

Research Report - 08/16



# Devotion of 'Value'-Investing

The strict discipline to keep a long-term investment horizon

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## Introduction

In this paper, the authors from Osiris Asset Management focus on the concept of value investing and contrast it to the common theories on investments as they are depicted in Bodie, Kane, & Marcus (2009) and taught at Business Schools all over the world. Some investors such as Browne (2000) and his partners at “Tweedy, Browne Company LLC” were skeptical about academic studies concerning investments, which in their view did not have relevance for their actions as investors as well as for the real world. As former students of these theories, we at Osiris appreciate the existence of these academic theories, since they increase the initial understanding of investments. However, we share the view that these academic theories alone do not suffice for successful investors and to identify suitable investment opportunities. Browne (2000) in our view exaggerates when he states that academics could have manipulated the available data and come up with the idea and evidence that the colour of the annual report may have an effect on the performance of a company. The message of this statement however is obvious – “Do not just rely on empirical data / research results”.

In this paper, I will analyse main points of both aspects, the academic theory on investments in a packed form, as well as the idea of value investing, which illustrates a real-world oriented philosophy of investing. There are basically two “schools of thought” that are applied by a variety of investors. The first one is premised on empirical findings of academic studies (such as that stocks outperform bonds) and also shows many studies that are in favor of value investing and revealing that this investment style leads to superior returns. The second one is focused on the question why many investors, including professional investors, do not follow the empirical evidence presented by academics but rather ignore it. For those who take the empirical background as a starting point for their investment activities, but probably even more importantly for those who ignore the existing empirical results of research, personal principles for investing are required. Those principles have to be established before any decision for an investment should be conducted. The outcome of the investment decision is a bad adviser for future decisions, even though that might not be obvious right away. Charlie Munger once accurately criticized that investing without principles and models is like “flailing in the dark and mistaking luck for success” (Browne, 2000). The problem of a lack of principles and models may appear obvious, however, Browne (2000) correctly mentioned that this kind of behavior is to a certain extent supported by clients. The investment industry is attracting many smart minds and this smartness is usually accompanied by confidence. Thinking that one knows more than others on the stock market appears to be an effect that many smart investors may experience. Clients support this attitude by seeking for investment manager that give them the impression that they know more about the market and are more capable to invest their money than others. However, successful investing is less about confidence than models and principles. In the spirit of Charlie Munger it can be said that one can be as confident as he / she wants while “failing in the dark”, however the illuminating effect of models and principles should in our view be valued considerably higher than confidence. This is also one of the main incentives for us at Osiris to conceptualize this paper: we want to show our view on investments, value investing and the aspects that should guide investors and money managers in making investment decisions. We structured the paper at hand accordingly into three main sections. The first section is about the “Theoretical Background”, which introduces some main aspects of the prevailing investment theory as well as the underlying reasoning for value investing and what this term actually means. The second part focuses on a practical example, which is supposed to demonstrate that thorough analysis is important to understand the underlying business and factors such as the operations of a business. In our view, this illustrates the most important aspects of value investing, which include beside other factors the understanding of the business operations and the ability to generate cashflow from operations. The conclusion constitutes the last section, which will compactly

elaborate on the contents and insights we tried to present within this paper.

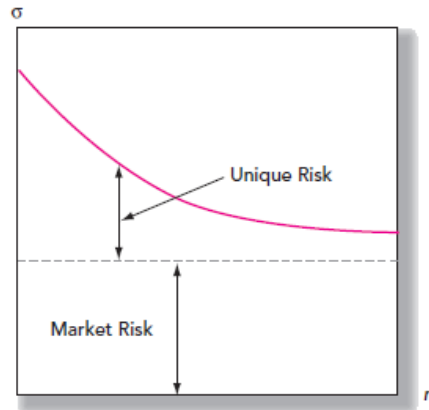
## Theoretical Background

### Investments in the View of Bodie, Kane and Marcus

The term “investing” means choosing what assets to hold (Bodie, Kane, & Marcus, 2009). You may choose to invest in safe assets, risky assets, or a combination of both. An investor’s portfolio is simply his collection of investment assets. For the investment process, investors make two types of decisions in constructing their portfolios: asset allocation and security selection. The asset allocation decision is the choice among the broad asset classes, while the security selection decision is the choice of which particular securities to hold within each asset class. On the one hand, “top-down” portfolio construction starts with asset allocation. A top-down investor first makes this and other crucial asset allocation decisions before turning to the decision of the particular securities to be held in each asset class. In contrast to top-down portfolio management is the “bottom-up” strategy. In this process, the portfolio is constructed from the securities that seem attractively priced without as much concern for the resultant asset allocation. A bottom-up strategy does focus the portfolio on the assets that seem to offer the most attractive investment opportunities.

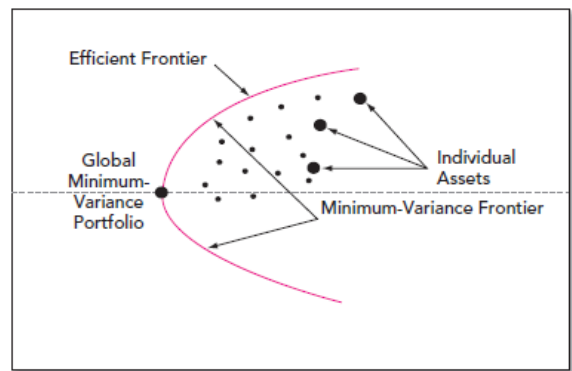
Investors invest for anticipated future returns, but those returns rarely can be predicted precisely. There will almost always be risk associated with investments. Naturally, if all else could be held equal, investors would prefer investments with the highest expected return. To find attractive investment opportunities is challenging since financial markets are highly competitive. Thousands of intelligent and well-backed analysts constantly scour securities markets searching for the best buys. This competition means that we should expect to find few, if any, “free lunches,” securities that are so underpriced that they represent obvious bargains. If you want higher expected returns, you will have to pay a price in terms of accepting higher investment risk. It can be concluded that there should be a risk–return trade-off in the securities markets, with higher risk assets priced to offer higher expected returns than lower-risk assets. But this thought with respect to risk is premised on the single investment and does not account for the possibility of diversification. If we diversify into many more securities, we continue to spread out our exposure to firm-specific factors, and portfolio volatility should continue to fall. Ultimately, however, even with a large number of stocks we cannot avoid risk altogether, because virtually all securities are affected by the common macroeconomic factors. When common sources of risk affect all firms, however, even extensive diversification cannot eliminate risk. In Figure 1 portfolio standard deviation ( $\sigma$ ) falls as the number of securities ( $n$ ) increases, but it cannot be reduced to zero. The risk that remains even after extensive diversification is called market risk, risk that is attributable to market wide risk sources. Such risk is also called systematic risk, or non-diversifiable risk. In contrast, the risk that *can* be eliminated by diversification is called unique risk, firm-specific risk, non-systematic risk, or diversifiable risk.

Figure 1: Illustration of the Diversification on Risk



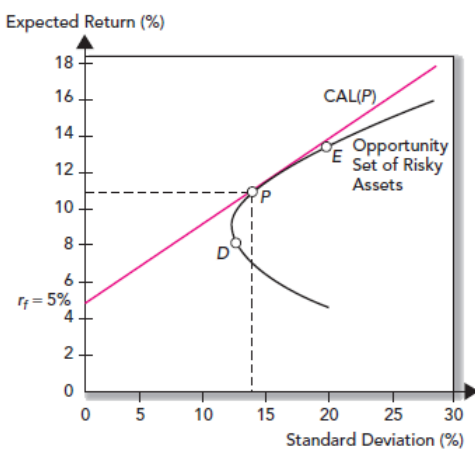
The portfolio construction problem can be generalized to the case of many risky securities and a risk-free asset. As in the two risky assets example, the problem has three parts. First, we identify the risk–return combinations available from the set of risky assets. Next, we identify the optimal portfolio of risky assets by finding the portfolio weights that result in the steepest Capital Allocation Line (CAL). Finally, we choose an appropriate complete portfolio by mixing the risk-free asset with the optimal risky portfolio.

Figure 2: Efficient Frontier



The first step is to determine the risk–return opportunities available to the investor. These are summarized by the minimum-variance frontier of risky assets. This frontier is a graph of the lowest possible variance that can be attained for a given portfolio expected return.

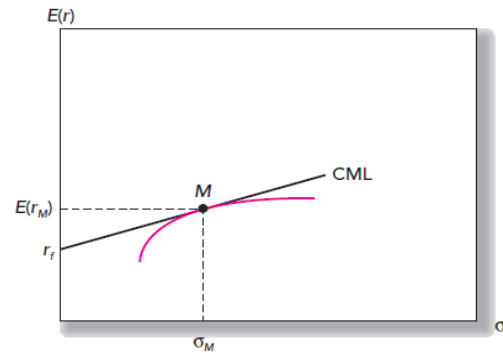
Figure 3: Capital Allocation Line (CAL)



The second part of the optimization plan involves the risk-free asset. As before, we search for the capital allocation line with the highest reward-to-volatility ratio. The CAL that is supported by the optimal portfolio, P, is tangent to the efficient frontier. This CAL dominates all alternative feasible lines (the broken lines that are drawn through the frontier). Portfolio P, therefore, is the optimal risky portfolio.

Figure 4: Capital Market Line (CML)

The capital market line (CML), the line from the risk-free rate through the market portfolio, M, is the best attainable capital allocation line. All investors hold M as their optimal risky portfolio, differing only in the amount invested in it versus in the risk-free asset.



It is relevant to mention that the CML is used in the context of total risk  $\sigma$  (systemic and firm-specific risk), while the well-known CAPM focuses on already diversified portfolios that are solely exposed to systemic risk (market risk).

The CAPM is built on the insight that the appropriate risk premium on an asset will be determined by its contribution to the risk of investors' overall portfolios. Portfolio risk is what matters to investors and is what governs the risk premiums they demand. Investors can just earn risk premiums for bearing systemic risk, not for firm-specific risk, which can be easily diversified. Suppose, for example, that we want to gauge the portfolio risk of GE stock. We measure the contribution to the risk of the overall portfolio from holding GE stock by its covariance with the market portfolio. Obviously, there is not just one stock in the market portfolio. There are many more stocks in the economy, which means that there will be many more covariance terms than variance terms. Consequently, the covariance of a particular stock with all other stocks will dominate that stock's contribution to total portfolio risk. The market price of risk is used to quantify quantifies the extra return that investors demand to bear portfolio risk and is calculated as followed:

$$\frac{\text{Market risk premium}}{\text{Market variance}} = \frac{E(r_M) - r_f}{\sigma_M^2}$$

The expected return for a stock (e.g., GE) is calculated based on the risk-free rate and adding the risk premium, which is the market risk premium times beta.

$$E(r_{GE}) = r_f + \beta_{GE} [E(r_M) - r_f]$$

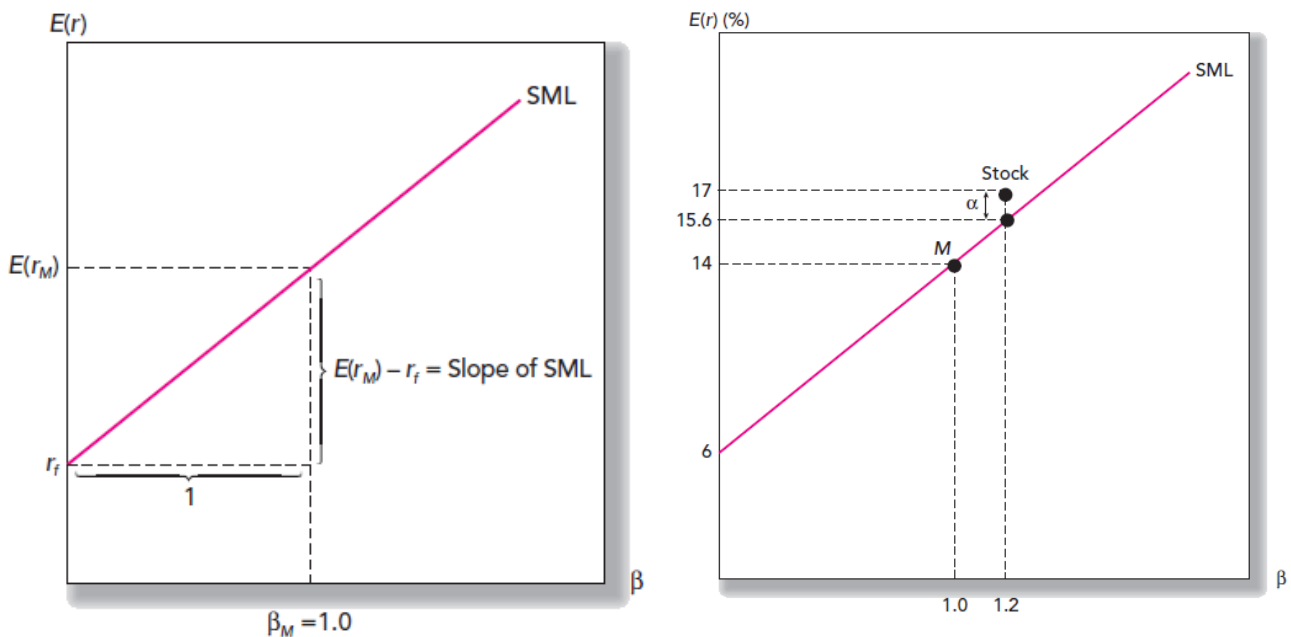
This is the expected return–beta relationship that is the most familiar expression of the CAPM to practitioners. If everyone holds an identical risky portfolio, then everyone will find that the beta of each asset with the market portfolio equals the asset's beta with his or her own risky portfolio. Hence everyone will agree on the appropriate risk premium for each asset. Does the fact that few real-life investors actually hold the market portfolio imply that the

CAPM is of no practical importance? Not necessarily. Reasonably well-diversified portfolios shed firm-specific risk and are left with mostly systematic or market risk. This stresses once more the importance of diversification. Even if one does not hold the precise market portfolio, a well-diversified portfolio will be so very highly correlated with the market that a stock's beta relative to the market will still be a useful risk measure.

The beta of a stock measures its contribution to the variance of the market portfolio. Hence, we expect, for any asset or portfolio, the required risk premium to be a function of beta. The CAPM confirms this intuition, stating further that the security's risk premium is directly proportional to both the beta and the risk premium of the market portfolio. This expected return–beta relationship can be portrayed graphically as the security

market line (SML). It is useful to compare the security market line to the capital market line. The CML graphs the risk premiums of *efficient* portfolios (i.e., portfolios composed of the market and the risk-free asset) as a function of portfolio standard deviation. The SML, in contrast, graphs *individual asset* risk premiums as a function of asset risk. The relevant measure of risk for individual assets held as parts of well diversified portfolios is not the asset's standard deviation or variance; it is, instead, the contribution of the asset to the portfolio variance, which we measure by the asset's beta. The SML is valid for both efficient portfolios and individual assets.

Figure 5: Security Market Line and Alpha



The difference between the fair and actually expected rates of return on a stock is called the stock's alpha, denoted by  $\alpha$ . One might say that security analysis is about uncovering securities with nonzero alphas. This analysis suggests that the starting point of portfolio management can be a passive market-index portfolio. The portfolio manager will then increase the weights of securities with positive alphas and decrease the weights of securities with negative alphas.

Beta solely represents the sensitivity to the market and is deployed to determine the expected return on a stock investment. It is important to mention in this context that security prices already reflect public information about a firm's prospects; therefore, only the risk of the company (as measured by beta in the context of the CAPM) should affect expected returns. The beta is the main factor that drives the risk premium of a stock compared to a risk-free investment. In an efficient market, investors receive high expected returns only if they are willing to bear risk in terms of beta. Diversifiable risk is not rewarded by a risk premium since it can be diversified away in a portfolio at no cost.

There have been a variety of discussions and analyses concerning the theory of market efficiency. Stock prices that change in response to new (unpredictable) information must move unpredictably. This is the essence of the argument that stock prices should follow a random walk, that is, that price changes should be random and unpredictable. Don't confuse randomness in price *changes* with irrationality in the *level* of prices. If prices are determined rationally, then only new information will cause them to change. Therefore, a random walk would be the natural result of prices that always reflect all current knowledge. Indeed, if stock price movements were predictable, that would be damning evidence of stock market inefficiency, because the ability to predict prices would indicate that all available information was not already reflected in stock prices. Therefore, the notion that stocks already reflect all available information is referred to as the **efficient market hypothesis** (EMH). It is common to distinguish among three versions of the EMH: the weak, semi-strong, and strong forms of the hypothesis. These versions differ by their notions of what is meant by the term "all available information."

There is impressive, albeit less-formal, evidence that the central conclusion of the CAPM—the efficiency of the market portfolio—may not be all that far from being valid. Thousands of mutual funds within hundreds of investment companies compete for investor money. These mutual funds employ professional analysts and portfolio managers and expend considerable resources to construct superior portfolios. But the number of funds that consistently outperform a simple strategy of investing in passive market index portfolios is extremely small.

