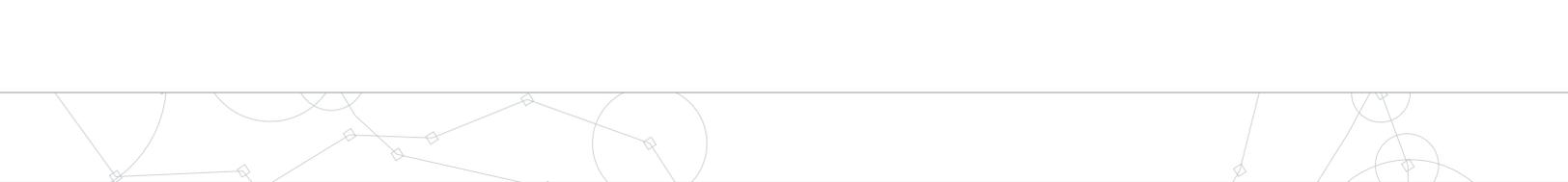


Calamos Equity Valuation Process: Determining Cash Flows & Valuing a Business

The value of any security is a function of the underlying business's cash flows and the quality of those cash flows. This paper outlines Calamos Investments' research process for determining a company's business valuation. We will detail how Calamos research uncovers the economic profits of a company and how our research determines the quality of the cash flows, the return on capital, and finally, the equity's valuation.





Calamos Equity Valuation Process: Determining Cash Flows & Valuing a Business

Warren Buffett, president of Berkshire Hathaway, is probably the greatest investor of the last 30 years. In this paper, the approach offered toward business valuation is similar to his. Below is an excerpt from one of Mr. Buffett's annual meetings that discusses his approach toward valuing a company.

Growth in earnings or sales volume or whatever is a factor which can enhance or diminish—people usually think in terms of enhancing intrinsic value. The value of any purchase made for investment purposes is essentially the discounted [value] of all cash that will ever be received between now and judgment day from that commitment.

And you face (a) determining the cash flows in and out (you have to put money in before you take it out sometimes) and (b) you have to figure out the discount rate. The growth and non-growth or shrinkage of the business is a calculation that goes into determining those items which you're discounting back to the present value.

That's all you're doing as an investor—whether you're buying Coca-Cola or you're buying stock in PS Group or whatever it may be. We're essentially thinking what's the cash payment capacity of that asset as far as we can see, how sure do we feel about it (the proper discount rate) and how does it compare to alternative choices. That's what's going through our minds.

Growth can be a negative. If you've got to put more money into a business earning sub-par return on capital because it has to grow, then that's a minus... Growth is most positive when it takes no capital at all and produces significant returns.¹

Mr. Buffett's definition of a business's value serves as an outline for making such determinations. In fact, this business valuation approach is a direct descendent of the approach developed by John Burr Williams in the 1930s:

The mathematical exercise [of the cash flow approach] is very similar to valuing a bond's value. ...To determine the value of a business, the analyst estimates the 'coupons' that the business will generate for a period into the future, and then discounts all of those coupons back to the present.²

This line of reasoning provides a framework for estimating "equity coupons" and determining the intrinsic business value. Equity coupons represent excess cash flow generated by the company and the payment to investors that may take the form of dividends or share repurchases. Unlike bonds, these coupons are variable and there is no principal repayment or maturity date. Our analysts must estimate the coupon payments well into the future and discount them at the appropriate rate.

It does not matter if the company being analyzed is an energy company or computer manufacturer or any other type of business; a careful assessment of how well a company employs capital becomes the measure against which all businesses must ultimately be judged.

Our approach to business valuation must attempt to put all businesses on a comparable basis. For example, one common denominator among all businesses is the employment of capital. This capital can be in a number of different forms, including human, monetary, plant and equipment, natural resources, or any other tangible or intangible asset. But each type of capital

is purchased for cash or monetary capital, making business evaluation somewhat easier because it makes all businesses economic equivalents. It does not matter if the company being analyzed is an energy company or computer manufacturer or any other type of business; a careful assessment of how well a company employs capital becomes the measure against which all businesses must ultimately be judged. As a result, the firm that earns the highest return on total invested capital is generally the best business.

