

March 2016

Berkshire Hathaway Intrinsic Value – Annual Update

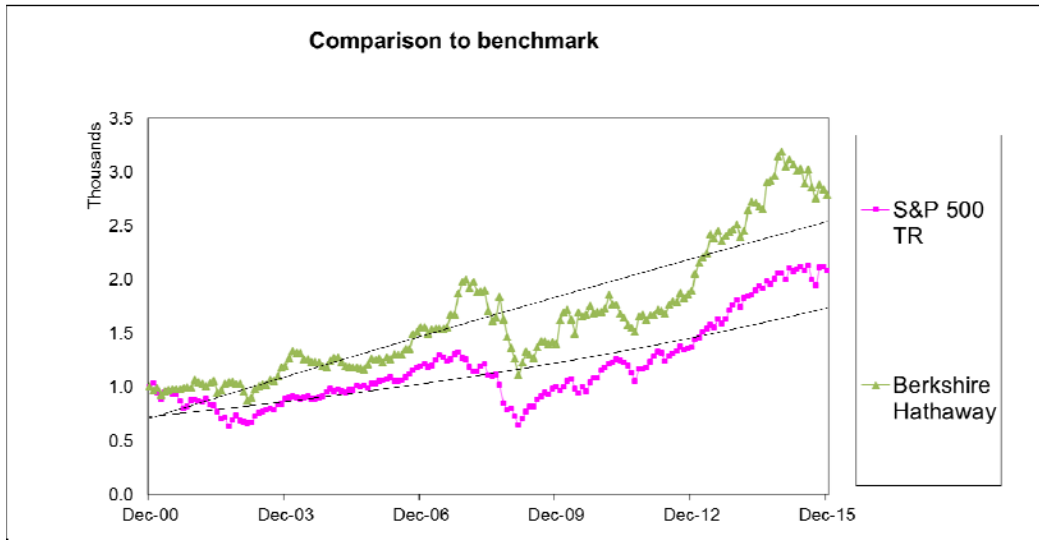
By Max J. Rudolph, FSA CFA CERA

Full disclosure: I am long Berkshire Hathaway and look forward to the release of Mr. Buffett's annual letter at the end of February each year. I have attended the BRK annual meeting most years since I became a shareholder in 1994. This post updates the analysis I have done annually starting in March 2013. At the end I will post the questions submitted to CNBC right after the letter was released using #askwarren and the questions I anticipate submitting to the journalists asking questions at the meeting (I have had questions asked in both venues).

Many investor friends know that I closely follow Berkshire Hathaway and Warren Buffett and ask if I think it is valued appropriately. Starting with the 2012 annual report Mr. Buffett included information that he would use to value BRK, so I took it as a challenge to develop a detailed process that was repeatable. The first three years I found the shares to be undervalued by 14%, 13%, and 1%. In the most recent iteration of this process I found them to be undervalued by 20%, which makes the stock a relative buy given this small sample size.

So is it a buy? Many analysts will tell you no, it is not. They will say it is too big, Buffett is too old, or that he has lost his skills. Your follow-up question should be, when was the last time the analyst had a buy recommendation on BRK? The shares were \$19 in 1965 and over \$200,000 now. When did the analyst last (formally and publicly) think they were a good deal?

You can see in the following chart that Berkshire Hathaway has outperformed over the past 15 years, with an especially nice run in 2014 before falling back last year. Succession planning has been joined by reputation risk as the major risks for Berkshire. Mr. Buffett and Charlie Munger, Berkshire's long-time vice chairman, are not getting any younger, but today they have in place a strong team of operational managers and investment professionals. The reputational risk stems from the rebranding efforts of several of the subsidiaries adding a reference to BH in their names. Based on the lack of mention this year, I believe Buffett agrees with my concerns that Tracy Britt Cool is in over her head. I expect her to leave the team in the next year or two. I continue to be very comfortable and impressed with Todd Combs and Ted Weschler, and they are getting more involved in deal making (e.g., Precision Castparts).



To make it easy for me to update this post in the future I will continue to refer to the page numbers in the 2012 report where I found the information. I will include the most recent three years of data.

In the 2012 Berkshire Hathaway annual report there are a lot of clues to help you calculate the firm's intrinsic value. On page 6 there is even a section titled Intrinsic Business Value. In addition to that page, I pulled information from pages 7, 9, 15, and 26.