If the market is efficient, why not pick stocks by throwing darts at *The Wall Street Journal* instead of trying rationally to choose a stock portfolio? This is a tempting conclusion to draw from the notion that security prices are fairly set, but it is far too facile. There is a role for rational portfolio management, even in perfectly efficient markets. You have learned that a basic principle in portfolio selection is diversification. Even if all stocks are priced fairly, each still poses firm-specific risk that can be eliminated through diversification. Therefore, rational security selection, even in an efficient market, calls for the selection of a well-diversified portfolio providing the systematic risk level that the investor wants. A third argument for rational portfolio management relates to the particular risk profile of the investor. The portfolio manager can construct a portfolio for the investor that is tailored to its needs and risk profile.

Another point is information gathering and research that is conducted by many asset management firms. After all, if you are willing to spend time and money on gathering information, it might seem reasonable that you could turn up something that has been overlooked by the rest of the investment community. When information is costly to uncover and analyze, one would expect investment analysis calling for such expenditures to result in an increased expected return. Thus, in market equilibrium, efficient information-gathering activity should be fruitful.



However, as the discussion of market efficiency indicated, finding undervalued securities is hardly easy. The models for equity valuation described in the following are used by fundamental analysts. The purpose of fundamental analysis is to identify stocks that are mispriced relative to some measure of “true” value that can be derived from observable financial data.

The concern of this section is the equity value. Shareholders in a firm are sometimes called “residual claimants,” which means that the value of their stake is what is left over when the liabilities of the firm are subtracted from its assets. Shareholders’ equity is this net worth. However, the values of both assets and liabilities recognized in financial statements are based on historical - not current - values. For example, the book value of an asset equals the original cost of acquisition less some adjustment for depreciation, even if the market price of that asset has changed over time. Moreover, depreciation allowances are used to allocate the original cost of the asset over several years, but do not reflect loss of actual value. Whereas book values are based on original cost, market values measure current values of assets and liabilities. The market value of the shareholders’ equity investment equals the difference between the current values of all assets and liabilities. (The stock price is just the market value of shareholders’ equity divided by the number of outstanding shares.)

One model commonly used for equity valuation is the dividend discount model. It relates price to the present value of a stream of payments (coupons in the case of bonds, dividends in the case of stocks) and a final payment (the face value of the bond, or the sales price of the stock). The key differences in the case of stocks are the uncertainty of dividends, the lack of a fixed maturity date, and the unknown sales price at the horizon date. Indeed, one can continue to substitute for price indefinitely. This relationship can be formulized as:

$$V_0 = \frac{D_1}{1+k} + \frac{D_2}{(1+k)^2} + \frac{D_3}{(1+k)^3} + \dots$$

states that the stock price should equal the present value of all expected future dividends into perpetuity. This formula is called the **dividend discount model** (DDM) of stock prices.

This formula as it stands is still not very useful in valuing a stock because it requires dividend forecasts for every year into the indefinite future. To make the DDM practical, we need to introduce some simplifying assumptions. A useful and common first pass at the problem is to assume that dividends are trending upward at a stable growth rate that we will call  $g$ . The formula can be adapted and simplified to lead to the following expression:

$$V_0 = \frac{D_0(1+g)}{k-g} = \frac{D_1}{k-g}$$

The formula states that the present value of future dividends is a function of the dividend divided by the required rate of return (/discount factor) and the constant growth rate of the dividend.

Other common methods contain the Free Cashflow approaches (FCFF). One approach is to discount the free cash flow for the firm (FCFF) at the weighted-average cost of capital to obtain the value of the firm and subtract the then-existing value of debt to find the value of equity. Another is to focus from the start on the free cash flow to equity holders (FCFE), discounting those directly at the cost of equity to obtain the market value of equity. The free cash flow to the firm is the after-tax cash flow that accrues from the firm's operations, net of investments in capital and net working capital. It includes cash flows available to both debt- and equity holders. It is given as follows:

$$\text{FCFF} = \text{EBIT} (1 - t_c) + \text{Depreciation} - \text{Capital expenditures} - \text{Increase in NWC}$$

Alternatively, we can focus on cash flow available to equity holders. This will differ from free cash flow to the firm by after-tax interest expenditures, as well as by cash flow associated with net issuance or repurchase of debt (i.e., principal repayments minus proceeds from issuance of new debt).

$$\text{FCFE} = \text{FCFF} - \text{Interest expense} \times (1 - t_c) + \text{Increases in net debt}$$

Based on these formulas and a discount rate (the WACC = weighted average cost of capital), the present value of the firm value and the equity value can be determined.

$$\text{Firm value} = \sum_{t=1}^T \frac{\text{FCFF}_t}{(1 + \text{WACC})^t} + \frac{V_T}{(1 + \text{WACC})^T}, \quad \text{where } V_T = \frac{\text{FCFF}_{T+1}}{\text{WACC} - g}$$

$$\text{Market value of equity} = \sum_{t=1}^T \frac{\text{FCFE}_t}{(1 + k_E)^t} + \frac{V_T}{(1 + k_E)^T}, \quad \text{where } V_T = \frac{\text{FCFE}_{T+1}}{k_E - g}$$

As in the dividend discount model, free cash flow models use a terminal value to avoid adding the present values of an infinite sum of cash flows. That terminal value may simply be the present value of a constant-growth perpetuity (as in the formulas above) or it may be based on a multiple of EBIT, book value, earnings, or free cash flow. As a general rule, estimates of intrinsic value depend critically on terminal value. In principle, the free cash flow approach is fully consistent with the dividend discount model and should provide the same estimate of intrinsic value if one can extrapolate to a period in which the firm begins to pay dividends growing at a constant rate.

The previous line of reasoning shows that finding bargains is not as easy as it seems. While these models are easy to apply, establishing proper inputs is more of a challenge. This should not be surprising. In even a moderately efficient market, finding profit opportunities is not simple and requires time. These models are extremely useful to analysts, however, because they force rigorous thought about underlying assumptions and highlight the variables with the greatest impact

on value and the greatest payoff to further analysis.

## Concept of Intrinsic Value

In the history of baseball, there have been stories of great baseball players who, when standing at the plate, saw the baseball coming at them as if it were moving in slow motion. They could see the ball leave the pitcher's fingers and watch it slowly spinning toward them, the rotation of the threads helping them decide where the ball was headed. It is most likely that these great hitters were endowed with tremendous natural talents. More importantly, though, they were well coached and well-practiced. Their preparation permitted them to approach the plate fully focused on the task at hand. Most certainly, when they saw a pitch they liked, they were ready to swing. Even if sports metaphors shouldn't be taken too far, it is true that there are many similarities between the investment world and the baseball world. Clearly, portfolio managers, like ballplayers are judged by the statistics they put up over time. Investment success is entirely a question of making the right choices such is the hitting success. Errors can be costly.

The first question we as investors should ask concerning investments should be the question for intrinsic value. Why is it of importance and what does intrinsic value actually mean. An answer to these questions can be found with the support of Dave Dodd and Ben Graham. Warren Buffett has written that "In Berkshire's investments, Charlie and I have employed the principles taught by Dave (Dodd) and Ben Graham. Our prosperity is the fruit of their intellectual tree." (Quote from Berkshire Hathaway Inc., Letters to Shareholders, 1987-1990) Graham and Dodd discuss three approaches to common-stock analysis. The first and also oldest approach is placing primary emphasis on anticipated market performance. This can be termed the 'anticipation' approach. The second and third approaches rest on valuation - one is premised on absolute values, the other is based on relative values. Using the anticipation approach, an analyst forecasts changes in conditions that will lead to a change in the stock price. The task and also function of the security analyst is to then anticipate the new situation that the changes lead to. The presumption is that his work and skill will enable him to make a more nearly accurate projection of future results seeking an answer to the question: 'What is the stock worth?' Most Wall Street research seems to fall into the category of this type of analysis. Graham and Dodd continue by stating that the second concept stands in marked contrast. It attempts to value a stock independently of its current market price. If the value found is substantially above or below the current price, the analyst concludes that the issue / share should be bought or disposed of. This independent value has a variety of names, the most familiar of which is 'intrinsic value'. It is also sometimes referred to as the 'indicated value', 'central value,' 'normal value' or 'investment value'. Finally, the third and last approach, which is a member of the valuation family, is concerned with the relative rather than the intrinsic value. Instead of accepting the complete independence of intrinsic value from the current level of stock prices in estimating relative value, the analyst more or less accepts the prevailing market level and seeks to determine the value of a stock in terms of it. This approach is valid when employed together with capital committed to permanent full investment in common stocks, a commitment which now seems to be accepted for many investment funds.

One question for us at Osiris Asset Management AG as for other funds is what the goal of investing shall be in terms of return. Beating the average may sound appealing at first glance but it has to be remarked that one can beat the average and still lose a considerable amount of money. Obviously, beating the average does not seem to be a reasonable objective for a rational investor when he / she knows this aspect.

In 'The Theory of Investment Value' (Harvard University Press, 1938), John Burr Williams addresses this point while also defining investment (or intrinsic) value: He stated that for reasons that will be given in due course, we shall see fit to define Investment Value as the present worth of the future dividends in the case of a stock, or of the future coupons and principal in the case of a bond. The definition for investment value has to be in harmony with the time-honored method of economic theory, which always begins its investigations by asking for what men would do if they were perfectly rational and self-seeking. As a response can be given that rational men, when they buy stocks and bonds, would never pay more than the present worth of the expected future dividends, or of the expected future coupons and principal. In fact, rational men do not care about relative return. To quote again from Buffett: "What counts, however, is intrinsic value - the figure indicating what all of our constituent businesses are rationally worth."

These points the discussion of intrinsic value away from the judgment of the undervaluation of a stock relative to the market to the analysis whether a stock is undervalued compared to its intrinsic value. To continue this line of reasoning, initially the question what intrinsic value actually is has to be answered. In Williams' opinion, as already mentioned above, the intrinsic value of a common stock is the present value of future dividends. He also explains why it is the future worth of dividends and not earning. Since earnings not paid out in dividends are all successfully reinvested at compound interest for the benefit of the stockholder, these earnings should produce dividends later; if they do not, then they are money lost. Therefore, he concludes that a stock derives its value from its dividends, not its earnings. On the other hand, Warren Buffett has a clear definition of intrinsic value as well: "With perfect foresight, this number can be calculated by taking all the future cash flows of a business -in and out - and discounting them at prevailing interest rates. So valued, all businesses, from manufacturers of buggy whips to operators of cellular phones, become economic equals." One more point was made by Graham and Dodd, "Our Central Value method consisted of capitalizing the average earnings for the past ten years by twice the interest rate on high-grade corporate bonds (now using a three-year moving average for the latter). Our new and more generous formula is equivalent to capitalizing average earnings at 1&1/3 times the basic interest rate."

Consequently, Graham and Dodd discount back earnings, Williams discounts dividends, and Buffett discounts cash flows. In fact, according to Robert Hagstrom (The Warren Buffett Way, 1994), when Buffett talks about valuing a business in the above statement, he's talking about "owner earnings". Hagstrom describes owner earnings as net income adjusted for noncash items (e.g., depreciation and amortization charges) less cash outflows not reflected on the income statement (most notably, capital spending required to sustain current output levels). Such owner earnings are freely distributable to the company's owners. Buffett makes it clear in his writings that he expects corporate management to either reinvest cash in projects generating satisfactory returns on investment or, in the absence of suitable opportunities, return cash to shareholders. While he doesn't object to cash dividends, he prefers tax-advantaged distributions (e.g., General Dynamics' semi-liquidating shrinkage plan and Cap Cities' self-tender). What is clear is that he, like Williams, is interested in the eventual return of cash to shareholders. In fact, should his reinvestment in Berkshire Hathaway not result in a concomitant increase in market value, he has promised to stop reinvesting: "We test the wisdom of retaining earnings by assessing whether retention, over time, delivers shareholders at least \$1 of value for each \$1 retained. To date, this test has been met. We will continue to apply it on a five-year rolling basis."

We can see that Graham and Dodd are concerned about the shortcomings of reported earnings and note the necessity of making suitable adjustments. Buffett, their student, says that "Clearly, investors must always keep their guard up and use accounting numbers as a beginning, not an end, in their attempt to calculate true 'economic earnings' to them." In his work 'Creating Shareholder Value' (Free Press, 1986), Alfred Rappaport discusses the shortcomings of earnings per share and notes that there is a variety, such as the accounting methods, the time value of money and that investment requirements are excluded.

In our view, these reasons mentioned are clearly in favor of using cash flow instead of earnings. As Rappaport said, the 'shareholder value approach' estimates the economic value of an investment (e.g., the shares of a company, strategies, mergers and acquisitions, capital expenditures) by discounting forecasted cash flows by the discount rate, which is the cost of capital. These cash flows, in turn, serve as the foundation for shareholder returns from dividends and share-price appreciation. He also identifies Stockholders as residual claimants of the firm who look for cash dividends and the prospect of future dividends which is reflected in the market price of the stock. The ability of a company to distribute cash to its various constituencies depends on its ability to generate cash from operating its businesses and on its ability to obtain any additional funds needed from external sources. Overall, Rappaport's concept of value rests undoubtedly upon the distribution of cash to shareholders.

A last point I want to make is that in the book 'Valuation' (John Wiley & Sons, 1990), three McKinsey & Co. consultants (Tom Copeland, Tim Koller, and Jack Murrin) discuss the discounting of cash flows as the proper valuation method. Their main conclusion in this context is that free cash flow is the correct cash flow for this valuation model because it reflects the cash flow generated by a company that is available to all providers of the company's capital, both debt and equity.

As concluding remark to the reference financial stream for the intrinsic value, I want to mention that Williams stated that the worth of a stock is what you can get out of it. This amount consists of the discounted future cash flows, which is the intrinsic value. At this point, we identified what intrinsic value actually is. On top of that, it means that the market value of a stock at a certain point in time is the intrinsic value, which is based on the discounted FCFs. The basic idea for the calculation appears to be straight forward: taking the expected future cash flows and discount them by the cost of capital to the present. However, to determine the expected future cash flows as well as appropriate cost of capital as discount rate is trivial. Often future cash flows are calculated with a perpetuity approach. For the first years in the future where the different components of the future free cash flow calculation can still be reasonably calculated, the single cash flows can be discounted to the present. But at a certain point, e.g., after 5 years in the future it gets increasingly difficult to predict the single components for the FCF and the FCF itself as well. Therefore, it was often assumed that the FCF grows at a constant rate in the future and the cost of capital keeps constant. It means that the terminal value of the stock is determined with a perpetuity term for the calculation. This simplifies the calculation of the intrinsic value. Admittedly, to deploy this approach properly is elaborate. This includes the quality of the forecast for the FCFs, the growth rate and the discount rate (cost of capital).

I as an investor share the view that the keys to the correct determination of intrinsic value are accurate forecasting of future cash flows and the use of the proper discount rate. A \$1 payment due one year hence is worth 95 cents today if the appropriate discount rate is 5% but is worth only 91 cents if the appropriate rate is 10%. What does the discount rate represent? It represents the

investor's required rate of return. The required rate of return is the return that an investor could get on a similar investment, also known as the opportunity cost. The question is: What level is appropriate for an investment in a common stock? Warren Buffett mentioned at Berkshire-Hathaway's 1991 annual meeting that he generally uses the long-term government rate and may add a point or two. On the other hand, Graham and Dodd were taking a more prudential approach by utilizing twice the interest rate on high-grade corporate bonds, then changing to an approach which only 1&1/3 times the basic interest rate. Thirdly, Rappaport recommended to take the cost of capital and also mentioned that in his view the "prevailing interest rates" and "cost of capital" are equivalent terms.

The choice of discount rate has also to do with the willingness to take business risks. Assuming a higher interest rate can mean that the practitioner sees the business or, more precisely, its cash flows as riskier. Consequently, the choice of risk is also a choice of perceived riskiness of cash flows.

The second point mentioned as possible pitfall for the calculation of the intrinsic value is the FCF that a firm generates. In determining what number to discount, Graham and Dodd took a look at the past ten years' average earnings. In looking at future earning power, they refer to past performance. Their reasoning was premised on their' believe that investment is grounded on the past whereas speculation looks primarily to the future. Speculation is for Graham and Dodd something that incorporates prospective developments that differ from past performance. Warren Buffett also has the opinion that for most companies an average earnings number is appropriate, since most companies will produce similar earnings compared to each firm's past in the absence of new capital investment (apparent in the growth of a company's assets and retained earnings). A legitimate variation on simple averaging is to determine what a company's average return on invested capital has been over a period of years and apply that rate of return to the company's current level of invested capital. This approach has the benefit of accounting for growth in retained earnings and/or paid in capital.

Keeping the thought of Graham and Dodd in mind, which included that speculation is the assumption that the future will differ from the past performance, many analysts at Wall Street could be classified as speculators rather than investors since they often believe in changes and improvements to the past. Or in simpler terms, they think that the future will differ from the past performance. In most cases, reliance on the past as a predictor of future results dictates that we should not extrapolate a company's current high returns well into the future, because most returns are, to some degree, cyclical. Periods of high returns are followed by periods of low or negative returns. Indeed, even in those cases where a company's returns have remained high for an unusual length of time, we should be very cautious, under the assumption that those high returns will, eventually, attract capital, driving return levels down to the average for corporate investments. This adjustment of return levels is based on the theory that returns will, over time, revert to the mean.