CASH INFLOWS: CAPITAL EMPLOYED

The first step in determining a company's intrinsic value is determining the cash flows into and out of the business. If a company has used only equity financing and owns its plant and equipment, then the capital employed in the business will be largely the retained earnings and equity capital raised.

Most businesses use a mix of financing methods, and there are often accounting discrepancies that obscure the cash flows out of the business. It is generally agreed that all debt financing, equity financing, minority interests, and retained earnings are considered part of the total capital employed.

The starting points for determining capital inflows or investments (which we will refer to as capital) are very straightforward and easily found on any balance sheet.

$$\begin{aligned} \text{Capital} &= \text{Long-term debt} \\ &+ \text{Short-term debt} \\ &+ \text{Preferred stock} \\ &+ \text{Common equity} \\ &+ \text{Minority interests} \end{aligned}$$

But there are some less obvious items that must be included as part of the capital employed in the business. For our capital models, we correct for distortions that result from certain accounting measures. Figure 1 lists the adjustments we make to determine the capital employed in a business.

FIGURE 1: ACCOUNTING ADJUSTMENTS TO DETERMINE CAPITAL EMPLOYED IN A BUSINESS

$$\begin{aligned} \text{Capital} &= \text{Long-term debt} \\ &+ \text{Short-term debt} \\ &+ \text{Preferred stock} \\ &+ \text{Common equity} \\ &+ \text{Minority interests} \\ &+ \text{Present value of all future annual} \\ &\quad \text{operating leases} \\ &+ \text{Accumulated goodwill} \\ &\quad \text{amortization} \\ &+ \text{Cumulative unusual losses} \\ &\quad \text{(minus gains) adjusted for taxes} \\ &+ \text{Price paid in excess of asset value} \\ &\quad \text{under pooling} \\ &+ \text{Deferred tax reserves} \\ &+ \text{LIFO (last in, first out) reserves} \\ &+ \text{Capitalized research and} \\ &\quad \text{development} \end{aligned}$$

Although other additions to capital employed may be made outside of those outlined, the significant ones are listed. In an effort to be brief, we will simply state that other such considerations include quasi-equity accounts. Items such as deferred income, deferred gains, bad debt reserves, and other deferred or reserve accounts all represent capital that is employed on behalf of these shareholders, and is thus expected to generate a return to shareholders.

Likewise, many companies have pension liabilities and post-retirement health-care liabilities. These items must be considered debt and added to the capital employed in the business as a cash inflow item. This will reduce the return on capital and shareholder value.

CASH OUTFLOWS: ECONOMIC PROFIT

The next step is to determine the cash-generating ability of the firm's assets from now until eternity, which means cash outflows. Since reported corporate earnings are not the same

as cash profits, we have to make a number of accounting adjustments. Earnings reported by any company will have many assumptions, estimates, expenses, and deferrals that obscure a firm's true cash-generating ability.

GAAP Distortions

Generally accepted accounting principles (GAAP) were developed by accountants for accountants and have little relationship to a firm's true economic earnings. We have found that a firm's net income may understate cash earnings, on average, by 45%. Adjustments to GAAP on the cash outflows side of the equation can help us value a business's true economic profit to ultimately arrive at the true economic value of a firm.

We are concerned with economic earnings, not accounting earnings. Under GAAP, a company can use different depreciation schedules, defer income taxes that will likely never be paid, expense research and development, and use debt financing. Furthermore, earnings are subject to other factors that make reported earnings non-comparable. Equally as disconcerting is that a company's income statement reflects only the cost of a firm's debt financing and not the cost of equity capital.

Return on Capital

We are concerned with the firm's economic profits, that is, with profits in excess of all capital costs and adjusted for accounting distortions. Profits should be evaluated as a percentage of capital employed to generate those profits. We find measuring economic profit return on capital better reflects reality in our analysis.

Research and Development Investment

Under GAAP accounting, a company must expense research and development (R&D) costs. Therefore, if you have two firms in the same industry with exactly the same revenue and operating costs, but one firm invests in R&D and the other firm does not, the firm that makes the R&D investment will report lower earnings. However, firms invest in R&D to remain competitive and because of the potential return R&D represents.

R&D expenses are not just an expense, but also an investment and should be recognized as such.

