38%	-16%	-43%	-41%	-29%	-10%	-33%	-3%	1%	2%	3%	1%
Average Selling Price (Orders)	553	558	554	515	515	505	499	506	497	497	501	504	514	510	510
% Change	10%	11%	1%	-3%	-4%	-5%	-6%	-6%	-3%	-4%	-1%	1%	2%	3%	3%
Sales Order Backlog	$5,814	$5,820	$5,088	$4,474	$4,474	$4,467	$4,306	$4,379	$4,562	$4,562	$4,808	$4,778	$4,848	$4,915	$4,915
% Change	12%	8%	-5%	-22%	-22%	-23%	-26%	-14%	2%	2%	8%	11%	11%	8%	8%
Ending Backlog Units	10,107	10,169	8,898	7,860	7,860	7,916	7,647	7,811	8,165	8,165	8,658	8,611	8,860	9,101	9,101
% Change	-2%	-2%	-11%	-25%	-25%	-22%	-25%	-12%	4%	4%	9%	13%	13%	11%	11%
Average Selling Price (Backlog)	575	572	572	569	569	564	563	561	559	559	555	555	547	540	540
% Change	14%	10%	6%	3%	3%	-1%	-1%	-2%	-2%	-2%	-2%	-2%	-3%	-4%	-4%
Backlog Conversion Rate	50%	58%	59%	53%	53%	43%	39%	37%	33%	33%	34%	34%	34%	34%	34%

SUMMARY FINANCIALS	2020	2021	2022E	2023E	2024E	2025E	2026E	TTM
Revenue	7,511	8,824	9,935	5,232	5,081	5,915	6,959	9,924
% Δ in Growth	-	17%	13%	-47%	-3%	16%	18%	12%
Gross Profit	1,505	1,980	2,623	982	1,051	1,357	1,588	2,609
Margin %	20%	22%	26%	19%	21%	23%	23%	32%
EBITDA	1,513	1,983	2,627	983	1,052	1,358	1,589	2,016
Margin %	20%	22%	26%	19%	21%	23%	23%	2%
Operating Income	1,475	1,791	2,372	1,181	1,238	1,548	1,777	1,998
Margin %	20%	20%	24%	23%	24%	26%	26%	12%
Net Income	860	1,133	1,787	1,010	1,068	1,377	1,606	1,605
Margin %	11%	13%	18%	19%	21%	23%	23%	42%
EPS	238.93	322.01	545.82	324.02	369.89	511.08	644.26	471.95
% Δ in Growth YoY	-	35%	70%	-41%	14%	38%	26%	47%
Book Value	3,975	3,610	3,525	5,387	7,105	8,356	10,240	3,003
% Δ in Growth YoY	-	-9%	-2%	53%	32%	18%	23%	-17%
Dividend/Share	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
% Δ in Growth YoY	-	-	-	-	-	-	-	-
P/E	17.08x	18.35x	10.34x	17.42x	15.26x	11.05x	8.76x	9.85x
P/B	3.70x	5.40x	5.05x	3.07x	2.18x	1.71x	1.29x	4.95x
Inventory Turnover	1.04x	0.80x	1.21x	1.03x	1.06x	1.00x	1.05x	0.80x
Asset Turnover	0.41x	0.37x	0.29x	0.10x	0.12x	0.14x	0.13x	0.37x
Debt/EBITDA	1.21x	1.01x	0.63x	1.79x	1.87x	1.64x	1.55x	0.45x
Debt/Equity	0.46x	0.55x	0.47x	0.33x	0.28x	0.27x	0.24x	0.28x
ROA	22%	27%	39%	11%	9%	10%	10%	41%
ROIC	51%	69%	88%	20%	16%	17%	16%	48%
ROE	35%	43%	53%	14%	10%	9%	8%	28%

Regional Drivers: As such, our financial model also reflects FY23 pricing and volume assumptions - even at the regional level. Given factors already referenced in this memo's 1st thesis point, NVR has managed to sustain relatively stable industry metrics across end markets. At the geographic/regional levels, price remains the single most important driver of the consolidated segment revenue and helps to drive **Units Ordered** – a reliable proxy for housing market demand. Therefore, ASP for each region was forecasted using FY08 historical pricing decline levels.[16] Housing demand levels remain constant across the board in all four regions at ~ **-35%** decline YoY. According to NVR's 2008 Annual Report, both of the **Northeast** and **Mid-East** regions experienced ~ **-7%** pricing drop-off in delivery ASPs YoY. Both figures were used in forecasting both geographies.

NVR — USD - Millions Fiscal Year - 12/31

REVENUE BUILD — Northeast	2022E Q1 (3/31)	Q2 (6/30)	Q3 (9/30)	Q4 (12/31)	2022	2023E Q1 (3/31)	Q2 (6/30)	Q3 (9/30)	Q4 (12/31)	2023	2024E Q1 (3/31)	Q2 (6/30)	Q3 (9/30)	Q4 (12/31)	2024
Home Sales Revenue	$176	$237	$250	$204	$868	$128	$127	$128	$121	$504	$115	$116	$126	$122	$480
% Change	8%	23%	18%	9%	11%	-27%	-47%	-49%	-41%	-44%	-10%	-8%	-2%	1%	-1%
Units Closed	348	472	487	410	1,717	273	271	268	262	1,074	258	258	261	259	1,037
% Change	-6%	9%	7%	1%	3%	-22%	-43%	-45%	-36%	-37%	-5%	-5%	-3%	-1%	-3%
Average Selling Price (Sales)	505	503	514	498	498	470	468	478	463	463	446	449	483	472	472
% Change	16%	13%	10%	8%	8%	-7%	-7%	-7%	-7%	-7%	-5%	-4%	1%	2%	2%
Net Orders Value	$241	$222	$178	$131	$772	$126	$117	$115	$113	$471	$121	$120	$120	$120	$480
% Change	15%	13%	-11%	-43%	-7%	-52%	-52%	-38%	-14%	-39%	-4%	2%	4%	6%	2%
Units Ordered	460	441	348	278	1,527	267	265	251	250	1,032	259	267	256	257	1,039
% Change	5%	12%	-14%	-38%	-9%	-42%	-40%	-28%	-10%	-32%	-3%	1%	2%	3%	3%
Average Selling Price (Orders)	523	504	511	472	472	471	444	460	453	453	466	448	469	467	467
% Change	10%	1%	3%	-5%	-5%	-10%	-12%	-10%	-4%	-4%	-1%	1%	2%	3%	3%
Sales Order Backlog	$561	$545	$473	$400	$400	$397	$388	$375	$367	$367	$373	$376	$370	$368	$368
% Change	19%	15%	2%	-19%	-19%	-29%	-29%	-21%	-8%	-8%	-6%	-3%	-1%	0%	0%
Ending Backlog Units	1,081	1,050	911	779	779	773	767	749	737	737	738	747	741	739	739
% Change	6%	7%	-2%	-20%	-20%	-28%	-27%	-18%	-5%	-5%	-5%	-3%	-1%	0%	0%
Average Selling Price (Backlog)	519	519	519	513	513	515	510	504	499	499	507	507	503	498	498
% Change	12%	7%	4%	0%	0%	-1%	-2%	-3%	-3%	-3%	-2%	0%	0%	0%	0%
Backlog Conversion Rate	36%	44%	46%	45%	45%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%