I personally would conclude from this section that though simple to state, calculating intrinsic value is neither easy nor objective. It depends on estimation of both future cash flows and interest rate movements. But it is what ultimately matters about a business. Book value, in contrast, is easy to calculate, but of limited use. The same holds true for market price, at least for most companies. Differences between intrinsic value and book value and market price may be hard to pin down. There will almost certainly be differences and they can be in either way.

## Investment Styles

The vast majority of money managers are categorized as either value managers or growth managers although a third category, market neutral managers, is gaining popularity these days and may soon rival the so-called strategies of value and growth. Pension and endowment consultants love to put money managers in style boxes and have convinced their clients that the greatest measure of success in investing comes from asset allocation rather than stock selection. Consultants have further convinced their clients that there is very little difference in the results of value managers as compared to growth managers; the former just take turns leading the pack depending upon market conditions. This conclusion may result from the fact that the consultants force nearly all managers into one category or another, combine their results, and compare them over time.

Based on the reasoning above, one may come to the conclusion that money managers pick a style because they must be categorized as something in order to get into manager searches despite not having much real conviction about their style. Some investment management firms even hedge their bets by offering all styles. What too few money managers do is analyze the fundamental financial characteristics of portfolios that produce long-term market beating results and develop a set of investment principles that are based on those findings. GEICO is one of the most successful auto insurance companies in the world. They did not achieve this success by having some great insight into determining who would be a good driver based on some subjective standard one-on-one. Instead, they analyzed the characteristics of drivers who are less likely to have accidents and developed a model of the "good" driver. In its extreme, they might say any driver who lives in the suburbs, does not drink, takes public transportation to work, is between the ages of 30 and 60, has no kids of driving age, and drives a Volvo is a good risk. Some of those drivers will still have accidents, but far fewer than the population as a whole. And some of the drivers who do not meet their standards will also not have accidents. Money managers can do the same thing. Ben Graham did it back in the '20s and '31 s. He found that buying stocks below net current assets (current assets less all liabilities), buying stocks where the earnings yield was greater than the long-term bond yield by a certain margin and buying stocks at two-thirds of tangible book value when stockholders' equity is greater than all liabilities, produced better than market returns.

In a paper, 'Contrarian Investment, Extrapolation and Risk', authors Joseph Lakonishok, Andrei Schleifer, and Robert Vishny found that value stocks outperform the market by exploiting the suboptimal behavior of investors. They further found that value stocks outperform growth stocks both pre-tax and after tax.

In 'What do money managers do?' the authors Lakonishak, Schliefer and Vishny make the statement that, "The process of selection and evaluation of money managers may actually distort their investment strategies." In making this statement, the authors are referring to the system of judging money managers which forces them to bunch their stock picks near the middle of the benchmark to avoid tracking error and to stick with popular stocks avoiding the extremes of valuation discrepancies all of which makes beating the benchmark virtually impossible. As Robert Kirby of Capital Guardian once said, "If you are going to look like the benchmark, you can't beat the benchmark." They examined the holdings of managers who are labeled either value or growth and arrived at an interesting conclusion. Most portfolios are concentrated around the axis of value and growth, and large and small cap. In other words, the value and growth characteristics of the typical portfolio do not deviate much from the Standard & Poor's 500 Index. The reasons for this are two-fold, one being the practical reality of managing large sums of money, and the other related to behavior. As the assets under management of an advisor grow, the universe of potential

stocks shrinks. In the view of most advisors, it is simply not worth the effort to research companies in which it is not possible to invest a substantial amount of capital. This results in a much smaller universe of large cap stocks which will, in large measure, be in most stock market indices. If you are going to construct a portfolio selected mostly from stocks in the Index, it is very difficult to produce a result that is significantly different from the Index.

The second, and perhaps more important reason professionally managed portfolios do not deviate from the Index is more directly related to behavioral psychology. Investment performance is generally measured against a benchmark, and claims to being long-term investors aside, the typical institutional client tracks performance on a monthly or quarterly basis versus the benchmark. Performance that deviates from the benchmark becomes suspect and can lead to termination of the money manager. Consistency of returns relative to the benchmark are more important than absolute performance especially in a world dominated by the hypothesis that asset allocation is more important than stock selection. Once the advisor figures out how he or she is being measured, they realize that tailoring the portfolio to the benchmark reduces the risk of relative underperformance and loss of the account. Unfortunately, the chances of significantly outperforming the benchmark are equally diminished.

From the perspective of an investor there is one last aspect concerning money managers: it is the choice of managers based on the current investment record, especially the short term one such as in the last year. Eugene Shahan analyzed the investment records of the seven managers presented by Warren Buffett in a debate with Michael Jensen. Shahan found that despite the fact that all seven managers outperformed the S&P 500 extraordinarily (in a short period of time), none of the managers outperformed it every year. Six of the seven managers underperformed the S&P 500 between 28.3% and 42.1% of the years covered. Often, the periods of underperformance lasted for several years in a row. In the case of Ruane, Cunniff's Sequoia Fund which has produced a total return of 12,500% versus 4,900% for the S&P 500 from inception through 1999, it experienced declines of 39% in the 1973-74 period, and 30% in 1979-1980. Periods of such underperformance would have resulted in termination by all but the most convicted value investor. Consequently, the current investment record should not be attributed with too much weight for the choice of a money manager. More important than the current investment record is the consistency of the track record over time.

## Value Investing

Returning to Lakonishak, Schleifer and Vishny, and their paper, 'Contrarian Investment, Extrapolation and Risk', I think that their greater contribution to understanding investment behavior lies in an analysis of why more investors do not pursue value strategies. One reason offered is that investors may not be aware of the data despite evidence going back to the work of Graham and Dodd (1934). The authors further conjecture that the superior performance of value strategies versus what they call "glamour" or growth strategies is the preference for glamour strategies over value strategies by both individual and institutional investors based on their predisposition to extrapolate recent past performance with future performance. Additionally, the authors posture that investors may just equate well-run companies with good investments.

Lakonishok et al go on to discuss the reasons why institutional investors who should be less prone to judgement biases and the enthusiasm for "good companies" than individual investors do not gravitate toward value strategies. However, in this instance, the prudence may be on the part of the money manager who is more concerned with not losing an account than performing well for his



or her client. Another point to consider is criticism for an investment. If a manager held IBM and it went down, it did not matter because everyone else owned IBM. If one owned a more obscure company with a recent poor track record that got into greater financial difficulty, there was a considerably greater risk of criticism and losing accounts. The concept that investment risk is less a function of the individual company than the price of its stock, is not recognized by many investors. The allure of more immediate gratification also plays an important part in investors' stock preferences. Value stocks often take longer to work out than investors who are seeking more immediate, abnormal returns are willing to wait. Here again, there is a significant body of research chronicling the individual's preference for more immediate gratification and the perception that life or circumstances are always improving. Understanding this behavioral trait makes it rather easy to understand the popularity of momentum investment strategies.

Moreover, for me as an investor an interesting thought about comparing value investing with other styles was presented by Warren Buffett. He stated that "for some reason, people take their cues from price action rather than from values. [...] Value investing is so simple that it makes people reluctant to teach it. It is like studying for priesthood and finding out that the Ten Commandments were all you needed." He thinks that modern portfolio theory doesn't make any sense at all since it equates risk with volatility and presumes that an investor doesn't know what he's doing.

However, Ben Graham left plenty of room in the definition of value as is evidenced by the portfolio of his most famous student, Warren Buffett. Value is not only discount from book value, or low price/earnings ratio stocks. It is also discount from enterprise value, the price that a knowledgeable buyer would pay for a particular type of business. Applying the same price-to- EBIT- ratio to different businesses may well be incorrect as some types of businesses, because of growth potential or returns on capital, are simply worth more. Growth stock investing may be more a philosophy of buying what is popular. Value investing is more a philosophy of buying what is out of favor. The practice of buying out-of-favor stocks, of being a contrarian, is a mindset few investors have. When it is not working in your favor as it will not a significant portion of the time, you risk being fired. Money managers are not stupid. They realize that sticking one's neck out and producing short-term under performance that differs from an index that is used as the benchmark is risky. Adhering to value investment principles in periods such as 1998, 1999, and the first quarter of 2000 required a tremendous amount of conviction. You are derided for not adapting to a changing world, for failing to understand "new paradigms." However, a business strategy that cannot ultimately produce a profit means the business is ultimately worth zero.

### **Selection of a Money Manager**

We at Osiris Asset Management think that one of the more significant and irrefutable findings that psychologists made, is that people are overconfident in their judgments and tend to overestimate the reliability of their information. People make changes in their lives and their portfolios because they are confident, they are making a change for the better. Without that confidence, they would merely sit still. What else would explain the existence of active money management when the facts show that fewer than 15% of money managers beat the index? The managers and their clients must believe they can beat the index despite empirical evidence which shows the majority will not. Clearly, everyone just believes they will be in that top 15%. We suppose if money managers did not think they could beat the market, they would not try.

The same tendency towards over-confidence exhibits itself in portfolio turnover rates, which are largely a result of attempting to "time the market." Behavioralists have a term, "calibrated

confidence," which means knowing what you can do and what you cannot do. It requires being comfortable with the knowledge of how limited our abilities really are. In a paper written by Brad Barber and Terrance Odean of the Graduate School of Management at the University of California, Davis, the authors found that over-confident investors trade more and make less. The greater the trading volume, the poorer the returns. In another study of 100,000 individual stock trades, they found that the stocks investors sold "on average" outperformed the stocks they bought by 3.4% after one year. It seems logical that a money manager who turns over his or her portfolio at a high rate must have confidence that all the individual investment decisions he or she is making must be right. A lack of confidence in one's abilities usually results in a lack of activity and low activity levels have been proven to produce better returns. Barber and Odean also found that investors who trade at a high rate buy riskier stocks. Investment performance can now be calculated on a real time basis, and some actually do. This is because investors are increasingly trading, not investing. Along with market timing predictions, the investment community has also become addicted to quarterly earnings estimates. Companies that "miss" the analysts' consensus estimates can see their stock price decimated. Is the quarter-to-quarter earnings target really more important than a company's ability to increase shareholder value long term? Apparently for many investors it is so. Activity is taken as a sign that the manager is decisive and has a view as to whether the market or individual stocks are rising or falling. Were a portfolio manager to just sit on his stocks, he would be considered indecisive. Forget the fact that he may just like what he owns, or that he has come to realize that short-term market or stock predictions are impossible, that is not what he is paid to do. In a world that thrives on 24 hours daily financial news, inactivity is seen as brain dead. This is also linked to two important aspects: value proposition and buy/sell discipline. When a money manager conducts an investment, he has to have a clear value proposition, and premised on this value proposition a strict buy- and sell-discipline. Any intelligent investing has to be based on a value proposition. Every business purchase has to be at a discount to what we believe its worth, using conservative estimates. The manager also needs discipline to buy and sell when the market price in comparison to the intrinsic value and the manager's principles advises him / her to do so. If one doesn't know when to sell, by default, means he / she doesn't know when to buy. The metaphor of identifying the sale price prior to pulling the trigger appears to fit this discipline quite well.

In my point of view, there are some criteria for choosing a money manager, which appear to be essential before starting a professional relationship with any money manager. Of course, they cannot guarantee, that your choice will lead to investment success, however, answering them can more likely decrease the risk of a bad choice of money manager.

**1. Can you understand their investment philosophy?** If a money manager cannot explain in plain English what their investment principles are, they probably don't have any. And if they cannot explain their process for finding and researching an investment idea, they probably don't have that either.

**2. What is their ten-year track record?** Ten years is a reasonable period of time to gain enough experience to manage money.

**3. What does the manager do with his or her own money?** If you think a manager is smart but invests their own money differently from how they will invest yours, you should ask how they invest their own, and would they please do the same with yours. If a money manager does not have enough conviction in his investment philosophy to co-invest with his clients, look elsewhere.

#### 4. Is the manager visiting companies?

Visiting companies and the management of a prospective investment is essential. It is part of identifying good management skills of the company leaders as well as understanding a business and its management. However, one cannot just go there. The reality of the situation is that once you have found a company you would like to research be it through data base screening, a research report or news article, you first have to wade through the publicly available information like annual reports, 10Ks and 10Qs, etc. That can take a matter of days or weeks depending on the complexity of the situation. Only then is one in a position to begin to ask any intelligent questions. Consequently, a money manager who prepares for and visits companies and their management can get value insights that other managers might miss who do not engage in company visits.

#### Good Business and the Circle of Competence

Twice recently Warren Buffett emphasized the investment principle of "staying within our circle of competence." What Mr. Buffett advises that investors draw a circle of competence and stay well inside the line. This is not unlike the analogy he drew previously to a baseball batter who should wait for the right pitch - the one he really wants to hit. But it's a philosophy that he deems broadly applicable to business management as well. Buffett mentioned that Business and investments interact. He mentioned that a person is better businessman if one understands investment principles and on the other hand a person is a better investor if he / she understands business principles. Buffett's consistency and discipline is often regarded as remarkable, but his style has evolved as he adapted the investment principles of the legendary Ben Graham to today's marketplace. Rather than limiting his investment pursuit to bargains per se, he became interested in buying "wonderful business at a moderate price". In Buffett's view, a wonderful business has an unassailable franchise which by its nature offers a margin of safety. Buffett readily admits that Ben Graham wouldn't have bought any of the stocks he currently owns because Graham was much more concerned with price and asset values - any discrepancy in which was expected to be corrected eventually - rather than being interested in the business of the company itself. Buffett indicated that the fewer assets required, the more the company is worth. The really desirable business is the one that doesn't take any money to operate because, according to Buffett, it has been proven that money won't enable anyone to build a position within a market. Time is the friend of the wonderful business, the enemy of the mediocre one.

Now we come to the question how Buffett can perform so well when it seems that he applies the same forecasting technique as Graham and Dodd, the same technique used by many practitioners of traditional "value" investing? The difference seems to lie in his ability to properly use the past as a guide to the future. Lou Sanders, Sanford C. Bernstein's Director of Research, has said that the most important forecast an analyst makes is the period of time it will take for a company earning above-average (or below-average) returns to revert to the mean, where it earns only average returns. Buffett seems capable of finding companies that don't revert to the mean. His most successful investments have been in companies that earn above-average returns for exceptionally long periods of time, perhaps the best examples being Coca-Cola and Gillette. In those cases, Buffett's financial forecasting probably followed much along the lines of his media example cited above; i.e., here's what the company's earning today, here's the prevalent interest rate, and here's a reasonable growth rate. That what some refer to his genius lies in recognizing the company's ability to replicate its past success long beyond the period when most investors assume reversion to the mean. Buffett's strong preference for really good companies at reasonable prices, rather than simply good companies at attractive prices,

reflects the influence of Phil Fisher, a proponent of buy-and-hold investing who seems to have had a significant impact on Buffett's and Munger's investment style.

We believe that a company's ability to reinvest its capital at a high rate of return is primarily a function of the industry in which the company operates and the company's management. An investor's ability to benefit from the company's high returns is a function of his purchase price. As Buffett has emphasized, he looks at the economic prospects of the business, the people in charge of running it, and the price that he has to pay for it. In fact, it seems that Buffett may be more interested in the people running a business than he is in the business itself. This can be deduced from his investments in Geico and in Salomon, instances in which the underlying businesses, insurance and financial services, don't offer particularly attractive characteristics, but companies which perform their business well due to astute management. The best combination, though, is obviously a good company in a good business managed by good operators. Clearly, one key of Buffett's investment success lies on the identification of good businesses. But how does Buffett define a good business. His list of characteristics, as enumerated in John Train's 'The Money Masters', is:

1. Offers a good return on capital.
2. Sees its profits in cash.
3. Is understandable.
4. Has a strong franchise and thus freedom to price.
5. Doesn't require a genius to run it.
6. Delivers predictable earnings.
7. Should not be a natural target for regulation.
8. Should have low inventories and a. high turnover of assets.
9. Should have owner-oriented management.
10. Offers a high rate of return on the total of inventories plus physical plant.
11. Is a royalty on the growth of others and requires little capital itself.

This itemization describes perhaps the perfect investment, if the purchase price is reasonably below the discounted present value of future cash flows. At the end, it comes back to Buffett's simple but crucial statement that one should buy really good companies at reasonable prices, rather than simply good companies at attractive prices.

We at Osiris Asset Management believe, construct and adapt our portfolio premised on many of the characteristics that value investors such as Warren Buffett but also Graham and Dodd mentioned to be relevant. We are patient to see those investments we consider good businesses at reasonable prices before we purchase them. However, our main point is to preserve the capital invested by us and achieve a satisfactory absolute return. Moreover, we also stick to Graham's and Dodd's view to "think like an owner". That is also a reason why we believe in investing and not speculating. In the end, for us the decision to buy or sell is based on our perception of factors such as the business quality, brand name and management compared to the price of a stock.

### **Good Management Qualities**

In my view the focus should be on whether after-tax returns on an investment are at least equal to the purchasing power of the initial investment and a fair rate of return. The essential factors are the

long-term economic characteristics of a business, the quality and integrity of its management, and future levels of inflation and taxation. If the widget company consistently earned a superior return on capital throughout the period, or if capital employed only doubled during the CEO's reign, the praise for him may well be deserved. But if the return on capital was lackluster and capital employed increased in pace with earnings, applause should be withheld. A savings account in which only interest was reinvested would achieve the same year-by-year increase and, at only 8% interest, would quadruple its annual earnings in 18 years. What the real risk an investor must assess is whether his aggregate after-tax receipts from an investment (including those he receives on sale- (after paying 20% long-term capital gains taxes) will, over his prospective holding period, give him at least as much purchasing power as he had to begin with, plus a modest rate of interest on the initial stake. Though this risk cannot be calculated with engineering precision, it can in some cases be judged with a degree of accuracy that is useful.

