March 2017

Berkshire Hathaway Intrinsic Value – Annual Update

By Max J. Rudolph, FSA CFA CERA

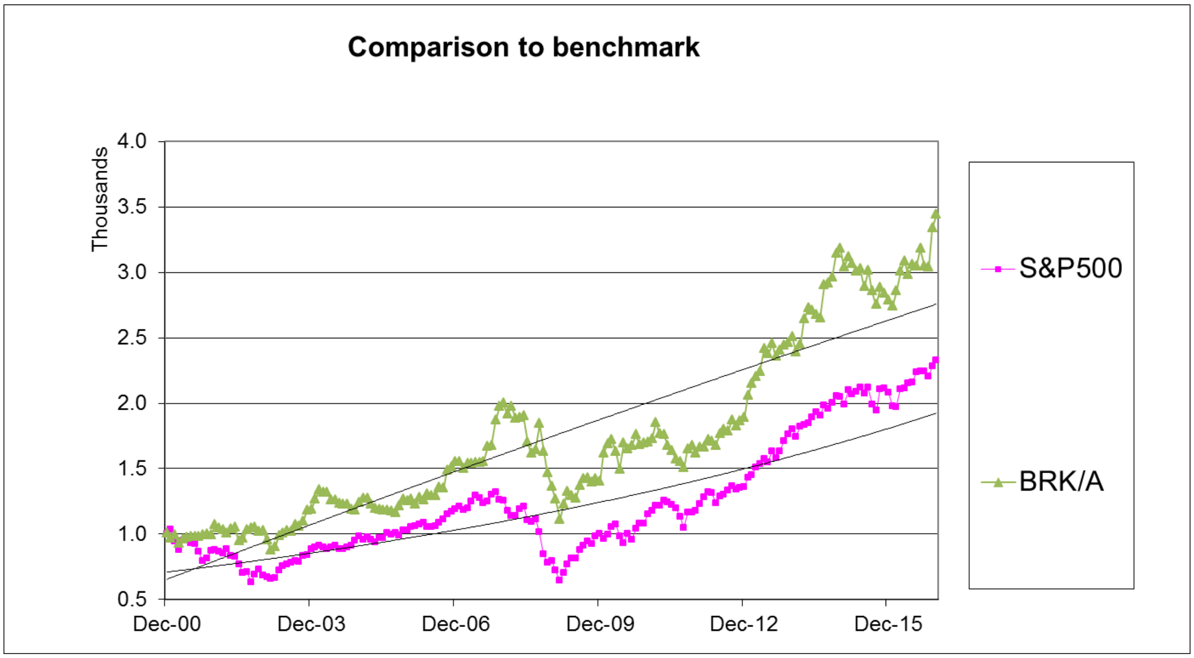
Full disclosure: I am long Berkshire Hathaway and look forward to the release of Mr. Buffett's annual letter at the end of February each year. I have attended the BRK annual meeting most years since I became a shareholder in 1994. This post updates the analysis I have done annually starting in March 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 occasionally 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 (unfortunately he took this section out in the 2016 report, making it a bit harder to find the details). The first four years I found the shares to be undervalued by 14%, 13%, 1%, and 20%. In the most recent iteration of this process I found them to be undervalued by 11%, which makes the stock a hold 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 about $250,000 now. When did the analyst last (formally and publicly) think the stock was a good deal?

You can see in the following chart that Berkshire Hathaway has outperformed over the past 15 years, with especially nice runs in 2014 and 2016. 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, as well as indirect risk from companies like Wells Fargo where Berkshire has a large stake and perceived input.

Rudolph
FINANCIAL CONSULTING LLC



To make it easy for me to update this post in the future I will refer to the page numbers in the 2016 report where I found the information. I will include all five years of data.

Most of the data is found in the section immediately following the annual letter, although some data is found there as well. Data was also found on pages 3, 11, 13, 14, and 19.

While the focus here is on relative value, the intrinsic value (my estimate of what the company is worth) grew 13.0% and the market price 13.8% annually over the past four years. The S&P grew at 14.3% 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 2016 per-share BRK book value was $172,108, resulting in a floor of about $206,500 per share. Since year-end, Berkshire Hathaway “A” shares have traded as high as $266,000.

