

MuhlenkampMethods

For the Intelligent Investor

Answers to questions you may not even know you have.

How Much Money Are You Willing to Lose for a Theory?

The first three parts of this essay are based on a presentation delivered in May 2005. Ron wanted to suggest an alternative view on some of the more costly investing theories prevalent at the time. Too often, widespread popularity of an idea can make it seem like a law, or a fact, when actually the idea is only a theory. And, like all theories, it should be questioned before it is accepted.

The fourth section of this essay was added in April 2007, when the theory of fundamental indices became popular.

There are a lot of theories that people use when choosing investments for their portfolio. Unfortunately, they are only theories, meaning they are not always accurate or helpful. The challenge is to determine which ones are and which ones are not. The criteria are simple: Does this theory help me make better investment choices (does it make me money?), or does following this theory lead me to poor investment choices (does it cost me money?). There are currently several very popular theories that are costing people an awful lot of money. I'd like to discuss four of them.

Theory #1: Total Return = Growth plus Yield

There are basically only three classes of securities: short-term debt (cash), long-term debt (bonds), and equities (stocks). When choosing among them, it's important to accurately estimate the returns that are available. For cash and bonds, those calculations are pretty straightforward. For stocks, there are more assumptions involved. Total return of a stock equals the dividend yield plus (or minus) the change in the price. It's the determinants of the change in price that makes the exercise interesting. Many analysts break price change down further to the change (or growth) in corporate earnings and the change in P/Es (price-to-earnings ratio). If current P/Es are fair and likely to be sustained, total returns will consist of the dividend plus growth in earnings. Using this model, both Jeremy Siegel (professor at the Wharton School and author of *Stocks for the Long Run*) and Jack Bogle (founder of Vanguard) have said that the maximum



return you can expect from stocks going forward is about 7½%. I want to talk about how they calculated this number and point out what I think they're missing.

A Look at the Numbers

To understand how Siegel and Bogle calculated an expected total stock return maximum of 7½%, we will go through the calculations ourselves. We will use 2005 average market data for ROE and P/E values and, to keep the numbers simple, we'll use a book value of \$10 per share. With a book value of \$10 and an average return on equity (ROE) of 13% (footnote 1), you can calculate the earnings per share (EPS) at \$1.30. Using an average price-to-earnings ratio (P/E) of 19 (footnote 2), you can calculate a share price of about \$25.00. (These numbers are summarized in Figure 8.19.)

Figure 8.19 Total Returns on Stocks Part 1

Book Value		\$10.00
ROE ¹		13%
EPS = ROE x BV	.13 x \$10.00 = \$1.30	\$ 1.30
P/E Ratio ²		19
Share Price = EPS x P/E	\$1.30 x 19 = \$24.70	\$25.00

To estimate average stock growth, Jeremy Siegel and Jack Bogle argue (rightly) that over time, growth in earnings will approximate the change in GDP (Gross Domestic Product). Long-term nominal GDP growth is the sum of population, productivity, and inflation. If we keep inflation below 3%, it is difficult to conclude the U.S. will grow in excess of 6%. So they use 6% growth as a maximum. I agree with that. In 2005, the average yield on stocks was 1.8%. So using the accepted model of "total return equals growth plus yield", they added 6% and 1.8% and got a 7.8% as a maximum total stock return. That's where I think they missed something. Let me illustrate.

¹ The average ROE in 2005 was 13%. Incidentally, ROE has been between 12%-15% since World War II; it's an amazingly stable number.

² The average P/E for 2005 was 19, according to *The Value Line Investment Survey*.



When a company grows, its balance sheet must grow to support the growth in its income statement. For example, with growth at 6% and the book value at \$10, the company must plow \$0.60 of the earnings back into book value. With the yield on an average stock at 1.8% and a share price of \$25.00, the dividend is \$0.45. Adding these together, we get a total of \$1.05. (See Figure 8.20.)