NVR — USD - Millions Fiscal Year - 12/31

REVENUE BUILD — Mid-East	2022E Q1 (3/31)	Q2 (6/30)	Q3 (9/30)	Q4 (12/31)	2022	2023E Q1 (3/31)	Q2 (6/30)	Q3 (9/30)	Q4 (12/31)	2023	2024E Q1 (3/31)	Q2 (6/30)	Q3 (9/30)	Q4 (12/31)	2024
Home Sales Revenue	$461	$521	$570	$391	$1,943	$249	$271	$264	$252	$1,035	$240	$260	$267	$259	$1,027
% Change	9%	9%	13%	-15%	2%	-46%	-48%	-54%	-36%	-50%	-3%	-4%	1%	3%	3%
Units Closed	1,210	1,356	1,468	1,038	5,072	702	758	731	718	2,910	714	759	734	724	2,930
% Change	-4%	-3%	3%	-21%	-6%	-42%	-44%	-50%	-31%	-43%	2%	0%	0%	1%	1%
Average Selling Price (Sales)	381	384	388	377	377	354	357	361	351	351	337	343	364	358	358
% Change	13%	13%	10%	8%	8%	-7%	-7%	-7%	-7%	-7%	-5%	-4%	1%	2%	2%
Net Orders Value	$612	$458	$389	$274	$1,733	$319	$242	$252	$237	$1,050	$307	$247	$262	$251	$1,067
% Change	-3%	-8%	-13%	-43%	-15%	-52%	-52%	-38%	-14%	-39%	-4%	2%	4%	6%	2%
Units Ordered	1,534	1,114	955	782	4,385	890	668	688	704	2,950	863	675	701	725	2,965
% Change	-15%	-16%	-20%	-38%	-21%	-42%	-40%	-28%	-10%	-32%	-3%	1%	2%	3%	3%
Average Selling Price (Orders)	399	411	407	351	351	359	362	366	337	337	356	365	374	347	347
% Change	14%	9%	8%	-5%	-5%	-10%	-12%	-10%	-4%	-4%	-1%	1%	2%	3%	3%
Sales Order Backlog	$1,304	$1,240	$1,059	$942	$942	$1,013	$984	$972	$957	$957	$1,023	$1,010	$1,005	$997	$997
% Change	9%	2%	-8%	-18%	-18%	-22%	-21%	-8%	2%	2%	1%	3%	3%	4%	4%
Ending Backlog Units	3,351	3,109	2,596	2,340	2,340	2,528	2,438	2,394	2,380	2,380	2,529	2,445	2,413	2,415	2,415
% Change	-2%	-6%	-16%	-23%	-23%	-25%	-22%	-8%	2%	2%	0%	0%	1%	1%	1%
Average Selling Price (Backlog)	389	399	408	398	398	398	403	406	397	397	402	412	417	408	408
% Change	11%	9%	9%	4%	4%	2%	1%	0%	0%	0%	1%	2%	3%	3%	3%
Backlog Conversion Rate	40%	40%	47%	40%	40%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%

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[16] NVR 2021 10K. "Segments". 2008.

The **Mid-Atlantic** region saw the worst price drop ~ **-11%**, while the **Southeast** region was surprisingly unchanged ~ **0%** YoY. *Mortgage Banking* accounts for < 2% of consolidated revenue. The model utilizes margin analysis to project revenues through 2026.

NVR — USD - Millions Fiscal Year - 12/31

REVENUE BUILD	2022E Q1 3/31	Q2 6/30	Q3 9/30	Q4 12/31	2022	2023E Q1 3/31	Q2 6/30	Q3 9/30	Q4 12/31	2023	2024E Q1 3/31	Q2 6/30	Q3 9/30	Q4 12/31	2024
Mid-Atlantic															
Home Sales Revenue	$1,142	$1,208	$1,283	$923	$4,556	$682	$580	$484	$420	$2,167	$542	$561	$578	$579	$2,259
% Change	22%	15%	19%	0%	10%	-40%	-52%	-62%	-54%	-58%	-21%	-3%	19%	38%	8%
Units Closed	2,180	2,292	2,417	1,804	8,693	1,463	1,237	1,024	924	4,647	1,224	1,246	1,210	1,247	4,926
% Change	8%	3%	11%	-5%	5%	-33%	-46%	-58%	-49%	-47%	-16%	1%	18%	35%	6%
Average Selling Price (Sales)	524	527	531	511	511	466	469	473	455	455	443	450	477	464	464
% Change	12%	12%	7%	5%	5%	-11%	-11%	-11%	-11%	-11%	-5%	-4%	1%	2%	2%
Net Orders Value	$1,220	$995	$936	$721	$3,872	$637	$525	$606	$623	$2,391	$612	$536	$631	$661	$2,439
% Change	6%	-11%	-12%	-43%	-15%	-52%	-52%	-38%	-14%	-38%	-4%	2%	4%	6%	2%
Units Ordered	2,307	1,860	1,813	1,453	7,433	1,338	1,116	1,305	1,308	5,067	1,298	1,127	1,331	1,347	5,104
% Change	1%	-11%	-10%	-38%	-15%	-42%	-40%	-28%	-10%	-32%	-3%	1%	2%	3%	3%
Average Selling Price (Orders)	529	535	516	496	496	476	471	464	476	476	471	476	474	490	490
% Change	5%	0%	-2%	-5%	-5%	-10%	-12%	-10%	-4%	-4%	-1%	1%	2%	3%	3%
Sales Order Backlog	$2,709	$2,496	$2,149	$1,947	$1,947	$1,902	$1,847	$1,969	$2,172	$2,172	$2,242	$2,217	$2,270	$2,351	$2,351
% Change	17%	4%	-9%	-26%	-26%	-30%	-26%	-8%	12%	12%	18%	20%	15%	8%	8%
Ending Backlog Units	5,045	4,613	4,009	3,658	3,658	3,533	3,412	3,694	4,079	4,079	4,153	4,034	4,155	4,256	4,256
% Change	6%	0%	-10%	-26%	-26%	-30%	-26%	-8%	11%	11%	18%	18%	12%	4%	4%
Average Selling Price (Backlog)	537	541	536	533	533	538	541	533	533	533	540	551	548	554	554
% Change	10%	4%	1%	0%	0%	0%	0%	0%	0%	0%	0%	2%	3%	4%	4%
Backlog Conversion Rate	44%	45%	52%	45%	45%	40%	35%	30%	25%	25%	30%	30%	30%	30%	30%

