Equity Research

WELLS FARGO

Earnings Revised — October 21, 2021

Commercial Lines Insurance

W.R. Berkley Corporation (WRB)

WRB: Expenses Lead the Way for Berkley; Q3 EPS and Conference Call Round-Up

Our Call

Summary. WRB reported Q3 2021 EPS of $1.32 beating both our estimate of $1.06 and consensus of $0.94. The upside was mainly due to: **(1)** higher investment income (coming in at $179.9 million, higher than our $154.3 million estimate) driven by strong results from its investment funds, **(2)** a lower tax rate, which came in at 19.6% better than our 21.0% estimate, and **(3)** a lower expense ratio, which came in at 28.0%, better than our 29.2% estimate and better than 28.7% in Q2. Catastrophe losses came in at $73.8 million, just below our $75.0 million estimate. There was a minimal, or $1.5 million, of prior period favorable development in the quarter, just below our estimate for $2 million of favorable development.

- **Estimates go higher.** Following WRB's conference call, we are raising our 2021 EPS estimate to $4.85 from $4.48, while our 2022 and 2023 EPS estimates also rise to $5.10 and $5.70, from $4.93 and $5.53, respectively, primarily reflecting a lower expense ratio, which more than offsets a higher underlying loss ratio assumption. We are maintaining our price target of $92, which is based on 2.1x our 2022 book value per share estimate. Shares of WRB should trade up tomorrow reflecting the earnings beat.
- **Pricing improved; business continues to go to the E&S market.** WRB saw price increases of 10.1% in the Q3 excluding workers' comp. This does represent a modest improvement from 9.7% in Q2, but a slowdown when compared to 12.8% in Q1. WRB said that there was an opportunity to push for more price in the quarter, which led to the sequential improvement in price increases. Overall, WRB described market conditions as favorable, and they do not see that trend changing. In particular, they see this as a good environment for specialty insurers and especially within the E&S market where they continue to see a good flow of opportunities, which they do not think will reverse anytime soon.
- **Leverage on the expense ratio from top-line growth.** The focus on growth is helping the company show a much better expense ratio. The expense ratio in the quarter came in at 28.0%, better than our 29.2% estimate and improving from 28.7% in Q2. While there was around a 30 basis point benefit from Covid-19, that benefit is dissipating and WRB should continue to have leverage on the expense side as its earned premium continues to grow.
- **Underlying margin improvement driven by the expense ratio.** The underlying combined ratio was 86.9%, better than our 87.2% estimate, and beating us in both insurance and reinsurance/monoline excess. The underlying loss ratio of 58.8% (versus our 57.9%) improved by 110 basis points from last Q3 and while it was lower than the 2 points of improvement we were looking for, it was better than the 40 basis points of improvement in Q2.
- **Premium growth remains strong in insurance and reinsurance.** WRB saw net premiums written growth of 23.7%, coming in above our 16.6% estimate, and a bit below 27.2% in Q2. By segment, insurance net written premium grew by 23.3% beating our 17.5% estimate and reinsurance growth of 26.7% beat our 10.3% estimate. Within insurance, WRB saw healthy growth in all lines, with the strongest growth coming from professional lines (+58.7%), commercial auto (+28.1%) and other liability (+25.3%). Reinsurance growth was driven by casualty reinsurance and monoline, while property reinsurance declined.
- **See inside** for additional takes from the quarter and the conference call.

Equity Analyst(s)

Elyse Greenspan, CFA
Senior Equity Analyst | Wells Fargo Securities, LLC
Elyse.Greenspan@wellsfargo.com | 212-214-8031

Hristian Getsov
Associate Equity Analyst | Wells Fargo Securities, LLC
Hristian.Getsov@wellsfargo.com | 561-843-4188

Rating	Overweight
Ticker	WRB
Price Target/Prior:	$92.00/NC
Upside/(Downside) to Target	**16.6%**
Price (10/21/2021)	**$78.89**
52 Week Range	$59.21 - 81.87
Shares Outstanding	177,529,889
Market Cap (MM)	$14,005
Enterprise Value (MM)	$13,842
Average Daily Volume	242,422
Average Daily Value (MM)	$19
Dividend (NTM)	$0.50
Dividend Yield	0.6%
Net Debt (MM) - last reported	$(164)
ROIC - Current year est.	14%
3 Yr EPS CAGR from current year (unless otherwise noted)	35%

$ EPS	2020A	2021E Curr.	2021E Prior	2022E Curr.	2022E Prior
Q1 (Mar)	0.70 A	1.08 A	NC	1.25 E	1.16E
Q2 (Jun)	0.06 A	1.17 A	NC	1.27 E	1.22E
Q3 (Sep)	0.65 A	1.32 A	1.06E	1.18 E	1.19E
Q4 (Dec)	0.92 A	1.28 E	1.17E	1.41 E	1.36E
FY	2.32 A	4.85 E	4.48E	5.10 E	4.93E
P/E	34.0x	16.3x		15.5x	

Source: Company Data, Wells Fargo Securities estimates, and Refinitiv. NA = Not Available, Volatility = Historical trading volatility

Q3 2021 In A Nutshell

In a Nutshell. WRB reported Q3 2021 EPS of $1.32 beating both our estimate of $1.06 and consensus of $0.94. The upside was mainly due to: **(1)** higher investment income (coming in at $179.9 million, higher than our $154.3 million estimate) driven by strong results from its investment funds, **(2)** a lower tax rate, which came in at 19.6% better than our 21.0% estimate due to a benefit from equity-based compensation which vests in August, and **(3)** a lower expense ratio, which came in at 28.0%, better than our 29.2% estimate and better than 28.7% in Q2. Catastrophe losses came in at $73.8 million, just below our $75.0 million estimate and included $6 million of Covid-19 losses (we did not include any Covid-19 losses in our estimate). There was a minimal, or $1.5 million, of prior period favorable development in the quarter, just below our estimate for $2 million of favorable development. The underlying combined ratio of 86.9% beat our 87.2% estimate driven by a better expense ratio, with the underlying loss ratio coming in above us (at 58.8% versus our 57.9% estimate). Repurchases totaled $92.7 million in the quarter, higher than our $35 million estimate. The operating ROE was 14.9% and the net income ROE was 16.6%. Book value per share increased by 1.5% QoQ and 11.9% YoY in the Q3.

Exhibit 1 - WRB Q3 2021 Estimates Versus Actual

	Q3 2021		Delta Vs. WFS	
$ in millions, except per share data	Actual	Estimate	Absolute	%
Gross premiums written	2,787.5	2,643.2	144.3	5.5%
y/y change	23.2%	16.8%	6.4%	-
Net premiums written	2,325.1	2,190.6	134.5	6.1%
y/y change	23.7%	16.6%	7.2%	-
Net premiums earned	2,081.0	2,023.7	57.4	2.8%
y/y change	19.0%	15.7%	3.3%	-
Net investment income	179.9	154.3	25.6	16.6%
Investment Yield	3.15%	3.03%	0.12%	-
Total revenues	2,424.3	2,328.1	96.2	4.1%
Underwriting Income	**198.8**	**186.7**	**12.2**	**6.5%**
Operating income after-tax	246.7	198.2	48.5	24.4%
Operating income per diluted share	**1.32**	**1.06**	**0.26**	**24.5%**
Tax Rate	19.6%	21.0%	-1.4%	-
Book value per share	37.64	38.06	(0.42)	-1.1%
Operating ROE	14.9%	11.9%	3.0%	-
Net income ROE	16.6%	14.1%	2.4%	17.0%
Underwriting Profitability				
Loss ratio	62.4%	61.5%	0.9%	-
Expense ratio	28.0%	29.2%	-1.2%	-
GAAP combined ratio	90.4%	90.8%	-0.4%	-
(Favorable) / Adverse PYD	0.0%	-0.1%	0.1%	-
Catastrophe Losses	3.5%	3.7%	-0.2%	-
Underlying Loss Ratio	**58.8%**	**57.9%**	**0.9%**	**-**
Underlying Combined Ratio	**86.9%**	**87.2%**	**-0.3%**	**-**
Capital Return				
Total shares repurchased	92.7	35.0	57.7	164.9%
Total Dividends ($M)	23.1	23.0	0.1	0.3%
Total capital return to shareholders	115.8	58.0	57.8	99.5%
Capital return payout ratio - % Operating	46.9%	29.3%	17.7%	-