Figure 8.20 Total Returns on Stocks Part 2 - Growth plus Yield

Growth in Book Value = BV x Growth	\$10.00 x .06 = \$.60	\$.60
Dividend Yield = Share Price x Yield	\$25.00 x .018 = \$.45	\$.45
Total Return = Growth +Yield	6.0% + 1.8% = 7.8% or	\$1.05

But remember in Figure 8.19 we calculated an EPS of \$1.30. So simply adding current dividend yield and prospective growth leaves \$0.25 that is not accounted for! (See Figure 8.21.) I want to know... what happened to that extra money?

Figure 8.21 Total Returns on Stocks Part 3 – “Free Cash Flow”

EPS = ROE x BV	.13 x \$10.00 = \$1.30	\$1.30
Total Return = Growth + Yield	6.0% + 1.8% = 7.8% or	\$1.05
	\$.60 + \$.45 = \$1.05	
Free Cash Flow = EPS – (Growth + Yield)	1.0% or extra \$.25	\$.25

If management takes that extra 25 cents per share and spends it foolishly, then the 25 cents is worth nothing. But with that 25 cents, which happens to be 1% of the price, management could increase the dividend and have a 2.8% yield. Or, management could buy in 1% of its own stock, in which case the shareholder would own 1% more of the company. The point is, if they do something useful with that extra 1%, you and I, as owners of the company, can benefit from that 1%.

So when prominent individuals in the industry use 7.8% as the maximum return for stocks, we disagree. We think the extra 1% (giving an 8.8% total return), makes a difference. And that difference means money. So when you hear people talking about growth plus dividend, remember that they are talking about growth plus the existing dividend. But there is an extra 1%, which we call free cash flow, which is not being accounted for in those numbers. And in evaluating your investing options, 1% makes a difference. The assumptions behind their model can cost you money.



Theory # 2: Risk-Adjusted Returns

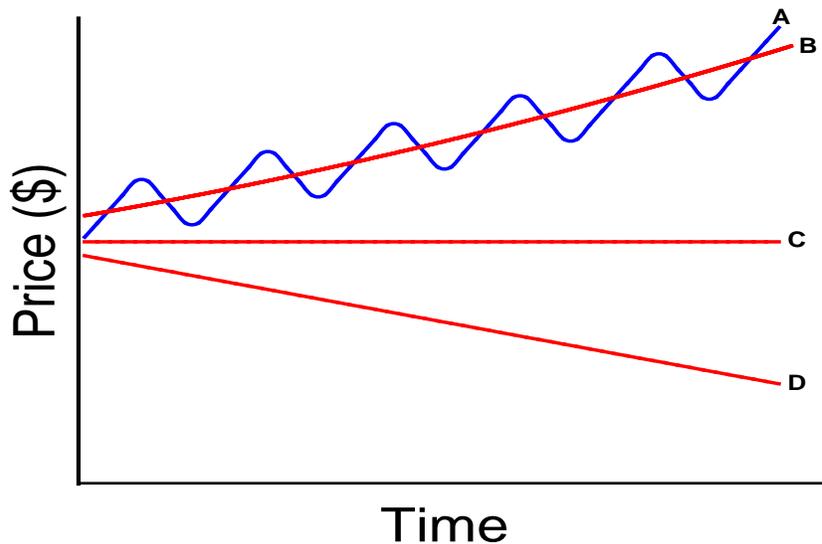
There is a common perception among investors that stocks are risky. As a result, a lot of very good minds have crafted various theories about risk-adjusted returns. The idea is that in choosing between investment vehicles, it is prudent to account for the “riskiness” of stocks and adjust their expected returns accordingly. At least, that’s the theory. In this section, I’ll explain from a practitioner’s point of view why the notion of risk-adjusted returns is nonsense, and demonstrate how it can cost you money.

First, what is your definition of risk? People usually say that risk is the possibility of losing money. A better definition of risk is that risk is the *probability of losing purchasing power*. That means that inflation is a risk because it reduces the purchasing power of your assets.

Now, what is definition of risk used by Wall Street and many academics? Wall Street says that risk is volatility. Using this definition, Wall Street will tell you that the wavy line (A) in Figure 8.22 is riskier than the top line (B). I can agree with that. Wall Street will also tell you that the wavy line (A) is riskier than the middle line (C), and I might be convinced of that. But Wall Street will also tell you that the wavy line (A) is riskier than the bottom line (D), and I just don’t agree with that at all.