Concerning the management Buffett stated that one should only link up with people one likes, admires and trusts. One should not wish to join with managers who lack admirable qualities no matter how attractive the prospects of their business. Moreover, he stated that he never succeeded in making a good deal with a bad person. And once such good purchases have been made, he tends to stay with them. "We have found splendid business relationships to be so rare and so enjoyable that we want to retain all that we develop."

Moreover, Buffett warned in talk he held that American managements frequently fail to recognize the limits of their strength: "about 99 percent of American management think that if they're wonderful at doing one thing they'll be wonderful at doing something else. When they go on to something else and it isn't working, they very seldom see that what really happens is that they have left their circle of competence"- which is why they make so many unwise acquisitions. The lack of skill many CEO's have at capital allocation is no small matter: After ten years on the job, a CEO whose company annually retains earnings equal to 10% of net worth will have been responsible for the deployment of more than 60% of all the capital at work in the business. CEO's who recognize their lack of capital allocation skills (which not all do) will often try to compensate by turning to their staffs, management consultants, or investment bankers.

As investors this fact gives us already a hint that the ability of management can dramatically affect the equity "coupons" (annual earnings). The investment shown by the discounted-flow-of cash calculation to be the cheapest is the one that the investor should purchase-irrespective of whether the business grows or doesn't, displays volatility or smoothness in its earnings, or carries a high price or low in relation to its current earnings and book value. Moreover, though the value equation has usually shown equities to be cheaper than bonds, the result is not inevitable: when bonds are calculated to be the more attractive investment, they should be bought.

### **Screening in the Spirit of Buffett**

We at Osiris Asset Management AG also believe that the market may ignore business success for a while, but eventually confirm it. The speed at which business success is recognized is not of importance as long as the company's intrinsic value is increasing at a satisfying rate. In fact, delayed recognition can be even an advantage: It may give the chance to buy more of a suitable investment at a bargain price.

If on the other hand the market may judge a business to be more valuable than the underlying facts would indicate it is, the holdings should be sold. The goal should be to search and find

outstanding businesses at sensible prices, not mediocre businesses at bargain prices.

Though the mathematical calculations required to evaluate equities are not difficult, an analyst—even one who is experienced and intelligent—can easily go wrong in estimating future "coupons". At Berkshire, they attempt to deal with this problem in two ways. First, they try to stick to businesses they believe they understand. That means these businesses must be relatively simple and stable in character. If a business is complex or subject to constant change, it might be not adequately manageable to predict future cash flows. Second and equally important, they insist on a margin of safety in their purchase price. If they determine the value of a common stock to be only slightly higher than its price, one should not buy it, which is a principle stressed by Ben Graham.

There are a variety of questions we ask and encourage others to ask before taking an investment. Some of them are listed here as an example.

### **(1) Is there a consistently high return on equity?**

This is a crucial question because if a company posts consistently high ROE figures, it is efficiently utilizing the resources shareholders have provided to generate profits. This leads to rapid increases in the stock price. Buffett believes companies that generate and sustain high returns on equity should be prized, because it is extremely rare for a company to maintain a high ROE as it increases in size. Many prosperous US companies find it easy to record 30% ROE when shareholders' equity is \$1bn but excruciatingly difficult when equity is say, \$10bn or £20bn. Among companies that today earn in excess of 30% on their equity, many have assumed high levels of debt (which decreases equity and thus lowers the denominator in the ROE calculation). Moreover, consistent ROE allows investors to project future ROE with a higher degree of confidence, and from that infer the earnings needed to attain predicted ROE. This is a routine calculation Buffett makes when assessing a company's prospects. High ROE inevitably leads to growth in the most rewarding ingredient for shareholders over time - book value, the company's net asset value on its balance sheet. A company that can increase per share book value at high rates will usually increase earnings at high rates. Over long periods there is a strong correlation between book value and share price growth. An investor has, however, to watch out since ROE can be, and often is obtained mischievously through share buybacks, accounting charges, mergers, and changes in debt levels and dividends. Any event that alters book value has the potential to greatly inflate profitability ratios and create the appearance of high utilization when, in fact, the opposite may be true.

### **(2) Does the company have high net profit margins, or net income as a percentage of sales?**

High profit margins indicate that a company has a unique advantage in the marketplace that cannot easily be replicated by the competition. In addition, high margins usually reflect business strength and cost consciousness. Look for margins in excess of 15%.

### **(3) Is there high return on reinvested profits?**

Buffett often comments that every dollar in retained earnings (profits left after dividends) should increase the value of the company by at least a dollar down the road. If management tends to squander profits by replacing equipment or initiating projects that don't lead to higher future gains, it might as well leave its earnings in the bank to grow at 5% a year.

#### **(4) Does the company generate high owner earnings?**

This is basically free cash flow, which is defined as (a) operating earnings plus (b) depreciation expenses and other non-cash charges minus (c) as "the average amount of capitalized expenditures for plant and equipment etc. that the business requires to fully maintain its long-term competitive position and its unit volume". Buffett calls (a)+(b)-(c) "owner's earnings".

#### **(6) What is the true intrinsic value of a business?**

Buffett defines intrinsic value as "the discounted value of the cash that can be taking out of the business during its lifetime". He uses owner earnings as the amount of cash that can be taken out of a business over its lifetime under consideration of some terminal value at the end of the period. It is not easy to do and depends on estimation of both future cash flows and interest movements.

Answering these questions does not only support a possible investment decision, answering these questions also provides a deep inside into the business, its operations and qualities. These are all aspects that are essential before taking an investment decision. However, the overall thought and focus should not be forgotten when asking these questions. The focus is on businesses one is looking to buy and not the stock or the sector or the country. Do we want to own this business is the question we need to ask, or even better would I put 5% of my money in the company? Further questions should include the following:

Do we really want to own this business is the key question. Do we really understand it? How long has it been around? What has been the predictability of this business during previous recessions or times of stress? Characteristics should be well defined – including aspects as the risk of obsolescence in products. Every business has an element of cyclicity. Thus, cyclicity does not preclude us from focusing on businesses which grow but not in a staircase fashion. Ultimately one has to try to ascertain whether the results are repeatable and how much certainty one needs of that. These questions just try to ascertain the quality of the business and do not tackle the valuation aspect. These should be as much quantifiable as possible, especially the performance of the management (retained earnings growth) and the quality of the business. Every company thus should meet certain characteristics before it is included in the own "investible universe". Every once in a while a new name could be added or old names deleted from the universe, but the list does not change on a monthly basis. The names should be picked one at a time to be included in the "universe". This procedure shows how careful and thoughtful stocks have to be included in the "investible universe" and the previous sections about intrinsic value and buy/sell discipline have shown how important also the subsequent steps after accepting a stock in the "investible universe" are. Successful investments are usually based on both, a good business and a knowledgeable as well as patient investor.

### **Practical Example: Apple vs. Nokia**

The practical case I will present in the following discusses two well-known companies, Apple and Nokia, with a focus on their development in the mobile communication device market. Before going into detail about the comparison of Apple and Nokia, a more general view and the smartphone market and the development of technologies are in order. The depiction of the advancement also helps to understand how Apple could succeed in a market that appeared to be unalterably dominated by Nokia before the market entrance of Apple.

Since the end of the 1990's, most mobile phone companies adopted the smartphone concept (Cecere, Corrocher, & Battaglia, 2015). The smartphone differs from the 'feature phone' that many companies have been selling up to that point. Yet, there is no clear definition within the industry what constitutes a smartphone. Generally, the smartphone provides more functionalities and technologies than the 'feature phone' and is therefore often regarded as a "next-generation product of feature phone" by consumers (Kang, Cho, & Lee, 2011, S. 919). The introduction of the smartphone was accompanied by the loss of consumers' interest to use fixed devices such as PCs and an increased demand for a device that allows all those features with the possibility of "ubiquitous usage" (Christou, 2014, S. 369). The feature of 'portability' provides smartphones with the possibility to offer its users mobile computing and information processing (Christou, 2014; Abuan, 2009).

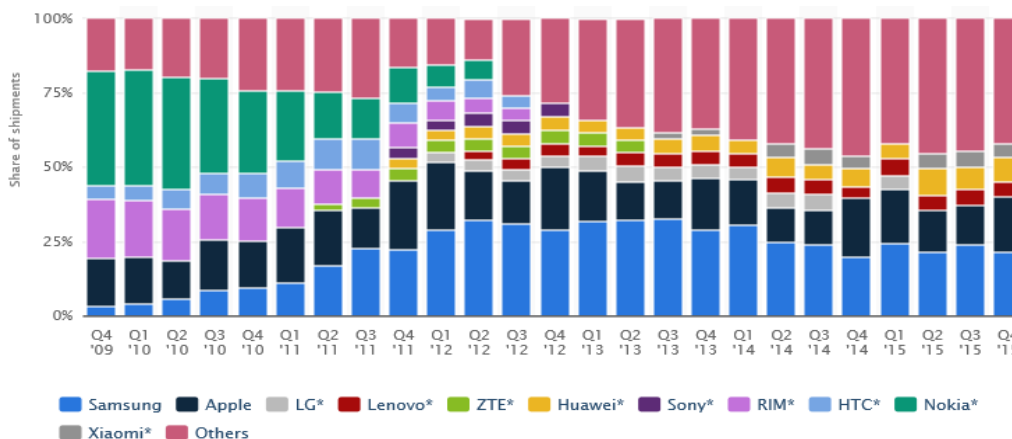
As a matter of fact, the introduction of the smartphone had a large impact on the mobile-phone market. Until 2002, the market was characterized by rapid growth, which slowed down until it reached maturity in 2014 and became a replacement market, rather than a first purchase market (Kang, Cho, & Lee, 2011). In 2013, the adoption of the smartphone and the increasing consumer interest made the sales of internet-connected smartphones exceed that of more basic mobile phones ('handsets') for the first time (Cecere, Corrocher, & Battaglia, 2015). It is estimated that there were already about 1.75 billion users of smartphones at the end of 2014 (Christou, 2014; eMarketer, 2014). Most of the remarkable growth in the smartphone industry rests on the new actors such as Apple and Samsung and on the technological advancements to hard- and software they made (Cecere, Corrocher, & Battaglia, 2015). Overall, the mobile phone industry is a very innovative and dynamic industry with highly concentrated market shares and a fierce competition between the market participants (Cecere, Corrocher, & Battaglia, 2015). Indications for this fact are the recent legal disputes over designs and patents between Samsung and Apple (Cecere, Corrocher, & Battaglia, 2015). Since the smartphone is a high-tech product, it tends to have a short-life cycle and is exposed to the substitution effect (Tseng, Liu, & Wu, 2014), which is most likely the reason for the strong competition in the market. An important aspect linked to the change of consumers between devices is, that their phone is a "personal object and conscious design choice" (Mangalindan, 2014). Smartphones provide a variety of functions and services to their users such as multimedia, camera, navigation and mobile internet (Dunlop & Brewster, 2002; Jin & Ji, 2010), which "transformed" it into multifunctional devices that address different needs of the potential user (Jin & Ji, 2010; Negahban & Chung, 2014). Another example in literature is Laugesen & Yuan (2010) or Marcus (2007) that stress that a simple array of buttons as part of the design, such as on Apple's iPhone, can be appealing to users. This stresses, that even if the success of a smartphone is most likely based on certain forms of consumer perception of a product, the foundation of the success is mainly premised on the producer's decision of the smartphone characteristics. Of course, part of the success is less directly linked to the phone itself, such as the influence of the producer's brand equity (Negahban & Chung, 2014) or networks and complements (McIntyre & Chintakananda, 2014). Premised on the previous chain of arguments, the design of the smartphone should not be neglected, given that it is a personal object to address different functions and needs of the user.

Moreover, while illustrating the emergence of Apple's iPhone, Chesbrough (2006) elaborates on the trend of smartphones as an integrated component in (an) existing value system(s) (West & Mace, 2010). This is a feature of a smartphone that is not directly related to the smartphone itself but appears to be gaining importance since the launch of the iPhone. The iPhone was not designed as a standalone device and the use of a touch screen instead of a keyboard as well as the integration of Apple's OS (operating system), Apple's browser Safari and the Apple's iTunes store "disrupted" the traditional market concept (Cecere, Corrocher, & Battaglia, 2015). The



possibility to provide a suitable mobile internet was one key feature that Steve Jobs emphasized, which in his opinion people desire – and he was proven to be right (West & Mace, 2010). The year of the introduction of the iPhone can be said to mark Nokia's decline and Apple's rise at the same time. As Figure 6 shows for the time after the introduction of the iPhone in 2007, more specifically between the end of 2009 until the end of 2015, Nokia constantly lost its dominant market share, while Apple was increasing and holding its share in the smartphone producer market.

Figure 6: Market Share of leading Smartphone Producers (2009 - 2015) (Statista, 2016)



The story behind Apple's success is often well-known and discussed, but the story behind the steady decline of Nokia is less known, in particular what happened before Nokia's remarkable loss of market share and market value. The following section will depict some of the most important steps in the firm history of Nokia, also including the appearance of competitors, mainly Apple but also Samsung.

The history of Nokia dates back more than 150 years ago in 1865 as a paper mill (Bulkeley, 2011). At the end of the 20<sup>th</sup> century, in 1979, Nokia was expanding from its forestry and rubber business by a merger with Salora (a Finnish TV producer) to become a radio-telephone company (Maisto, 2014). In 1981, Nokia introduced and launched the Nordic Mobile Telephone (NMT) that was the first automatic cellular network and allowed international roaming – leading to the possibility that one could call everyone (Maisto, 2014). Nokia further helped to invent the cell phone business by the development of the first mobile digital network technology GSM in 1991 (Maisto, 2014). Only one year later in 1992 it was the pioneer in SMS text messaging (Maisto, 2014). However, the first device that could be called a smartphone was introduced by IBM, the IBM Simon, which was introduced in 1992 and sold in 1994. However, the success was very limited with only 50.000 units sold after half a year (Maisto, 2014). Nokia was at about the same time developing the 1011, which was the first mass produced GSM phone, before it in 1994 introduced the smaller version of the 2100 series. The self-set target of 400.00 sales was surpassed easily by sales of about 20.000.000 devices (Maisto, 2014). Nokia's success at that time was mainly based on the combination of telephone (voice) and SMS messaging, which enabled them to establish and enlarge their market position and share. In a newspaper article in eWeek in 2014, Jack Gold, principal analyst with J. Gold Associates, even referred to Nokia as "the Apple of its day". Nokia started to be successful in Europe before the US, but also achieved milestones in developing countries. In 1995, Nokia started to establish itself as the largest supplier of phones in India with the help of the Nokia-network (Smith, 2009). In 1996, Nokia introduces the 9000 Communicator, a phone that could be open lengthwise with a large QWERTY keyboard. The introduction of this and previous phones enabled Nokia to sell millions of phones, from 39 million in 1998 (compared to Motorola with 34

million) to almost doubled 77 million (Motorola 48 million) solely one year afterwards. 1998 was also the year where Nokia built the first phone that had an exterior antenna. Between the years 1999 and 2002 Nokia made further advancements by launching the first phone that could access the internet, the first phone with a built-in camera, the first phone capable of 3G, the first phone with video capturing and finally also the first phone running with the Nokia operating system Symbian so that it constituted the first smartphone (Maisto, 2014). According to the former vice president and chief designer of Nokia, Frank Nuovo, Nokia was in 2002 developing a smartphone that was like the later iPhone of Apple and had a touchscreen as well as the ability to browse on the internet. However, about the development and the phone itself is not much known. (Hodges, 2014). Nokia's position in the mobile device market at that point can be depicted with the words dominance and innovativeness. Nevertheless, Hodges (2014) also mentioned that the reliance on Nokia's operating system 'Symbian' and their lack of focus on the consumer experience as well as their market dominance constituted blind spots for Nokia. Even though Nokia was the most dominant market player at that time, brands such as the Blackberry of RIM were able to successfully enter certain segments of the mobile device market (Maisto, 2014). In 2005, Nokia's market position was still the one of the dominant market leader and world's biggest cell-phone producer (Smith, 2009). In this year, it had already sold its billionth phone and had a market share of 49%. To compare, the rivals such as RIM (Blackberry) as the second in place had 10% and HTC solely owned 4% of the market (Maisto, 2014). Nokia was able to control its supply chains as well as establish tight relationships to its carriers (Shaughnessy, 2013). At this time (future) competitors were not inactive. Apple was developing and designing its iPhone and Google bought Android to build an open-source operating system, which Nokia did not want to join (Shaughnessy, 2013).

