
Berkshire Hathaway

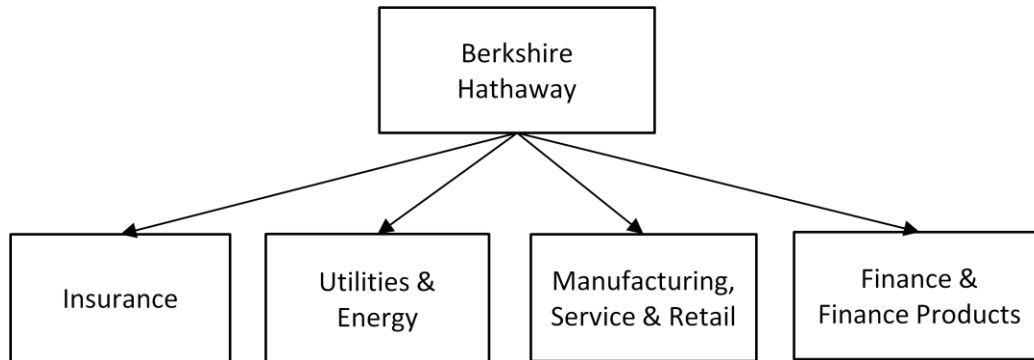
Business Analysis and
Valuation

Contents

| | |
|--|----|
| 1. Company Overview | 3 |
| 2. Valuation Approach | 4 |
| 3. Valuation | 6 |
| 3.1. Insurance..... | 7 |
| 3.2. Utilities and Energy | 12 |
| 3.3. Manufacturing, Service and Retail | 13 |
| 3.4. Finance and Financial Products..... | 14 |
| 3.5. Total Company Valuation..... | 15 |
| 4. Alternative Valuation Methods..... | 15 |
| 4.1. Book Value Growth | 16 |
| 4.2. Look Through Earnings..... | 17 |
| 4.3. Two Column Approach..... | 17 |
| 5. Recommendation..... | 18 |
| Appendix | 20 |
| Float Value Calculation | 20 |

1. Company Overview

Berkshire Hathaway is a unique collection of diverse business operating in a variety of industries. Management segregates the business into the segments illustrated in the diagram below.



Berkshire is best viewed as a diversified conglomerate. However, it is managed on an extraordinarily decentralized basis with no centralized business processes like human resources or sales. The only centralized functions are capital allocation and selection of Chief Executive for each of the operating businesses. There is no attempt made to create synergies between the individual businesses. Profits from each of the businesses flow back to the parent company where it is allocated opportunistically to earn high rates of return.

Insurance

Berkshire's insurance operations are carried out under four subsidiaries (1) GEICO (2) General Re (3) Berkshire Hathaway Reinsurance Group and (4) Berkshire Hathaway Primary Group. The main business of Berkshire is insurance and is the dominant driver of the company value.

Utilities & Energy

Berkshire owns 90% of MidAmerican Energy Holdings Company. MidAmerican has several operating units (1) PacifiCorp (2) MidAmerican Energy Company (3) Northern Natural Gas Company (4) Kern River Gas Transmission Company (5) CE Electric (6) CalEnergy (7) HomeServices of America. Burlington Northern Santa Fe railroad acquired in 2010 is also part of this group.

Manufacturing, Service & Retail

This segment consists of very diverse group of businesses the most significant of which are (1) 64% ownership of Marmon (2) Shaw Industries (3) McLane (4) 80% ownership of ISCAR Metalworking Companies (5) FlightSafety International (6) NetJets.

Finance & Finance Products

This consists of four main units (1) Clayton Homes (2) XTRA Corporation (3) BH Finance (4) CORT.

2. Valuation Approach

Berkshire Hathaway is best valued using a sum of parts approach valuing individual business segments using methods appropriate for each. Many of the standard measures and methods of valuing stocks fail when applied to consolidated financial statement data of Berkshire. In particular, reported earnings and price to earnings ratios mislead investors since they do not adequately reflect the earning power of the investment portfolio while incorporating economically unimportant short term price swings of the derivative contracts.

Insurance companies can be thought of as earning money in two separate ways (a) underwriting side – what the business earns from the premiums received after payment of all claims along with associated expenses (b) investment side – what the business earns on its investments which include both the funds provided by insurer's own net worth and from the float generated by policy holder's premiums. The estimated earnings from both can then be used to calculate the estimated ROE. An appropriate multiple can then be applied to earnings or net tangible asset value based on the relative attractiveness of the ROE.