What Wall Street *won’t* tell you is that D is available to you; C is available to you; A is available; but B is not. So now, which line do you want?

Figure 8.22 Volatility versus Risk



Beware when you are told that stocks are risky. You need to know what definition of risk is being used. If your investment goal is to grow the purchasing power of your portfolio, then stock price volatility is a risk in the short-term, but in the long-term (greater than three years), price volatility tends to average out. For long-term investments, inflation and taxes are much greater risks than price volatility; they can dramatically reduce purchasing power. As can paying too much for a stock in the first place! Again, it is very important in any discussion of investment risk to understand what definition of risk is being used.

So let's talk about risk-adjusted returns. Risk-adjusted return theories try to minimize volatility risk (they don't address taxes, inflation, or paying too much for a stock). Some of you know that the market only goes up about half the time. And typically, not always, but typically, it rises between October and May. And, on average, between May and October, the markets are flat. So, if you invest for risk-adjusted returns (striving to lower your volatility), you want to be in the market for six months, and then you want to be out of the market for six months. The six months that you are out of the market you have zero volatility, right? The problem with striving for risk-adjusted returns is that it encourages you to move out of (and into) the market on a frequent basis. But this increases your tax rate—not to mention trading costs and commissions!

Investment returns are taxed at different tax rates depending on the type of return. Consequently, your investing choices determine your tax rate. Short-term gains are taxed as ordinary income at 35%, and long-term capital gains are taxed at 15%. Risk-adjusted return theories encourage investors to take actions that result in short-term gains (which are taxed at a higher rate). But if you focus on optimizing your tax-adjusted returns, you naturally take actions that result in long-term gains (because they are taxed at a lower rate).



Figure 8.23 The Effect of Taxes and Inflation on Short-Term and Long-Term Gains – Part 1

Risk-Adjusted Returns %

Return %	<u>6</u>	<u>8</u>	<u>10</u>
Tax @35%	3.9	5.2	6.5
@15%	5.1	6.8	8.5
Inflation @ 2%	1.9	3.2	4.5
	3.1	4.8	6.5
Difference	39%	33%	31%

Figure 8.23 lists potential returns of 6%, 8% and 10%. As you can see, choosing a short-term return reduces a 10% gain to 6.5% after taxes. And with inflation at 2%, the real, after-tax return is down to 4.5%. At 10%, the difference between a short-term (risk-adjusted) return and a long-term (tax-adjusted) return is 31%. At 6%, the difference between a risk-adjusted return and a tax-adjusted return is 39%! By following “risk-adjusted theories,” you can lose 30%-40% of your return because you chose to pay ordinary income tax (short-term gains) instead of long-term capital gains.

The problem with risk-adjusted return theories is that they focus on the wrong risk, and by doing so, they encourage frequent trading and a short-term investing mentality, which results in higher taxes and lower net returns. Put simply, they cost you money.



Many investors think that stocks are “risky” because stock prices are more volatile than cash or bonds. But let’s look at the investment choices when the affects of taxes and inflation are taken into account (available returns for cash and bonds based on 2007 numbers). Refer to Figure 8.24:

1. Cash (i.e. short-term debt, including passbook savings accounts, CDs and Treasury bills) is priced to do about 4.5%. When taxed at 35%, you get 2.9%. And if you take 2% off that for inflation, you get a real after-tax return of 0.9% return.
2. Long-term bonds are priced at 5%; on a corporate bond, you might get 6%. The majority of long-term bonds are held by pension plans, which are tax-free. But if you’re a taxpayer, you keep 3.25%; after inflation, you have only 1.25%.
3. When you invest in stocks you become an *owner* of the company and become eligible to share in the successes and the failures of the companies. There are no “guarantees.” Over the long term, the stock price will reflect the true value of the company. Over the short term, however, the perceived value (current stock price) of the company may not always reflect the company’s true value. We believe that stocks are priced to give a decent return over bonds and cash, but the ultimate return depends on whether you invest for long-term gains or short-term gains.