Source: Company reports and Wells Fargo Securities, LLC estimates

Highlights of Its Pricing Thoughts

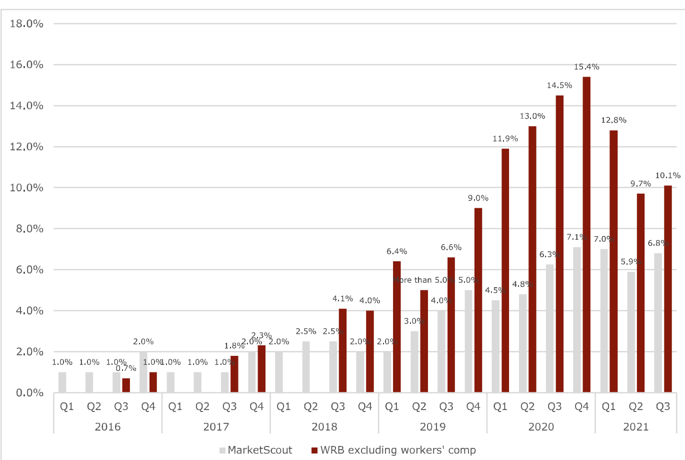
Pricing improved modestly sequentially. WRB saw price increases of 10.1%, excluding workers' comp (they do not provide the price increase with workers' comp until the 10Q comes out although we estimate that it was around 9.5% in the Q3). This compares to the 9.7%, excluding workers' comp (8.5% including comp), in the Q2 and 12.8%, excluding workers' comp (11% including comp), in the Q1. WRB said that there was an opportunity to push for more price in the quarter, which led to the sequential improvement in price increases. Overall, WRB described market conditions as favorable, and they do not see that trend changing. In particular, they see this as a good environment for specialty insurers and even more for the E&S market, where they continue to see a good flow of opportunities, which they do not think will reverse anytime soon. Exhibit 2 below shows recent commentary that WRB has provided on pricing since the start of 2019.

Exhibit 2 - WRB Historical Pricing Commentary

Period	Pricing Comments
Q3 2021	It's a good moment for the P&C space. Quite frankly, most of the workers' comp market, which continues to feel a bit of a growing headwind. Obviously, property felt some pain in the quarter, but just general market conditions are reasonably attractive. And we don't see that trend changing. More specifically, it is a good moment for specialty writers, particularly casualty-related specialty writers and even more so the E&S market. We continue to see a growing flow of opportunities, both in specialty and even more so in E&S, and there's nothing that leads us to believe that, that tide is going to reverse anytime soon. So that's definitely encouraging.
Q2 2021	And as far as drilling down into the market a little bit more, when we look at the major product lines with the exception of workers; compensation all of them continued to get rate increases that outpace our view of loss trend. And that is even as we have been factoring in a bit more for financial inflation. It's important that people not read too deeply into as I suspect some might as the rate increase and what does this mean relative to what the rate increase was last quarter or the same time in the prior year. The simple fact is that when we think about our economic model it is multi-dimensional. We look at the margins that are available in the business. And as we become pleased with the available margins we start to think about possibly how we re-prioritize exposure of growth versus pushing further on rate.
June 2021 Non-Deal Roadshow (6/21/21)	WRB described the current market environment as one that it has only seen two times previously, with the prior two being the early 2000's hard market and the 1985-1986 hard market. The company sounded very optimistic about its outlook and looks to take advantage of the hardening market environment where some lines are seeing rate on rate compounding for just shy of three years, while most lines are approaching rate adequacy. Further, the company called out seeing continued tailwinds in the E&S market, driven by: (1) the standard market revisiting its appetite for the specialty market; (2) expectations for increased audit premiums; and (3) new ventures. In addition to E&S tailwinds, WRB indicated that most all lines are at or approaching rate adequacy with the exception of workers' comp. Not all of the lines, however, are seeing the same increases and gave the example of professional liability having seen rate increases for quite some time, while commercial auto has started to firm more recently and workers' comp is in a soft market.
Q1 2021	We are coming up for some of the major product lines on a third year in a row where we are getting meaningful rate increases. And at this stage, we are seeing, as Rich suggested, rate on rate and in many product lines where we have been getting rate on rate in excess of loss cost trend, again, we think that is very encouraging for what that means for margin.
Q4 2020	The market is clearly in the throes of firming. When WRB looks at the marketplace overall, they think that is very appropriate. And whether it proves to be similar to what we saw in sort of late 2001 and 2002 and 2003, we will only see with time. But the reality is, no cycle looks like any other cycle. When WRB looks at Q4 every product line at this stage, with the exception of workers' compensation, is achieving rate in excess of loss cost trends, which they view as appropriate and necessary. They are seeing meaningful firming continuing in much of the PL market as well as the excess and umbrella market, while property continues to be notably hard and auto is also quite firm. One of the laggards has been primary GL and but over the past couple of quarters that seems to be building some momentum.
Q3 2020	The drivers of the firming marketplace, with the exception of workers' compensation, are becoming more acute. As far as workers' compensation goes WRB expects that that marketplace is more likely than not to begin to firm as we make our way into 2021 or sometime next year. The loss ratios that WRB selected at the beginning of the year assumed that they would not be outpacing loss cost trend by the level that they are. The rate increases throughout the year, by and large, are above and beyond what was anticipated. Given the uncertainty around loss cost trend and specifically social inflation, WRB has deliberately decided to take a wait-and-see attitude.
Q2 2020	We saw the firm market accelerate throughout 2019 and it continued to accelerate into 2020, very evident in Q1. The evidence of this was demonstrated, at least in part by business leaving the standard market, making its way to the specialty market and in particular, the E&S market. Rate increases were at a level not seen in some number of years and there was a reduction in capacity that various carriers were offering. All of these things were being driven by two major factors: (1) low interest rate environment and a knock-on effect for what that means for investment income; and (2) loss cost trends, driven to a great extent by social inflation, which had been benign for an extended period of time and then crept up on the industry when it was least expecting it and it has proven to be much more of an issue.
Q1 2020	Rate increases that continue to progress in response to past conversations around social inflation and keeping up with loss costs.
Q4 2019	The challenges that the market faces has stemmed from a low interest rate environment, frequency of cat activity, and social inflation has gotten to the point where it is no longer solely being talked about but it is actually being acted upon. This is a meaningful sea change that became very visible in the Q4, and there is no sign of that slowing down. WRB said that they were excited about what was in front of us. They were enthusiastic earlier in 2019, and the Q4 2019 built on that enthusiasm. Further WRB said that while there are some that would suggest that they tend to be an optimistic organization, and that is a fair statement, the data that they see in their business and the data the industry data supports this optimistic view.
Q3 2019	The fear factor is on the rise. If a low interest rate environment and consistent global cat activity over the past several years wasn't enough, it would seem as though social inflation is finally coming into focus for the broader audience. People are beginning to realize that it is real and it is here. Frequency of severity can no longer be ignored, both in the property space, but even more so in the casualty space.
Q2 2019	We are seeing rate increases across the board with the exception of workers' comp, which certainly is the one major product line moving in the other direction. Granted, all these other product lines and the rates they're getting, they're not moving up all in perfect lockstep, but directionally WRB was pleased to see things moving in a positive direction. Further WRB saw an increasing number of examples of business getting kicked out of the standard market and making its way into the specialty/E&S market and in addition to that an increasing demand for facultative reinsurance. These are all historically signs or classic indicators of a firming market particularly when you have all of these pieces lining up the way they seem to be.
Q1 2019	Ex comp, WRB achieved 6.4% rate increase. WRB achieved this with its renewal retention ratio remaining at a similar level to what it was over the past several years. From WRB's perspective, with the exception of workers' compensation, every major commercial business line is in some point of firming. All product lines do not march in perfect lockstep with one another, but from WRB's perspective directionally, they are moving together, with comp being the exception.