This traditional method is difficult to apply for calculating intrinsic value of Berkshire's insurance business due to the fact that the vastly overcapitalized insurance segment is often used to fund acquisition of businesses that makes it difficult to accurately evaluate historical returns on equity. For example, the \$6 billion in investment in American Express stock is carried as part of investments on the insurance side and is available for use to meeting any policyholder claims. However, if Berkshire purchases the whole of American Express, then it becomes a wholly owned subsidiary but would not be available to meet policy holder's claims. Thus as additional value is being created on the wholly owned segment, the excess capital tied up on the insurance segment while waiting for these investments reduces the return on equity on the insurance side. An estimate using this method would be made but it should be understood that this underestimates the true intrinsic value by penalizing the overcapitalized insurance segment. This might be the main cause of underestimation of Berkshire's intrinsic value by analysts.

One approach to valuing the insurance business that seems to be supported by Buffett and used by Alice Schroeder in her 1999 report is to view the intrinsic value as a sum of the net tangible assets and the estimated value of float. This would be the primary approach used to value the insurance segment in this report. The specific mechanics of valuing float would be detailed in the section valuing the insurance segment.

The other segments are best valued using an estimate of normalized earning power along with an appropriate earnings multiple to account for their dependence on the business cycle and presence of any competitive moat by the business.

Intrinsic value is by no means limited to the investment component of total value – but may properly include a substantial component of speculative value, provided that such speculative value is intelligently arrived at. Hence market price may be said to exceed intrinsic value only when the market price is clearly the reflection of unintelligent speculation.

–Benjamin Graham. Security Analysis

In calculating intrinsic value, I would attempt to separate out the investment component – value demonstrated by weight of historical evidence in terms of actual results from the speculative component – value which has a reasonable chance of occurring in the future but cannot be reliably expected to occur. As this has significant implications for the buy, sell or hold decision for the investor, I would present the underlying rationale for the investor to fine tune their own estimates of investment and speculative components of value.

3. Valuation

The first step in valuing Berkshire is to clearly separate out the balance sheet of each of the operating segments from the consolidated financial statements presented by the company. This necessarily requires some minor adjustments to be made to the numbers since all the information required for such segregation is not presented by the company. However, the estimates are of minor import and do not significantly alter the accuracy of analysis. The following table shows the balance sheet information for each operating segment.

| (\$ millions) | Insurance | Manufacturing, Service & Retailing | Utilities & Energy | Finance & Finance Products |
|------------------------------------|----------------|--|-----------------------|----------------------------------|
| Assets | | | | |
| Cash | 24,899 | 3,018 | 429 | 2,212 |
| Investments - Fixed | 32,523 | | | 4,608 |
| Investments - Stocks | 56,562 | | | |
| Investments - Other | 28,355 | 625 | | 3,620 |
| Receivables | 9,726 | 5,066 | | 13,989 |
| Inventories | | 6,147 | | |
| Other current Assets | | | | |
| PPE | 346 | 15,374 | 30,936 | |
| Intangibles | | 4,378 | | |
| Goodwill | 15,493 | 12,121 | 5,334 | 1,024 |
| Other | 6,622 | 2,070 | 8,072 | 3,570 |
| Total Assets | 174,526 | 48,799 | 44,771 | 29,023 |
| Liabilities | | | | |
| Losses & LAE | 59,416 | | | |
| Unearned Premium | 7,925 | | | |
| Life & Health Benefits | 3,802 | | | |
| Accounts Payable | 1,725 | | 5,895 | 2,514 |
| Notes Payable | 1,877 | 1,842 | 19,579 | 14,611 |
| Other Current Liabilities | | 7,414 | | |
| Term debt and Liabilities | | 6,240 | | |
| Derivative contract Liabilities | | | | 9,269 |
| Deferred Income Taxes | 16,391 | 2,834 | | |
| Total Liabilities | 91,136 | 18,330 | 25,474 | 26,394 |
| Total Shareholder's Equity | 83,390 | 30,469 | 19,297 | 2,629 |
| Non-controlling interests | | 3600 | 1,083 | |
| BRK Shareholders Equity | 83,390 | 26,869 | 18,214 | 2,629 |
| Tangible Shareholder Equity | 67,897 | 14,748 | 12,880 | 1,605 |

3.1. Insurance

Insurance is a commodity business with little scope for any meaningful differentiation. The demand side is relatively stable for the industry and grows in parallel with the nominal growth of the economy. The supply can however be increased quite quickly with just an injection of capital. The ease of entry into the insurance business combined with the rapid ability to increase supply results in poor economics for the industry as a whole.