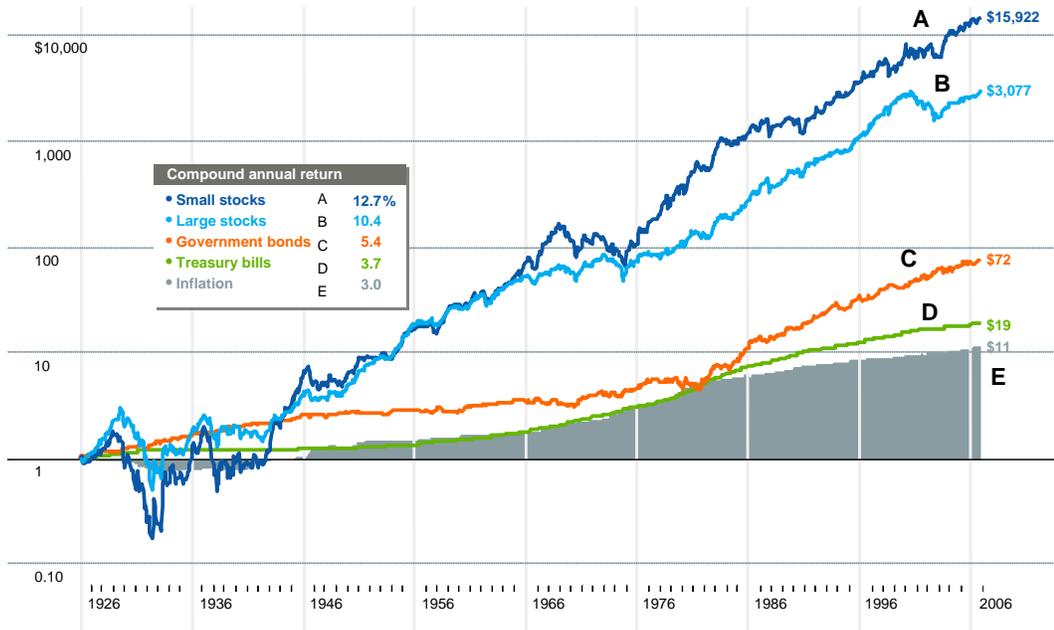
Figure 8.24 The Effect of Taxes and Inflation on Short-Term and Long-Term Gains – Part 2

Risk-Adjusted Returns %

Return %	<u>6</u>	<u>8</u>	<u>10</u>	<u>5</u>	<u>4.5</u>
				Bonds	Cash
Tax @35%	3.9	5.2	6.5	3.3	2.9
@15%	5.1	6.8	8.5		
Inflation @2%	1.9	3.2	4.5	1.3	0.9
	3.1	4.8	6.5		
Difference	39%	33%	31%		