Source: Company reports and Wells Fargo Securities, LLC

Exhibit 3 - WRB Pricing (Excl. Workers' Comp.) Versus MarketScout



Source: Company reports, MarketScout, and Wells Fargo Securities, LLC estimates

Additional Thoughts On The Quarter

See below for an overview of additional thoughts on Q3 2021 earnings versus our estimates.

- **Premium growth above us in both insurance and reinsurance/monoline excess.** Gross written premium growth of 23.2% beat our 16.8% estimate (and was only slightly below +24.8% in the Q2) and net written premium growth of 23.7% also came in above our 16.6% estimate (but was below +27.2% in Q2). By segment, insurance net written premium growth of 23.3% beat or 17.5% estimate driven by growth in all lines (with the strongest growth in professional lines, commercial auto, and other liability), while reinsurance growth of 26.7% exceeded our 10.3% estimate driven by growth in casualty and monoline excess, while property reinsurance declined. Earned premium growth of 19.0% was also above our 15.7%. With its growth, WRB said that 40% of it came from rates that it is taking, and the remainder came from exposure growth (new policies and audit premiums).
- **NII beat on stronger alternatives.** Net investment income of $179.9 million was ahead of our $154.3 million estimate due to stronger alternative investment income than our forecast. Core portfolio income of $103.4 million was above our $92.2 million estimate, while investment funds of $69.3 million was ahead of our $40.5 million and arbitrage trading accounts of $7.2 million did fall below our $21.5 million estimate. The investment yield on the core portfolio was 2.00%, slightly below 2.03% in the Q2 and 2.02% in the Q1.
- **Other revenues above us.** Revenues from non-insurance businesses was $120.4 million versus our $95.0 million estimate (although non-insurance expenses also came in above us), insurance service fees was $21.5 million just below our $23.0 million estimate, and other income of $2.1 million beat our $0.5 million estimate.
- **Combined ratio ahead on lower expense ratio.** The combined ratio of 90.4% beat our 90.8% estimate. The insurance combined ratio was 89.3% ahead of our 90.3% estimate and the reinsurance combined ratio of 98.4% came in above our 93.9% estimate. The loss ratio was 62.4% versus our 61.5% estimate, while the expense ratio of 28.0% beat our 29.2% estimate and WRB alluded to continued leverage on the expense side as earned premium continues to grow (there is currently still around a 30 basis point benefit from Covid-19, down from the prior 50 basis points benefit they had been seeing). Catastrophe losses of $73.8 million (3.5 points) were just below our $75.0 million (3.7 point) estimate, with $6 million of Covid-19 losses. We had not included any Covid-19 losses in our model, while this did slow from the $25 million of Covid-19 losses booked in Q2.
- **Underlying results beat us on better expense ratio.** The underlying combined ratio was 86.9% versus our 87.2% estimate, due to a stronger than forecasted expense ratio, while the underlying loss ratio of 58.8% missed our 57.9% estimate, but did improve by 110 basis points from last Q3. The insurance underlying combined ratio of 87.1% in Q3, was in-line with our estimate driven by a better expense ratio with the insurance underlying loss ratio coming in at 59.2%, higher than our 58.1% estimate. The reinsurance underlying combined ratio came in at 85.2%, better than our 87.5% estimate driven by both a better loss and expense ratio. The reinsurance underlying loss ratio was 56.1%, better than our 56.5% estimate.
- **Capital return above us due to higher repurchases.** WRB repurchased 1.3 million shares for $92 million, versus our 0.5 million shares for $35 million estimate, and a pick-up relative to the lack of repurchases in Q2 and $30 million that was repurchased in the Q1. Including dividends (regular and special), total capital return was $115.8 million, or 46.9% of operating earnings of $246.7 million. WRB said the pickup in buyback reflects its current view of the capital it is generating, relative to how much capital it needs, and the attractiveness of its stock.

Summary Of Estimate Changes

Estimates Move Higher. See Exhibit 4 below for an overview of our estimate changes following Q3 2021 earnings. Following WRB's conference call, we are raising our 2021 EPS estimate to $4.85 from $4.48, while our 2022 and 2023 EPS estimates also rise to $5.10 and $5.70, from $4.93 and $5.53, respectively, primarily reflecting a lower expense ratio, which more than offsets a higher underlying loss ratio assumption. Our higher estimates reflect a lower expense ratio, stronger premium growth, and higher investment income, which more than offsets a higher underlying loss ratio assumption. We are currently looking for a 28.3% expense ratio in Q4 2021 and 28.7% in 2022 and 2023. Every one point improvement on the expense ratio, represents around $0.39 per share (7.6% of our 2022 EPS estimate). In general, we view this as a bullish quarter and call from WRB as they: **(1)** pointed to the still good market conditions, including business coming to the E&S market (with an accelerating level of business flowing to the E&S market, especially in the liability lines), **(2)** leverage they are seeing on the expense side, even as Covid-19 savings slow down, and **(3)** the good conditions which are allowing their more mature businesses to scale, while also providing opportunities for some of their smaller operations that now have an opportunity to put "more meat on their bones."