NVR — USD - Millions Fiscal Year - 12/31

REVENUE BUILD	2022E Q1 3/31	Q2 6/30	Q3 9/30	Q4 12/31	2022	2023E Q1 3/31	Q2 6/30	Q3 9/30	Q4 12/31	2023	2024E Q1 3/31	Q2 6/30	Q3 9/30	Q4 12/31	2024
Northeast															
Home Sales Revenue	$176	$237	$250	$204	$868	$128	$127	$128	$121	$504	$115	$116	$126	$122	$480
% Change	8%	23%	18%	9%	11%	-27%	-47%	-49%	-41%	-44%	-10%	-8%	-2%	1%	-1%
Units Closed	348	472	487	410	1,717	273	271	268	262	1,074	258	258	261	259	1,037
% Change	-6%	9%	7%	1%	3%	-22%	-43%	-45%	-36%	-37%	-5%	-5%	-3%	-1%	-3%
Average Selling Price (Sales)	505	503	514	498	498	470	468	478	463	463	446	449	483	472	472
% Change	16%	13%	10%	8%	8%	-7%	-7%	-7%	-7%	-7%	-5%	-4%	1%	2%	2%
Net Orders Value	$241	$222	$178	$131	$772	$126	$117	$115	$113	$471	$121	$120	$120	$120	$480
% Change	15%	13%	-11%	-43%	-7%	-52%	-52%	-38%	-14%	-39%	-4%	2%	4%	6%	2%
Units Ordered	460	441	348	278	1,527	267	265	251	250	1,032	259	267	256	257	1,039
% Change	5%	12%	-14%	-38%	-9%	-42%	-40%	-28%	-10%	-32%	-3%	1%	2%	3%	3%
Average Selling Price (Orders)	523	504	511	472	472	471	444	460	453	453	466	448	469	467	467
% Change	10%	1%	3%	-5%	-5%	-10%	-12%	-10%	-4%	-4%	-1%	1%	2%	3%	3%
Sales Order Backlog	$561	$545	$473	$400	$400	$397	$388	$375	$367	$367	$373	$376	$370	$368	$368
% Change	19%	15%	2%	-19%	-19%	-29%	-29%	-21%	-8%	-8%	-6%	-3%	-1%	0%	0%
Ending Backlog Units	1,081	1,050	911	779	779	773	767	749	737	737	738	747	741	739	739
% Change	6%	7%	-2%	-20%	-20%	-28%	-27%	-18%	-5%	-5%	-5%	-3%	-1%	0%	0%
Average Selling Price (Backlog)	519	519	519	513	513	515	510	504	499	499	507	507	503	498	498
% Change	12%	7%	4%	0%	0%	-1%	-2%	-3%	-3%	-3%	-2%	0%	0%	0%	0%
Backlog Conversion Rate	36%	44%	46%	45%	45%	35%	35%	35%	35%	35%	35%	35%	35%	35%	35%

Valuation and Justified Multiples: Hearkening back to close the loop on this memo's 1st investment thesis, we argue that NVR's regional dominance as the quasi-monopoly over time is what has granted management the latitude in developing NVR's unique *Balance Sheet Mechanics*. We argue that, over time, NVR's pricing and cost structure competitive advantage is precisely why NVR was the first (and only) US public homebuilder to attain a *100% Optionality*. Simply put – this is a supreme form of financial engineering which enables NVR management to keep virtually all inventory 'off-the-book'. In the accompanying industry report, we mention that most homebuilders have been trying to emulate this model since 2011 for its many advantages.

The 1st advantage of NVR's model was made apparent during GFC. After, many of these seem players began to switch from the once traditional *Asset-Heavy* business model to a more *Asset-Light* strategy like NVR. The asset-heavy model kept most land and housing unit inventories 'on-balance-sheet'. The method helped gross margin expansion as builders who employed this strategy would capitalize on the long period of price appreciation within real-estate. Ironically, and unlike many other builders, NVR had been spared from the same level of losses as most. Using *Land Bank Options* (granting the owner the right to develop lots at a set price in the future, but at a premium), NVR kept virtually all of its inventories 'off-balance-sheet'. This meant that NVR could write-off and walk away from optioned land lots without suffering the exorbitant impairment costs.

NVR's 2nd advantage comes tertiary to its first. Placing inventory off balance sheet increases NVR's *Asset Turnover* – leading to higher *ROE* and *ROIC* over time. The synergy of these dynamics has helped NVR generate more consistent free cash flow and margin. Moreover, as NVR's *FCF* has continued to optimize, management has been afforded an excess of capital to place back into the business – further increasing return metrics. Why is this important? How might these factors affect our valuation?

We think that combination of these factors will materially impact our DCF analysis and financial model fair value estimates in two ways: **1) Our financial model may indicate that the market has not yet fully priced in NVR's FCF creation capabilities and liquidity measures. We argue that this dissonance may be what is causing such a discrepancy between the market Beta Equity (β_e), and our conception on where the multiple should stand.** We mentioned that NVR's gross margins began to stabilize in 2016 at ~19% and have since grown to ~ 22%. Coincidentally, the data below reveals that NVR's *Cash and Cash Equivalents* also grew enormously at ~ 27% CAGR through that same time period. We forecast balance sheet Cash Reserves growing ~ 98% from FY22E – FY23E. We think that our current forecast is justified given that NVR's *Total Debt/Equity* ratio has decreased ~38% YoY (0.53x – 0.33x). Our APV analysis suggests that the market may be pricing in a higher implied volatility and a significantly higher *WACC* into NVR_β than is currently justified. For these reasons, we prefer a 0.6β, rather than the market 0.95β.
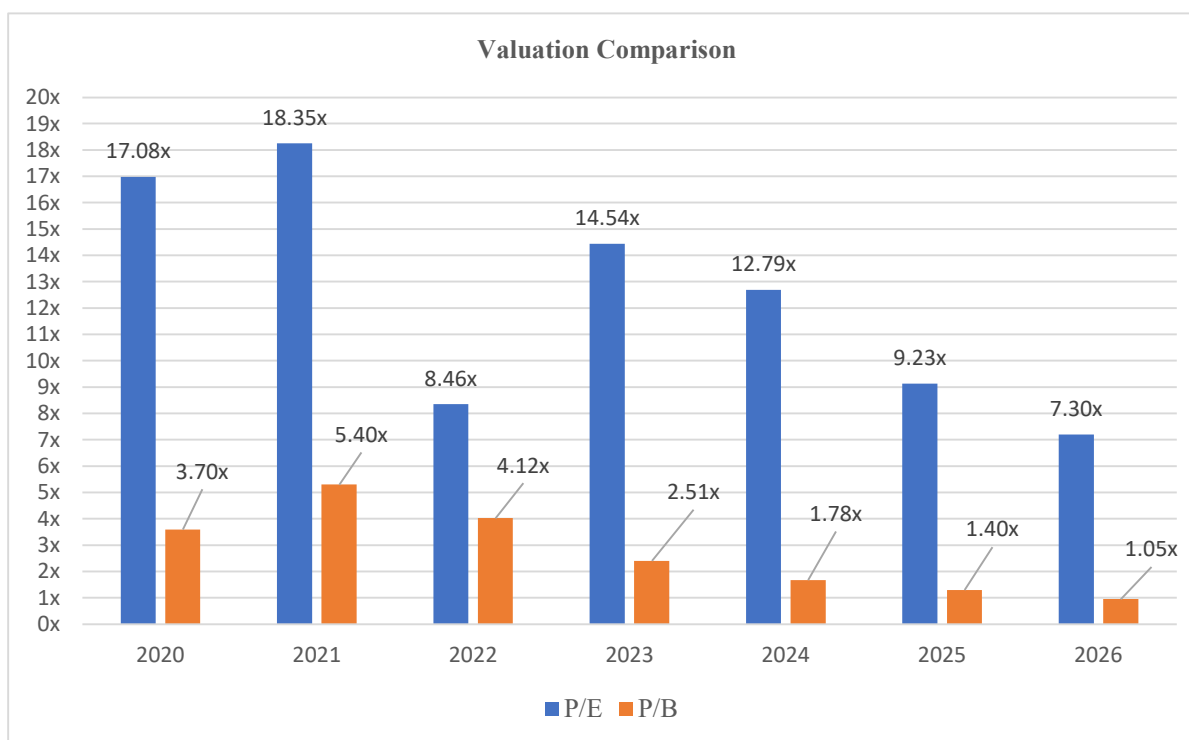
NVR, Inc.
NVR 62944T105 2637785 NYSE Common stock
Source: FactSet Fundamentals