While the focus here is on relative value, the intrinsic value (my estimate of what the company is worth) grew 11.2% and the market price 8.9% annually over the past three years. The S&P grew at 15.1% annually over this period, so returns were okay but not market-beating.

Acting as a floor, Mr. Buffett will consider share repurchases at 120% of book value. At year-end 2015 per-share BRK book value was \$155,501, resulting in a floor of about \$186,600 per share. Since year-end, Berkshire Hathaway "A" shares have traded above \$210,000. Last year the market value fell by 12.5%, while the S&P grew slightly. In my analysis there are three components of value for Berkshire Hathaway; investments, underwriting profit, and profit from non-insurance subsidiaries. Since underwriting profits tend to cycle, I have included the average over multiple years. Initially Mr. Buffett used an average over 10 years, but in 2014 changed that to 12 years and then returned to 10 years in 2015. I have not seen a public statement as to the reasons why. In 2015 he also started to include underwriting profit with the other businesses. I hope someone asks why, as the profit multiple is likely lower for insurance due to volatility and the regulated nature of the business.

Berkshire Hathaway Intrinsic Value Calculations					
	2,012	2013	2014	2015	
per share investments	113,786	129,253	140,123	159,794	
per share pretax earnings from non-insurance businesses	8,085	9,116	10,847	11,186	
UW profit from insurance over 10 years per share	1,132	1,338	1,151	1,434	
underwriting profit from insurance over 10 years	18.6	22.0	18.9	23.6	billion
UW profit from insurance per share				1,118	
underwriting profit from insurance	1.625	3.089	2.668		billion
insurance goodwill	15.5	15.5	15.5	15.5	billion
total common stocks carried at market, cost	49.796	56.581	55.056	58.612	billion
total common stocks carried at market, market value	87.662	117.505	117.470	112.338	billion
class A equivalent common shares outstanding	1.643	1.644	1.643	1.643	million
class A equivalent book value	114,214	134,973	146,186	155,501	
tax rate	35%	35%	35%	35%	
P/E non insurance subs	12	12	12	12	
P/E insurance subs	10	10	10	8	
ability of long term uw profit to continue	50%	50%	50%	25%	
current year profit growth	10%	10%	10%	10%	
<u>Intrinsic value</u>					
per share investments	113,786	129,253	140,123	159,794	
adjust for capital gains taxes	8,066	12,970	13,296	11,445	
per share after tax investments	105,720	116,283	126,827	148,349	
per share after tax value of non-insurance businesses	69,369	78,215	93,067	95,976	
per share after tax value of insurance businesses	4,047	4,784	4,116	2,051	
Intrinsic value BRK (\$billion)	294.3	327.6	368.0	404.8	
Intrinsic value "A" share	179,136	199,282	224,011	246,376	
Intrinsic value "B" share	119.42	132.85	149.34	164.25	
actual market price, end of February	102.16	115.78	147.41	131.92	
percent undervalued	14%	13%	1%	20%	

Methodology

Investments

The annual report shows the amount of investments per share and the basis for a block of investments.

Investments per share – tax rate x (market value – basis)/number of shares = value from investments

$\$159,794 - 35\% \times (112.338 \text{ B} - 58.612 \text{ B}) / 1.643 \text{ M} = \$148,349$ value per share (after tax)

This number has grown 12% over the past three years.

Underwriting Profit

Underwriting profit from insurance operations cycles depending on competitive pressures. Buffett is known to drop out of the market periodically when he (or Ajit Jain)

feels premiums are insufficient, changing the rate of growth of float. Buffett has shared that some lines are currently shrinking their float, but BRK has also entered new insurance markets recently.

A sustainability factor reflects the ability to earn this level (mean over 10 years) of underwriting profit over long periods of time. The P/E works from future earnings so a growth factor is needed to project profits forward one year. Given low interest rates, the P/E has been reduced from 10 to 8. Based on comments from Buffett the sustainability factor has been reduced from 50% to 25%. This is a form of credibility factor to mean revert recent results toward zero. Starting in 2015, only 25% of previous gains will be considered. If this factor had remained at 50% and P/E at 10, the result would be to add \$3,076 to the Class A intrinsic value, or about 1.2%.

