How Professionals Select Investments

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This article is intended for the educated layman. It was written as part of a continuing series of articles on a variety of investment topics.

> *Nowadays people know the price of everything and the value of nothing.*
> *Wilde*

> *Hamlet: Do you see yonder cloud that's almost in shape of a camel?*
> *Polonius: By th' mass and 'tis, like a camel indeed.*
> *Hamlet: Methinks it is like a weasel.*
> *Shakespeare*

As we've pursued our errand of increasing wealth, we have been stalking a magical prey. We have scrupulously observed it, and we've seen that the creatures that we've been stalking, that is, investments, have two essential but mutable attributes: the prospect of sustenance (return) and danger (risk). Even when we have captured our prey (selected our investments), these attributes persist, with our captive investments' returns continuing to evanesce until, finally, we devour these creatures, that is, spend the wealth. Only in consuming them do we really, definitively, know what sustenance they could provide.

In considering the attributes of return and risk, however, we have neglected another attribute of our prey. Investments are social animals and interact with each other in complex ways that will determine our wealth even after we have corralled them. The return and risk of an assemblage of investments are determined as much by their interactions as by the returns and risks of the individual investments.

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How to Think about Investment Returns
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How to Think about Return and Risk at the Same Time
Not by Return Alone: Judging Investment Performance

I have not, so far, introduced you to strategies for capturing our prey. Whatever tactics we choose, our strategy will have two essential components: first, the selection of particular investments, and, second, a plan to take advantage of their social behavior by combining them best to serve our interests.

We refer to these components of an investment strategy as **security selection** and **portfolio construction**.

Most investment writing for the public is about the thrill of the hunt, that is, security selection. It is all about tactics, with little regard to strategy. Some writers try to convey the excitement of stalking the biggest and most elusive returns, sometimes with regard to the dangers, sometimes not. Other writers may feel the excitement, but only ploddingly lay down routine procedures that they advise you to follow. A few popular investment writers address portfolio construction, but such literature looks pallid beside writing about chasing the investments that seem to offer the most gorgeous returns.

In contrast, I have chosen a more considered, reasoned approach to investing, observing and analyzing first, before developing a strategy and tactics based upon what we have learned. To a degree, this contrast corresponds to the (rather simplistic) division I cited in my article on return and risk, between the "sportsmen" and the "academics" of investing.

Security selection

Anyone can select securities. How many times have you heard something like, "Apple is a great company and a great stock;" or, "Citibank stock has been beaten down so far that now it's a good bet to go up," or, alternatively, "Stocks can't keep going up like this"? To select securities thoughtfully, however, requires an extensive education, either through home schooling or in the classroom, and there are many textbooks to teach you. Like all worthwhile endeavors, security selection requires hours of study and tedium. You have to learn accounting and mathematics and statistics and economics, and various intellectual tools and techniques. I will only outline how serious investors go about it, not teach you how to do it.

By "securities," I mean stocks, bonds, shares in mutual funds, exchange-traded funds, and more abstruse investment vehicles, and also entire asset classes and sub-classes. That may be stretching the definition of "securities," but it still fits if we're talking about deciding which things to put into a portfolio.

"Security selection" is a broader term than "security valuation," an expression with which it is often conflated. I, personally, would wish them to mean the same

thing, but they don't, because securities are often chosen, not because of their value, but because of their behavior.

There are, broadly speaking, two approaches to security selection: tactics based on valuing securities and comparing their values to their prices, and tactics based upon the behavior of the prices of the securities. The general terms that we professionals use for these two kinds of tactics are **fundamental analysis** and **technical analysis**.[1] Fundamental analysis is pretty much the same thing as security valuation. But don't let the word "technical" confuse you. In this context, it doesn't imply scientific methods. Technical analysis is the use of series of past prices (or quantities of shares traded, called "volume") to predict where prices will go, without reference to accounting values and economic analysis. One very common way of pursuing technical analysis is called **charting**, because it relies upon charts of prices. Some speakers use "charting" and "technical analysis" interchangeably.