	DEC '17	DEC '18	DEC '19	DEC '20	DEC '21
Profitability (%)					
Gross Margin	19.58	19.16	19.43	19.40	22.64
SG&A to Sales	7.43	7.29	7.26	6.92	6.44
Operating Margin	12.15	11.87	12.16	12.48	16.20
Pretax Margin	13.65	13.65	14.13	14.63	18.19
Net Margin	8.66	11.34	12.10	12.23	14.15
Free Cash Flow Margin	8.96	10.15	11.74	12.50	14.01

NVR, Inc.
NVR 62944T105 2637785 NYSE Common stock
Source: FactSet Fundamentals

	DEC '17	DEC '18	DEC '19	DEC '20	DEC '21
GAAP/IFRS Balance Sheet					
Assets					
Cash & Short-Term Investments	688.5	731.9	1,160.5	2,809.5	2,636.7
Cash Only	688.5	731.9	1,160.5	2,809.5	2,636.7
Short-Term Receivables	20.0	18.6	18.3	18.3	18.6

2) Most homebuilders do not generate consistent FCF, thus they are typically valued on P/B rather than P/E. However, this does not hold true for NVR – which may provide evidence to suggest that NVR's current multiple may rerate in the near future. The historicals below illustrate consistent FCF generation and steady *Working Capital* swings Q/Q. When these dynamics are combined with higher normalized gross margins through-cycle, we believe that NVR's growing ROE and ROIC profitability metrics justify our model projection of a 13.65x P/E multiple rerate from its current 9.85x.

NVR, Inc.
NVR 62944T105 2637785 NYSE   Common stock
Source: FactSet Fundamentals

	DEC '17	DEC '18	DEC '19	DEC '20	DEC '21	SEP '22 LTM
Changes in Working Capital	-109.7	-81.8	-72.6	-104.6	-199.6	-389.0
Receivables	-0.5	-1.0	2.8	-1.7	2.0	-64.8
Inventories	-154.1	-6.9	-94.2	-362.4	-238.3	-306.9
Accounts Payable	10.8	-30.7	33.9	168.7	-20.0	67.1
Other Assets/Liabilities	34.1	-43.2	-15.1	90.8	56.7	-84.3
Net Operating Cash Flow	576.1	733.6	874.8	936.9	1,242.4	1,313.0

SUMMARY FINANCIALS	2020	2021	2022E	2023E	2024E	2025E	2026E	TTM
P/E	17.08x	18.35x	10.34x	17.42x	15.26x	11.05x	8.76x	9.85x
P/B	3.70x	5.40x	5.05x	3.07x	2.18x	1.71x	1.29x	4.95x
Inventory Turnover	1.04x	0.80x	1.21x	1.03x	1.06x	1.00x	1.05x	0.80x
Asset Turnover	0.41x	0.37x	0.29x	0.10x	0.12x	0.14x	0.13x	0.37x
Debt/EBITDA	1.21x	1.01x	0.63x	1.79x	1.87x	1.64x	1.55x	0.45x
Debt/Equity	0.46x	0.55x	0.47x	0.33x	0.28x	0.27x	0.24x	0.28x
ROA	22%	27%	39%	11%	9%	10%	10%	41%
ROIC	51%	69%	88%	20%	16%	17%	16%	48%
ROE	35%	43%	53%	14%	10%	9%	8%	28%

Valuation Comparison

Year	P/E	P/B
2020	17.08x	3.70x
2021	18.35x	5.40x
2022	8.46x	4.12x
2023	14.54x	2.51x
2024	12.79x	1.78x
2025	9.23x	1.40x
2026	7.30x	1.05x

DCF Analysis and Fair Value:

	2022 Q4E	**2023E**	**2024E**	**2025E**	**2026E**
EBIT	536	1,181	1,238	1,548	1,777
Depreciation	3	8	7	9	10
Taxes	129	283	297	372	426
Capex	15	13	13	13	13
Change in WC	-45	584	539	544	550
Total	440	309	396	628	798

Because of a steady D/E ratio, we use the WACC to discount future cash flows. NVR is delevering in FY21 Q4 – it had $600M in debt due. The next payment on debt is not due until post 2026 ($900M). Given steady debt levels, we expect the D/E to stay around 0.33, which is used to project the WACC. The WACC is calculated using a Beta of 0.61, a risk-free rate of 3.57%[17], a market premium of 6.0%[18], a D/E ratio of 0.33, a return on debt of 5.52% based on the ICE BofA BBB US Corporate Index Effective Yield as of 06/DEC/2012 given NVR's credit rating of BBB+, and a tax rate of 24%, which is based on the average of the Q1 and Q3 tax rates, as told in the Q3 earnings release. This returns a WACC of 6.48%.