R&D is not the only expense that must be recognized as an investment and not just as a cost with no future return; some marketing expenses also may be considered investments. For example, a multinational soft drink company was spending money advertising in India before it could sell its products there. The company invested this money knowing that the dollars spent would help build brand recognition and consumer demand for the time when it had approval to sell in India.

CASH-INFLOW MODEL

Evaluating the cash-generating ability of a company begins with a careful analysis of the company's statement of cash flows. The cash outflows that a firm generates can be measured by working through the non-cash charges and adjusting the financial statements as outlined in the discussion on determining the cash flows from the business.

Cash Basis Accounting

To determine a firm's true economic earnings, the financial statements of all companies must be revised from accrual basis to cash-on-cash-basis accounting. Accrual accounting has very little to do with true cash flow. When we revise statements to a cash basis, we also remove the firm's financing structure from the picture because the financing decision of a firm has nothing to do with its ability to generate economic profits. At this point, we are not concerned with how the business financed its capital, but rather with the returns that such capital generates for its shareholders. Later, we will consider the financing decision when determining the rate used to discount all of the firm's expected future economic profits back to the current period.

Since a firm's decision to use debt in the capital structure will affect its tax expense, we assume for the moment that all firms pay taxes as if they are financed only with equity capital. Adjusting all firms in this manner puts them on the same basis and helps reveal their true economic profits before the financing decision is considered. Therefore, interest expense on

debt is considered non-deductible for tax purposes. Accounting profits are higher if a firm chooses debt capital instead of equity capital to grow its business, but the firm's ability to produce good returns on capital has nothing to do with the decision to finance that capital with debt or equity. An estimate of the interest component of any operating lease must also be included, which makes the decision to lease or buy an asset economically equivalent.

The revised statement of cash flows includes interest income and operating interest expense on a fully taxable basis. The objective of the adjustments made to the GAAP income statement is to determine the true cash-generating ability of the business. Non-cash charges and other deferred accounting transactions (goodwill amortization, deferred taxes, bad debt reserves, LIFO reserves) are recognized when actual cash is disbursed instead of when GAAP accrual accounting determines it should be. Depreciation is added back, but necessary-maintenance capital expenditures are subtracted. It is essential for our analysts to determine the ongoing maintenance expenditures that a company must make to maintain its operations before looking at the decision to grow them. If a company's depreciation expense is in excess of necessary capital maintenance expenditures, then the residual is a return on capital. The portion equal to necessary maintenance, however, represents a return of capital.

The same accounting adjustments made to determine the cash outflows or capital employed in the business also show up on the cash inflow side of the analysis. The significant difference is that the cash outflow side typically adds back prior write-offs, amortization, or deferred account changes from the past, while the cash inflow analysis deals only with the current period (year) changes in these items.

Some investors will recognize this final operating cash as free cash flow. This is the cash available to investors before management's decision to grow the business. This may be the free cash flow definition that corporate raiders are focused on because they aim to purchase the whole company and alter its future growth plans. We are concerned with the company as a going concern, and therefore define free cash flow as the cash operating income after tax and necessary capital expenditures,

as well as after the company's growth expenditures. Unlike a corporate raider, we do not have the ability to purchase the firm, change growth plans, and alter the company's life cycle to capture the cash flow before growth expenditures. Free cash

We are concerned with the company as a going concern, and therefore define free cash flow as the cash operating income after tax and necessary capital expenditures, as well as after the company's growth expenditures.

flow represents the owner's repayment for taking the risk and employing capital in the business, and is the cash that is available to all investors in the company. The company can pay out this cash in dividends, repurchase stock, pay down debt or increase reinvestment in the business to grow it further and ultimately pay investors a higher dividend in the future.

Return on Capital Defined

The net result of the restated operating profits after tax is a cash-on-cash accounting that makes all companies comparable. At this point, we are ready to determine the return on total capital that the firm generates. This is an important component in determining its intrinsic value.