Fundamental analysis

Security valuation is necessary when an investment vehicle is not traded in the open market. If it's not traded, then the public market hasn't set its price. Such an investment might be, for example, a venture capital stake in a startup company. But very commonly, security valuation is undertaken for even publicly-traded securities because of two underlying assumptions: first, that the value of a security can be different from its price, and second, that if price and value are different, then the market will discover its mistake, and it will reasonably swiftly correct the price toward the true value of the security.

You might think that both these assumptions should go without saying. But according to the controversial theory of efficient markets, prices almost always match true values, and if they don't, still, anyone's chances of correctly identifying mis-valued securities are no better than they would be if he picked securities at random. This theory is not as outrageous as it is often made out to be (especially by those who don't understand it), but it has a crucial limitation. I will discuss it in a later article. If we accept that the market misprices securities, then we must hope that the market sooner or later—and preferably sooner—recognizes correct valuations. It does you no good to be right about the value of a mispriced security if the market obstinately persists in being wrong.

[1] Sometimes "quantitative analysis" is used to refer to a third kind of tactic, but computer-implemented methods along this line are generally some sort of mechanical, numbers-driven fundamental analysis with an occasional admixture of technical analysis.

It's critically important always to bear in mind that when we're considering publicly traded investments, the price is known. The value (or as we sometimes say, the **intrinsic value**) is an inference.[2]

Some investment analysts who analyze stocks would at this point interject that they try to identify not just undervalued companies, but the stocks of companies that are likely to grow rapidly. I wouldn't quarrel with them, but there's an ambiguity in the way that investment professionals and the financial press use the word "undervalued" and similar words with "value" in them. As I and some others prefer to use the word, valuation takes into account the prospects for growth.

As I stated in my article entitled, "How to Think about Return and Risk at the Same Time (Part I)":

> Everything comes down to the ability of an investment to generate cash now and in the future, because cash gives you the ability to buy stuff.

So, at least in principle, when you value an investment, you want to know how much cash it is generating or could generate now, and how much cash it will or could generate in the future. Implicit in this description is whatever growth there might be in the investment's ability to generate cash.

Different kinds of investments require different kinds of fundamental analysis. The analysis of bonds, for example, requires consideration of basically two things: the chances of default (that is, that the issuer won't be able to make the contractual payments that a bond represents), and interest rates. The evaluation of stocks, to choose the other prominent example, requires those considerations and much more. The valuation of commodities requires entirely different kinds of knowledge, having a bearing on resources available, demand (which depends on the overall economy), costs of extraction from the earth and transformation into a form that can be consumed, and so forth. Valuation of entire asset classes as a whole requires broad judgments about the overall economy, including the world economy.

In principle, we know how to go about fundamental analysis. But it's difficult to apply in practice what makes sense in principle. Think about your own household budget: If you earn a regular salary and your bonus, if any, is small, and your family's circumstances are fairly stable, you could project your net of income and expenses reasonably well out for, say, five years, assuming no disasters or windfall from the estate of a rich uncle. Care to make a longer-term

[2] I'm ignoring issues of illiquidity, when the most recent known price may be an old one, and therefore not relevant to current circumstances.

projection? Now think how difficult this is for, say, a complex corporation whose revenues are at the mercy of a complex economy. Or for a government that has issued bonds.

Let's focus on stocks. Rather than simply calculating cash flows each year out into the indefinite future, fundamental analysts of stocks necessarily use a congeries of methods and rules of thumb and imagined economic scenarios to value a company. Sure, they usually begin by calculating how much cash the company currently has on hand and can generate, but they have to determine how much is the result of normal operations, and how much has come from extraordinary occurrences. And they have to judge how often extraordinary occurrences occur. They calculate ratios to make comparisons. They study the competitive situation of the company. They worry about legal liabilities. They judge the character, honesty, and ability of its management. They estimate the demand for its products. Normally, the analysis of the financial statements is just the beginning of the fundamental analysis of a stock.