Berkshire has been able to develop a significant competitive advantage in its insurance business:

1. A low operating cost advantage at GEICO with its direct to customer insurance model. Eliminating the agents in between results in a significant cost advantage that is likely to be sustained long into the future.
2. Rock solid financial strength unmatched by any competitors makes Berkshire the primary choice in Reinsurance and Catastrophic insurance where the buyer's primary concern is insurance companies long term creditworthiness.
3. Advantage in personnel epitomized by Ajit Jain which makes it possible to provide coverage faster than any competitor for many large and unusual risks.
4. Advantage in attitude of management towards underwriting. It is possible to provide coverage for large risks that carry expectations of profit but with increase in profit volatility. Values underwriting discipline over market share growth and employee compensation aligned towards this goal.
5. Long term edge in investing float with the world's best capital allocator at the helm and more importantly ingrained culture of investing with value investment tenets.

There are only a handful of competitors that possess some of these advantages, but none that encapsulates all these advantages together. It is unlikely that any competitor would be able to materialize in the foreseeable future that matches all of Berkshire's advantages.

What should the measure of an insurer's profitability be? Analysts and managers customarily look to the combined ratio - and it's true that this yardstick usually is a good indicator of where a company ranks in profitability. We believe a better measure, however, to be a comparison of underwriting loss to float developed.

-Warren Buffett, 1990 Berkshire Hathaway Annual Report

The presence of these competitive advantages is demonstrated in the operating performance of the insurance segment. Over the last 15 years the average cost of float is a negative 1%, implying that Berkshire is being paid 1% per year on average to hold on to the money. This covers the 4 year period 1999-2002 during which General Re reported large underwriting losses. This is unlikely to be repeated and "integration" costs should be a one-time event. This low cost float is a key driver of value to the insurance segment.

| Total Insurance Segment | | | |
|--------------------------------------|--------------------------------|--|----------------------|
| Year | Float (\$ millions) | Pre-Tax Underwriting Profit (\$ millions) | Cost of Float |
| 2009 | 61,911 | 1,559 | -2.52% |
| 2008 | 58,488 | 2,792 | -4.77% |
| 2007 | 58,698 | 3,374 | -5.75% |
| 2006 | 50,887 | 3,838 | -7.54% |
| 2005 | 49,287 | 53 | -0.11% |
| 2004 | 46,094 | 1,551 | -3.36% |
| 2003 | 44,220 | 1,718 | -3.89% |
| 2002 | 41,224 | -411 | 1.00% |
| 2001 | 35,508 | -4,067 | 11.45% |
| 2000 | 27,871 | -1,585 | 5.69% |
| 1999 | 25,298 | -1,394 | 5.51% |
| 1998 | 22,754 | 265 | -1.16% |
| 1997 | 7,386 | 461 | -6.24% |
| 1996 | 6,702 | 230 | -3.43% |
| 1995 | 3,607 | 20 | -0.55% |
| 15 Year Average Cost of Float | | | -1.0% |

The key question concerns the value of float. Float is money an insurance company holds but does not own. Float arises because premiums are received before losses are paid and this interval can be of several years. During this interval, the insurer can invest the money for its own gain. The premiums are often not sufficient to cover all the costs and insurance company has to part with some of the returns generated out of float to make up for the shortfall.

To get an understanding of the theoretical basis for assigning value to float, let us take an example. Assume you are offered the following proposition: You are offered \$100 to be paid back after the end of 50 years. You do not have to pay any interest and also get to keep all the money earned in the interim from investing the \$100. The only restriction is that you can only invest in high quality investment grade bonds and treasuries. How much would a smart business man be willing to pay for such an offer? If you can estimate the market rates of interest for long term bonds are going to be about 4% then the business man should be willing to pay about \$86. (The business man can invest \$14 at 4% for the 50 year period to end up with \$100.) Of course, the business man would not go through the trouble of investing to end up with no profit so he is going to offer something a little lower to make relatively low risk profit.

Insurance float for Berkshire is a lot like this example with few additional benefits. First, the \$100 amount is likely to grow around the nominal GDP growth rate of 4-5%. Second, as long as the business is not wound up there is no need to pay back the \$100. The effective length of the investment is longer

than 50 years. Third, there is a strong possibility of getting paid something like 1-2% for the privilege of holding the money. So what would a business man offered this proposition pay for this? It should be obvious that it would be at least \$100 without even performing any complicated math.

A conservative value of this float can be calculated mathematically with a few assumptions. Assuming no growth in float in the future; that float earns at the treasury bond rate (4%); discounted at the treasury bond rate; and that the insurance segment would not liquidated in the foreseeable future; the present value of the float is simply the amount of float i.e. \$100 using the constant growth dividend model. $[4/(0.04-0)]$

There are two caveats to this calculation of the value of float. (1) Shareholder incurs an additional cost for the float through an insurer due to tax penalty. This cost has been estimated at around 1% by Buffett. (2) There is uncertainty in the true cost of float as it a near certainty that there would be periods of underwriting losses. Both these complications however should not alter the final value in the above calculation as it would be possible to conservatively earn enough above the Treasury bond rate on the float to mitigate this additional cost.