D/E Ratio
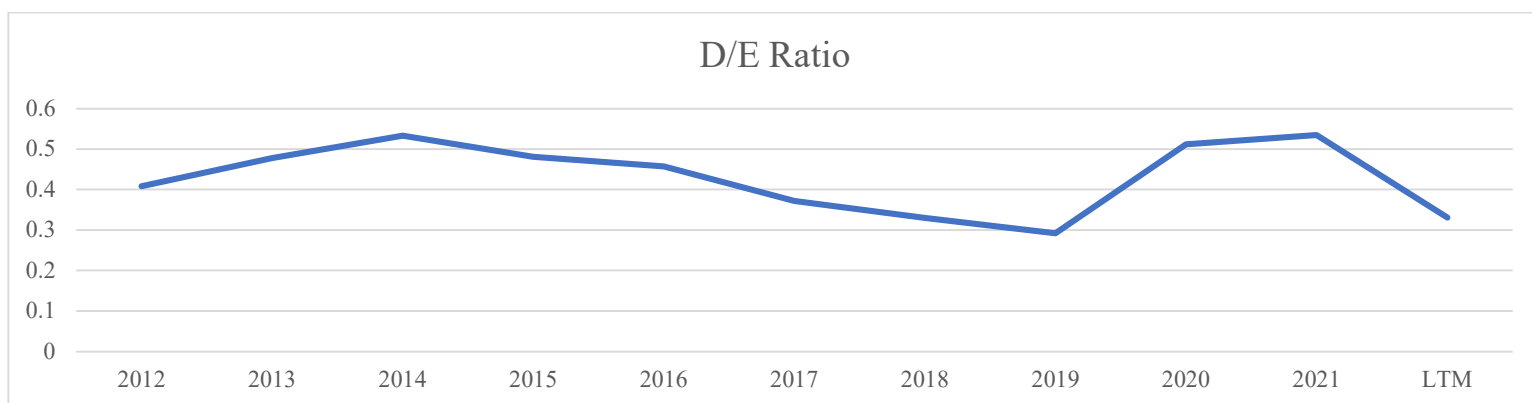
Rolling Beta:

We believe our β estimate is the main differentiator between the current stock price and our estimate. The 0.95β is currently inflated due to a few shocks in 2020, as shown below. If March 2020-June 2020 are removed from the observations, the β hovers at 0.61. If all the same estimates are included in a valuation but with a 0.95β, the stock is estimated at $4,133.39, due to an increase in the WACC.

Rolling Beta

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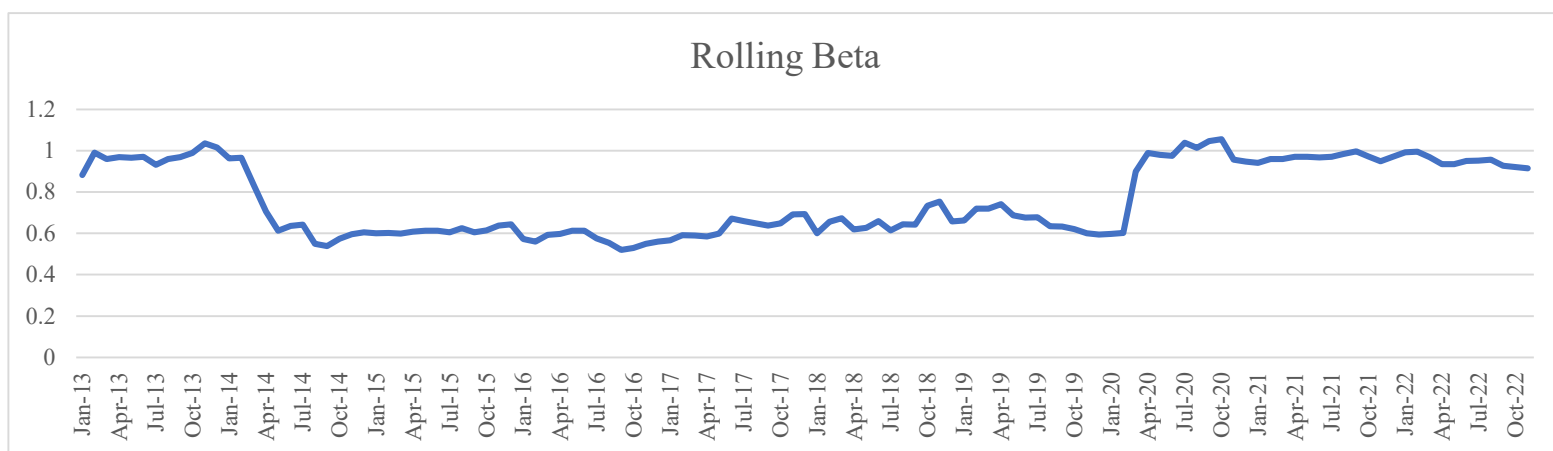
[17] 10 Year Treasury Return

[18] "Kroll Recommended U.S. Equity Risk Premium and Corresponding Risk-Free Rates to be Used in Computing Cost of Capital." KROLL.
https://www.kroll.com/en/insights/publications/cost-of-capital/recommended-us-equity-risk-premium-and-corresponding-risk-free-rates

Rolling Beta w/ March-June 2020 Removed
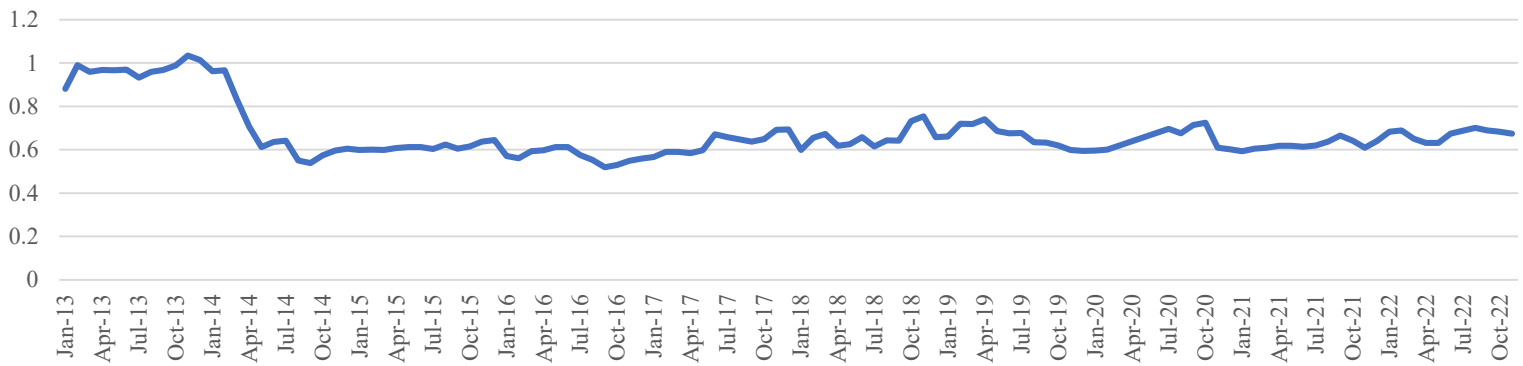
Long Term Growth Rate: A review of the CAGR for revenue for NVR returns a 9.6% CAGR between 1994 and 2021. We used a more conservative future growth rate of 2.25%, which is one half of the GDP compounded annual growth rate since 1991.