Figure 8.25 Stocks, Bonds, Bills, and Inflation, 1926-2006

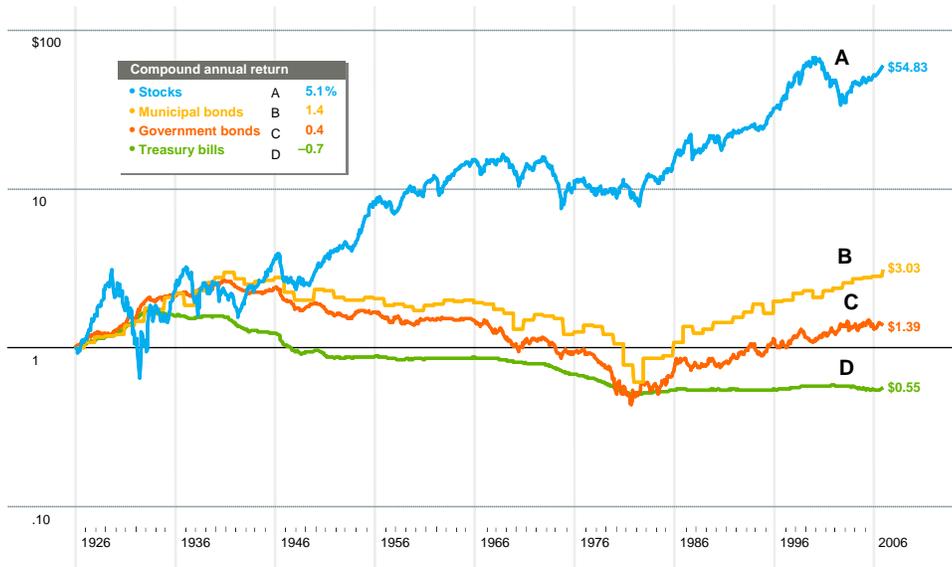


Taking these choices a step further, let's compare returns for stocks, bonds, and T-Bills since 1926 (see Figure 8.25). From 1926 to 2006, Treasury bills have averaged 3.7%. With an average inflation of 3%, the real return on T-Bills (short-term debt) has been 0.7%. We think that inflation currently is a little over 2%. Therefore, short-term T-Bills should be priced at 2.7%-3%; today, they're a bit above that. Since 1926, long-term government bonds have averaged 5.4% and (with an average inflation of 3%) have netted a real return of 2.4%. Today, we think long-term rates should be between 4½%-5%, and they are.

Other than examining rates, Figure 8.25 is totally useless. What's wrong with it? You can't spend that money—it's pre-tax and pre-inflation. The useful chart is Figure 8.26.



Figure 8.26 Stocks, Bonds, Bills after Taxes and Inflation, 1926-2006



When you adjust the returns for taxes and inflation (as in Figure 8.26) you get a better understanding of the investing choices. From 1926 to 2006, if you've owned Treasury bills and never spent a dime of the income (or the principal), but you did pay your taxes, your dollar went to 55 cents—*guaranteed*. T-Bills may be guaranteed by the federal government, but, in *real* terms, you are guaranteed to lose purchasing power. Compare Line D on Figure 8.26 with Line D on Figure 8.22.

If you owned government bonds, paid your taxes and never spent a dime—never spent any of the income—your dollar went to a \$1.39. You made 0.4% per year. What's interesting is that there have been two periods when you could make money on bonds. The first period was the Great Depression; (and if you think we're in a depression, then I will tell you to own nothing but long-term Treasuries). The other time was from 1982 to 2002 when interest rates dropped from 13% to 5%. Bonds are now priced at 5% and they might go to 4½%; the game in bonds is pretty much over. Compare Line C on Figure 8.26 with Line C on Figure 8.22.

We argue that in the 1970s it was a lousy time to own stocks, but it was a worse time to own bonds. If you think that bonds are safe, be aware that in the late 1970s investment analysts spoke of bonds as "Certificates of Guaranteed Confiscation." It comes back around to your definition of risk. Back in the 1970s, there was nothing uncertain about bonds—they were guaranteed to lose you money.



If you owned stocks from 1926 to 2006, the returns have been kind of choppy but stocks have averaged 5.1% (over and above taxes and inflation). Compare Line A in Figure 8.26 to Line A in Figure 8.22. To draw a parallel to today, take a look at the 1960s. This was a period of time when inflation was relatively low and fairly stable; when interest rates were fair and fairly stable; and when stock prices were fair. Back in the 1960s, you had your choice of making money in stocks (in a jagged fashion), or losing money consistently in bonds. So the question is: Which risk do you want to take?

Some economists define risk as “the uncertainty of the outcome”—not the outcome itself, but the uncertainty of the outcome. So those economists will tell you that if you jump out of an airplane with a parachute, it’s risky because the outcome is uncertain (your chute may or may not open). But if you jump out of an airplane without a parachute, the outcome is quite certain and, therefore, not risky. Risk-adjusted return theories are based on this definition of risk. If you’d rather have the parachute, then the theory of risk-adjusted returns may not be right for you ... it is costing you money.