In my analysis there are three components of value for Berkshire Hathaway; investments, underwriting profit, and profit from non-insurance subsidiaries. Buffett has recently stated that he feels underwriting profit no longer needs to be averaged over many years due to large catastrophic policies. In 2015 he also started to include underwriting profit with operating profits of the other businesses.

Berkshire Hathaway Intrinsic Value Calculations						
	2,012	2013	2014	2015	2016	
per share investments	113,786	129,253	140,123	**159,794**	**169,245**	
pretax EPS				**12,304**		
profit BNSF					**3,569**	million
profit BHE					**2,287**	million
profit manufacturing					**5,631**	million
profit financial					**2,130**	million
earnings per share (total)	8,977	11,850	12,092	**14,656**	**14,645**	
investment income $	4,532	5,196	5,052	**5,357**	**4,725**	
capital gains $	3,425	6,673	4,081	**10,347**	**8,304**	
earnings net of investment income/capital gains	4,134	4,630	6,533	5,098	6,720	
per share pretax earnings from non-insurance businesses	8,085	9,116	10,847	**11,186**	**14,913**	
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 pretax				**1,118**	**1,296**	
underwriting profit from insurance	1.625	3.089	2.668		**2.131**	billion
insurance goodwill	15.5	15.5	15.5	**15.5**	**15.5**	billion
total common stocks carried at market, cost	49.796	56.581	55.056	**58.612**	**76.328**	billion
total common stocks carried at market, market value	87.662	117.505	117.470	**112.338**	**122.032**	billion
class A equivalent common shares outstanding	1.643	1.644	1.643	**1.643**	**1.644**	million
class A equivalent book value	114,214	134,973	146,186	**155,501**	**172,108**	
tax rate	35%	35%	35%	35%	35%	
P/E non insurance subs	12	12	12	12	12	
P/E insurance subs	10	10	10	8	10	
ability of long term uw profit to continue	50%	50%	50%	25%	50%	
current year profit growth	10%	10%	10%	10%	10%	
Intrinsic value						
per share investments	113,786	129,253	140,123	159,794	169,245	10.4%
adjust for capital gains taxes	8,066	12,970	13,296	11,445	9,730	
per share after tax investments	105,720	116,283	126,827	148,349	159,515	10.8%
per share after tax value of non-insurance businesses	69,369	78,215	93,067	95,976	127,956	16.5%
per share after tax value of insurance businesses	4,047	4,784	4,116	2,051	4,634	3.4%
Intrinsic value BRK ($billion)	294.3	327.6	368.0	404.8	480.2	
Intrinsic value "A" share	179,136	199,282	224,011	246,376	292,104	13.0%
Intrinsic value "B" share	119.42	132.85	149.34	164.25	194.74	
actual market price, end of February	102.16	115.78	147.41	131.92	171.42	13.8%
percent undervalued	14%	13%	1%	20%	12%	

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

$169,245 – 35% x (122.032 B – 76.328 B)/1.644 M = $159,515 value per share (after tax)

This number has grown 10.4% annualized 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 volatile lines are currently shrinking their float, and BRK has also entered new insurance markets recently.

A sustainability factor reflects the ability to earn this level 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. I reduced the P/E from 10 to 8 and the sustainability factor from 50% to 25% last year. Given Buffett's comments of the continuity of the insurance business I have switched these back to their original 10 and 50%. The impact is that intrinsic value is about 1% higher.

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

1,296 x (1 – 35%) x 10 x 50% x (1+10%) = $4,634 value per share

This reflects 3% annualized growth over the past four years. This highlights an interesting part of the Berkshire story. If you ignore the float and value the insurance business simply as the present value of the underwriting profit there is not much there. If you consider the assets purchased as float ($91.577 B) it is huge.

For most companies U/W profit is negative, so having any value at all is a bonus due to BRK's efficiency, high rating and reputation. Since the combined ratio is under 100% claims can generally be paid from renewal premiums.