I would estimate that the owners of the average insurance company would find the tax penalty adds about one percentage point to their cost of float. I also think that approximates the correct figure for Berkshire.

–Warren Buffett, 1990 Berkshire Hathaway Annual Report

Using this conservative approach we can thus value float at \$62 billion. To this we add the tangible value of the insurance segment which is \$68 billion to get an estimate of intrinsic value of \$130 billion. Ben Graham calls this “value for investment” – the investment component of total value.

Since intrinsic value is never a point estimate, it would be useful to also estimate the likely additional value of the insurance segment beyond the highly conservative estimate. This would provide an upper bound for intrinsic value and assist in sell decision. This falls under what Ben Graham calls as “speculative value”.

Discounted cash flow to us is sort of like the Hubble telescope – you turn it a fraction of an inch and you’re in a different galaxy. There are just so many variables in this kind of an analysis – that’s not for us.

Curtis Jensen

It would be possible to calculate with great degree of precision the exact value of float if you can estimate the growth rate, cost and return of the float. However, using very reasonable numbers one can come up with any number one wants. The sensitivity to minor changes to any of inputs is often a near doubling or halving of the end value. This inevitably results in the analyst performing the calculation

adjusting the inputs to what produces the number the analyst feels reasonable. See Appendix for sample calculations of float value for Berkshire.

An alternative back of envelope calculation would be to make a reasonable guess as to the amount of float at the end of 10 years and discount to its approximate present value. The float is assumed to remain stable at that level into the future with no further growth. For Berkshire, it would be reasonable to estimate that float would be about double the current value in 10 years (a 7% annual growth rate) and using a 4% discount rate, it gives a current value of about \$42 billion. If it turns out that float only doubles in 15 years, the present value would only decline by \$8 billion to \$34 billion. If a 5% discount rate is used the current value would only decline by \$4 billion to \$38 billion. Thus the end value is not particularly sensitive to the main assumptions of doubling of float or discount rate.

In addition there are deferred taxes worth about \$16 billion on the balance sheet due to un-realized gains of equity securities. It is likely that these gains would continue to be unrealized for a significant number of years and hence a portion of this deferred taxes are not really a true liability. A rough approximation is that this would result in a \$8 billion reduction of this liability.

Thus the growth of float and the partial reduction of differed tax liability results in an additional intrinsic value of \$50 billion (\$42 billion + \$8 billion).

| Total Insurance Business Value | | |
|---------------------------------------|--------------------------|------------------------------|
| Investment Value | Speculative Value | Total Intrinsic Value |
| \$130 Billion | \$50 Billion | \$180 Billion |

Risks

1. A key risk for investors in the property and casualty business is errors in loss reserves. Since insurers have significant latitude in estimating the loss reserves it is tempting for management to fudge the numbers as under-reserving leads to a direct increase in reported earnings. This is difficult to detect even for the auditors certifying the financial statements. Even managers who are ethical can make honest mistakes in estimating the loss reserves. A twofold approach to mitigate this risk is by (1) choosing insurers who have a long track record of conservative estimation of loss reserves. This is done by validating the cost of float or combined ratios or loss triangles over a long period of time. (2) Choosing insurers who have low levels of insurance leverage so that any mistakes in reserve estimates do not have fatal consequences.

It has already been shown that Berkshire has a long history of low float costs, thus providing a measure of assurance regarding conservative reserving policies.

| Selected Financial Data for Insurance Segment (\$ billions) | | | | | |
|---|--------------------------|-----------------|----------------------|--------------------------|----------------------------------|
| Year | Total Investments | Equities | Loss Reserves | Statutory Surplus | Insurance Premiums Earned |
| 2009 | 146.9 | 49.1 | 59.4 | 64 | 27.9 |
| 2008 | 118.9 | 56.6 | 56.6 | 51 | 25.5 |
| 2007 | 141.2 | 61.5 | 56 | 62 | 31.8 |
| 2006 | 124.8 | 75 | 47.6 | 59 | 22 |
| 2005 | 115.6 | 46.7 | 48 | 52 | 24 |
| 2004 | 102.9 | 37.7 | 45.2 | 48 | 21.1 |
| 2003 | 95.5 | 35.3 | 45.4 | 40.7 | 21.5 |
| 2002 | 80.8 | 28.4 | 43.9 | 28.4 | 19.2 |
| 2001 | 72.5 | 28.7 | 40.7 | 27.2 | 17.9 |
| 2000 | 77.1 | 38.9 | 33 | 41.5 | 19.3 |