Theory #3: Style Boxes

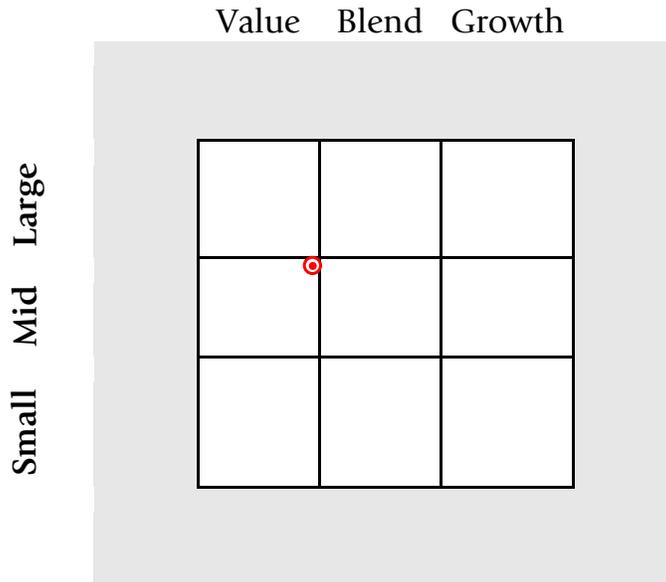
Many financial planners have turned to the Style Box Theory to ensure diversification in an investment portfolio. But this can cost the investor money. To understand why, we must first explain what Style Boxes are. Then we’ll talk about how they are being used.

Style boxes were popularized by Morningstar, Inc., a Chicago-based investment research company. They are a nine-box matrix, attempting to display both an investment methodology (value, growth or blend) on the horizontal axis and the size of the companies in which the portfolio manager invests (large cap, mid cap or small cap) on the vertical axis. Generally speaking, the investment methodology of a growth-oriented portfolio will contain companies that its portfolio manager believes have the potential to increase earnings faster than the rest of the market. A value orientation, on the other hand, focuses on stocks that the manager thinks are currently undervalued in price and believes will eventually be recognized for their true worth by the market. A blend orientation will mix the two philosophies. Regarding size, the top 5% of the 5,000 largest domestic stocks in Morningstar's equity database are classified as “Large Cap,” the next 15% of the 5,000 are “Mid Cap,” and the remaining 80% (as well as companies that fall outside the largest 5000) are “Small Cap.”



The following is a recent example of how Morningstar characterizes our portfolio holdings:

Figure 8.27 Style Box



Source: Morningstar, Inc. All rights reserved. Used with permission.

The Style Box Theory

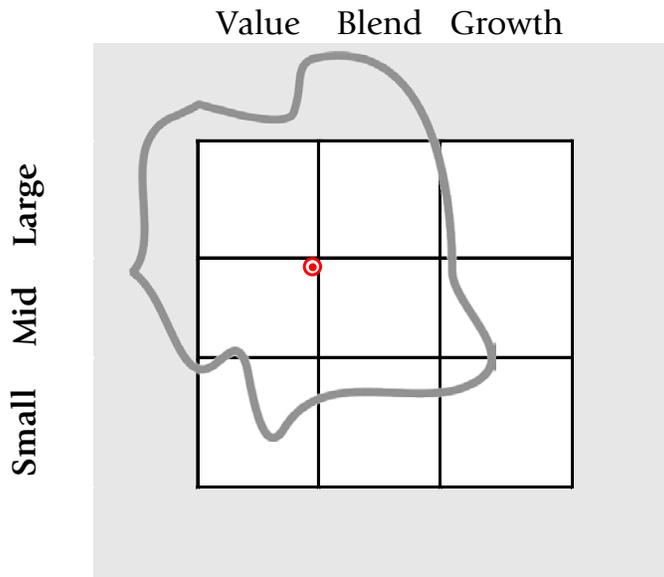
The Style Box Theory suggests that you ought to own a variety of equity portfolios, spanning all nine style boxes. There are many financial planners who buy into this theory, using Style Boxes as a tool for ensuring diversification. What’s missing is an appreciation that Style Boxes were meant to be *descriptive*—not *restrictive*. Either way, Style Boxes may be a useful tool in marketing, but I find them of no value in investing. Here’s why:

As a portfolio manager, let’s say I own a stock in the “Small-Value” box and it doubles in price. Should I sell it from the portfolio dedicated to that box and buy it in the “Middle-Value” portfolio? And, if it doubles again, should I sell it from the portfolio dedicated to that box and buy it in the “Large-Value” portfolio? The theory of Style Box investing says I should. But, every time I sell and re-buy, I have to pay taxes and commissions. How does that help you make money?