Exhibit 4 - WRB Summary Of Estimate Changes

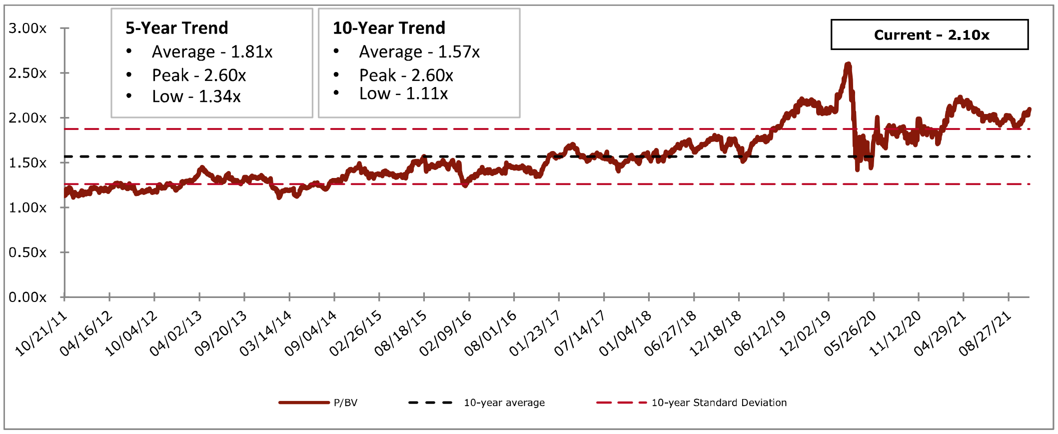
	Current			Prior			Absolute Change			% Change		
$ in millions, except per share data	FY 2021E	FY 2022E	FY 2023E	FY 2021E	FY 2022E	FY 2023E	FY 2021E	FY 2022E	FY 2023E	FY 2021E	FY 2022E	FY 2023E
Gross premiums written	10,549.5	11,427.2	12,208.8	10,387.1	11,233.7	12,001.2	162.4	193.5	207.6	1.6%	1.7%	1.7%
y/y change	19.2%	8.3%	6.8%	17.4%	8.2%	6.8%	1.8%	0.2%	0.0%	10.5%	2.1%	0.1%
Net premiums written	8,706.7	9,386.2	10,026.1	8,557.7	9,224.5	9,852.6	148.9	161.8	173.5	1.7%	1.8%	1.8%
y/y change	19.9%	7.8%	6.8%	17.8%	7.8%	6.8%	2.1%	0.0%	0.0%	11.5%	0.2%	0.1%
Net premiums earned	8,039.0	9,050.5	9,700.6	7,946.2	8,897.4	9,534.7	92.8	153.1	165.9	1.2%	1.7%	1.7%
y/y change	16.0%	12.6%	7.2%	14.7%	12.0%	7.2%	1.3%	0.6%	0.0%	9.1%	5.1%	0.3%
Net investment income	638.4	543.0	574.5	607.5	507.2	536.7	31.0	35.8	37.7	5.1%	7.1%	7.0%
Investment Yield	2.83%	2.22%	2.21%	2.89%	2.36%	2.34%	-0.06%	-0.13%	-0.13%	-2.1%	-5.7%	-5.7%
Total revenues	9,335.6	10,237.0	10,930.6	9,198.6	10,048.2	10,727.0	137.0	188.9	203.6	1.5%	1.9%	1.9%
Underwriting Income	**845.5**	**1019.5**	**1125.5**	**815.8**	**1019.2**	**1122.4**	**29.8**	**0.3**	**3.2**	**3.6%**	**0.0%**	**0.3%**
Operating income after-tax	905.1	940.7	1035.2	837.3	910.9	1005.5	67.8	29.8	29.7	8.1%	3.3%	3.0%
Operating income per diluted share	**4.85**	**5.10**	**5.70**	**4.48**	**4.93**	**5.53**	**0.37**	**0.17**	**0.17**	**8.2%**	**3.5%**	**3.1%**
Tax Rate	20.7%	21.0%	21.0%	21.1%	21.0%	21.0%	-0.4%	0.0%	0.0%	-1.8%	0.0%	0.0%
Book value per share	38.99	43.85	49.30	39.21	43.91	49.21	(0.22)	(0.06)	0.10	-0.6%	-0.1%	0.2%
Operating ROE	13.8%	13.0%	12.9%	12.7%	12.5%	12.5%	1.1%	0.5%	0.4%	8.7%	4.1%	3.3%
Net income ROE	15.7%	15.2%	14.9%	14.8%	14.6%	14.5%	0.9%	0.6%	0.5%	6.1%	4.1%	3.3%
Underwriting Profitability												
Loss ratio	60.9%	60.0%	59.7%	60.6%	59.6%	59.3%	0.3%	0.4%	0.4%	0.5%	0.7%	0.6%
Expense ratio	28.6%	28.7%	28.7%	29.2%	29.0%	28.9%	-0.6%	-0.2%	-0.2%	-1.9%	-0.8%	-0.7%
GAAP combined ratio	89.5%	88.7%	88.4%	89.7%	88.5%	88.2%	-0.3%	0.2%	0.2%	-0.3%	0.2%	0.2%
(Favorable) / Adverse PYD	-0.1%	0.0%	0.1%	-0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	-8.2%	-1.7%	-1.7%
Catastrophe Losses	2.3%	1.9%	1.9%	2.3%	1.9%	1.9%	0.0%	0.0%	0.0%	-1.8%	-1.7%	-1.7%
Underlying Loss Ratio	**58.7%**	**58.1%**	**57.7%**	**58.3%**	**57.7%**	**57.3%**	**0.3%**	**0.5%**	**0.4%**	**0.6%**	**0.8%**	**0.7%**
Underlying Combined Ratio	**87.3%**	**86.8%**	**86.4%**	**87.5%**	**86.6%**	**86.2%**	**-0.2%**	**0.2%**	**0.2%**	**-0.3%**	**0.3%**	**0.2%**
Capital Return												
Total shares repurchased	157.7	200.0	240.0	100.0	200.0	240.0	57.7	0.0	0.0	57.7%	0.0%	0.0%
Total Dividends ($M)	179.0	92.4	97.7	179.0	92.8	98.1	-0.1	-0.5	-0.4	0.0%	-0.5%	-0.4%
Total capital return to shareholders	336.7	292.4	337.7	279.0	292.8	338.1	57.6	-0.5	-0.4	20.7%	-0.2%	-0.1%
Capital return payout ratio - % Operating	37.2%	31.1%	32.6%	33.3%	32.1%	33.6%	3.9%	-1.1%	-1.0%	11.6%	-3.3%	-3.0%

Source: Company reports and Wells Fargo Securities, LLC estimates

Valuation

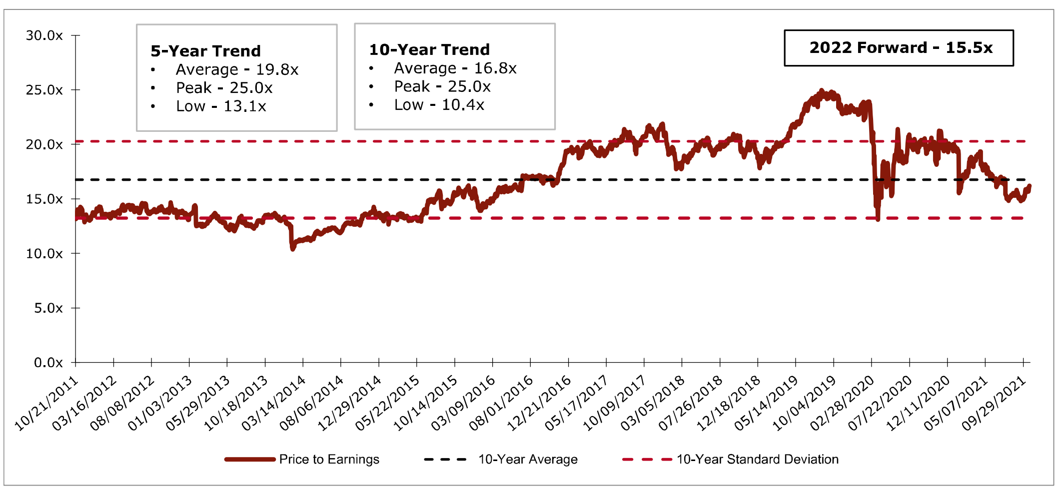
Current Valuation. WRB currently trades at 2.10x Q3 2021 book value, which compares to the 5-year and 10-year average multiples of 1.81x and 1.57x, respectively. The 5-year minimum is 1.34x and 10-year minimum is 1.11x. The 5-year and 10-year max is 2.60x, which occurred in February 2020 just before the pandemic started. WRB is trading at 16.3x our 2021 EPS estimate and 15.5x our 2022 EPS estimates, which compares to the 5-year and 10-year average multiples of 19.8x and 16.8x, respectively. The 5-year minimum is 13.1x (low point of the pandemic) and 10-year minimum is 10.4x. The 5-year and 10-year max is 25.0x.