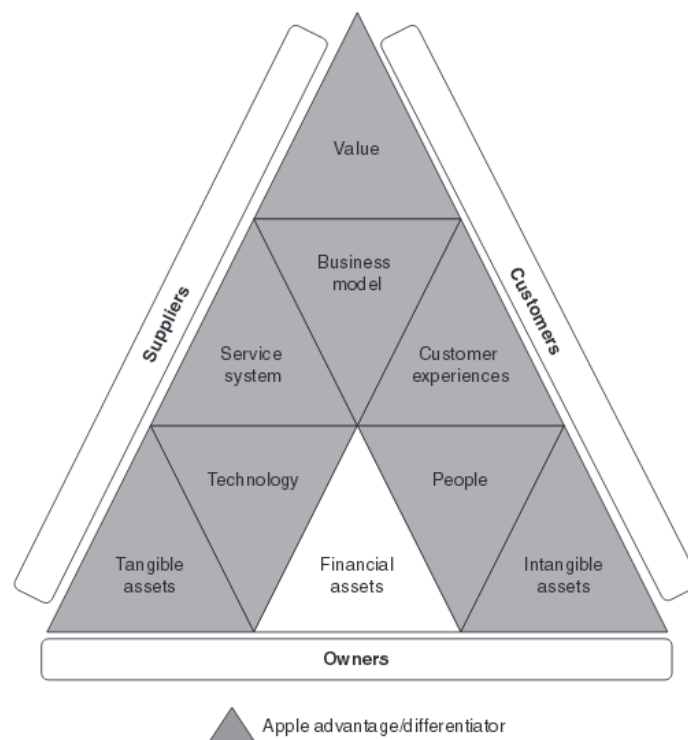
In 2007, Apple introduced the iPhone, which can be seen as the turning point for Nokia in the mobile phone market. Interestingly, sources such as Smith (2009) state that executives of Nokia were not impressed by the iPhone. However, the public and millions of customers obviously were impressed. The advantage of the iPhone was the combination of technology (e-mail, internet access, touchscreen, etc.) and the design as well as the ease of use (Maisto, 2014). Hodges (2014) mentioned that Apple had to develop a breakthrough product and change the game - and they did. In September 2007, only about 3 months after the launch of the iPhone, Apple already had a market share of 3,4% and sold a million of iPhones (Maisto, 2014). Interestingly, Nokia, who had "out-innovated" Motorola - based on the analyst Jack Gold - owned with its Symbian phones difficult-to-use phones. The same was true for Blackberry, which was particularly apparent compared to the easy-to-use iPhone. In 2008, Apple introduced the second generation of the iPhone and it as well as the cooperation with AT&T helped Apple to reach a 13% share in the market. At the same time, RIM increased its market share to 16% while Nokia's share decreased to 42% from the previous 49%. In 2009, Nokia's best bet appeared the emerging markets, where it was still highly dominant with affordably priced phones for the masses (Smith, 2009). Nokia's phones had comparably few components and were sold in more countries than any other mobile phone producer. In India it had a market share of 60% and a strong brand name, in China with 30,000 the most retailers and in Middle East and Africa a share of 52%. In 2009, Nokia introduced some devices that were constructed for the developing markets with a price of only about 60. The emerging markets appeared to be markets where Nokia was still able to be successful and maintain its dominance. Even though Nokia was at this time still selling a multiple of the amount of mobile phones that Apple or RIM sold, it could not prevent to see its second quarter profits drop by 66% and its share price by 17% (Smith, 2009). In this year, Nokia also launched its own App store 'Horizon', however, the governance structures for developers were a huge obstacle so that after 6 months solely 60 apps were available in it. Moreover, the simultaneously introduction of the platform in 35 countries was simply a technical disaster (Shaughnessy, 2013).

In 2010, Nokia was still operating successfully in some markets, especially emerging markets such as Indonesia, where it was not endangered by rivals such as Apple (Economist, 2010). Its operating system Symbian was still in first place within the operating systems (OS), however lost 8 percent points to 37% at that time. Android had gained a share of 25.5% already, with Apple owning 16.7% (Maisto, 2014). The next year, Nokia was still selling more phones than any of its competitors and spent more on R&D, namely an equivalent of 2.9 billion euros, which was far more than any other company in this sector. Even so, it did not manage to produce a product that appeared to be able to compete with the iPhone. As Jason Armitage, a mobile-media analyst at the Yankee Group, mentioned, Nokia committed the mistake to segment the market and penetrate it with different products without seeing that a new player could create a new category that appeared attractive to many different customer groups (Bulkeley, 2011). In 2011, Nokia had already lost half of its market value compared to two years before. One year afterwards, the market capitalization sank to €14.8 billion compared to €110 in 2007 – the year of the introduction of the iPhone. Since 2007, Apple and Android (OS) had started to dominate the smartphone market (Shaughnessy, 2013). Nokia was highly successful in many emerging markets, including the African continent. <though, its sales were also declining in the African market in 2012 and local African companies such as Mi-Fone were increasingly competing with Nokia (McBain, 2013). In 2013, Android became the OS with the largest market share of 32%, while Nokia had already abandoned its OS Symbian in 2011. Jack Gold, principal analyst with J. Gold Associates, commented the overall situation with the statement "Time is not anybody's friend in this market" (Maisto, 2014). In 2013 Microsoft and Nokia agreed on the sale of Nokia's handset division, which was completed in April 2014. The price of the acquisition for Microsoft was approximately 7.5 billion (Danielson, 2015). Even though, there were rumors that Nokia may re-enter the mobile phone market after the end of the non-compete agreement it had with Microsoft until end of 2015, the sale of its handset division is like a bombshell.

Nokia, which was until 2007, solely about 6 years earlier, the dominant player on the handset market, had stopped operating on it at that point. The question if the rumors are true and whether Nokia will engage again in this market will be answered in the future. Nonetheless, the development is remarkable – in an adverse meaning for Nokia. Nokia did not see threats in the beginning made the wrong choice about the operating system and did not adequately adapt to the new business settings and customer needs. Even the fact that Nokia realized the threat of Apple and others such as Samsung and the OS of Google, Android, it was not able to find the right responses. A dominant position and the highest R&D budget were neither able to compensate for these mistakes nor did they enable Nokia to introduce a smartphone that was able to compete with the iPhone or other leading smartphones (Shaughnessy, 2013). In the end, even a former market leader as Nokia could not overcome these factors. The fact that Nokia was not able to counteract these threats in the mobile phone segment sealed its faith in this market. Despite this historic development I also consider it important to look into the underlying numbers and strategic factors that have led to the rise of Apple opposed to the decline of Nokia. As Bersin (2013) stated so aptly, companies like Nokia "don't fail to innovate. They simply fail to learn". Moreover, he criticized that Nokia didn't have a culture that was open to mistakes and the subsequent learning from them. Nokia was focused on selling mobile devices – however, it is less about the specific device itself but about the ecosystem, so the combination of hardware and software that it is integrated into (Cuthbertson, Furseth, & Ezell, 2015). Nokia as well as RIM basically made this mistake which made it possible for Apple and Google to surpass them, especially with their own operating systems and integrated platforms (Apple Store, Google Play Store) (Cuthbertson, Furseth, & Ezell, 2015). Consequently, it is not surprising that Nokia's brand became to some part a liability when possible and current customers started to associate Nokia with "reliable but boring phones" (Cuthbertson, Furseth, & Ezell, 2015). Cuthbertson, Furseth, & Ezell (2015) have the view that

Nokia was simply not as determined to innovate than Apple was and possibly was also less forced to do it as much as Apple was. After the success of the iPod, Steve Jobs was concerned that Phones with included MP3 Players might obviate his iPod as it happened largely with the digital camera market. Seeing the weaknesses of the current phones, especially the lack of ease of use, design and focus, he decided to create a phone fulfilling these features before Apple’s competitors could (Cuthbertson, Furseth, & Ezell, 2015). One year before the introduction of the iPhone, Nokia was far above its competitors concerning customer satisfaction (Cuthbertson, Furseth, & Ezell, 2015). In 2007 Apple entered the mobile phone market basically “out of nowhere” and was able to capture 40% of the US smartphone market in 2013, from 0% in 2007 (Cuthbertson, Furseth, & Ezell, 2015). Interestingly, Nokia was still highly innovative, even in the 2010s and was among the first companies to introduce many technical features such as touchscreen or wireless charging. But his focus on a “phone-first” paradigm with the improvement of existing products rather than a “disruptive innovation” and less emphasize on customer experience were crucial for its decline (Cuthbertson, Furseth, & Ezell, 2015). This failure of Nokia and the focus on these factors enabled Apple to gain significant influence and market share in the mobile phone market, while Nokia and RIM were gradually losing them (Simpson, 2012). More strictly speaking, Apple appears now to have the single approach to produce smartphones that can succeed in the market, while many companies try to emulate the factors that make Apple so successful (Simpson, 2012). Concerning the comparison of Nokia and Apple, the ‘Service Innovation Triangle’ which takes into account the three aspects ‘Suppliers’, ‘Customers’ and ‘Owners’ clearly shows the advantageous position of Apple opposed to Nokia. In 8 out of 9 categories including ‘Customer Experience’ and ‘Technology’, Apple surpassed Nokia and demonstrates a differentiator that Apple has compared to it. Only in one aspect out of nine both are equal (Cuthbertson, Furseth, & Ezell, 2015).

Figure 7: Service Innovation Triangle of Apple vs. Nokia



The previous explanation gives a clear view on Nokia’s shortcomings. However, I also want to stress the position of Apple, which was so far just introduced incompletely. Based on the available

literature and own thoughts, a SWOT analysis for Apple was conducted with the purpose to illustrate the strengths, weaknesses, opportunities and threats. In the authors view, these are the most relevant aspects for the SWOT analysis but clearly the analysis doesn't make claims of completeness. The analysis is illustrated in Figure 8:

Figure 8: SWOT Analysis for Apple

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>▪ Powerful brand and brand awareness</li> <li>▪ Customer loyalty</li> <li>▪ Fast-growing phone and PC Sales</li> <li>▪ High Cash amounts and profit margins</li> <li>▪ Closed Ecosystem (connected products and services)</li> <li>▪ Patents (e.g., on design) and R&amp;D efficiency</li> <li>▪ Focus on design of products and ease of use</li> <li>▪ Highly skilled employees and management</li> <li>▪ Successful retail stores</li> <li>▪ Diversification of revenues</li> </ul>	<ul style="list-style-type: none"> <li>▪ Remarkable expectations of investors and customers</li> <li>▪ Apple cannot provide experimental devices or services (limitation in the pace of innovativeness)</li> <li>▪ Slowing iPad sales</li> <li>▪ Due to its closed ecosystem Apple has to work in different businesses to provide the customers the same features as more focused smartphone producers</li> <li>▪ Apple's OS incompatible with non-Apple devices and OS</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>▪ Introduction of a streaming television service</li> <li>▪ Obtaining patents through acquisition</li> <li>▪ Mobile advertising market growth</li> </ul>	<ul style="list-style-type: none"> <li>▪ Google's Android OS</li> <li>▪ Price pressure (e.g., from Samsung)</li> <li>▪ Fast technological change / advancement</li> <li>▪ Chinese phone producers as competition</li> <li>▪ Tim Cook may not be the leader that can help Apple to remain at the top</li> <li>▪ Apple's competitors try to copy its success factors</li> </ul>

(Beattie, 2015a; Fortune, 2015; SMI, 2013)

Even though most aspects in this illustration appear understandable by themselves, I want to comment on some of these points to make the picture of Apple's success factors more transparent.

## **Closed Ecosystem**

One point that was already mentioned, but which in my view is of crucial importance is the ecosystem that Apple was able to build up. It was not solely about the mobile device for Apple but about the platform and system surrounding them, since those make the products such as the iPhone more attractive over more than one product life cycle (Cuthbertson, Furseth, & Ezell, 2015). Moreover, this system made Apple also more attractive for developers since Apple's Business Model enabled the partners to also earn money, for instance with Apple's iTunes and the AppStore (Cuthbertson, Furseth, & Ezell, 2015). As Beattie (2015b) pointed out, it is about the content, which is metaphorically locking customers to Apple even after their device is ageing. Apple clearly possesses some "unique appeal to stay within that ecosystem" (Investopedia, 2015). This network includes one of the most important features and revenue sources: the AppStore. Since Apple gives developers the opportunity to use its AppStore to offer and sell their apps while keeping 30% of the revenue, it earns additional revenue. These revenues lead to a profit of approximately \$6.4 billion since the launch of the AppStore and this model gave Apple a share of 63% of the US digital music market (Cuthbertson, Furseth, & Ezell, 2015). However, it has to be also mentioned that due to its closed ecosystem, Apple has to work in different businesses to provide the customers the same features as more focused smartphone producers. This has worked out so far quite well but is nevertheless a disadvantage since it requires sources in those areas that are not available for the core areas. Moreover, the attempts of competitors to copy Apple's successful ecosystem pose a threat to Apple that should not be neglected.

## **Gross and profit margins**

Apple's success is also founded on the combination of simple to use products with high gross and profit margins (Beattie, 2015b). These margins are premised on Apple's ability to focus on core strengths of the company while using subcontractors for non-core operations (e.g., chip design) (Cybion, 2010). An example for this focus is the assembly and parts of the iPhone. Apple doesn't build the device by itself but rather gives hardware specification and supplies the software for the product (Wei, 2016). On account of this, it doesn't have to conduct the manufacturing by itself, which is in general capital-intensive and associated with high costs and low profit margins (Wei, 2016).

## **Brand**

Another aspect is Apple's brand, which is attracting millions of customers to buy Apple products. Clearly, this brand value is based on other attributes of Apple such as its innovativeness and reputation, as well as the perception of ease of use and design of its products. One aspect to separately mention is the distinctive appearance of its product, which is a combination of design and use of premium materials (such as aluminum instead of plastic) (Investopedia, 2015). This appearance, but also the exclusive (eco-)system beside other (minor) aspects convince customers to be willing to pay premiums for its product and the excess to a "members-only area" (Investopedia, 2015). The ability to create and maintain this premium image and brand support and back Apple's high revenue and profitability numbers (Wei, 2016).

## **Design of product and ease of use**

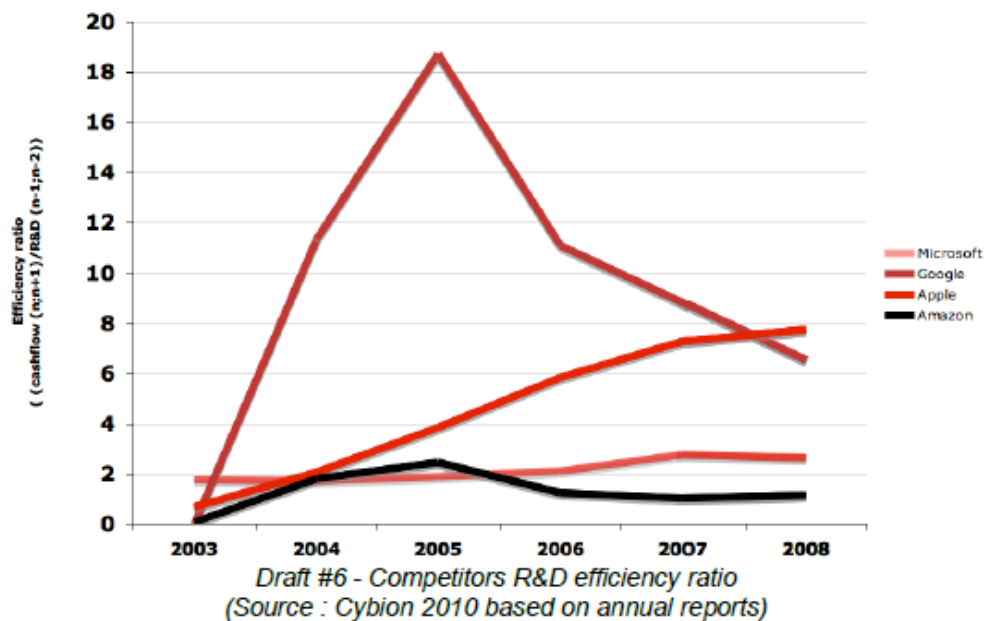
Apple, but particularly Steve Jobs, were focused on the experience that customers have with Apple

products and their satisfaction. Interestingly, Jobs had the view that a revolutionary product would not depend on customer needs since they would only understand the product and its quality when they were holding it (Beattie, 2015b). This is clearly an interesting aspect since it shows that it is not about existing customer needs but creating new customer needs which they didn't have before or were not aware of. The iMac as well as subsequent products such as iPod and iPhone were created to be elegant and user-friendly. The consumer perception of the product is essential, and Steve Jobs was "relentless on design, and indoctrinated the entire culture of Apple into the art of design" and the ease of use of his / Apple's products (Beattie, 2015b). It is obvious at this point that Jobs and Apple succeeded with their strategy and had tremendous accomplishments up to this point.