Many times, it's also the end. Some analysts have to look at so many companies so quickly that they can't perform thorough analyses, and therefore use just a few simple measures, like a comparison of the profits (per share of stock) of a company to the price of its stock. The basic idea—and it is this basic—is that if the price is a large multiple of the profits per share, then you'd be paying a lot for what the company earns. And if it's a very low multiple, then the market may be undervaluing those earnings. Some analysts do this not so much to pan for gold as simply to winnow out companies that are worth deeper scrutiny. Others (generally those who use computerized methods, that is, "quants") recognize that there is too much uncertainty in the reality underlying those earnings numbers to justify buying, say, the stock of the one company whose price is the lowest multiple of earnings, but reckon that if they buy the stocks of all the companies left in the sieve, the averages will be in their favor. And, interestingly, there's quite a bit of statistical evidence that this works (at least for a while).

Although the analysis of financial statements may bring to light companies that are deeply undervalued, it has greater utility in estimating risks. Financial statements may reveal to the perceptive analyst something about very near-term earnings, but they can't imply much (numerically) about earnings two, three, or more years from now. From honest financial statements, however, the analyst can judge the quality and stability of management and the ability of the company to withstand economic shocks. Risks to a company's prospects mean there's risk to the stock as an investment, which then (if it becomes part of your portfolio) is a risk to your wealth. There are so many contingencies in a company's fortunes that it is very, very difficult to translate the risks faced by a single company into the risks faced by a portfolio. But if the analyst judges a company to be stable

and well run, then, after estimating its value using more qualitative considerations and judgments, she may consider it a worthy addition to her portfolio.

Technical analysis

Technical analysis has always struck me as so bizarre that I find it difficult to describe dispassionately. And yet, although I and many others in the investment profession find it nearly impossible to justify, it is commonplace.

Technical analysis attempts to predict the future price of an economic entity, such as a stock, by consideration of its past and present prices (and, sometimes, numbers of shares traded, the trading volume). Its predictive scope is usually but not necessarily short term. Valuation and the estimation of cash flows are entirely outside the scope of technical analysis.

A basic chart of stock prices, or of market prices, is history. But if you draw inferences about the future from that chart, you are engaging in technical analysis. Any time you see, superimposed on a chart of historical prices, a line representing the moving average of prices, you are looking at an aid to technical analysis. Most of the graphics in the newspaper *Investor's Business Daily* are technical charts, intended as aids to prediction.

The language and graphics of technical analysis pervade the financial press. Whenever you hear a daily business report that says that the market had a "correction," you have heard a technical term. It is saying that the market went down because it had gone up too much, not because any new economic information caused the market's participants to revalue their holdings. By implication, it is saying that there was no *economic* revaluation of the market. Similarly, one commonly hears of a stock, or the stock market, "testing" new highs, or new lows, or "breaking through" a resistance level, or a support level.

Our ordinary language itself encourages a technical cast of mind: If you say "The price is going up," you're saying that you know where it is going, even though you know only where the price has been. (For myself, I am always scrupulous to use the imperfect tense when I say what the market *has been* doing, not what it *is* doing, but hardly anyone I know is so careful.) It's often difficult to restrain one's own mind from projecting a graph of data that have accumulated over time, which we (following the statisticians) call **time series**. For those so inclined, it may not be possible to refrain from seeing familiar patterns in a graph of any time series data, not just prices. I have, indeed, known a technician to infer a projection from a time series of numbers that were neither prices nor anything that anyone else was likely to have observed.

A technician treats a time series of prices as if it were an animate being, as if it had a psychology of its own. And that is their point: Technicians explain that their analyses work because the market has a psychology, and that this is made manifest by the way it moves prices. Here is their official definition of technical analysis:

> Technical Analysis is the study of data generated by the action of markets and by the behavior and psychology of market participants and observers. Such study is usually applied to estimating the probabilities for the future course of prices for a market, investment or speculation by interpreting the data in the context of precedent.[3]

For all its psychological prestidigitation, technical analysis is in no way simple. It is a body of tools and methods designed to recognize and aid the interpretations of patterns, for example, the famous "head-and-shoulders" pattern. There are software packages incorporating complex statistical methods and graphics, many of them sold to amateur investors, that ease the way toward technical analysis. Technicians have their own high-flown jargon. For example, the word "stochastic," which is ordinarily an adjective that is more or less synonymous with "probabilistic," is, for technicians, a noun that is short for "stochastic oscillator," a graphic and numeric method for guessing when the price of a security is going to change direction (up or down).