Exhibit 5 - WRB Historical P/BV



Source: Company reports, Factset, and Wells Fargo Securities, LLC estimates

Exhibit 6 - WRB Historical P/E



Source: Company reports, Factset, and Wells Fargo Securities, LLC estimates

Consolidated Earnings Model

Exhibit 7 - WRB Earnings Model

$ in millions, except per share data	FY 2018	FY 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	FY 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021E
Revenues:											
Gross premiums written	7,702.5	8,262.2	2,231.4	2,132.2	2,262.5	2,221.5	8,847.6	2,484.7	2,661.2	2,787.5	2,616.1
y/y change	-	7.3%	9.0%	2.0%	8.1%	9.3%	7.1%	11.4%	24.8%	23.2%	17.8%
Net premiums written	6,433.2	6,863.5	1,845.8	1,739.8	1,879.3	1,797.5	7,262.4	2,050.0	2,212.2	2,325.1	2,119.3
y/y change	-	6.7%	*8.0%*	*-0.2%*	*7.4%*	*8.2%*	*5.8%*	*11.1%*	*27.2%*	*23.7%*	*17.9%*
Change in unearned premiums	(61.7)	(230.2)	(154.4)	(62.9)	(130.4)	16.1	(331.6)	(200.1)	(240.6)	(244.1)	17.1
Net premiums earned	**6,371.5**	**6,633.3**	**1,691.4**	**1,676.9**	**1,748.9**	**1,813.6**	**6,930.8**	**1,850.0**	**1,971.6**	**2,081.0**	**2,136.4**
y/y change	-	4.1%	*6.2%*	*1.8%*	*4.3%*	*5.6%*	*4.5%*	*9.4%*	*17.6%*	*19.0%*	*17.8%*
Net investment income	674.2	645.6	174.8	85.4	142.7	181.0	583.8	158.6	168.2	179.9	131.8
y/y change	-	-4.2%	*10.4%*	*-54.6%*	*-11.8%*	*31.8%*	*-9.6%*	*-9.3%*	*96.9%*	*26.1%*	*-27.2%*
Net investment gains (losses):											
Net realized and unrealized gains (losses) on investments	160.2	120.7	(143.3)	61.7	(7.8)	162.9	73.5	51.8	20.5	17.2	31.6
Change in allowance for credit losses on investments	(5.7)	0.0	(33.9)	16.2	46.8	0.4	29.5	(16.9)	3.6	2.3	0.0
Net investment gains (losses)	154.5	120.7	(177.2)	77.9	39.0	163.3	103.0	34.8	24.1	19.5	31.6
Revenues from non-insurance businesses	373.0	406.5	93.7	75.7	87.5	132.9	389.9	87.4	109.1	120.4	135.0
Insurance service fees	117.8	92.7	25.8	19.9	21.6	21.5	88.8	25.8	22.3	21.5	23.0
Other income	0.7	3.4	2.1	0.2	0.1	0.1	2.6	0.3	0.8	2.1	0.5
Total revenues	**7,691.7**	**7,902.2**	**1,810.6**	**1,936.0**	**2,039.8**	**2,312.5**	**8,098.9**	**2,156.9**	**2,296.1**	**2,424.3**	**2,458.4**
y/y change		2.7%	*-6.5%*	*-4.3%*	*3.8%*	*17.0%*	*2.5%*	*19.1%*	*18.6%*	*18.8%*	*6.3%*
Expenses:											
Losses and loss expenses	3,974.7	4,131.1	1,107.3	1,135.1	1,114.6	1,111.7	4,468.7	1,121.6	1,203.6	1,298.4	1,268.9
Other operating costs and expenses	2,383.2	2,362.1	578.3	580.8	594.0	637.3	2,390.4	616.3	647.7	643.0	681.8
Expenses from non-insurance businesses	364.4	402.7	94.8	76.2	85.0	128.5	384.5	86.3	106.7	115.5	133.7
Interest expense	157.2	153.4	36.7	38.4	39.8	35.7	150.5	36.7	38.1	35.1	40.9
Total expenses	**6,879.6**	**7,049.3**	**1,817.1**	**1,830.6**	**1,833.4**	**1,913.1**	**7,394.1**	**1,860.8**	**1,996.1**	**2,092.0**	**2,125.2**
Underwriting Income	**302.4**	**413.7**	**52.2**	**22.9**	**111.5**	**164.6**	**351.2**	**181.7**	**202.3**	**198.8**	**262.7**
Income before income taxes	**812.1**	**852.9**	**(6.5)**	**105.4**	**206.4**	**399.4**	**704.8**	**296.1**	**299.9**	**332.3**	**333.2**
Income tax expense	(163.0)	(168.9)	2.9	(33.8)	(54.0)	(86.9)	(171.8)	(64.4)	(62.3)	(65.0)	(70.0)
Tax Rate	*20.1%*	*19.8%*	*45.5%*	*32.0%*	*26.2%*	*21.8%*	*24.4%*	*21.7%*	*20.8%*	*19.6%*	*21.0%*
Net income before noncontrolling interests	**649.1**	**684.0**	**(3.5)**	**71.7**	**152.4**	**312.5**	**533.0**	**231.7**	**237.7**	**267.3**	**263.2**
Noncontrolling interests	(8.3)	(2.0)	(0.9)	(0.4)	(0.7)	(0.3)	(2.3)	(2.2)	(0.4)	(6.0)	(0.6)
Net income to common stockholders	**640.7**	**681.9**	**(4.4)**	**71.3**	**151.7**	**312.2**	**530.7**	**229.5**	**237.2**	**261.298**	**262.6**
y/y change		6.4%	*-102.4%*	*-67.1%*	*-8.2%*	*161.6%*	*-22.2%*	*-5295.2%*	*232.9%*	*72.3%*	*-15.9%*
Pre-tax investment (gains) losses, net of related expenses	(133.7)	(117.8)	177.6	(77.8)	(39.5)	(162.3)	(102.0)	(33.3)	(23.3)	(18.8)	(31.6)
Income tax expense (benefit)	27.9	24.9	(40.6)	18.1	9.0	23.2	9.7	5.6	5.1	4.2	6.6
Operating income after-tax	**534.9**	**589.0**	**132.6**	**11.6**	**121.1**	**173.0**	**438.4**	**201.8**	**219.1**	**246.7**	**237.6**
y/y change	-	10.1%	*3.1%*	*-92.7%*	*-26.0%*	*25.9%*	*-25.6%*	*52.1%*	*1796.3%*	*103.6%*	*37.3%*
Operating income per diluted share	**2.78**	**3.04**	**0.70**	**0.06**	**0.65**	**0.92**	**2.32**	**1.08**	**1.17**	**1.32**	**1.28**
y/y change	-	9.5%	*4.4%*	*-92.7%*	*-23.7%*	*30.0%*	*-23.7%*	*55.0%*	*1803.9%*	*104.7%*	*38.3%*
Net income per share:											
Basic Net Income Per Share	3.37	3.58	(0.02)	0.38	0.82	1.68	2.84	1.24	1.28	1.41	1.43
Diluted Net Income Per Share	3.33	3.52	(0.02)	0.38	0.81	1.67	2.81	1.23	1.27	1.40	1.41
Average shares outstanding:											
Basic	190.0	190.7	190.3	186.0	185.8	185.7	186.9	185.2	185.2	185.0	184.2
Diluted	192.4	193.5	190.3	187.9	187.7	187.2	188.8	186.8	187.1	186.7	185.9
Operating ROE	**9.8%**	**10.0%**	**9.2%**	**0.8%**	**8.2%**	**11.2%**	**7.4%**	**12.7%**	**13.5%**	**14.9%**	**14.1%**
Net income ROE	**11.8%**	**12.5%**	**-0.3%**	**4.7%**	**10.0%**	**20.6%**	**8.7%**	**14.5%**	**15.0%**	**16.6%**	**16.6%**
Book value per share	**29.72**	**33.12**	**30.55**	**32.60**	**33.64**	**35.49**	**35.49**	**36.16**	**37.08**	**37.64**	**38.99**
Tangible book value per share	**28.42**	**31.87**	**29.28**	**31.33**	**32.38**	**34.22**	**34.22**	**34.90**	**35.83**	**36.39**	**37.73**
									13.7%		
Underwriting Profitability											
Loss ratio	62.4%	62.3%	65.5%	67.7%	63.7%	61.3%	64.5%	60.6%	61.0%	62.4%	59.4%
Expense ratio	32.9%	31.5%	31.4%	31.0%	29.9%	29.6%	30.5%	29.5%	28.7%	28.0%	28.3%
GAAP combined ratio	**95.3%**	**93.8%**	**96.9%**	**98.7%**	**93.7%**	**90.9%**	**94.9%**	**90.1%**	**89.7%**	**90.4%**	**87.7%**
(Favorable) / Adverse PYD	-0.6%	-0.3%	-0.2%	-0.2%	-0.3%	-0.2%	-0.2%	-0.2%	0.0%	-0.1%	-0.1%
Catastrophe Losses	1.7%	1.4%	4.7%	8.7%	4.2%	2.3%	4.9%	1.9%	2.2%	3.5%	1.4%
Underlying Loss Ratio	**61.3%**	**61.2%**	**61.0%**	**59.2%**	**59.9%**	**59.2%**	**59.8%**	**58.9%**	**58.8%**	**58.9%**	**58.1%**
Underlying Combined Ratio	**94.2%**	**92.7%**	**92.4%**	**90.2%**	**89.8%**	**88.8%**	**90.3%**	**88.4%**	**87.5%**	**86.9%**	**86.4%**