## R&D Expenses / Efficiency

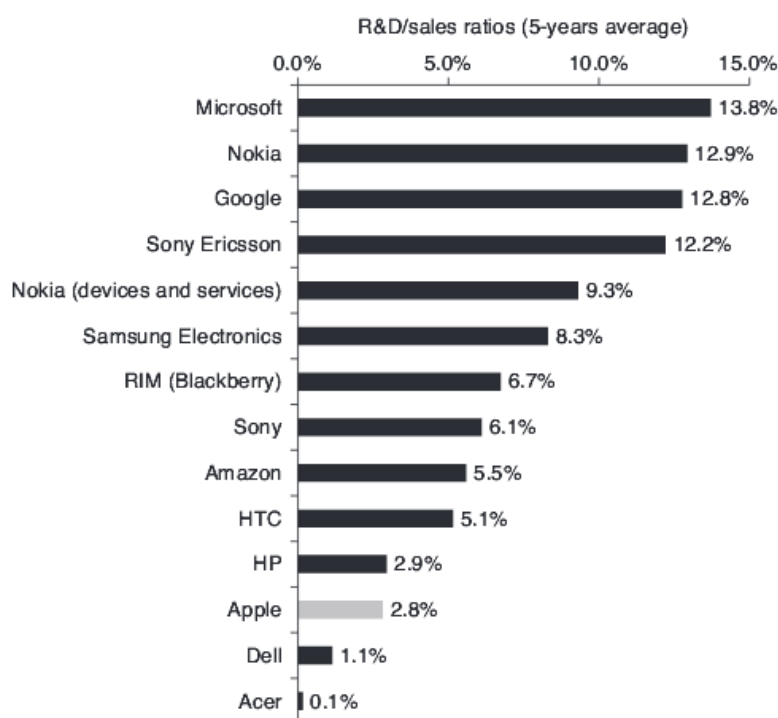
The expenses on R&D appear to be a vital part of the strategy of enterprises that focus on innovation and product differentiation. However, the example of Nokia, the mobile phone market leader in R&D expenses, demonstrated that it is less about the overall amount of R&D spending but about the efficiency of the investment. The available data show that Apple was able to continually increase its R&D efficiency, meaning the cash generated with each \$ (or other currency) invested into R&D, between 2003 and 2009. In 2009, Apple was the most efficient company when compared to Microsoft, Google and Amazon (Cybion, 2010).

Figure 9: R&D Efficiency Ratio Comparison



Moreover, Figure 10 points out that Apple is one of the enterprises with the lowest R&D to sales ratios, meaning that it is spending a comparably low amount on R&D in relation to its sales. In other words, Apple is capable of generating a comparably high number of sales from a relatively low R&D expenditure (Cuthbertson, Furseth, & Ezell, 2015; Mazzucato, 2013)

Figure 10: Leading ICT Companies' R&D/Sales Ratio (5-year average)



It is noteworthy, that Apple's ability to surpass its competitors even though they have higher R&D spending is according to Mazzucato (2013) that they made use of existing technologies that were already developed by government funded research at higher education institutions while Apple's main achievement in this area was the integration and improvement of these technologies into and within their products. It should be stressed that this is, even though it may appear as partial criticism, a remarkable achievement since Apple was making use of existing knowledge which some of its competitors did not do or just to a certain extent.

## Management and Employees

From my perspective as an investor a good management and skilled employees are key factors for a successful business. Management is the most important qualitative factor for a company and is therefore discussed in this separate section.

Clearly, Steve Jobs was a remarkable visionary, and his challenging and strict style was part of Apple's success and being able to motivate his employees (even though his management style was not uncontroversial). However, Steve Jobs was famous for his perfectionism, which was psychological speaking a positive perfectionism that is based on the ambition to achieve excellence, establish standards and hold also others accountable to them. Of course, these high standards and holding employees also accountable to them was one reason for the controversy. Nonetheless, Steve Jobs internally generated perfectionism was a motivation for excellence and quality (Sena & Olsen, 2013). On top of that, Jobs and Apple offer and designed an environment for "insanely significant innovations", which is what its competitors failed to do – at least in the same extent (Sena & Olsen, 2013). Of course, the absence of Steve Jobs and the new lead by Tim Cook still impose some questions – but Cook so far appears to be a suitable leader for Apple, even though it is obvious that he doesn't possess the same aura of innovativeness that Jobs clearly



embodied.

Notwithstanding, it has to be clearly stated that Apple's success under Steve Jobs was not solely attributed to Jobs. Apple was able to attract and employ many talented and motivated engineers, developers, managers and designers to enable their success. Apparently, Apple's brand name, reputation and culture of experimentation increased the ease with that the company could find well educated and skilled employees (Cuthbertson, Furseth, & Ezell, 2015).

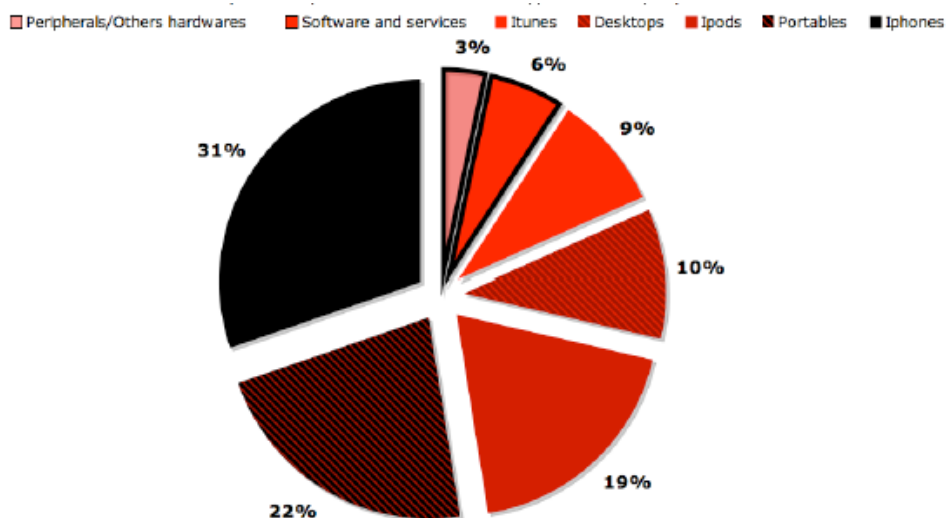
## Retail stores

When Apple was planning company-owned retail stores some critics called this endeavour a "risky cash drain" (Cuthbertson, Furseth, & Ezell, 2015). Apple had long planned and designed the concept of the retail store, especially since it had to convey the creativity and innovativeness of the brand Apple (Sena & Olsen, 2013). Apparently, Apple's concept and ambition meet the consumers interests and expectations and Apple is operating about 432 retail stores in 14 countries as well as an online store that together generated \$20 billion in 2013 (as of January 2014)(Cuthbertson, Furseth, & Ezell, 2015). On average, each Apple store is generating a profit of \$51.5 million per year, which is far above the expectation of former critics (Cuthbertson, Furseth, & Ezell, 2015). The decision to operate own retail stores, despite the rent that the company incurs as expenses, was from an ex-post point of view clearly the right one.

## Diversification

Even though the initial association with Apple may be the iPhone, there are much more sources of revenues / cashflow than might be apparent on first glance. Despite the iPhone class other product categories such as hardware (MacBook, etc.), mp3-player (iPod), tablets and media / music / apps (AppStore) belong to the income generating sources of Apple's success. An example for the year 2009 is presented in Figure 11.

Figure 11: Apple's Sources of Income



Draft #4 - 2009 Apple's incomes split between the different products  
(Source : Cybion 2010 based on 2009 annual report)

Cybrion Online Business Intelligence (2010) even called Apple in 2009 the only company that has successfully diversified (compared to Google, Microsoft and Amazon). Apparently, the companies Apple was compared with clearly engaged also in diversification since 2009, especially Google. However, the main point that shall be made in this section is that Apple has multiple sources of income and it is not only dependent on the iPhone revenues.

After I presented the SWOT-Analyses and review of some main points of it, a look at the financial numbers of Nokia and Apple is in place. First of all, we will take a glance at the market measures since those are often used by investors for the purpose to support them in their company evaluation. The P/E Ratio and the operating P/E ratio of Apple in 2015 were 11.2 and 8.4 respectively. Compared to previous years, these P/E ratios indicate that Apple is rather cheap compared to its own historic P/Es, but also particularly of the two last years, where the operating P/E exceeded 12 [2014] and 10 [2013]. In comparison with Apple's peer Nokia, the regular P/E is slightly higher, however the operating P/E is considerably lower. Since the operating P/E does not include non-operating income and expenses together with extraordinary items, the operating P/E better reflects the earnings potential of a company. In the juxtaposition of Apple against Nokia, Apple indicates a superior earnings potential. Additionally, taking this into account while we look at the lower P/S ratio of Nokia of 1.9 (with a 5-year average of 1.31) compared to Apple's 2.6 (3.03 as 5-year average), we can infer that Nokia's sales are high in relation to the operating earnings when compared with Apple. This indicates a lower margin and profitability of Nokia when balanced against Apple. This reflects the high profit and operating margins of Apple but also its brand value for customers.

As a value investor, we at Osiris Asset Management want to remark at this point that these market ratios have rather limited meaning and do not need to reflect the intrinsic value of a stock. As already stressed in the theoretical section, the intrinsic value can clearly differ from the underlying intrinsic value. We said that intrinsic value is a fundamental and rationally determined value of a stock. The market price does not have to coincide with this price and can even differ remarkably from it in times of misperception and strong emotions. As a matter of fact, looking at market prices and ratios does not tell about the value of a firm, it solely tells about the current price. Therefore, I put an emphasis on those factors that I believe to contribute to and determine the intrinsic value of a company: the fundamental factors, especially the cash flow generation ability of a firm. Market ratios in this case cannot give answers to this ability if they are not even reliable reference for the value of the firm. An alternative to market ratios are profitability and financial ratios, which do not account for market sentiment.

The first financial ratio to look at is the asset turnover. Apple's asset turnover clearly exceeds the one of Nokia for the last four years. This indicates that Apple is characterized by higher revenues to assets compared to Nokia. This means that Apple is capable to generate more revenue per unit of assets, which is an essential initial indicator for the cashflow generating ability. It is particularly interesting to note that Nokia's asset turnover decreased 7 consecutive years after 2007, the year of the launch of the iPhone. In other words, the Nokia's revenue generating ability per unit of asset decreased for more than half a decade. A comparable decline can be observed for Nokia's interest coverage ratio from 2007. After launch of the iPhone in 2007, Nokia's interest coverage ratio fell from almost 200 to less than 30. Even though it stabilized in the last four years to reach the current level of 12.08, the interest coverage is by far lower than Apple's 99.93. This is especially severe since Apple even has the higher debt-to-equity ratio of over 50% compared to about 20% for Nokia. Those two financial ratios together clearly demonstrate the Apple's higher ability to generate earnings cash flows and also to ensure their debt service.

Another interesting development for both firms concerns share buybacks since these are associated with a signaling effect of the management that consider the shares to be cheaply priced. The 5-year aggregate average shares were -2.0% for Apple compared to a marginal -0.21% for Nokia. Apple's decrease in shares is premised on the last three years where the company engaged in repurchases that amount to more than 11% of the highest level in 2012. On the other hand, Nokia started a slight share repurchase just two years ago which is with barely 1.1% less than one tenth of that Apple conducted. Apparently, the high percentage of Apple's share repurchases indicate that they are traded at a bargain price in the management's view.

Finally, I want to engage in a comparison of main profitability ratios of Apple and Nokia. Information on ROE, ROA, ROC, ROIC, gross margin and EBITDA margin between FY 2005 and 2015 withdrawn from Bloomberg are presented in Figure 12 and 13. Nokia's return ratios ROE, ROA, ROC and ROIC show that the peak of these profitability ratios has been in FY 2007, the year in that the iPhone was introduced. A decline and profitability ratios of even below 0% can be observed until the FY 2013 / 2014, which marks the decision to sell the mobile phone segment to Microsoft. Gross Margin and EBITDA margin were mainly declining between 2007 and 2011 and recovered quite strongly – even above previous levels. However, it is clearly visible that since the entrance of Apple (and also other competitors) on the mobile phone market, Nokia faced serious deterioration in its profitability measures.

Figure 12: Financial Ratios for Nokia

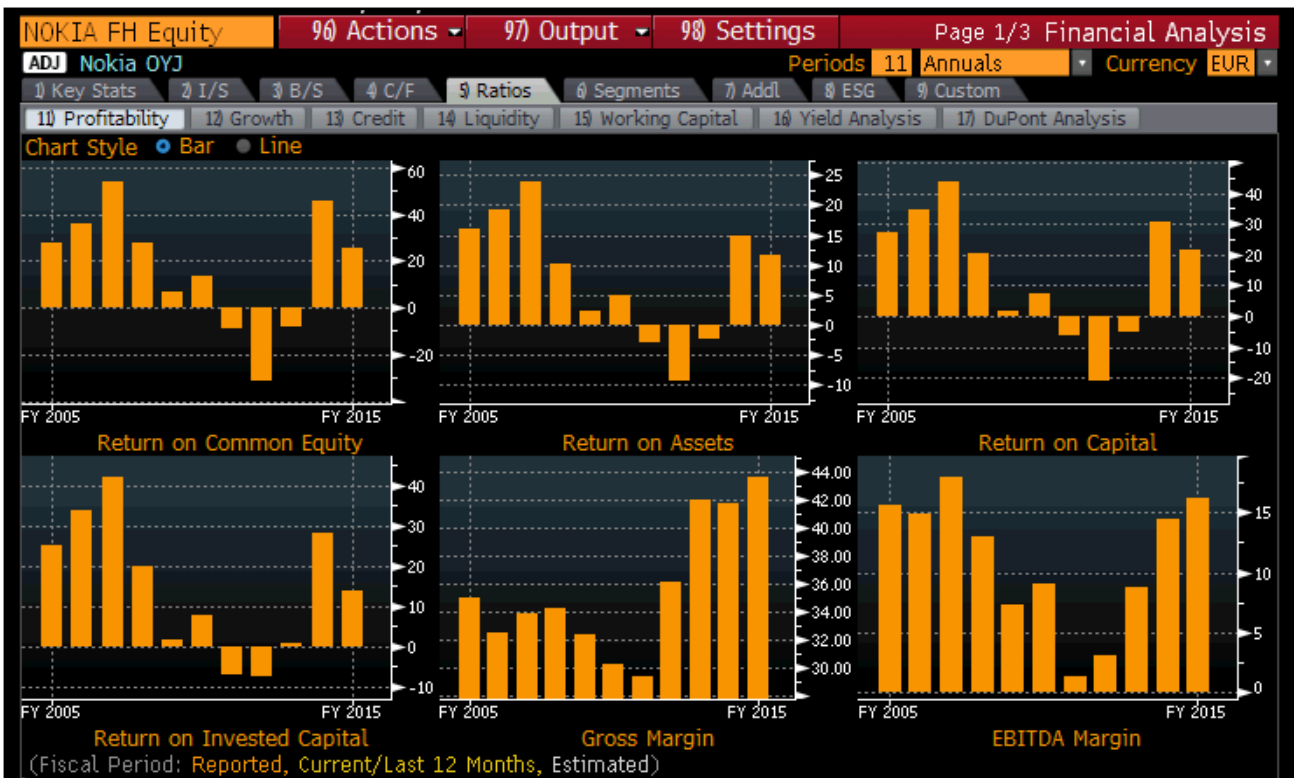
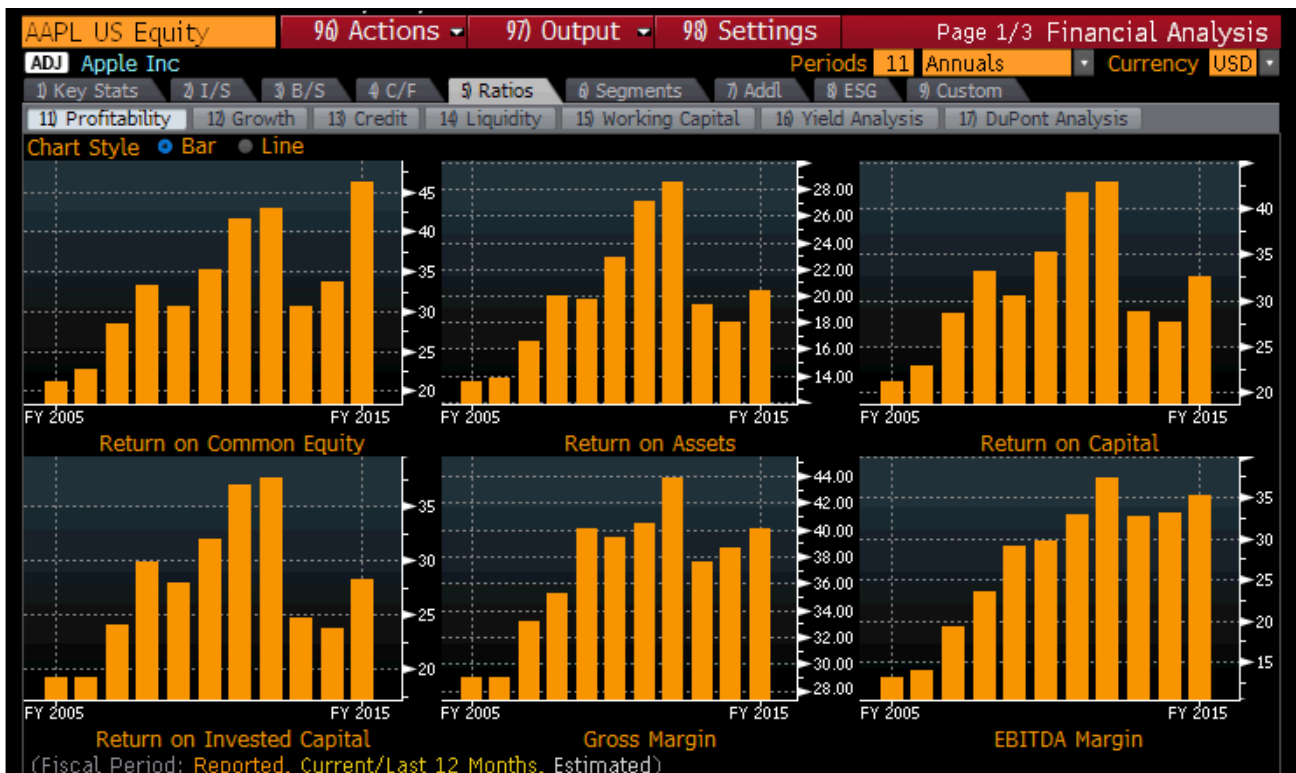


Figure 13: Financial Ratios for Apple



This development can be observed over several years and did not come abruptly within a year. On the other hand, it can be observed that Apple's profitability ratios consistently increased during the same time when those of Nokia gradually declined. After 2012 many profitability ratios for Apple declined, however they seem to have started recovering directly afterwards. In case of the ROE, Apple's profitability even increased above the previous peak to a level of more than 45%. This shows me as an investor that Apple was able to increase its healthy margins while Nokia experienced a severe decline in them in only recovered partially from it due to its reorientation of business after 2013. It is essential to regard the ROE not on a standalone basis but in relation to factors such as debt levels and industry peers. However, taken into account the lower leverage of Apple compared to its peer Nokia, the higher ROE of Apple is a sign of superior performance of Apple.