10-year average underwriting profit per share x (1-tax rate) x P/E x sustainability factor x 1 year growth rate = value from underwriting profit

$2.36 \text{ B}/1.643 \text{ M} \times (1 - 35\%) \times 8 \times 25\% \times (1+10\%) = \$2,051 \text{ value per share}$

This reflects a 20% reduction over the past three years. A big surprise was reduced profits in GEICO in 2015, making analysts wonder if circumstances had led more substandard drivers to the books than was merited. (later in the year it looked like low gas prices had led to higher mileage driven and thus more exposure to accidents)

For most companies U/W profit is negative, so this is a bonus due to BRK's efficiency, high rating and reputation. When it entered the structured settlement market it assumed risk-free rates for pricing, and something similar is likely used for casualty risks (or zero investment returns). It can charge more for many types of insurance than others can due to its rating and perceived strength. There are more arbitrary calculations here so results will vary by analyst, but the value is small relative to other components. The goal for Berkshire Hathaway is to keep U/W profit positive and grow float for the investment compounding magic to work. If you can earn 15% on equity while ignoring investments then positive asset returns are free money.

Profit from Non-Insurance Subsidiaries

This is the most straightforward calculation.

Profit per share x (1 – tax rate) x P/E x (1 + growth rate) = value from non-insurance subs

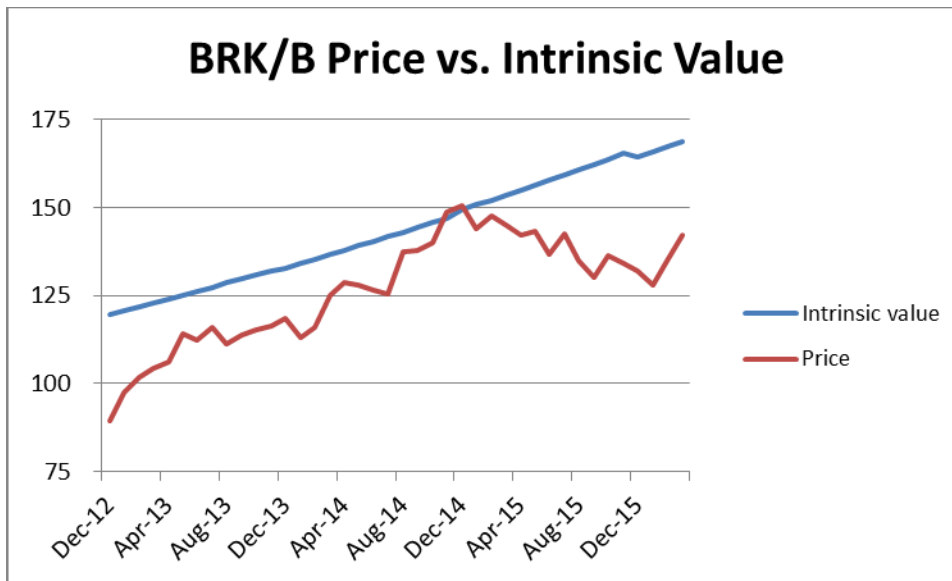
$11,186 \times (1 - 35\%) \times 12 \times (1 + 10\%) = \$95,976$

As Berkshire buys more companies outright the impact is seen here. Over the past three years it has grown by 11.4% per annum.

Totals

In total the value as calculated is \$246,376, much greater than the actual price in mid-March 2016. There is both uncertainty and conservatism around this calculation. It is most likely lower than a true intrinsic value with insider information. Historically, the actual market price rarely gets as high as my calculated value, so anything over 90% might be considered ripe for a correction.

This next graph estimates the intrinsic value and then trues it up each year in December. It compares the IV with month end market prices. The lack of discontinuity for IV makes it realistic that over this period Berkshire Hathaway's intrinsic value has grown smoothly at an 11.21% rate.



#AskWarren

Submitted to CNBC when 2015 letter was released

p 9 Why does it make sense to combine smoothed underwriting income with other subs?
 Levels of risk differ so valuation does too.

Can you share an example where you used multiple mental models to make an investment decision. [#yogiberra](#) theory and practice :)

How does today's geopolitical/finl environment compare to when you closed your partnerships and had trouble finding investments?

Submitted to journalists April 21, 2016

Why did you decide to combine smoothed underwriting income with other subs? It seems that the levels of risk differ, so valuation would too. Along with the announcement that

the new CEO of GenRe will report to Ajit Jain, does this reflect an expectation that insurance will be less important to Berkshire in the future?

Have central bank actions that nudge and manipulate markets made it harder to be a value investor or does it just change the type of investment that provides value? Do you find similarities between this era and the early 1970s when the partnerships were closed?

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