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

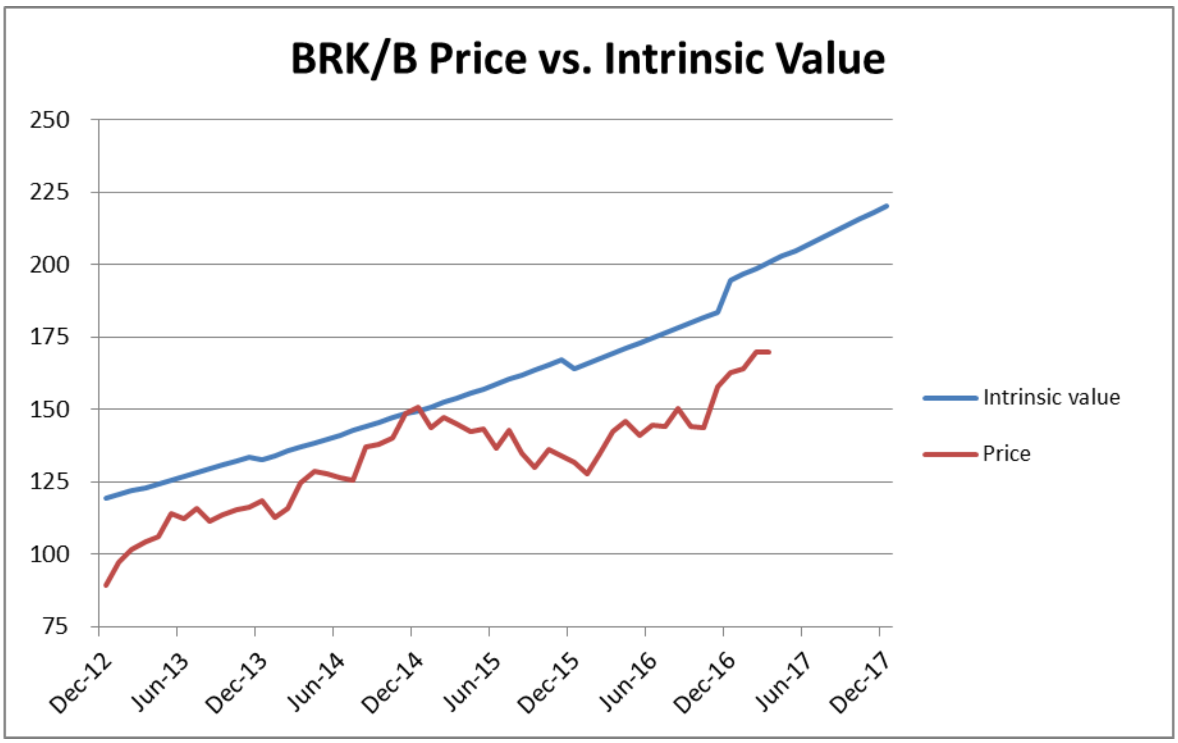
14,913 x (1 – 35%) x 12 x (1 + 10%) = $127,956

As Berkshire buys more companies outright the impact is seen here. Over the past three years it has grown by 16.5% per annum. Recent additions include Precision Castparts and Duracell.