*Overall, it is clearly visible that between the year 2007 and 2013 Nokia and Apple were characterized by opposed developments in their profitability – Nokia showing a constant deterioration while Apple's profitability rose during this period remarkably and consistently.*

Figure 14 illustrates some key statistics, which also indicate that Nokia's fall was not a sudden event but a gradual deterioration of its financials. The key statistics show investors some relevant developments that characterize Nokia's decline in the mobile phone market. Most apparently, the (adj.) revenue decreased between FY 2008 and FY 2013 and FY 2014 (sale of mobile phone segment) from more than €50 billion to about €12 billion, which is about one fourth of the initial value 5 to 6 years before. The gross profit also decreased by almost 72% until FY 2014, the cash from operations declined remarkable 98% until FY 2013 and had their minimum in this period in FY 2012 with more than €350 million below zero.

Figure 14: Nokia Key Statistics

NOKIA FH Equity		96 Actions		97 Output		98 Settings		Financial Analysis	
ADJ Nokia OYJ		Periodicity		Annuals					
1 Key Stats		2 I/S		3 B/S		4 C/F		5 Ratios	
11 Adj Highlights		12 GAAP Highlights		13 Earnings		14 Enterprise Value		15 Multiples	
16 Per Share		17 St							
In Millions of EUR	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	Current/LTM
12 Months Ending	12/31/2008	12/31/2009	12/31/2010	12/31/2011	12/31/2012	12/31/2013	12/31/2014	12/31/2015	03/31/2016
Market Capitalization	41,046.4	33,077.7	28,708.7	13,994.8	10,758.9	21,416.8	23,931.8	25,979.0	27,075.4
- Cash & Equivalents	7,332.0	9,440.0	12,820.0	11,568.0	10,601.0	9,806.0	8,568.0	10,864.0	13,645.0
+ Preferred & Other	2,302.0	1,661.0	1,847.0	2,043.0	1,302.0	192.0	58.0	21.0	1,645.0
+ Total Debt	4,452.0	5,203.0	5,367.0	5,321.0	5,549.0	6,662.0	2,692.0	2,074.0	4,240.0
Enterprise Value	40,468.4	30,501.7	23,102.7	9,790.8	7,008.9	18,464.8	18,113.8	17,210.0	19,315.4
Revenue, Adj	50,710.0	40,984.0	42,446.0	38,659.0	15,400.0	12,709.0	11,762.0	12,499.0	15,457.0
Growth %, YoY	-0.7	-19.2	3.6	-8.9	-60.2	-17.5	-7.5	6.3	21.6
Gross Profit, Adj	17,373.0	13,415.0	12,990.0	11,399.0	5,624.0	5,345.0	4,907.0	5,453.0	6,163.0
Margin %	34.3	32.7	30.6	29.5	36.5	42.1	41.7	43.6	39.9
EBITDA, Adj	6,581.0	4,358.0	4,082.0	2,334.0	1,677.0	1,773.0	3,110.0	2,059.0	1,737.0
Margin %	13.0	10.6	9.6	6.0	10.9	14.0	26.4	16.5	11.2
Net Income, Adj	3,988.0	2,163.1	2,099.4	451.4	98.7	685.2	4,200.2	1,221.6	692.4
Margin %	7.9	5.3	4.9	1.2	0.6	5.4	35.7	9.8	4.5
EPS, Adj	1.05	0.58	0.57	0.12	0.03	0.18	1.03	0.32	0.21
Growth %, YoY	-	-44.6	-2.7	-78.5	-78.1	593.9	459.2	-69.2	-69.3
Cash from Operations	3,203.0	3,249.0	4,775.0	1,138.0	-351.0	77.0	1,275.0	509.0	-876.0
Capital expenditures	-889.0	-531.0	-679.0	-597.0	-461.0	-407.0	-311.0	-314.0	-328.0
Free Cash Flow	2,314.0	2,718.0	4,096.0	541.0	-812.0	-330.0	964.0	195.0	-1,204.0

The FCF from more than €2.3 was in FY 2012 and FY 2013 even negative with - €812 million and - €330 million respectively. The market capitalization within this period declined from above €41 billion to below €11 billion in FY 2012. The enterprise value of Nokia took a comparable path with a decline of more than 80% until FY 2012 and by more than 50% compared to FY 2013. All these key statistics for Nokia show that the decline of Nokia has been visible over years and was characterized by decreases in revenues and also cash flows. The previous figure concerning its profitability ratios demonstrated that these developments were also apparent premised on Nokia's declining profitability.

Another look at Apple's financial statistics strengthens the picture that was build up based on Apple's profitability numbers.

Figure 15: Key Statistics on Return, Margin for Apple

AAPL US Equity		96 Actions		97 Output		98 Settings		Financial Analysis		
ADJ Apple Inc		Periods		11 Annuals		Currency		USD		
1 Key Stats		2 I/S		3 B/S		4 C/F		5 Ratios		
6 Segments		7 Addl		8 ESG		9 Custom				
11 Profitability		12 Growth		13 Credit		14 Liquidity		15 Working Capital		
16 Yield Analysis		17 DuPont Analysis								
In Millions of USD except Per Share	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
12 Months Ending	09/30/2006	09/29/2007	09/27/2008	09/26/2009	09/25/2010	09/24/2011	09/29/2012	09/28/2013	09/27/2014	09/26/2015
Returns										
Return on Common Equity	22.80	28.51	33.23	30.54	35.28	41.67	42.84	30.64	33.61	46.25
Return on Assets	13.83	16.61	20.05	19.68	22.84	27.06	28.54	19.34	18.01	20.45
Return on Capital	22.80	28.51	33.23	30.54	35.28	41.67	42.84	28.71	27.70	32.62
Return on Invested Capital	19.31	24.11	29.95	27.99	32.06	37.03	37.64	24.78	23.74	28.27
Margins										
Gross Margin	28.98	33.17	35.20	40.14	39.38	40.48	43.87	37.62	38.59	40.06
EBITDA Margin	13.86	19.26	23.53	29.07	29.76	32.89	37.39	32.62	33.07	35.29
Operating Margin	12.70	17.93	22.21	27.36	28.19	31.22	35.30	28.67	28.72	30.48
Incremental Operating Margin	15.04	37.13	30.36	63.04	29.77	35.81	44.45	-	29.48	36.78
Pretax Margin	14.59	20.37	23.86	28.12	28.42	31.60	35.63	29.35	29.26	31.03
Income before XD Margin	10.30	14.22	16.32	19.19	21.48	23.95	26.67	21.67	21.61	22.85
Net Income Margin	10.30	14.22	16.32	19.19	21.48	23.95	26.67	21.67	21.61	22.85
Net Income to Common Margin	10.30	14.22	16.32	19.19	21.48	23.95	26.67	21.67	21.61	22.85
Additional										
Effective Tax Rate	29.42	30.18	31.61	31.75	24.42	24.22	25.16	26.15	26.13	26.37
Dvd Payout Ratio	0.00	0.00	0.00	0.00	0.00	0.00	5.94	28.48	27.92	21.41
Sustainable Growth Rate	22.80	28.51	33.23	30.54	35.28	41.67	40.30	21.91	24.23	36.35

Figure 15 emphasizes that Apple's margins overall have a linear trend between FY2006 and FY 2015 to increase. It is remarkable that Apple managed to more than double main margin figures such as the net income margin between FY 2006 and FY 2010 and keep it on a high level since then. Another point is that Apple is characterized by a sustainable growth rate of above 20% for the whole period between FY 2006 and FY 2015, with a current sustainable growth rate of 36.35%.

In contrast to this, Figure 16 displays profitability ratios for Nokia. As an investor one can see that Apple's sustainable growth rate increased from FY 2006 to FY 2007 and declined afterwards sharply. Between FY 2007 and FY 2008 it was more than halved, declining from over 38% to 17.31%. In the subsequent year Nokia already showed a negative sustainable growth rate while Apple was characterized by a growth rate exceeding 30%. The ROE subsequently fell below zero with negative returns of -8.87%, -31.35% and -8.54% in the FY 2011 until FY 2013. Apple at the same time achieved returns on equity of over 30% each year. Taking into account that Nokia and Apple operate in the same industry and that Nokia even had higher leverage than Apple, this result indicates that Apple outperformed Nokia remarkably.

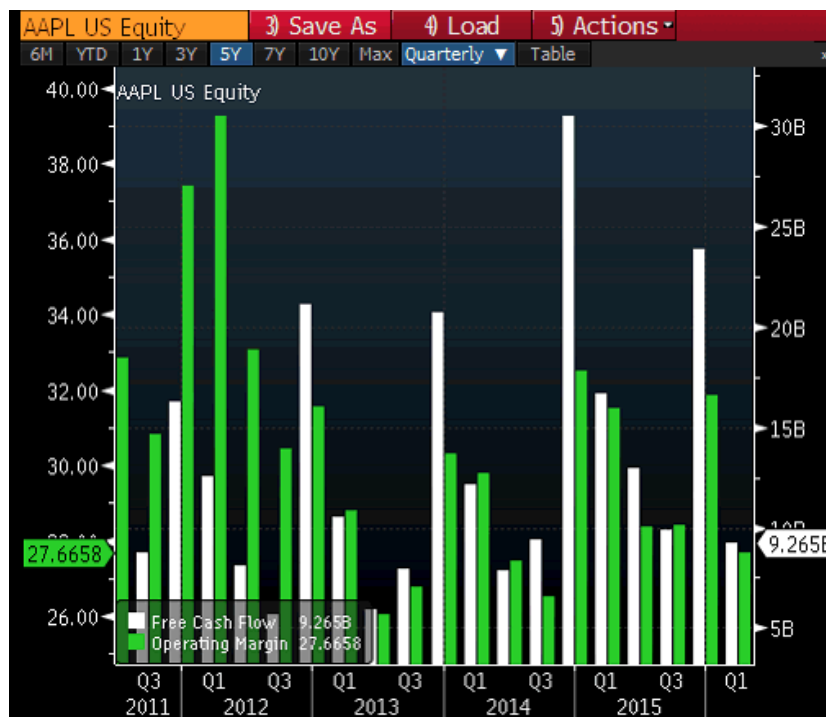
Figure 16: Key Statistics on Return, Margin for Nokia

NOKIA FH Equity		96) Actions		97) Output		98) Settings		Financial Analysis			
ADJ Nokia OYJ		Periods		11		Annuals		Currency EUR			
1) Key Stats		2) I/S		3) B/S		4) C/F		5) Ratios		6) Segments	
7) Addl		8) ESG		9) Custom		10) Yield Analysis		11) DuPont Analysis			
In Millions of EUR except Per Share		FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
12 Months Ending		12/31/2006	12/31/2007	12/31/2008	12/31/2009	12/31/2010	12/31/2011	12/31/2012	12/31/2013	12/31/2014	12/31/2015
<b>Returns</b>											
Return on Common Equity		35.70	53.89	27.52	6.53	13.47	-8.87	-31.35	-8.54	45.92	25.80
Return on Assets		19.17	23.93	10.33	2.37	4.94	-3.09	-9.38	-2.23	14.97	11.75
Return on Capital		34.88	43.77	20.39	1.59	7.38	-6.32	-21.07	-4.87	30.70	21.50
Return on Invested Capital		33.98	42.11	20.00	1.56	7.64	-7.17	-7.53	0.71	28.27	13.79
<b>Margins</b>											
Gross Margin		32.54	33.89	34.26	32.36	30.20	29.38	36.10	42.06	41.72	43.63
EBITDA Margin		14.88	18.00	12.98	7.27	9.05	1.26	3.02	8.74	14.46	16.18
Operating Margin		13.14	15.64	9.79	2.92	4.88	-2.78	-5.59	3.01	11.94	13.62
Incremental Operating Margin		11.05	25.96	-867.53	-387.5	59.71	-82.99	-	-	-	40.43
Pretax Margin		13.92	16.19	9.80	2.35	4.21	-3.10	-7.66	1.91	8.49	12.32
Income before TD Margin		10.62	13.21	7.67	0.63	3.16	-3.85	-9.63	0.32	23.11	9.55
Net Income Margin		10.47	14.11	7.86	2.17	4.36	-3.01	-20.16	-4.84	29.43	19.73
Net Income to Common Margin		10.47	14.11	7.86	2.17	4.36	-3.01	-20.16	-4.84	29.43	19.73
<b>Additional</b>											
Effective Tax Rate		23.71	18.41	21.75	72.97	24.80	-	-	83.13	-	22.47
Div Payout Ratio		40.90	29.30	37.09	168.13	80.97	-	-	825.18	18.89	85.92
Sustainable Growth Rate		21.10	38.10	17.31	-4.45	2.56	-	-	61.92	37.24	3.63

An analysis of the free cash flows of Apple and Nokia as illustrated in

Figure 17 and Figure 18 indicates that Apple shows much higher and more consistently positive cash flows and operating margins from 2011 to 2015. On a quarterly basis, Apple's margins never fall short of 25%. Opposed to that Nokia shows very volatile operating margins, which never exceed 20% and are also often negative. I see an upward trend for Nokia starting at 2013/14, which is the time period of the sale of the mobile phone segment to Microsoft. However, the trend is neither persistent, showing negative operating margins in the last quarter of 2014 and now also in the most recent quarter in 2016, and also not close to the margins that Apple achieves.

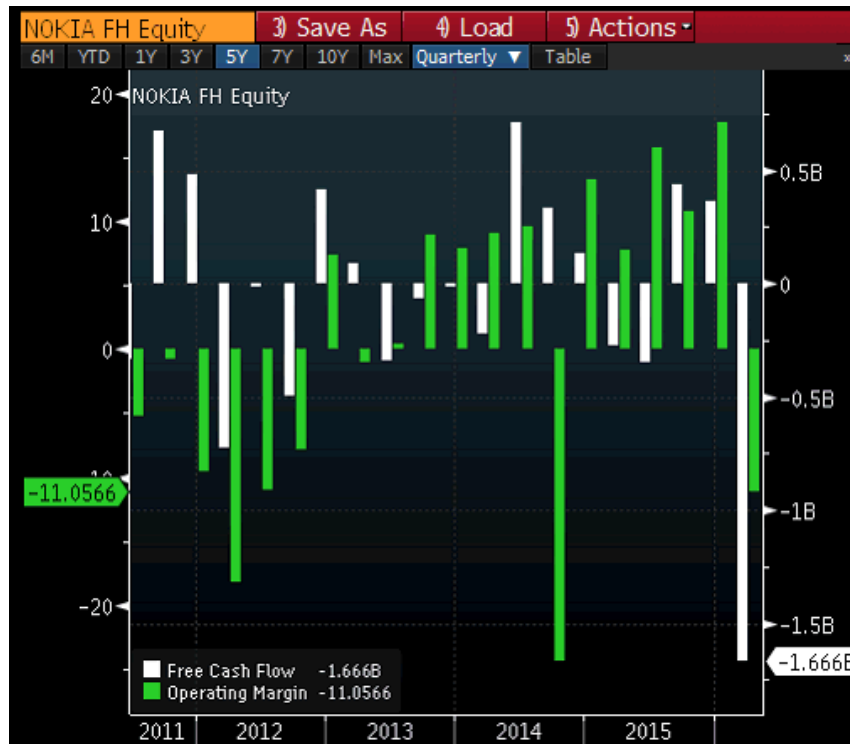
Figure 17: Apple's Free Cash Flow and Operating Margin



The same line of argument is applicable to the free cash flow of Apple and Nokia. Apple has a consistently positive free cash flow of at least \$5 billion each quarter, with seasonal year-end peaks of \$15 to \$30 billion in the final quarter. The most recent quarter shows a FCF of over \$9 billion.