Morningstar seems to understand this trap. In fact, a few years ago at a *World Money Show* in Florida, I was on a panel chaired by Don Phillips, President of Morningstar. Recognizing that Style Boxes are regularly used in a restrictive fashion, Phillips was launching a new tool called the “Ownership Zone.” When he introduced me, he showed a slide like Figure 8.28 and said, “Ron covers the left six boxes.” Which means, I guess, that our portfolio is everything *except* growth. At one time we asked them why we are not considered a growth portfolio since the many of the companies we hold were growing faster than average. They explained, “Your price-to-earnings ratio (P/E) is below average.” Well, if the far right column of the Style Box matrix is based on P/E and not growth, it should be labeled *glamour*, not *growth*. The P/E often reflects popularity (or glamour), independent of earnings growth.

Figure 8.28 Ownership Zone



Source: Morningstar, Inc. All rights reserved. Used with permission.



1. Relative to our category, our return on equity (ROE) is higher than average (1.90),¹ and that our return on assets (ROA) is higher than average (2.25)—so the companies we own are more profitable than average.
2. Relative to our category, our growth in book value is higher than average (2.89); growth in sales is higher than average (2.24); growth in cash flow is higher than average (10.40); and growth in historical earnings is higher than average (2.24)—so the companies we own are growing faster than average.
3. Relative to our category, our P/E is lower than average (0.76) and our relative Price/Book is a bit above average (1.06)—so the companies we own are cheaper than average.

So what does this tell you about our investment style? We like cheap, profitable, fast growing companies.

Figure 8.30 Current Investment Style

Current Investment Style

Value Measures		Relative Category
Price/Earnings	11.51	0.76
Price/Book	2.02	1.06
Price/Sales	0.87	0.99
Price/Cash Flow	4.39	0.75
Dividend Yield %	1.05	0.66

Growth Measures (%)		Relative Category
Long-Term Earnings	12.40	1.14
Book Value	15.83	2.89
Sales	10.53	2.24
Cash Flow	42.45	10.40
Historical Earnings	25.57	2.24

Profitability (%)		Relative Category
Return on Equity	23.51	1.90
Return on Assets	12.58	2.25
Net Margin	10.85	1.29

Source: Morningstar, Inc. All rights reserved. Used with permission.

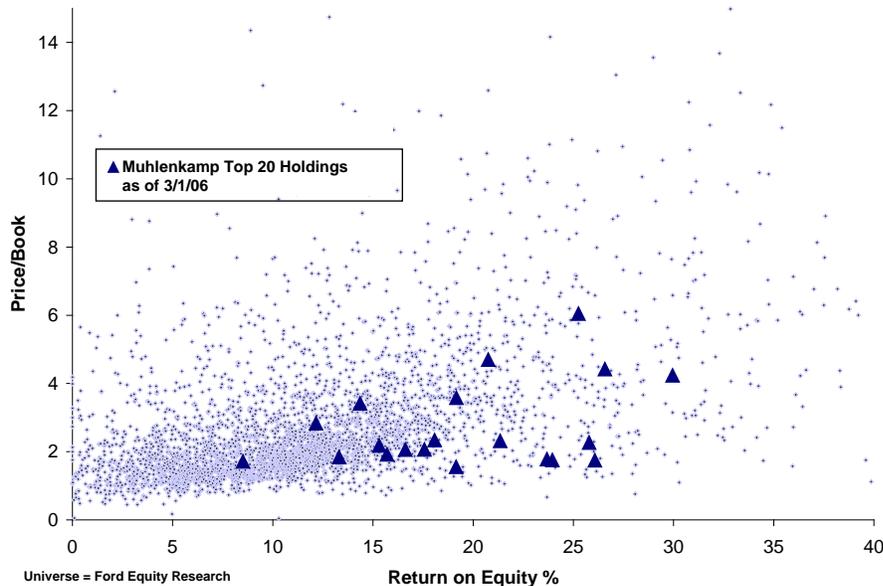
Note: Under the heading "Relative Category," 1.00 is average.