A company's return on invested capital can be found by dividing the adjusted operating profit by the adjusted capital as determined by the previous discussions:

$$\text{Return on invested capital} = \frac{\text{Cash operating profit adjusted for tax}}{\text{Adjusted capital invested}}$$

Evaluating a business's return on invested monetary capital allows for across-the-board relative comparisons. In each case, a company's return on capital can be compared to its cost of capital to determine the "excess return on investment," or cash

value added. This analysis considers the balance sheet and the income statement. Some companies will have natural capital-cost advantages arising from location, size, governmental subsidies, or a host of other reasons.

The easy part of the model used to estimate a business's intrinsic value is the math and accounting. The difficult part is determining the company's future cash outflows based on a thorough understanding of the business and its competitive advantages, if any.

The world's nations and companies all compete for capital. The company that demonstrates its ability to earn high rates of return on the capital employed will also be the company that builds wealth for its investors. We believe that a company must have economic characteristics that allow each dollar of capital employed to eventually translate into more than a dollar in market value.

Evaluating a business's return on invested monetary capital allows for across-the-board relative comparisons.

This can be accomplished consistently only if the business is generating returns in excess of its capital costs. The companies that successfully employ capital will find that each dollar in new capital employed in the business will generate two or three dollars in market value for its shareholders. Many successful companies have been known to generate market value multiples on each dollar of capital employed of better than five to one.

At approximately 11%, the return on invested capital for the average American corporation has been remarkably stable during the post-World War II period. Returns are primarily a function of the industry the business operates within and the ability of a company to differentiate its products or services. A wide range of returns on invested capital exists between industry groups.

To determine a company's economic profit, the return on invested capital must be compared to the firm's total cost of capital. If a firm generates returns on capital in excess of the firm's total cost of capital, then an economic profit exists.

$$\text{Cash flow return on total invested capital} > \text{Cost of total capital} = \text{Economic profit}$$

This economic profit, not the accounting profit, is what drives the business value. If a company earns an accounting profit but does not earn an economic profit, earnings may be in excess of debt costs but do not represent a return in excess of both debt and equity costs.

At this point, it is important to determine the company's cost of capital or, to put it another way, the required return on investment the company must earn before an economic profit is realized. The firm's after-tax cost of debt is generally easy to determine because, in most cases, the company has interest-bearing debt on its books. Determining the firm's cost of equity capital is a more confusing issue, though, because GAAP accounting does not provide for this cost. It is essential to remember that the equity cost should represent the opportunity cost of investing. Investors who provide equity capital to a business expect their investment to earn at least a normal return. If the business is unable to generate returns at this level, then investors will not continue to supply capital to the firm or will sell their equity stake. The opportunity cost of capital must be adjusted for the various levels of risk, meaning that a higher discount rate should be used for companies that have a less reliable stream of cash flows.

After completing the above, the firm's capital financing decision comes into play in the analysis. Firms with a considerable amount of debt in their capital structure most likely have a lower credit rating and therefore a higher cost of debt capital. High amounts of leverage may reduce a business's flexibility and impair its ability to take advantage of unforeseen opportunities that may occur in the future. As a result, the equity capital of a highly leveraged firm may need to be discounted at a higher rate.

The final step involves multiplying the cost of each portion of the firm's capital by its appropriate weight in the capital structure.

For example, if a firm has a cost of debt of 9%, a tax rate of 35%, a cost of equity of 12%, and debt equaling 30% of capital, then the firm's weighted cost of capital (WCOC) becomes:

$$\text{WCOC} = [(\text{Debt cost} \times (1 - \text{tax rate})) \times \text{debt \% in capital}] \\ + (\text{equity cost} \times \text{equity \% in capital})$$

$$\text{WCOC} = [.09 \times (1 - 0.35) \times .3] + (.12 \times .7) = .1016 \text{ or } 10.16\%$$

Since the company's cash flows are to occur over the life of the firm, it is inappropriate to assume that companies can finance more cheaply than the government. The 30-year U.S. Treasury represents the risk-free rate of long-term financing.

We use the long-term rate of interest plus a small premium as a starting point for our discount rate. The more comfortable we are with a business and the better we understand the firm's present and future ability to generate an economic profit, the lower the discount rate we use to determine the business's intrinsic value. We then attempt to purchase companies at a significant discount to intrinsic value.