The data in the table below shows the leverage employed in the insurance segment. For every one dollar of shareholder equity is supporting only one dollar of reserves and about half a dollar of insurance premiums. This shows that Berkshire is overcapitalized to a significant degree and that it is operated with extraordinarily low leverage levels. This is somewhat mitigated with a more aggressive allocation towards equities with the entire shareholder capital allocated to that segment. Overall the balance sheet shows low risk with an ability to support larger insurance business.

| Insurance Leverage | | | | | |
|---------------------------|---|------------------------------------|------------------------------------|---------------------------------|------------------------------------|
| Year | Invested Assets/ Statutory Surplus | Equities/ Statutory Surplus | Reserves/ Statutory Surplus | Float/ Statutory Surplus | Premiums/ Statutory Surplus |
| 2009 | 2.3 | 0.8 | 0.9 | 1.0 | 0.4 |
| 2008 | 2.3 | 1.1 | 1.1 | 1.1 | 0.5 |
| 2007 | 2.3 | 1.0 | 0.9 | 0.9 | 0.5 |
| 2006 | 2.1 | 1.3 | 0.8 | 0.9 | 0.4 |
| 2005 | 2.2 | 0.9 | 0.9 | 0.9 | 0.5 |
| 2004 | 2.1 | 0.8 | 0.9 | 1.0 | 0.4 |
| 2003 | 2.3 | 0.9 | 1.1 | 1.1 | 0.5 |
| 2002 | 2.8 | 1.0 | 1.5 | 1.5 | 0.7 |
| 2001 | 2.7 | 1.1 | 1.5 | 1.3 | 0.7 |
| 2000 | 1.9 | 0.9 | 0.8 | 0.7 | 0.5 |

2. As one of the largest reinsurer's Berkshire is also exposed to catastrophic events that expose the industry to large losses. This would not be as big a risk when compared to other reinsurers since Berkshire with its financial strength would likely benefit from the resulting hard market.

3.2. Utilities and Energy

Utilities are heavily regulated by the government. As natural monopolies they enjoy significant economic moat but is curtailed via severe regulation that limits the businesses return on equity. Regulators generally allow a return on equity of between 10%-12% often with some performance incentives to earn more. However, it is unlikely that this segment can consistently maintain a return of equity of much above 12%. This is mitigated by significantly lower downside risk as regulators generally allow cost increases if return of equity falls below 10%. This segment would provide a stable source of earnings in proportion to capital employed with considerable reinvestment opportunities to Berkshire.

| Utilities and Energy (\$ millions) | | | | | | | |
|---------------------------------------|------------|------------|--------------|-------|--------------|----------|-----------------|
| Year | Net Income | Capital Ex | Depreciation | Debt | Total Equity | Goodwill | Tangible Equity |
| 2009 | 1071 | 3413 | 1246 | 19932 | 19297 | 5334 | 12880 |
| 2008 | 1100 | 3936 | 1128 | 20232 | 16250 | 5280 | 10970 |
| 2007 | 1114 | 3513 | 1157 | 19823 | 14143 | 5543 | 8600 |
| 2006 | 885 | 2423 | 949 | 18001 | 12742 | 5548 | 7194 |

Earnings for this segment averaged around \$1.1 billion over the last three years. The relative stability of the returns along with strong moat enjoyed by utilities justify a PE multiple of about 12-14.

Using a PE multiple of 13, the Intrinsic Value of this segment is $\$1.1 \times 13 = \14 billion based on demonstrated earnings power. However, a large capital expenditure of \$11 billion has been made over the last three years. Based on actual depreciation of \$3.5 billion over the last three years, the estimated maintenance capital expenditure is \$5 billion (Assuming a 40% increase to account for inflation). Thus a total of \$6 billion in capital investments have been made beyond the \$5 billion in maintenance capital expenditure. This should ultimately result in additional earnings worth at least equal to the amount of investment. Thus the total intrinsic value of this segment is $\$14 + \$6 = \$20$ billion.

To estimate the higher end of the intrinsic value a PE multiple of 14 is applied to an estimated normalized earning power of \$1.55 billion (based on a 12% return on equity on tangible capital) to get a total intrinsic value of 22 billion.

| Total Utilities and Energy Value | | |
|----------------------------------|-------------------|-----------------------|
| Investment Value | Speculative Value | Total Intrinsic Value |
| \$20 Billion | \$2 Billion | \$22 Billion |

Risks

1. All the business in the utility sector is not subject to regulation. For example, only 70% of Mid American Energy total revenues are regulated. The rest is subject to market competition with no regulatory support for minimum rates of returns.
2. Regulatory changes can have significant impact on the profitability of this segment.

3.3.Manufacturing, Service and Retail

The businesses in this segment cover a very wide range of industries with widely different economics. The one underlying theme of almost all the businesses in this segment is that they have some form of moat or competitive advantage that serves to generate above average rate of return on the tangible capital employed. This is demonstrated by the consistently high ROE generated by this segment in the past.