On the other hand, we as an investor observe that Nokia is characterized by very volatile free cash flows that seem to move between +\$1 billion and -\$1 billion. Moreover, the current quarters FCF is with less than -\$1.6 billion the smallest FCF achieved during the regarded period. These free cash flows look significantly less healthy than those of Apple. I want to highlight and link at this point the importance of the cash flow generating ability of a firm. We already discussed this aspect in the theoretical part of this paper, but it is essential to understand the importance of the cash flow generating ability of a firm. First of all, the ability of a company to distribute cash to its various constituencies depends mainly on its ability to generate cash from operating its businesses. The FCF reflects this ability since it indicates the amount of cash flows that are available to equity- and debt holders. When I elaborated on different measures to determine the intrinsic value of a firm, I already mentioned that that the line of reasoning for and the meaning of FCF make it the favorable choice for valuations and it appears in my view to be the best indicator of the health of a company.

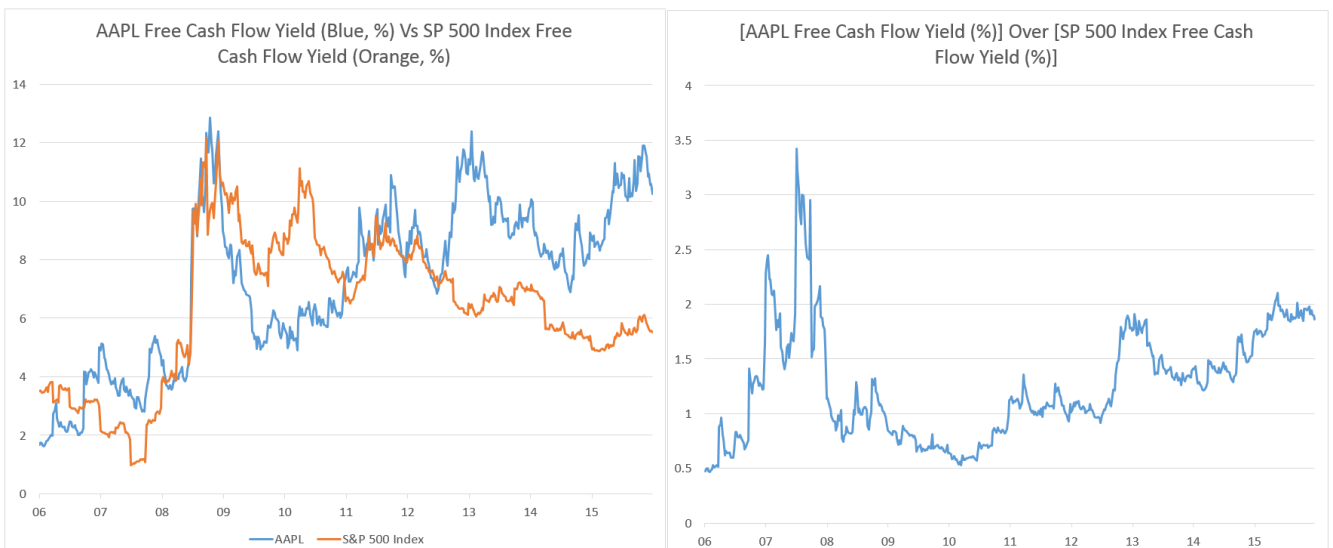
Figure 18: Nokia's Free Cash Flow and Operating Margin



The analysis depicted above shows, that Apple is clearly the healthier company compared to Nokia in terms of FCF and profitability.

A comparison of Apple's FCF yield with the S&P 500 FCF yield shows that Apple also outperformed the S&P since 2012/13 (Bergsens, 2016). This is illustrated in Figure 19:

Figure 19: FCF Yield Comparison of Apple and the S&P 500



As Bergsens (2016) remarks, Apple in 2015 basically doubled the FCF yield of the S&P 500 Index. This complements the positive impression of the profitability and growth numbers of Apple already



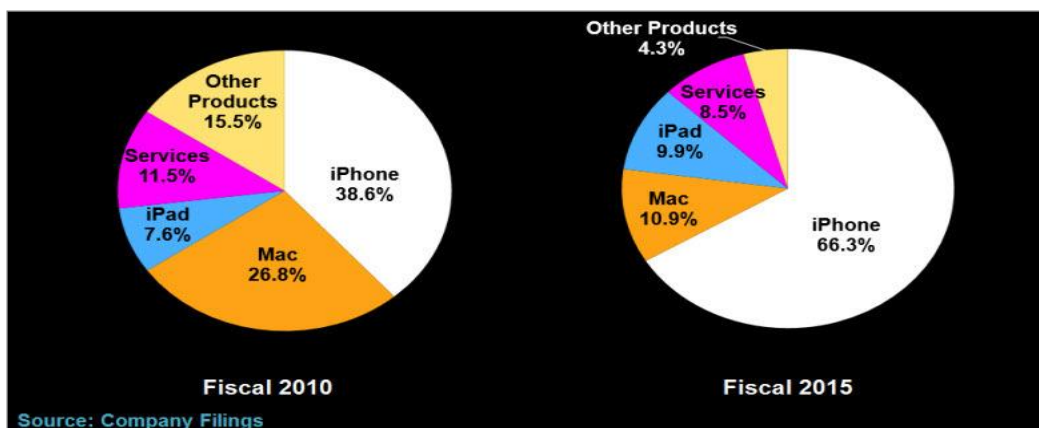
discussed.

Finally, Apple decided to expand its capital return program (until March 2018), which consists to a large portion of share buybacks. This indicated the management's confidence in the sustainable course of action, growth, current market position and future prospects and products (Lehar, 2016).

The presented SWOT analysis as well as the evaluation of the financial numbers and profitability ratios of Apple appear to be very positive despite some existing threats that the company will face in the future. Even though the picture of Apple indicates its ability to generate sustainable cashflows and be profitable, it is experiencing a selling pressure, which began in April 2015 and that has gained steam on the downside in 2016 (Koldus, 2016). On the one hand, the disappointment about the earnings growth and the corresponding decrease in expectations can be linked to it. On the other hand, it may also be caused by investors selling their shares since they require liquidity due to deterioration of other of their holdings (Koldus, 2016).

Since the slowdown of the iPhone sales, Apple is now trying to engage in the more profitable service like Apple Pay, Apple Music, CarPlay and the streaming video service that might be introduced soon (Butler, 2016, p. 2). However, it is apparent that these segments, which grow faster than the Apple's core segments, will not be able to compensate for a large decline in iPhone sales.

Figure 20: Apple's Revenue split by Segment in 2010 and 2015 (Butler, 2016, p. 3)



Consequently, the introduction of the iPhone 7 together with a product line extension and upgrades are in my view important for Apple to remain and strengthen its position in the market. The introduction of iPhone SE is supposed to establish and increase Apple's share in the midrange market to strengthen Apple's iPhone sales.

A last remark from my side at this point concerns the management. I mentioned that management is the most important qualitative aspect of a company analysis, since management has a decisive influence on a company's success. We already looked and contrasted the management, the strategies and the decisions made by the management of both Apple and Nokia. I as an investor share the view that looking at past strategies and objectives in contrast to the results determines and influences future decisions and success. The past of Nokia and Apple has indicated that this holds true for both companies. Apple was guided and led by Steve Jobs and afterwards Tim Cook, which made the firm the highest valued company in the world. In contrast to that, Olli-Pekka

Kallasvuo (until 2010) and also Stephen Elop (2010-2014) as CEOs of Nokia led Nokia from the peak of the mobile phone market to its decline and sale of this former major business segment. So, we see that good management as explained thoroughly in the theoretical part on value investing can have a significant and 'game-changing' impact on an enterprise.

As a next step it is clearly of interest how other analysts evaluate Apple's position and (short-term) outlook. Some of the most insightful opinions from end of January 2016 (based on the authors judgment) are presented below (Elmer-DeWitt, 2016):

Katy Huberty, Morgan Stanley: We are positively biased given better than feared March guidance, a growing user base, accelerating services revenue and new iPhones later this year. Guidance incorporates a **cautious macro outlook and sets up for a stronger iPhone 7 cycle**

Gene Munster, Piper Jaffray: If the **macro headwinds** continue to be an issue for AAPL, we would expect it to impact the entire market and would still view **AAPL as a relative winner** even in a down market environment as we believe tech investors would view the safety of Apple's capital return program as a positive.

Walter Piecyk, BTIG: Apple is perceived as a **company that is ex-growth**, so in large part we took our numbers there. The company does not appear to be able to broaden its revenue stream to products or services that can provide more optimism about growth. That led us to cut \$4 billion of revenue out of our model that probably shouldn't have been there in the first place.

Sherri Scribner, Deutsche Bank: We remain concerned about the **lack of growth in iPhone** units this year, the slowdown in China sales, and gross margin pressure from FX as we move through the year. We see limited catalysts for the shares in the near term and expect the stock to be rangebound. With AAPL becoming a recurring revenue story, we expect the **valuation to rerate in line with other mature, services-type companies**. At current levels, we view valuation as reasonable.

T. Michael Walkley, Canaccord: Apple sales would have grown 8% year-over-year in constant currency, as significant currency headwinds had a \$5B adverse impact to Q1/F'16 sales. Based on our survey work and analysis, we believe Apple is maintaining strong share of the premium tier smartphone market. However, given the similar form factor for the iPhone 6S and **softer smartphone global demand trends**, we anticipate weaker and down year-over-year 1H/C2016 iPhone sales.

Andrew Uerkwitz, Oppenheimer: We see FY16 as a very challenging year due to **macro headwinds** in emerging markets and an elongated replacement cycle in developed markets. But we believe **growth potential in China and other emerging markets has not been fully realized** and will help to strengthen AAPL's 1 billion device installed base. We believe investors' patience will be rewarded, as Apple transitions to a recurring revenue-based model.

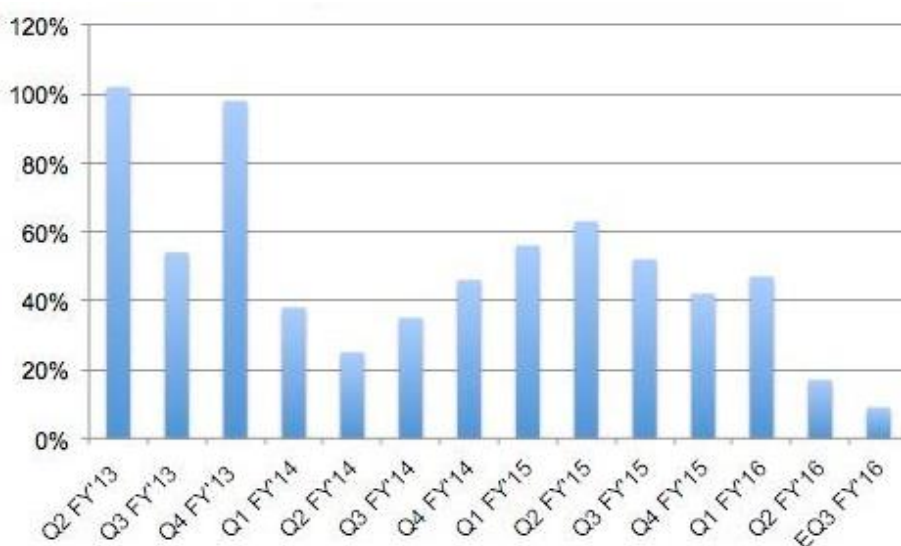
Kulbinder Garcha, Credit Suisse: We believe we now have a handle on the degree of GM erosion over this subdued iPhone cycle. This, we believe, provides a baseline CY EPS estimate of \$8.92, meaning incremental downside risk is capped at ~\$89. With high retention rates, a superior ecosystem, and multi-product compute advantage and an installed base of 1bn users, we believe **Apple provides a sustainable, annuity type FCF** of ~\$60bn per annum.

The presented analyst opinion's range between optimism concerning the company's strengths and concern with reference to the macro environment in emerging markets and demand in developed countries. Even though analysts such as Piecyk see the company at ex-growth this fact can also be in line with Garcha's perception of sustainable annuity for FCF. Overall, analysts appear mainly uncertain about the development in the emerging markets such as China. Munster nonetheless sees Apple as a relative winner if macro headwinds have an impact on the entire market. However, concerning the products rather than the markets, Garcha stresses the superior ecosystem and product lines while Huberty also emphasizes the optimistic outlook towards the iPhone7. It appears that even though some analysts explicitly stress Apple's advantages, many of them are concerning with slowing sales of the iPhone and / or macroeconomic headwinds.

So far, the more recent events in mid-2016 have not been favourable for Apple. It has just reported the first year-over-year sales decline in the history of the iPhone and it even forecasts a further decline (Lehar, 2016). Even the comparison to 2014 (over two years) illustrated in

Figure 21 shows the slowest quarterly sales growth in the period 2013 to 2016 (Lehar, 2016).

*Figure 21: iPhone Quarterly Sales Growth (Year over Two Years)*



As Lehar (2016) points out, this reveals the increase of the iPhone's maturity, which is Apple's most important product and driver of growth. Moreover, he critically remarks that the fact that Apple focuses on iPhone growth in India as an emerging market, shows that the iPhone has already matured to a certain extent since its introduction in 2007. It will be interesting to see how the iPhone will develop within the next months and years and if Apple will be able to introduce significant innovations concerning the iPhone or even with respect to new products. There have been a variety of rumors from Apple but also externally about upcoming inventions. The future will show which of these rumors have been correct and which of these innovations will be successful on the market.

## Conclusion

This paper focused on the depiction and contrast of the prevalent investment theory taught in business schools with the concept of value investing, which is in our view usually taught

insufficiently, if at all. The example of Apple vs. Nokia was chosen by the authors to stress the main aspects of value investing in a practical, real-world context. Both business models, the one for Nokia and for Apple were presented, one with a focus on a “phone first”-concept, the other with a focus on customer experience and ease of use. The “phone-first”-concept of Nokia was accompanied by the improvement of its products rather than being innovative. On the other hand, innovativeness is a business quality that Apple is possessing up to this point. Clearly, Apple’s business qualities of innovativeness and user-orientation were more successful to obtain and remain market share than Nokia’s quality of being a reliable producer of technological advanced phones. Another point are the management qualities of an enterprise. Apple’s management, in particular visionaries such as Steve Jobs, understood the markets they were operating in (or planning to operate in) and also the customers in these markets better than Nokia did. On the other hand, Nokia’s management was not skilled and aware enough of the threat that the iPhone imposed on them and started to act on the threat too late and not decisive enough. The profitability and cashflow figures showed that Nokia was consistently generating less cash and becoming less profitable in the period between FY 2007 and FY 2013. In contrast to that, Apple’s cash amount rose remarkable during the same time, the profitability ratios such as ROE or profit margin were consistently high and Apple was characterized by a sustainable growth rate that was at no point during that time period below 20%. Apparently, Apple increased its ability to generate cashflows while Nokia was gradually losing this specific ability. The diversification and different channels for revenues contributed to this beneficial development for Apple. Eventually, the different strategies of the management impacted the image and view of customer on the brand – making the former customer satisfaction and technology leader Nokia a producer of solely “boring” phones and on the other hand acknowledging the innovativeness and customer orientation of Apple.

These points mentioned directly below sum up the importance of value investing and are the reason that these two example-companies were chosen by Osiris for this paper. A thorough analysis of Nokia and Apple undoubtedly shows which enterprise to invest in and which one not to consider within the investible universe. The position of a company in the market (such as a market leader) or a company’s price in relation to previous prices of itself are not a suitable reason to invest in a company. For instance, the market capitalization of Nokia after 2007 declined sharply and an investment in Nokia in e.g., 2010 would appear cheap. However, cheap doesn’t mean that it’s an attractive investment since the underlying factors were not in favour of Nokia and a further deterioration of Nokia’s financial numbers followed. This shall emphasize once more that value investing is concerned with the intrinsic value of an enterprise. It depends on a variety of factor but some of the most relevant factors have been discussed in this paper. The ability to sustainably generate cashflows is one, a skilled and knowledgeable management another. The firm has to have a clear strategy and business model, strong business qualities and competitive products. One could conclude that value investing is about understanding a business before investing into it in order to understand its underlying, intrinsic value. This may be associated with a rigorous work of the analyst to make the operations and company of interest understandable. However, this work and patience will most likely pay off and gives guidance for successful investment decisions. In the words of Charlie Munger’s metaphor that was presented in the introduction: it gives an analyst guidance for the investment, so that he doesn’t have to walk “flailing in the dark and mistaking luck for success”.

One last remark shall be made due to recent events. Shortly before completing this paper, news has reached the public that Berkshire Hathaway bought on the 16<sup>th</sup> of May 2016 Apple shares with a value of \$1 billion, which constitutes with about 1% of Berkshire Hathaway’s investments a comparably large proportion of its portfolio. Moreover, this investment was the first conducted within this period so far (Gallagher, 2016). It is clearly a signal after Warren Buffet in 2012 already complimented Apple’s business without deciding to invest into it. The current discount of Apple of

about 36% compared to the multiple forward earnings of the S&P appears to be a cheap investment. However cheap should not be a term relative to former prices but compared to intrinsic value. Our analysis of Apple shows that it probably really is a cheap investment – not measured with respect to the price but judged premised on the business that is being owned for it.

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