Shares Outstanding: 3,195,887

Enterprise Value	$16,943
Equity Value	$17,863
Price Per Share	$5,589.47

APPENDIX – Abbreviated Financials

NVR USD - Millions Fiscal Year - 12/31	2020	2021	2022	2023	2024	2025	2026
INCOME STATEMENT	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Revenue							
Homebuilding	7,303	8,574	9,749	5,088	4,920	5,747	6,788
Mortgage Banking	208	250	186	145	162	168	171
Total Revenue	$7,511	$8,824	$9,935	$5,232	$5,081	$5,915	$6,959
Cost of Sales							
Homebuilding	5,938	6,765	7,235	4,178	3,958	4,482	5,294
Mortgage Banking	68	79	76	72	73	76	77
Total Costs of Goods Sold	$6,006	$6,844	$7,312	$4,251	$4,031	$4,558	$5,371
Gross Profit							
Homebuilding	1,365	1,809	2,514	909	962	1,264	1,493
Mortgage Banking	140	171	109	72	89	92	94
Total Gross Profit	$1,505	$1,980	$2,623	$982	$1,051	$1,357	$1,588
Selling, General, and Administrative Expenses							
SG&A	432	474	522	520	520	520	520
Total SG&A	$432	$474	$522	$520	$520	$520	$520
Operating Income							
Homebuilding	1,365	1,809	2,514	909	962	1,264	1,493
Mortgage Banking	140	171	109	72	89	92	94
Total Operating Profit	$1,505	$1,980	$2,623	$982	$1,051	$1,357	$1,588
Other Income and Expenses							
Interest Income (Expense)	-42	-52	-42	-38	-38	-38	-38
Other Income (Expense)	189	216	191	210	198	202	200
Total Other Income and Expenses	$147	$164	$150	$172	$160	$164	$162

Impairments	0	0	0	0	0	0	0
Unrealized Valuation Gain/Loss	1	3	-76	-116	-116	-116	-116
Income Before Income Taxes	**$1,652**	**$2,144**	**$2,773**	**$1,153**	**$1,211**	**$1,521**	**$1,750**
Income Tax Expense (Benefit)	177	353	401	-27	-27	-27	-27
Net Income (Continued Operations)	**$1,475**	**$1,791**	**$2,372**	**$1,181**	**$1,238**	**$1,548**	**$1,777**
Inventory Write-Downs	0	0	0	0	0	0	0
Converted Interest Add-Back	0	0	0	0	0	0	0
Adjustments & Non-Recurring Items	-970	-1,367	-1,543	-1,586	-1,586	-1,311	-800
Net Income (GAAP)	**$860**	**$1,133**	**$1,787**	**$1,010**	**$1,068**	**$1,377**	**$1,606**
Share Buybacks and Dividends							
Shares Outstanding	4	3	3	3	3	3	2
Shares Repurchased	0	0	0	0	0	0	0
Repurchase Principal	371	1,538	1,654	1,596	1,625	1,611	1,618
Average Purchase Price	0	0	0	0	0	0	0
Average Dividend	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EPS		238.93	322.01	545.82	324.02	369.89	511.08	644.26
Adjusted Operating Profit	**$1,505**	**$1,980**	**$2,623**	**$982**	**$1,051**	**$1,357**	**$1,588**
(+) Capitalized Interest	8	3	3	1	1	1	1
EBIT	**$1,497**	**$1,977**	**$2,620**	**$981**	**$1,050**	**$1,356**	**$1,586**
(+) Depreciation and Amortization	22	20	17	8	7	9	10
EBITDA	**$1,513**	**$1,983**	**$2,627**	**$983**	**$1,052**	**$1,358**	**$1,589**
NOPAT	**$1,150**	**$1,512**	**$2,004**	**$750**	**$803**	**$1,036**	**$1,213**
Margin Analysis							
Homebuilding Margin	19%	21%	26%	18%	20%	22%	22%
Mortgage Banking Margin	61%	68%	56%	50%	55%	55%	55%
Gross Margin	20%	22%	26%	19%	21%	23%	23%
Operating Margin	20%	22%	26%	19%	21%	23%	23%
Revenue Analysis % Δ Y/Y							
Homebuilding	0%	20%	14%	-47%	-2%	17%	18%
Mortgage Banking	0%	57%	-27%	-18%	13%	4%	2%
Total Revenue % Δ Y/Y	**0%**	**17%**	**13%**	**-47%**	**-3%**	**16%**	**18%**

NVR USD - Millions Fiscal Year - 12/31	2020	2021	2022	2023	2024	2025	2026
BALANCE SHEET	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Assets							
Cash and Cash Equivalents	2,810	2,637	4,482	8,517	8,559	8,602	11,613
Inventory	1,709	1,947	1,505	875	980	1,115	1,311
Net Property, Construction, and Office Equipment	128	129	138	141	141	141	141
Net Accounts Receivables	18	19	19	18	17	16	15
Intangible Assets (Other)	49	42	42	42	42	42	42
Goodwill	0	0	0	0	0	0	0
Total Long-Term Investments	507	362	355	349	348	348	348
Other Assets	424	559	780	799	800	799	799
Total Assets	**$5,644**	**$5,694**	**$7,321**	**$10,740**	**$10,886**	**$11,063**	**$14,269**
Liabilities							
Accounts Payable	382	367	477	619	805	1,047	1,361
Long-Term Debt	1,290	1,591	1,199	1,094	1,102	1,102	1,102
Total Liabilities	**$1,672**	**$1,957**	**$1,676**	**$1,713**	**$1,908**	**$2,149**	**$2,463**
Stockholder's Equity							
Common Stock	3,103	3,002	2,726	2,992	3,085	2,726	2,992
Carry Value	0	0	0	0	0	0	0
Retained Earnings	8,811	10,048	11,319	11,319	11,319	11,319	11,319
Treasury Stock	-7,939	-9,441	-10,520	-8,924	-7,299	-5,688	-4,070
Total Equity	**$3,975**	**$3,610**	**$3,525**	**$5,387**	**$7,105**	**$8,356**	**$10,240**
check							
P & L Items (TTM)							
Sales (Homebuilding)	2,318	2,104	2,120	1,122	1,321	1,520	1,785
COGS (Homebuilding)	1,841	1,666	1,584	921	1,031	1,173	1,380
Operating Income	477	438	536	200	290	347	405
Net Income (Continuing Operations)	1,475	1,791	2,372	1,181	1,238	1,548	1,777
Shares Outstanding	4	3	3	3	3	3	2