Applying a relatively low 12% ROE for this businesses (compared to an average ROE of 15% earned by this segment over the last 7 years), this gives a net income of \$2.2 billion. The competitive advantages generally possessed by all the businesses in this segment would justify a PE multiple of about 15. The segment can thus be valued at $\$2.2 \times 15 = \33 billion.

As a double check on valuation, the book value of this segment is \$27 billion and our earning power value approximates this value. This seems to indicate that we have likely undervalued this segment as many of the businesses have been bought for a long time and are carried at original values.

| Manufacturing, Service & Retail (\$ millions) | | | | | | | | |
|--|---------------|---------------|--------------|------|-----------------|----------|--------------------|---------------------------------|
| | Net Income | Capital Ex | Depreciation | Debt | Total Equity | Goodwill | Tangible Equity | Return on Tangible Equity |
| 2009 | 1113 | 1326 | 1591 | 6240 | 30469 | 12121 | 18348 | 6.1% |
| 2008 | 2283 | 1945 | 1384 | 6033 | 30779 | 11995 | 18784 | 12.2% |
| 2007 | 2353 | 1486 | 955 | 3079 | 25485 | 10856 | 14629 | 16.1% |
| 2006 | 2131 | 1504 | 823 | 3014 | 22715 | 10311 | 12404 | 17.2% |
| 2005 | 1646 | 1781 | 699 | n/a | 16839 | 7557 | 9282 | 17.7% |
| 2004 | 1540 | 853 | 676 | n/a | 15595 | 7070 | 8525 | 18.1% |
| 2003 | 1344 | 715 | 605 | n/a | 15379 | 7043 | 8336 | 16.1% |

The last 7 year capital expenditure does not seem appreciably more than the inflation adjusted depreciation and thus no significant organic increase in earnings can be expected in future. To estimate the higher end of the intrinsic value a PE multiple of 18 is applied to earnings to get a value of \$40 billion.

| Total Manufacturing, Service & Retail Value | | |
|---|-------------------|-----------------------|
| Investment Value | Speculative Value | Total Intrinsic Value |
| \$33 Billion | \$7 Billion | \$40 Billion |

Risks

1. Some of the businesses are dependent on the housing market and any prolonged weakness in the housing sector would keep the earnings depressed.
2. This segment is the most exposed to the broader economy and to the extent that deleveraging of the consumer continues for an extended period, the earnings from the segment may not reach their prior peak earnings level.

3.4.Finance and Financial Products

This segment can be classified under two categories (1) an operating finance segment consisting of COURT, XTRA and Clayton Homes (2) a derivatives portfolio managed by Buffett under the BH Finance. The 10 year average earnings would be a good indicator of what can be earned on average over a complete cycle for the operating category. As a riskier business without strong competitive advantages a PE multiple of only about 10 is justified. This values the operating segment at \$5 billion ($\$760 \times (1 - 0.35) \times 10$).

| Finance and Finance Products | |
|------------------------------|-----------------------------------|
| Year | Pre-Tax Earnings (\$ millions) |
| 2009 | 781 |
| 2008 | 787 |
| 2007 | 1006 |
| 2006 | 1157 |
| 2005 | 822 |
| 2004 | 584 |
| 2003 | 666 |
| 2002 | 775 |
| 2001 | 519 |
| 2000 | 530 |

The BH Finance derivatives portfolio consists of a notional \$38 billion exposure to equity put options carried as a liability of \$7.3 billion and a notional \$24 billion exposure to credit default obligations carried as a liability of \$1.6 billion. Berkshire has generated an insurance float worth \$5 billion from the equity puts which should generate sufficient return for any needed payouts. Hence this amount can be treated as equity. The float from the other derivative contracts is assumed to be paid out in full.

Hence this segment can be valued in total at $\$5 + \$7 = \$12$ billion.

To estimate the higher end of the intrinsic value a PE multiple of 12 is applied to the higher 5 year average earnings gives a value of \$7 billion for the operating segment. No additional value can be assigned to the derivative portfolio. This gives a total value of $\$7 + \$7 = \$14$ billion.

| Total Finance and Finance Products Value | | |
|---|--------------------------|------------------------------|
| Investment Value | Speculative Value | Total Intrinsic Value |
| \$12 Billion | \$2 Billion | \$14 Billion |

Risks

1. This segment although the smallest of all the operating segments exposes the company to fluctuations of the stock market by reducing its equity capital during severe market distress. This could potentially limit the investment opportunities that normally accompany such events and thus could be drag on growth in intrinsic value.
2. There is also significant regulatory risk to the derivative portfolio limiting company flexibility.