Totals

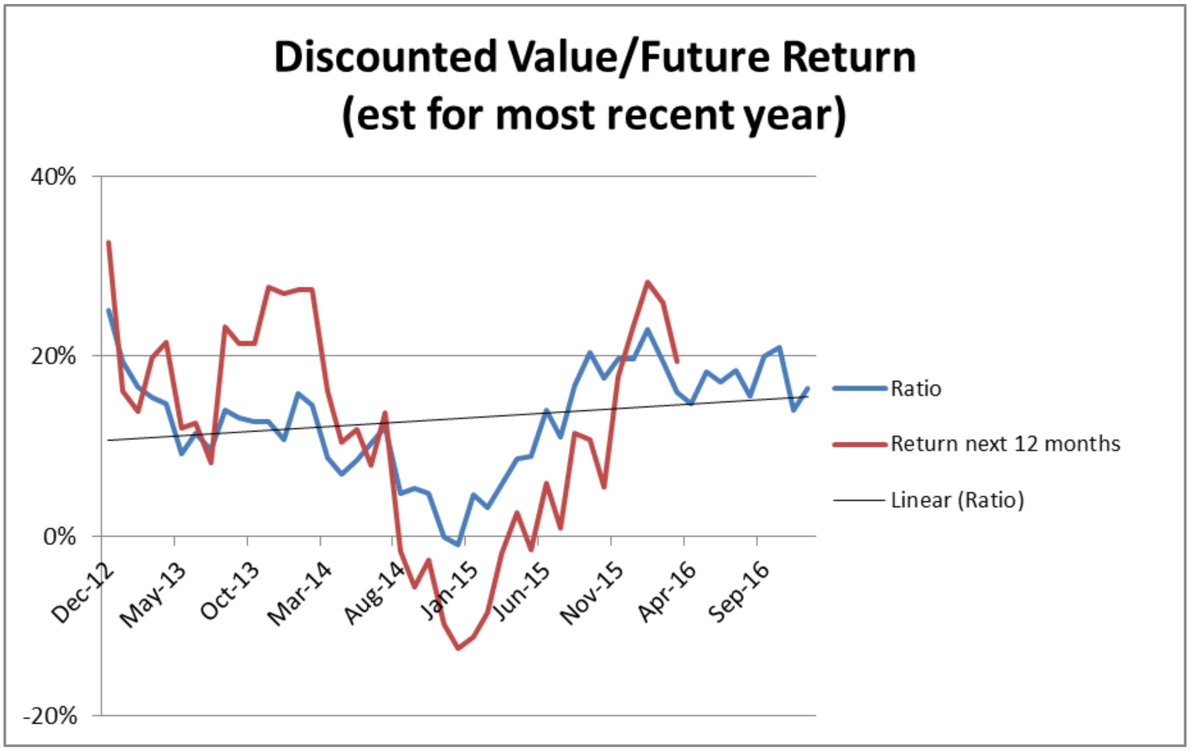
In total the value as calculated is $292,104 per A share, much greater than the actual price in mid-March 2017. There is both uncertainty and conservatism around this calculation. It is likely lower than a true intrinsic value with insider information. The actual market price rarely gets as high as the calculated value, so anything over 90% might be considered ripe for a correction and less than 80% might reflect a buying opportunity. My goal in this calculation is to show relative value at different points in time, and it seems to do that.

This next graph estimates the intrinsic value during the year, truing it up each year in December. It compares the projected IV with month end market prices. The minimal discontinuity for IV makes it realistic that over this period Berkshire Hathaway's intrinsic value has grown smoothly at a 13.0% rate.



The recent election and its aftermath have put tax reform on the table, so I ran a sensitivity reducing the tax rate from 35% to 15%. The intrinsic value of a B share rises from 194.74 to 221.93, or 14%, and the amount the shares are undervalued at the end of February 2017 would increase from 12% to 23%, making it appreciably undervalued.

Comparing the ratio of intrinsic value to price against the following 12 month return provides a 78% correlation R^2. This is the first time this has been calculated and seems quite promising as a predictive factor. As more data is collected, returns over longer time horizons will be compared. I am a bit surprised to see correlations this high after only 12 months and am not convinced of causation over this period.



#AskWarren

Submitted to CNBC when 2016 letter was released
Which metrics provided by subsidiaries do you most look forward to? #leadingindicators

Why do you think the volume of Berkshire credit default swaps traded is periodically so high?

In past reports you shared underwriting profit across 10 or 3 years but this year shows only current year in letter. Predictive?

Submitted to journalists April 2017
While we hope for many more years hearing from Warren and Charlie, it seems the culture of the firm is embedded in the current board. Of the other 10 board members, four are 85 years of age or older and several have been slow to add ownership shares themselves so can be thought of as professional board members (versus shareholders). When the changing of the guard occurs the board needs to be stable and the culture ingrained. How do you plan to address this inconsistency and assure longer continuity of culture once your Ouija board stops working?

Have central bank actions that nudge and subsidize 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 when your partnerships were closed?

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