$ in millions, except per share data	FY 2021E	Q1 2022E	Q2 2022E	Q3 2022E	Q4 2022E	FY 2022E	Q1 2023E	Q2 2023E	Q3 2023E	Q4 2023E	FY 2023E
Revenues:											
Gross premiums written	10,549.5	2,695.4	2,898.3	3,015.8	2,817.7	11,427.2	2,875.5	3,094.2	3,224.1	3,015.0	12,208.8
y/y change	19.2%	8.5%	8.9%	8.2%	7.7%	8.3%	6.7%	6.8%	6.9%	7.0%	6.8%
Net premiums written	8,706.7	2,228.7	2,373.8	2,501.3	2,282.3	9,386.2	2,377.1	2,533.8	2,673.6	2,441.6	10,026.1
y/y change	*19.9%*	*8.7%*	*7.3%*	*7.6%*	*7.7%*	*7.8%*	*6.7%*	*6.7%*	*6.9%*	*7.0%*	*6.8%*
Change in unearned premiums	(667.6)	(29.7)	(132.3)	(217.6)	43.8	(335.7)	(12.0)	(130.1)	(228.4)	45.0	(325.5)
Net premiums earned	**8,039.0**	**2,199.0**	**2,241.5**	**2,283.8**	**2,326.2**	**9,050.5**	**2,365.1**	**2,403.7**	**2,445.2**	**2,486.6**	**9,700.6**
y/y change	*16.0%*	*18.9%*	*13.7%*	*9.7%*	*8.9%*	*12.6%*	*7.6%*	*7.2%*	*7.1%*	*6.9%*	*7.2%*
Net investment income	638.4	133.3	134.9	136.5	138.2	543.0	140.4	142.6	144.9	146.6	574.5
y/y change	*9.4%*	*-15.9%*	*-19.8%*	*-24.1%*	*4.8%*	*-15.0%*	*5.3%*	*5.7%*	*6.1%*	*6.1%*	*5.8%*
Net investment gains (losses):											
Net realized and unrealized gains (losses) on investments	121.1	31.6	31.6	31.6	31.6	126.6	31.6	31.6	31.6	31.6	126.6
Change in allowance for credit losses on investments	(11.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net investment gains (losses)	110.0	31.6	31.6	31.6	31.6	126.6	31.6	31.6	31.6	31.6	126.6
Revenues from non-insurance businesses	451.9	95.0	90.0	97.5	137.5	420.0	97.5	92.5	100.0	140.0	430.0
Insurance service fees	92.5	23.8	23.8	23.8	23.8	95.0	24.3	24.3	24.3	24.3	97.0
Other income	3.7	0.5	0.5	0.5	0.5	2.0	0.5	0.5	0.5	0.5	2.0
Total revenues	**9,335.6**	**2,483.2**	**2,522.4**	**2,573.7**	**2,657.7**	**10,237.0**	**2,659.4**	**2,695.2**	**2,746.5**	**2,829.6**	**10,930.6**
y/y change	*15.3%*	*15.1%*	*9.9%*	*6.2%*	*8.1%*	*9.7%*	*7.1%*	*6.9%*	*6.7%*	*6.5%*	*6.8%*
Expenses:											
Losses and loss expenses	4,892.6	1,316.2	1,344.9	1,396.1	1,374.2	5,431.3	1,408.0	1,432.8	1,485.1	1,461.0	5,786.9
Other operating costs and expenses	2,588.8	709.4	725.0	738.7	752.4	2,925.5	765.0	777.4	790.8	804.2	3,137.4
Expenses from non-insurance businesses	442.1	94.1	89.1	96.5	136.1	415.8	96.5	91.6	99.0	138.6	425.7
Interest expense	150.7	38.5	35.1	35.1	35.1	143.9	35.1	35.1	35.1	35.1	140.6
Total expenses	**8,074.1**	**2,158.2**	**2,194.1**	**2,266.4**	**2,297.8**	**8,916.6**	**2,304.7**	**2,336.9**	**2,410.0**	**2,438.9**	**9,490.5**
Underwriting Income	**845.5**	**252.6**	**252.3**	**231.2**	**283.3**	**1,019.5**	**277.3**	**280.0**	**257.3**	**311.0**	**1,125.5**
Income before income taxes	**1,261.5**	**325.1**	**328.2**	**307.3**	**359.9**	**1,320.5**	**354.7**	**358.2**	**336.5**	**390.7**	**1,440.1**
Income tax expense	(261.5)	(68.3)	(68.9)	(64.5)	(75.6)	(277.3)	(74.5)	(75.2)	(70.7)	(82.1)	(302.4)
Tax Rate	*20.7%*	*21.0%*	*21.0%*	*21.0%*	*21.0%*	*21.0%*	*21.0%*	*21.0%*	*21.0%*	*21.0%*	*21.0%*
Net income before noncontrolling interests	**999.9**	**256.8**	**259.3**	**242.8**	**284.3**	**1,043.2**	**280.2**	**283.0**	**265.8**	**308.7**	**1,137.7**
Noncontrolling interests	(9.3)	(0.6)	(0.6)	(0.6)	(0.6)	(2.5)	(0.6)	(0.6)	(0.6)	(0.6)	(2.5)
Net income to common stockholders	**990.7**	**256.2**	**258.7**	**242.1**	**283.7**	**1,040.7**	**279.6**	**282.4**	**265.2**	**308.0**	**1,135.2**
y/y change	*86.7%*	*11.6%*	*9.0%*	*-7.3%*	*8.0%*	*5.0%*	*9.1%*	*9.2%*	*9.5%*	*8.6%*	*9.1%*
Pre-tax investment (gains) losses, net of related expenses	(107.0)	(31.6)	(31.6)	(31.6)	(31.6)	(126.6)	(31.6)	(31.6)	(31.6)	(31.6)	(126.6)
Income tax expense (benefit)	21.5	6.6	6.6	6.6	6.6	26.6	6.6	6.6	6.6	6.6	26.6
Operating income after-tax	**905.1**	**231.2**	**233.7**	**217.1**	**258.7**	**940.7**	**254.6**	**257.4**	**240.2**	**283.0**	**1,035.2**
y/y change	*106.5%*	*14.6%*	*6.7%*	*-12.0%*	*8.9%*	*3.9%*	*10.1%*	*10.1%*	*10.6%*	*9.4%*	*10.0%*
Operating income per diluted share	**4.85**	**1.25**	**1.27**	**1.18**	**1.41**	**5.10**	**1.39**	**1.41**	**1.33**	**1.57**	**5.70**
y/y change	*108.8%*	*15.5%*	*8.1%*	*-10.7%*	*10.3%*	*5.2%*	*11.7%*	*11.8%*	*12.4%*	*11.2%*	*11.7%*
Net income per share:											
Basic Net Income Per Share	5.36	1.40	1.41	1.33	1.56	5.70	1.54	1.57	1.48	1.72	6.31
Diluted Net Income Per Share	5.31	1.38	1.40	1.32	1.55	5.64	1.53	1.55	1.46	1.71	6.25
Average shares outstanding:											
Basic	184.9	183.6	183.0	182.4	181.7	182.7	181.0	180.3	179.5	178.7	179.9
Diluted	186.6	185.3	184.7	184.1	183.4	184.4	182.7	182.0	181.2	180.5	181.6
Operating ROE	**13.8%**	**13.3%**	**13.1%**	**11.9%**	**13.8%**	**13.0%**	**13.2%**	**13.0%**	**11.9%**	**13.7%**	**12.9%**
Net income ROE	**15.7%**	**15.0%**	**15.1%**	**14.1%**	**16.6%**	**15.2%**	**14.7%**	**14.9%**	**14.0%**	**16.2%**	**14.9%**
Book value per share	**38.99**	**40.16**	**41.37**	**42.49**	**43.85**	**43.85**	**45.16**	**46.52**	**47.78**	**49.30**	**49.30**
Tangible book value per share	**37.73**	**38.90**	**40.10**	**41.22**	**42.58**	**42.58**	**43.89**	**45.23**	**46.49**	**48.01**	**48.01**
Underwriting Profitability											
Loss ratio	60.9%	59.9%	60.0%	61.1%	59.1%	60.0%	59.5%	59.6%	60.7%	58.8%	59.7%
Expense ratio	28.6%	28.7%	28.7%	28.7%	28.7%	28.7%	28.7%	28.7%	28.7%	28.7%	28.7%
GAAP combined ratio	**89.5%**	**88.5%**	**88.7%**	**89.9%**	**87.8%**	**88.7%**	**88.3%**	**88.4%**	**89.5%**	**87.5%**	**88.4%**
(Favorable) / Adverse PYD	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%
Catastrophe Losses	2.3%	1.2%	2.3%	2.6%	1.3%	1.9%	1.2%	2.3%	2.6%	1.4%	1.9%
Underlying Loss Ratio	**58.7%**	**58.6%**	**57.6%**	**58.5%**	**57.7%**	**58.1%**	**58.2%**	**57.2%**	**58.1%**	**57.3%**	**57.7%**
Underlying Combined Ratio	**87.3%**	**87.3%**	**86.4%**	**87.2%**	**86.4%**	**86.8%**	**86.9%**	**85.9%**	**86.8%**	**86.0%**	**86.4%**