3.5.Total Company Valuation

The total company value is just the sum of the individual segments with no additional value attached to any synergies. No additional premium is attached for presence of Buffett.

| Berkshire Hathaway Value | | | |
|---------------------------------|-------------------------|--------------------------|------------------------------|
| | Investment Value | Speculative Value | Total Intrinsic Value |
| Insurance | \$130 Billion | \$50 Billion | \$180 Billion |
| Utilities & Energy | \$20 Billion | \$2 Billion | \$22 Billion |
| Manufacturing, Service & Retail | \$33 Billion | \$7 Billion | \$40 Billion |
| Finance & Finance Products | \$12 Billion | \$2 Billion | \$14 Billion |
| Total Value | \$195 Billion | \$61 Billion | \$256 Billion |
| Total Value per B share | \$84 | \$26 | \$110 |

A note on the terminology used. Investment value means a conservative estimate of value based on demonstrated earning power or asset value without relying on any expectation of growth in the future. This is the value that exists without Buffett at the helm and essentially represents what a reasonable business man would be willing to pay. Speculative value is essentially additional value that is very likely to be realized as a result of growth in the business.

4. Alternative Valuation Methods

A few additional valuation methods are shown as it is useful to estimate intrinsic value in multiple ways to serve as a double check on the primary valuation method and to get additional insight. The following methods also incorporate acquisition of Burlington Northern Santa Fe.

4.1.Book Value Growth

The approach used here is to estimate the book value at the end of 10 years by adding up all the earnings over the next 10 year period and any growth in asset values. This can then be used to project growth in book value.

| 10 Year Projected Book Value (\$ millions) | | | | |
|---|---------------------------------------|-----------------------------|-----------------------|--|
| Segment | Normalized Current Year Earning Power | Cumulative 10 Year Earnings | Projected Growth Rate | Comments |
| Underwriting Profit | \$1300 | \$16,000 | 4% | 7 Year average after tax |
| Investment Income | \$3300 | \$40,000 | 4% | After tax interest and dividends |
| Equity growth | NA | \$44,000 | 6% | Price return (excluding dividends) |
| Utilities & Energy | \$1200 | \$16,000 | 6% | Projected earning power |
| Burlington Santa Fe | \$1800 | \$25,000 | 7% | 5 Year average earnings |
| Manufacturing, Service & Retail | \$2200 | \$25,000 | 3% | Below average growth |
| Finance and Financial Products | \$500 | \$6,000 | 4% | Below normal growth |
| Realized Investment gains | \$2500 | \$25,000 | 0% | Investment gains and losses excluding any changes due to derivative contracts. |
| Total Gain in Book Value | | \$197,000 | | 9.6% annual growth in book value |

The book value estimate for year end 2019 is \$328 billion (\$133 for B share) representing an annual growth rate of 9.6%. This is presented as a simpler approach to estimating future book value compared to building pro-forma financial statements far out into the future and to help understand the drivers behind the growth rate. This approach is less applicable to Berkshire since value tends to be created in a lumpy and unpredictable fashion.

| Sensitivity Analysis | | | |
|--|------------------------------|--|--|
| Sensitivity Factor | Change in 10 year Book Value | Change in 10 year Book Value per B share | Comments |
| 1% Increase in growth rate of all operating segments | + \$6 billion | + \$2.4 | Assumes no change in realized investment gains |
| 1% Increase/Decrease in equity portfolio return | +/- \$9 billion | +/- \$3.6 | |
| 1% decrease in growth rate of all operating segments | - \$7 billion | - \$2.8 | Assumes no change in realized investment gains |

The sensitivity information in the above table would allow investors to alter the growth rates and calculate the approximate book value. No attempt will be made to assign a book value multiple to derive the expected return and this is left to the reader interested in this approach.

4.2. Look Through Earnings

This method was first presented by Buffett in Berkshire Hathaway's 1990 annual letter. The rationale for this method is that accounting rules only include the dividends received from the investment portfolio ignoring the actual earnings. Taking a business ownership perspective, the earnings applicable to each of the companies in the investment portfolio is assumed to be paid as a dividend. These earnings after deducting for actual dividends paid and for applicable taxes (at 14% rate applicable to Berkshire) are added to the operating earnings to arrive at the total earnings.

The look through earnings from the investment portfolio is approximately \$1.8 billion after reducing by actual dividends received and deducting taxes. Negative earnings reported by some of the companies were not deducted as it would mean that those companies have a negative value.

With total operating earnings of around \$10.3 billion (based on the table presented in the previous section), the total look through earnings for Berkshire is \$12.1 billion or \$4.9 per B share. This does not include the recurring but widely varying realized gains on investments. Readers interested in using a PE based valuation can choose an appropriate multiple.