Tax Rate	24%	24%	24%	24%	24%	24%	24%
Adjusted EBIT	1,513	1,983	2,627	983	1,052	1,358	1,589
Adjusted EBITDA	1,535	2,003	2,644	990	1,059	1,366	1,599
Capital Structure							
Total Cash	2,810	2,637	4,482	8,517	8,559	8,602	11,613
Net Debt	1,672	1,957	1,676	1,713	1,908	2,149	2,463
Total Stockholder Equity	3,975	3,610	3,525	5,387	7,105	8,356	10,240
Tangible Book Value	3,972	3,737	5,645	9,027	8,978	8,914	11,806
Total Assets	5,644	5,694	7,321	10,740	10,886	11,063	14,269
Total Capital	5,647	5,567	5,201	7,100	9,013	10,505	12,703
Invested Capital	3,972	3,737	5,645	9,027	8,978	8,914	11,806
Total Inventory	1,709	1,947	1,505	875	980	1,115	1,311
Average Balances							
Average Cash	2,812	2,432	4,134	7,287	10,034	14,371	11,613
Average Inventory	1,769	2,071	1,312	890	974	1,168	1,311
Average Tangible Assets	2,921	3,275	2,655	2,240	2,322	2,516	2,656
Averate Total Assets	5,732	5,707	6,789	9,527	12,356	16,887	14,269
Average Debt	1,837	2,002	1,647	1,764	1,968	2,227	2,463
Average Shareholder Equity	3,890	3,314	3,939	5,761	7,230	8,806	10,240
Average Total Capital	5,726	5,316	5,586	7,525	9,198	11,033	12,703
Average Invested Capital	3,896	3,705	5,142	7,763	10,388	14,659	11,806
Average Receivables	20	21	21	19	19	18	15
Book Value per Share	**1,104.17**	**1,093.90**	**1,118.97**	**1,841.65**	**2,595.44**	**3,301.26**	**4,386.68**
Key Ratios							
Cash and Cash Equivalents Ratio	1.12x	1.24x	0.72x	1.16x	0.53x	0.60x	0.65x
Days in Inventory Ratio	0.02x	0.01x	0.01x	0.07x	0.01x	0.01x	0.01x
YoY Δ in Net Receivables	0%	1%	11%	-5%	-5%	-5%	-5%
YoY Δ in Net Payables	0%	-4%	-4%	28%	30%	30%	30%
Leverage Analysis							
Net Debt/Equity	0.46x	0.55x	0.47x	0.33x	0.28x	0.27x	0.24x
Net Debt/EBITDA	3.81x	4.52x	3.05x	8.72x	6.75x	6.38x	6.03x
Inventory Turnover	1.04x	0.80x	1.21x	1.03x	1.06x	1.00x	1.05x
Asset Turnover	0.41x	0.37x	0.29x	0.10x	0.12x	0.14x	0.13x
Returns Analysis							
ROIC	22%	27%	39%	11%	9%	10%	10%
ROE	51%	69%	88%	20%	16%	17%	16%
ROA	35%	43%	53%	14%	10%	9%	8%

NVR USD - Millions Fiscal Year - 12/31	2020	2021	2022	2023	2024	2025	2026
CASH FLOW	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Cash Flows from Operating Activities							
Net Income	901	1,237	1,813	1,010	1,068	1,377	1,606
Δ in Gross Working Capital							
Depreciation and Amortization	22	19	16	8	7	9	10
Deferred Tax Provision	-18	0	0	0	0	0	0
Other Working Capital Funds	136	186	167	339	339	339	339
Δ in Net Working Capital - Increases/Decreases							
Inventory	-362	-238	-238	-280	-252	-256	-263
Receivables, Prepaid Expenses, and Other Assets	-2	2	-92	-117	-119	-118	-118
Accounts Payable and Accrued Expenses	169	-20	56	-32	-16	-18	-18
Other Assets/Liabilities	91	57	-84	-155	-152	-152	-152
Net Operating Cash Flow	**$937**	**$1,242**	**$1,638**	**$773**	**$875**	**$1,181**	**$1,405**
Cash Flows from Investing Activities							
Capital Expenditures	-16	-18	-15	-13	-13	-13	-13
Sale of Fixed Assets & Businesses	1	1	1	1	1	1	1
Net Investing Cash Flow	**-$15**	**-$17**	**-$14**	**-$12**	**-$12**	**-$12**	**-$12**
Cash Flows from Financing Activities							
Net Issuance/Reduction of Debt	918	-1	-601	-2	-2	-2	-2
Common Stock:							
Repurchases	-371	-1,538	-1,654	-1,596	-1,625	-1,611	-1,618
Dividends	0	0	0	0	0	0	0
Net Financing Cash Flow	**$547**	**-$1,539**	**-$2,256**	**-$1,598**	**-$1,627**	**-$1,612**	**-$1,619**
Net Cash and Cash Equivalents							
Increase (Decrease) in Cash & Cash Equivalents	1,469	-314	-632	-837	-763	-443	-226
Cash & Cash Equivalents at Beginning of Period	1,118	2,810	2,637	2,133	1,296	533	90
Cash & Cash Equivalents at End of Period	2,810	2,637	2,133	1,296	533	90	-136
Operating Cash Flow	937	1,242	1,638	773	875	1,181	1,405
PP&E Capex	-16	-18	-15	-13	-13	-13	-13
Intangible Capex	0	0	0	0	0	0	0
Net Free Cash Flow	**$921**	**$1,225**	**$1,623**	**$760**	**$862**	**$1,168**	**$1,392**
FCF Conversion (EBITDA)	61%	62%	62%	77%	82%	86%	88%
P&L Items							
Sales (TTM)	7,511	8,824	9,935	5,232	5,081	5,915	6,959
Net Income (TTM)	1,475	1,791	2,372	1,181	1,238	1,548	1,777
Average Shares Repurchased (TTM)	0	0	0	0	0	0	0
Cash Flow Items							
Depreciation and Amortization (TTM)	22	19	16	8	7	9	10
Capex (TTM)	16	18	15	13	13	13	13
Working Capital							
Capex % D&A (TTM)	73%	92%	93%	169%	175%	149%	127%
Capex % Sales (TTM)	0%	0%	0%	0%	0%	0%	0%
D&A % Sales (TTM)	0%	0%	0%	0%	0%	0%	0%
Inventories	1,709	1,947	1,505	875	980	1,115	1,311
% of Revenue	23%	22%	15%	17%	19%	19%	19%
Receivables	18	19	19	18	17	16	15
% of Revenue	0%	0%	0%	0%	0%	0%	0%
Payables	1,672	1,957	1,676	1,713	1,908	2,149	2,463
% of Revenue	22%	22%	17%	33%	38%	36%	35%
Net Working Capital	**$ 3,399**	**$ 3,923**	**$ 3,199**	**$ 2,606**	**$ 2,904**	**$ 3,280**	**$ 3,789**
Δ in Net Working Capital	-105	-200	-358	-584	-539	-544	-550

NVR, Inc.
(NVR)

Industry: Real Estate Development & Diversified Activities
Country/Region: United States of America

What is the company's commitment to reduce its carbon emissions?

Decarbonization Target

Does NVR, Inc. have a decarbonization target?   **NO**

Does NVR, Inc. have a decarbonization target that is considered in the calculation of Implied Temperature Rise?   **NO**

To consider a target in our assessment, we utilized reported data such as the target's baseline and end-year, the target coverage (whether Scope 1, 2, and/or 3 emissions are covered), the expected reduction in emissions and other information which enable the accurate projection of emissions into the future. Without this underlying information, a target may not be included in our overall assessment and consequently in the calculation of Implied Temperature Rise.