Source: Company reports and Wells Fargo Securities, LLC estimates

Price Target Basis and Risk

Price Target for WRB: $92.00 from NC

Our price target of $92 is based on a 2.1x multiple of our year-end 2022 book value estimate. Our price target also represents a 18.0x multiple against our 2022 EPS estimate.

Risk for WRB

Risks to achieving our price target include a slowdown in the firming pricing environment, a spike in inflation resulting in higher loss costs and underlying margins falling short of expectations, adverse reserve development, and a high level of catastrophe and/or Covid-19 losses.

Investment Thesis

WRB
We have an Overweight rating on shares of WRB. We believe that WRB is positioned to continue to see a healthy level of rate increases in 2021 which should translate into underlying margin improvement, and we do not believe this is currently reflected in consensus expectations.

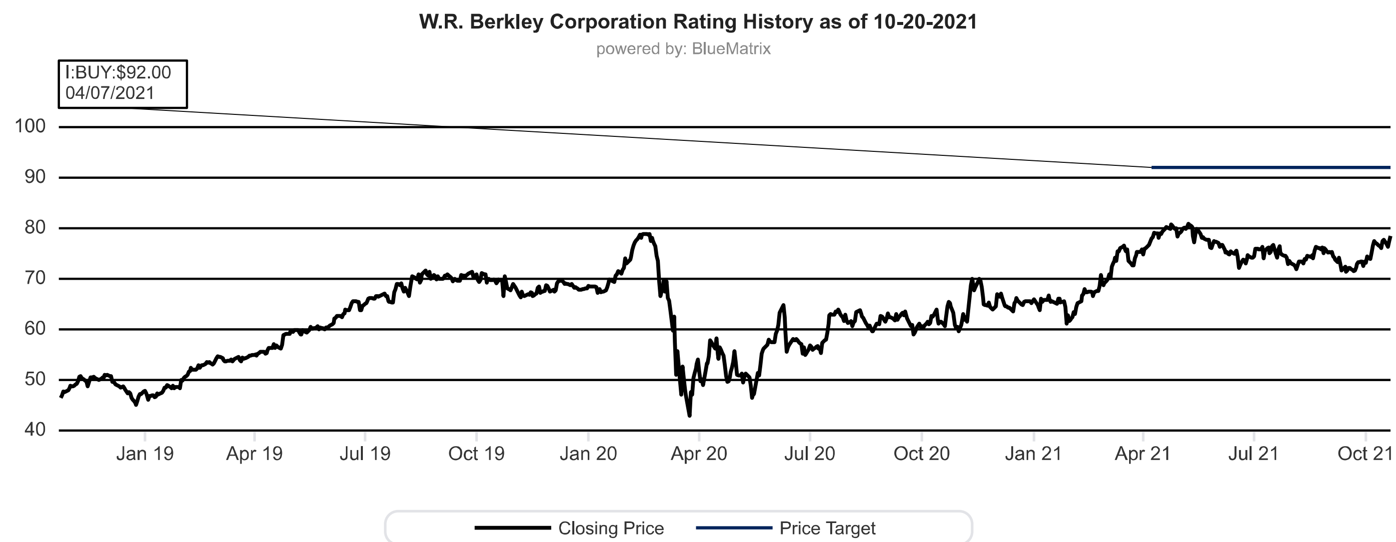
Required Disclosures

I, Elyse Greenspan, certify that:
1) All views expressed in this research report accurately reflect my personal views about any and all of the subject securities or issuers discussed; and

2) No part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by me in this research report.

Wells Fargo Securities, LLC does not compensate its research analysts based on specific investment banking transactions. Wells Fargo Securities, LLC's research analysts receive compensation that is based upon and impacted by the overall profitability and revenue of the firm, which includes, but is not limited to investment banking revenue.

Additional Information Available Upon Request



Initiation (I); Drop Coverage (D); Overweight (BUY); Equal Weight (HOLD); Underweight (SELL); Suspended (SR); Not Rated (NR); No Estimate (NE)

Wells Fargo Securities, LLC and/or its affiliates, have beneficial ownership of 0.5% or more of any class of the common stock of W.R. Berkley Corporation.

Wells Fargo Securities, LLC, or its affiliates received compensation for investment banking services from W.R. Berkley Corporation in the past 12 months.

Wells Fargo Securities, LLC, maintains a market in the common stock of W.R. Berkley Corporation.

Wells Fargo Securities, LLC, or its affiliates, managed or co-managed a public offering of securities for W.R. Berkley Corporation within the past 12 months.

Wells Fargo Securities, LLC, or any of its affiliates, intends to seek or expects to receive compensation for investment banking services from W.R. Berkley Corporation in the next three months.

W.R. Berkley Corporation currently is, or during the 12 month period preceding the date of distribution of the research report was, a client of Wells Fargo Securities, LLC. Wells Fargo Securities, LLC, provided investment banking services to W.R. Berkley Corporation.

Wells Fargo Securities, LLC, or its affiliates has a significant financial interest in W.R. Berkley Corporation.

STOCK RATING

1=Overweight: Total return on stock expected to be 10%+ over the next 12 months. BUY

2=Equal Weight: Total return on stock expected to be 0-10% over the next 12 months. HOLD

3=Underweight: Total return on stock expected to lag the Overweight- and Equal Weight-rated stocks within the analyst's coverage universe over the next 12 months. SELL

As of October 20, 2021
55.7% of companies covered by Wells Fargo Securities, LLC Equity Research are rated Overweight.
34.4% of companies covered by Wells Fargo Securities, LLC Equity Research are rated Equal Weight.
9.9% of companies covered by Wells Fargo Securities, LLC Equity Research are rated Underweight.
Wells Fargo Securities, LLC has provided investment banking services for 55.9% of its Equity Research Overweight-rated companies.

Wells Fargo Securities, LLC has provided investment banking services for 44.9% of its Equity Research Equal Weight-rated companies.
Wells Fargo Securities, LLC has provided investment banking services for 36.9% of its Equity Research Underweight-rated companies.

Important Disclosure for U.S. Clients

This report was prepared by Wells Fargo Securities Global Research Department ("WFS Research") personnel associated with Wells Fargo Securities and Structured Asset Investors, LLC ("SAI"), an investment adviser subsidiary of Wells Fargo & Co. If you are paying directly for this research, it is being provided by SAI. For all other recipients in the U.S. this report is being provided by Wells Fargo Securities.

Wells Fargo Securities' research department may, from time to time, provide clients with short-term trading views in its research reports regarding subject companies on which Wells Fargo Securities currently has equity research coverage. A short-term trading view offers a view on how the market price of a subject company's common equity may trend in absolute terms during the 30 days following the date of the short-term trading view. A short-term trading view on a subject company's common equity does not impact our fundamental investment rating or price target for that company, which reflect our view of how the subject company's common equity may perform over a one-year period. A short-term trading view may reach a different conclusion than the firm's fundamental investment rating and price target for a subject company and, therefore, short-term trading views could result in short-term price movements that are contrary to our fundamental investment rating and price target. Short-term trading views are not ratings and the firm does not intend, nor undertakes any obligation, to maintain, update or close out short-term trading views. Short-term trading views may not be suitable for all investors and have not been tailored to individual investor circumstances and objectives, and investors should make their own independent decisions regarding any short-term trading views discussed in Wells Fargo Securities research reports.