Some may argue that the 30-year Treasury bond is very sensitive to interest-rate changes and that equity evaluation should not incorporate this interest-rate volatility. Therefore, discounting a company's total cost of capital at some premium to the long bond rate is inappropriate. Many investors assume equities are not nearly as interest-rate sensitive as bonds. We believe bonds and equities derive their value from discounting future expected cash flows and that both are closely linked to interest rates. We defer to Mr. Buffett in this debate.

The value of every business—the value of a farm, an apartment house or any other economic asset—is 100% sensitive to interest rates. That's because all you're doing when you're investing is transferring money to someone now in exchange for a stream of money which you expect to come back in the future. And the higher interest rates are, the less that present value will be. So every business by its nature—whether it's Coca-Cola or Gillette or Wells Fargo—in its intrinsic valuation is 100% sensitive to interest rates.³

We agree with Mr. Buffett's approach to valuing equities as if they were actually bonds with the coupon not guaranteed but instead determined in the future based on the firm's profitability. To value equities with this approach, we estimate these "coupon payments" and the likelihood of their occurrence.

During the post-WWII period, American businesses have generated returns on capital of approximately 11%. If the company is trading right at its capital value, this is the same as a bond coupon payment of 11%. The capital value or capital employed becomes the par value on the equity "bond." If a company generates an 11% return on capital but trades for twice the capital value, then the equity yield is only 5.5%. This level of return may be attractive if the company has a cost of capital below 11%, is improving its returns on capital and growing rapidly or, alternatively, if long-term interest rates are well below 5.5%.

INTRINSIC BUSINESS VALUE

Since most firms are going concerns and growing, or shrinking and shedding non-profitable operations, our research valuation estimates take into account the growth or non-growth in the business. Since a firm's economic profits are what drive the value of a business, then a firm that can generate an economic profit while growing is worth more than a firm that is growing and not earning an economic profit. In fact, if a firm continues to grow even though it is earning returns below its cost of capital, it is actually reducing the total value of that firm.

The variable-growth business valuation model we use is a multiple-stage discounting model. The model will include a life cycle for growth in the company's capital such as a rapid-growth stage, slow-growth stage, and no-growth stage. It also incorporates multiple stages for the expected life cycle for returns on capital.

In business, as in nature, there is a strong tendency for market returns to revert toward the mean. A company's returns are largely a function of the industry it is in, although by no means does this presume that the industry is the only important component in determining the returns a company can generate.

But a business generating high returns will often attract new competitors as well as copy-cats that will put downward pressure on returns. A business generating high returns on capital will also attract capital, and the sheer amount of the capital being redeployed may force returns toward the industry average. Likewise, a business generating returns well below its industry average may be forced to downsize, replace management, and restructure in an effort to drive returns toward the industry average and—hopefully—above its cost of capital.

The life cycle for growth in a firm’s capital or operating assets is very similar to the reversion to the mean explained above. Our model assumes that in time the business returns will revert to the industry average and that the growth rate in the business will also revert to the industry average. We estimate how quickly this will occur, based on our understanding of the industry, the company’s competitive advantages, and the quality of the business’s investment opportunities. The final discounting model incorporates many factors and allows for multiple growth, return, and cost-of-capital assumptions (see Figure 2).

Summary

We firmly believe that the value of any security is a function of the underlying business’s cash flow and the quality of those cash flows. Understanding the importance of economic profits and the distortions from GAAP accounting improves our ability to determine a business’s value. Through the appropriate accounting adjustments and several qualitative assessments of the company and its industry, we believe Calamos research can uncover the economic profits of a company, determine the quality of the cash flows, the return on capital, and finally, the equity’s intrinsic value.

FIGURE 2: DISCOUNTING MODEL

Value = Capital invested at beginning of forecast
 + Present value of forecasted economic profits for the forecast period
 + Present value of forecasted economic profit after forecaster period (perpetuity)

$$\text{Value} = \frac{EP_{T+1}}{WCO C} + \frac{(EP_{T+1})(g/ROIC - WCO C)}{WCO C(WCO C - g)}$$

Where: EP = economic profit
 WCO C = weighted average cost of capital
 “g” = expected growth rate in EP
 ROIC = return on net new capital invested

End Notes

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² Robert G. Hagstrom, Jr., *The Warren Buffett Way*. New York: John Wiley & Sons, Inc., 1994. p. 94.

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