¹ The numbers Morningstar reports are index numbers and not dividend returns.



Looking at the data in a different way, in Figure 8.31 we've plotted the Price/Book versus ROE of our top 20 holdings, which represents 60% of our portfolio. We've overlaid this plot onto Ford Equity Research's universe of over 4,000 companies so we can see where we stand.

Figure 8.31 Top 20 Holdings



Source: Ford Equity Research. Used with permission.

On these metrics, our investments look a little more disciplined than they did in Figure 8.30. Our average ROE is 18%, even though the corporate average is 13%-14%. Our average P/E is 14, even though the corporate average is 18. So, we own better than average companies at below average prices. *That* is our management style.

The problem with style boxes is that they try to describe all investment managers with a nine box matrix and, as we have seen, the matrix does not always show the complete picture. But even more troubling, those nine boxes have become restrictive. Managers are asked to fit their investments into a style box based on company size and labels of "growth" versus "value." If your goal is to increase your wealth, then you want an investment manager who will make decisions based on *that* criteria. Asking him or her to base investment decisions on anything else can cost you a lot of money.



Theory #4: Fundamental Indices

Fundamental indices are simply the latest iteration in the never-ending search for a good stock market index. To understand fundamental indices, it is helpful to review indices in general—both the theory behind them and their practical application in the last 30 years.

Index-based investing was first offered to the public in the mid 1970s. The underlying theory was that stocks are efficiently priced. This means that the prices on stocks are always “fair,” and no matter how much time and effort an investor spends, he or she cannot consistently beat the market. If this is true, then it makes sense to simply buy a representative “market basket” of stocks.

Early on there was much discussion as to how this market basket should be constructed. Should it include all NYSE stocks, all NASDAQ stocks, all stocks covered by *The Value Line Investment Survey*, or those stocks included in the Standard & Poor (S&P) 500 Index? Each of these choices had differing characteristics, advantages and disadvantages.

For many years, the most widely used index has been the S&P 500. The S&P 500 is a market value weighted (or capitalization weighted) index of 500 large-cap companies. This means that each stock in the index is weighted in proportion to its market value. If company A has three times the market value of company B, then company A will have three times the weight on the S&P 500 list. The advantage is that this reflects where investors are actually putting their money (they have three times as much money invested in company A as they do in company B). Efficient market theory tells us that this is good; we want an index that represents the entire market. However, capitalization weighted indices have a disadvantage as well. They automatically over weight the over-priced stocks and under weight the under-priced stocks. For instance, what if two companies have similar revenue, profits, dividends, and other metrics, but company A has a market price of 30 times earnings (a P/E of 30) and company B has a market price of 10 times earnings (a P/E of 10)? In this case, a capitalization weighted index gives company A (the overpriced stock) 3 times the weight of company B, simply because company A’s high price gives it three times the market value of company B. This means that a capitalization weighted “market basket” has a disproportionate number of overpriced stocks. And that can cost the investor money.

Having recognized this problem, a number of new market indices have been constructed that abandon capitalization weighting. Instead, these new indices are weighted based on “fundamental” metrics such as revenues, earnings, or dividends. Back-testing of these fundamental indices indicates that



they would have outperformed the capitalization weighted S&P 500 Index by roughly 2% per year. (This is not surprising, since a number of other averages and indices have outperformed the S&P 500 during recent years.) However, there is another question that bears consideration: If a fundamental index based on revenues or earnings can outperform the cap-weighted S&P 500 by 2% a year, could an investor pick up another 2% per year simply by over weighting what the S&P under weights, and under weighting what the S&P over weights? In other words, why not load up on stocks with P/E's of 10 and avoid stocks with P/E's of 30?

The important thing to remember is that fundamental indices are simply a theory, just as capitalization weighted indices are. There are many indices out there. Each one is only as good as the results they provide to your investment portfolio. And they all assume efficient markets—which is also just a theory.

The Bottom Line

If you want to make money in investing, it is critical to challenge what “everyone” knows to be true. Remember...it's only a theory! If it lowers your investment returns, it is costing you money. If it is costing you money, perhaps it is time to adopt a new theory. After all, how much money are you willing to lose for a theory?