Important Disclosure for International Clients

United Kingdom – The securities and related financial instruments described herein may not be eligible for sale in all jurisdictions or to certain categories of investors. For recipients in the United Kingdom, this report is distributed by Wells Fargo Securities International Limited ("WFSIL"). WFSIL is a UK incorporated investment firm authorised and regulated by the Financial Conduct Authority. For the purposes of Section 21 of the UK Financial Services and Markets Act 2000 (the "Act"), the content of this report has been approved by WFSIL, an authorised person under the Act. WFSIL does not deal with retail clients as defined in the Directive 2014/65/EU ("MiFID2"). The FCA rules made under the Financial Services and Markets Act 2000 for the protection of retail clients will therefore not apply, nor will the Financial Services Compensation Scheme be available. This report is not intended for, and should not be relied upon by, retail clients.

EEA – The securities and related financial instruments described herein may not be eligible for sale in all jurisdictions or to certain categories of investors. For recipients in the EEA, this report is distributed by WFSIL or Wells Fargo Securities Europe S.A. ("WFSE"). WFSE is a French incorporated investment firm authorized and regulated by the Autorité de contrôle prudentiel et de résolution and the Autorité des marchés financiers. WFSE does not deal with retail clients as defined in the Directive 2014/65/EU ("MiFID2"). This report is not intended for, and should not be relied upon by, retail clients.

Australia – Wells Fargo Securities, LLC, Wells Fargo Securities International Limited and Wells Fargo Securities Asia Limited are exempt from the requirements to hold an Australian financial services license in respect of the financial services they provide to wholesale clients in Australia. Wells Fargo Securities, LLC is regulated under the laws of the United States, Wells Fargo Securities International Limited is regulated under laws of the United Kingdom, and Wells Fargo Securities Asia Limited is regulated under the laws of Hong Kong. All such laws differ from Australian laws. Any offer or documentation provided to Australian recipients by Wells Fargo Securities, LLC, Wells Fargo Securities International Limited or Wells Fargo Securities Asia Limited in the course of providing the financial services will be prepared in accordance with the laws of the United States, United Kingdom or Hong Kong and not Australian laws.

Canada – This report is distributed in Canada by Wells Fargo Securities Canada, Ltd., a registered investment dealer in Canada and member of the Investment Industry Regulatory Organization of Canada (IIROC) and Canadian Investor Protection Fund (CIPF). Wells Fargo Securities, LLC's research analysts may participate in company events such as site visits but are generally prohibited from accepting payment or reimbursement by the subject companies for associated expenses unless pre-authorized by members of Research Management.

Hong Kong – This report is issued and distributed in Hong Kong by Wells Fargo Securities Asia Limited ("WFSAL"), a Hong Kong incorporated investment firm licensed and regulated by the Securities and Futures Commission to carry on types 1, 4, 6 and 9 regulated activities (as defined in the Securities and Futures Ordinance (Cap. 571 The Laws of Hong Kong), "the SFO"). This report is not intended for, and should not be relied on by, any person other than professional investors (as defined in the SFO). Any securities and related financial instruments described herein are not intended for sale, nor will be sold, to any person other than professional investors (as defined in the SFO). The author or authors of this report is or are not licensed by the Securities and Futures Commission. Professional investors who receive this report should direct any queries regarding its contents to Kelly Chiang and Mandy Wan at WFSAL (email: wfsalresearch@wellsfargo.com).

Japan – This report is distributed in Japan by Wells Fargo Securities (Japan) Co., Ltd, registered with the Kanto Local Finance Bureau to conduct broking and dealing of type 1 and type 2 financial instruments and agency or intermediary service for entry into investment advisory or discretionary investment contracts. This report is intended for distribution only to professional investors (Tokutei Toushika) and is not intended for, and should not be relied upon by, ordinary customers (Ippan Toushika).

The ratings stated on the document are not provided by rating agencies registered with the Financial Services Agency of Japan (JFSA) but by group companies of JFSA-registered rating agencies. These group companies may include Moody's Investors Services Inc., Standard & Poor's Rating Services and/or Fitch Ratings. Any decisions to invest in securities or transactions should be made after reviewing policies and methodologies used for assigning credit ratings and assumptions, significance and limitations of the credit ratings stated on the respective rating agencies' websites.

About Wells Fargo Securities

Wells Fargo Securities is the trade name for the capital markets and investment banking services of Wells Fargo & Company and its subsidiaries, including but not limited to Wells Fargo Securities, LLC, a U.S. broker-dealer registered with the U.S. Securities and Exchange Commission and a member of NYSE, FINRA, NFA and SIPC, Wells Fargo Prime Services, LLC, a member of FINRA, NFA and SIPC, Wells Fargo Securities Canada, Ltd., a member of IIROC and CIPF, Wells Fargo Bank, N.A. and Wells Fargo Securities International Limited, authorized and regulated by the Financial Conduct Authority.

This report is for your information only and is not an offer to sell, or a solicitation of an offer to buy, the securities or instruments named or described in the report. This report, including any ratings it contains, should not be considered a recommendation tailored to a particular investor with respect to (i) the security or securities or (ii) any investment strategy or strategies discussed in the report. Interested parties are advised to contact the entity with which they deal, or the entity that provided this report to them, if they desire further information or they wish to effect transactions in the securities discussed in this report. The information in this report has been obtained or derived from sources believed by Wells Fargo Securities Global Research Department ("WFS Research"), to be reliable, but WFS Research does not represent that this information is accurate or complete. Any opinions or estimates contained in this report represent the judgment of WFS Research, at this time, and are subject to change without notice. Certain text, images, graphics, screenshots and audio or video clips included in this report are protected by copyright law and owned by third parties (collectively, "Third Party Content"). Third Party Content is made available to clients by Wells Fargo under license or otherwise in accordance with applicable law. Any use or publication of Third Party Content included in this report for purposes other than fair use requires permission from the copyright owner. Any external website links included in this publication are not maintained, controlled or operated by Wells Fargo Securities. Wells Fargo Securities does not provide the products and services on these websites and the views expressed on these websites do not necessarily represent those of Wells Fargo Securities. Please review the applicable privacy and security policies and terms and conditions for the website you are visiting.
All Wells Fargo Securities and SAI research reports published by WFS Research are disseminated and available to all clients simultaneously through electronic publication to our internal client websites. Additional distribution may be effected via email, fax or regular mail. Clients may also receive our research via third party vendors. Not all research content is redistributed to our clients or available to third-party aggregators, nor is WFS Research responsible for the redistribution of our research by third party aggregators. Equity Strategists focus on investment themes across the equity markets and sectors. Any discussion within an Equity Strategy report of specific securities is not intended to provide a fundamental analysis of any individual company described therein. The information provided in Equity Strategy reports is subject to change without notice, and investors should not expect continuing information or additional reports relating to any security described therein. Wells Fargo Securities' Signature Picks is a product of the Equity Strategy team and represents a portfolio of stocks selected from the Equity Research Department's universe of Overweight rated stocks. Stocks with this designation are selected by the Signature Picks Committee based on factors such as volatility, risks, market cap and liquidity and may not represent the fundamental analysts' top rated stock in their respective coverage universe. For research or other data available on a particular security, please contact your sales representative or go to http://research.wellsfargosecurities.com. For the purposes of the U.K. Financial Conduct Authority's rules, this report constitutes impartial investment research. Each of Wells Fargo Securities, LLC, Wells Fargo Securities International Limited and Wells Fargo Securities Europe S.A. is a separate legal entity and distinct from affiliated banks.

SECURITIES: NOT FDIC-INSURED - MAY LOSE VALUE - NO BANK GUARANTEE