Target data as of December 10, 2022*

Untangling companies' decarbonization targets

MSCI ESG Research's targets and commitment dataset is designed to address the disparity in corporate decarbonization targets. We evaluate a company's climate commitments based on their:

Comprehensiveness, which addresses whether a target is focused on all scopes and geographic sources of the company's total emissions.

Ambition, which refers to the amount of the emissions reduction embedded in the target and the target timeline and

Feasibility, which refers to a company's track record of past targets and progress towards current active targets.

If you are a corporate issuer, and you would like to update your targets or emissions data, we invite you to visit our ESG Issuer Communications Portal.

Learn more

- Climate Target and Commitments →

How well is the company aligned to global climate goals?
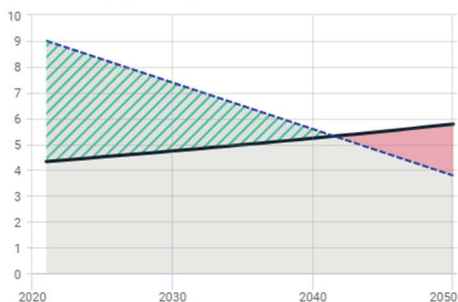
MSCI IMPLIED TEMPERATURE RISE   **2.2°C**

MISALIGNED

An Implied Temperature Rise of **between 2°C and 3.2°C** indicates that NVR, Inc. is misaligned with global climate goals and is in line with a business-as-usual scenario.[1]

2°C Trajectory

Absolute emissions [Megatons CO2e]

- Annual Projected Carbon Emissions
- MSCI 2°C Trajectory (Annual Budget)
- Absolute Carbon Budget Overshoot
- Absolute Carbon Budget Undershoot

Decarbonization data as of December 05, 2022*

What is MSCI ESG Research's Implied Temperature Rise?

Implied Temperature Rise from MSCI ESG Research is an intuitive, forward-looking metric, expressed in degrees Celsius, designed to show the temperature alignment of companies, portfolios and funds with global temperature goals.

Translating corporate reduction targets and emissions trajectories into an Implied Temperature Rise shows where companies are headed and where more aggressive action is required.

We frequently update our Implied Temperature Rise estimates with the latest company data, including stated decarbonization targets. That way, we seek to reflect the current state of company alignment.*

Alignment with global temperature goals

>3.2°C	**STRONGLY MISALIGNED**
>2.0° – 3.2°C	**MISALIGNED**
>1.5° – 2.0°C	**2°C ALIGNED**
≤1.5°C	**1.5°C ALIGNED**

Learn more

- How Implied Temperature Rise works →
- Methodology Excerpt →
- Videos: What is ITR →
- MSCI In Practice: Implied Temperature Rise Workshop →

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[19] MSCI ESG Ratings. "NVR". https://www.msci.com/our-solutions/esg-investing/esg-ratings-climate-search-tool/issuer/nvr-inc/IID000000002128825
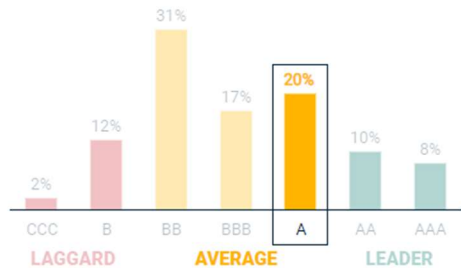
MSCI
ESG RATINGS

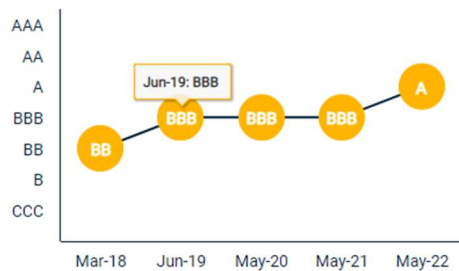| CCC | B | BB | BBB | **A** | AA | AAA |

(A)

NVR is *average* among 59 companies in the **real estate development & diversified activities industry**.

ESG Rating distribution in relation to industry peers

Universe: MSCI ACWI Index constituents real estate development & diversified activities, (59 companies)

| CCC | B | BB | BBB | A | AA | AAA |
| 2% | 12% | 31% | 17% | **20%** | 10% | 8% |

LAGGARD • AVERAGE • LEADER

MSCI ESG Rating history data over the last five years or since records began.

Jun-19: BBB

Mar-18: BB | Jun-19: BBB | May-20: BBB | May-21: BBB | May-22: A

We focus on the key issues material to the **real estate development & diversified activities industry**. Here is how **NVR** compares to industry peers. For more details, visit the ESG investing page.

ESG LAGGARD	AVERAGE	ESG LEADER
NVR is not a laggard on any of the Key Issues that we evaluated for its industry.	CORPORATE BEHAVIOR	CORPORATE GOVERNANCE
	OPPORTUNITIES IN GREEN BUILDING	
	HEALTH & SAFETY	
	PRODUCT SAFETY & QUALITY	

What is an MSCI ESG Rating?

ESG Ratings from MSCI ESG Research are designed to measure a company's resilience to financially material environmental, societal and governance (ESG) risks. Our ESG Ratings provide a window into one facet of risk to financial performance.

We use a rules-based methodology to identify industry leaders and laggards according to their exposure to ESG risks and how well they manage those risks relative to peers (not across industries).

Our ESG Ratings range from leader (AAA, AA), average (A, BBB, BB) to laggard (B, CCC).

Learn more

- How do MSCI ESG Ratings work? →
- What MSCI's ESG Ratings are and are not →
- ESG Industry Materiality Map →
- Methodology Excerpt →

How often is an MSCI ESG Rating updated?

Companies are monitored on a systematic and ongoing basis.

We do not issue surveys or questionnaires or conduct general interviews with companies, nor do we accept or consider in our analysis any data provided by issuers that is not publicly available to other stakeholders. Given the dynamic nature of our research, companies can access the data we have collected to date at any time to review.

We are committed to updating a company profile as required in a timely manner.

If you are a corporate issuer and have questions about your MSCI ESG Rating, we invite you to visit our ESG Issuer Communications Portal.

ESG Ratings Key Issue Framework

We assess thousands of data points across 35 ESG Key Issues that focus on the intersection between a company's core business and the industry-specific issues that may create significant risks and opportunities for the company. The Key Issues are weighted according to impact and time horizon of the risk or opportunity. All companies are assessed for Corporate Governance and Corporate Behavior.

Different industries face different risks. Carbon emissions, for example, will affect the rating of an oil company far more than that of a restaurant company.

Other ESG factors — such as sourcing of inputs, packaging waste and product safety — are more financially relevant to the fast-food chain than the carbon emissions of its operations, and thus weigh more heavily in its ESG rating and environmental score.

Learn more

- ESG Ratings Key issues Framework →
- ESG Industry Materiality Map →