4.3. Two Column Approach

This method is widely used as the presentation of results in this format in the annual report seems to suggest Buffett's support for this approach. Buffett has only mentioned that the two columns are essential in valuing Berkshire but has otherwise not specified how to use the columns in valuation. In this method intrinsic value is calculated by adding all the investments to some reasonable multiple of operating earnings excluding income from investments.

This method does not have a strong basis in theory and but nonetheless serves as a quick and dirty valuation with a few assumptions. This method implicitly estimates intrinsic value of float at its current value and assumes that Berkshire does not take up any significant amount of debt to support its insurance investments. To the extent that any debt is taken in the insurance segment investments should be adjusted to reflect this. If not, the company value keeps going up in proportion to the debt taken. This approach undervalues the company by not placing any value to the underwriting earnings.

Column 1: Investments of \$147 billion – \$16 billion (Debt and Cash paid for BNI) = \$131 billion

Column 2: Cyclically adjusted (normalized) earnings of \$5.7 billion x 15 = \$86 billion

This values the whole company at \$217 billion or about \$88 per B share.

5. Recommendation

One of the central tenets of Ben Graham's approach to investing is margin of safety. Value investors generally tend to view achieving a margin of safety primarily in terms of price discount to intrinsic value. It is better to view margin of safety as existing not just because of the price value gap but also due to the inherent nature of the business and quality of management. Businesses that are protected by some "moat" or competitive advantage offer a larger margin of safety compared to businesses that do not have any moat when both are bought at a similar discount to intrinsic value. Businesses run by competent, honest and shareholder friendly management likewise offer larger margin of safety compared to the average management.

Buffett has often noted that "It's far better to buy a wonderful company at a fair price than a fair company at a wonderful price". The margin of safety in this case likely resides in the businesses competitive advantage.

Almost all of Berkshire's businesses possess some form of identifiably competitive advantage. Many of the businesses are run by owner managers with significant personal stake in the businesses they run with incentives aligned with those of the shareholders. Berkshire is run conservatively with the assumption that many owners have all their assets invested in the company. All these factors provide a large margin of safety beyond any price discount to intrinsic value.

An attractive common-stock investment is an attractive speculation. This is true because, if a common stock can meet the demand of a conservative investor that he get full value for this money plus not unsatisfactory future prospects, then such an issue must also have a fair chance of appreciation in market value.

–Benjamin Graham, Security Analysis

Berkshire's intrinsic value as of yearend 2009 is in the range of \$84 to \$110 per B share. Thus, Berkshire has strong investment merit up to \$84 (for a B share) and investors buying at this price are only paying for demonstrated earnings or assets already in place. At prices beyond \$84 investors would be paying for expected growth and thus subject to vagaries of the future. A price of \$84 is essentially a fair price for investors to take part ownership of an outstanding business with every prospect of obtaining a satisfactory return (9%-10%). Investors get attractive growth prospects for free while participating in continued growth in intrinsic value.

Passive investors seeking to purchase good business at a fair price would find Berkshire to be attractive (at prices below \$84 for B share) in Q2 2010. At this price Berkshire should provide reasonable returns over the long term and should be especially attractive relative to the broad stock market which is trading at a premium to fair value (S&P 500 at approximately 1200 compared to a fair value range of 900-1000). Aggressive investors looking for higher returns and larger margin of safety should seek at

least a 20% discount to the lower end estimate of intrinsic value. Thus a price of under \$67 should be attractive to aggressive investors.

Appendix

Float Value Calculation

Float value can be calculated using the dividend discount model

$$P_0 = \frac{D_1}{k - g}$$

P_0 – current period price or justified value, D_1 – next period dividend or income, k – discount rate, g – growth rate of float

With a float of \$62 billion and using various reasonable values for each of the key inputs we get the following values for float.

| Expected Return on Float | Investment income (D_1) | Discount Rate (k) | Growth Rate (g) | Estimated Value of Float |
|--------------------------|-----------------------------|-----------------------|---------------------|--------------------------|
| 4% | \$2.48 billion | 5% | 4% | \$248 billion |
| 5% | \$3.10 billion | 5% | 4% | \$310 billion |
| 6% | \$3.72 billion | 6% | 4% | \$186 billion |
| 6% | \$3.72 billion | 7% | 4% | \$124 billion |
| 6% | \$3.72 billion | 7% | 5% | \$186 billion |
| 6% | \$3.72 billion | 7% | 6% | \$372 billion |

Thus any value between \$124 billion to \$372 billion can be justified using the above method. The float value is highly sensitive to the difference between the Discount Rate and Growth Rate of float. Both these variables can reasonably be estimated at any value from 4% to 7%. Hence using this approach essentially becomes one of choosing values for these variables that justify whatever value the investor has in mind.