The most fervid technicians actually argue that fundamental analysis is useless, that only technical analysis can identify investment opportunities. There are legends or myths of technical analysts who work in windowless rooms with only charts and no distraction by actual economic or financial information and news. The more moderate technicians, however, speak in terms of probabilities (though not precise numerical probabilities).

So, on the one hand, fundamental analysis presumes that, while the markets are imperfect, they will sooner or later rationally correct their errors of valuation. Technical analysis, on the other hand, presumes nothing about rational evaluations, but instead is predicated on the belief that changes in price are determined mainly by the emotions of the market.

Within the investment profession as a whole, technical analysis tends to be regarded with skepticism and a degree of shame. The technical analysts know this, and they can be a little tetchy about their work. To lend it respectability, they have institutionalized it. They have a professional organization, the Market Technicians Association (www.mta.org), and a professional qualification, the CMT (Chartered Market Technician), for which the candidate must pass three

[3] www.mta.org.

rigorous examinations. It is telling, however, that the curriculum of study for the CFA (Chartered Financial Analyst) examinations requires only that one be able to describe technical analysis, not actually be capable of doing it.

Many large investment companies, which usually rely upon fundamental analysis, employ a market technician or two. But more broadly, many portfolio managers who would not admit to being technicians themselves will, all the same, consult technical charts and reports, rather as someone who doesn't quite admit to belief in astrology will nonetheless read his horoscope. They'll explain that it can be helpful in combination with fundamental analysis.

In my experience of disputation, technicians, like believers in, say, astrology, cannot be disabused of their beliefs through rational argument.[4] And like all shamans and magi who must defend their practices in the age of statistical testing, their response to the numerous rigorous debunkings of their methods is that systematic statistical analysis is unable to capture the subtleties of their constantly evolving and adaptive prognostications.

This comparison with astrology can be extended further. One of the arguments employed by those who believe in astrology is the extension by gross extrapolation: We know that the moon influences the earth by creating the tides, and the sun's position in the sky creates the seasons and influences the weather, so why should not the planets and the stars influence the course of events on earth in a predictable fashion?

Similarly, technicians use analogy as a springboard for a flying leap, rather than as a lamp to illuminate the path to understanding. We know of quite a number of behavioral patterns in the ways that investors make their decisions, they point out, so why shouldn't we think that these behavioral patterns will be reflected in market prices? But the technicians' postulations of market psychology are not in any way related to research into behavioral finance, an academic discipline that has grown up in the last few decades.

The reason that technical analysis shouldn't work, I should hardly have to point out, is that this flies in the face of the idea of the market being a mechanism for valuing the things being traded. A technician would, of course, disagree. One alternative definition of technical analysis that the Market Technicians Association posts on its site says:

> There are three premises on which the technical approach is based:

[4] There are, indeed, practitioners of stock selection through astrology, who can't be classified as either fundamental analysts or technicians. Fortunately, they are very few. I used to keep on my office wall a copy of a horoscope cast by a Mr. Samuel Jeake (1652-1699) for the moment that he bought shares of the Bank of England, as representing a significant moment in the history of stock selection methods.

1. Market action discounts everything.
2. Prices move in trends.
3. History repeats itself.

It would require a couple of excursuses on the concepts of discounting and market efficiency to explain the fantastic economic implication of combining these propositions. Let it suffice to point out that if the market discounts everything (which is financial language meaning that prices take into consideration all information), then it discounts history, too.[5]

By this point, you're probably wondering: But what do I *really* think about technical analysis?

Er, well, there may be something to it. But nowhere near as much as the incorrigibly credulous would persuade you to believe.

There have been a number of circumstances in which it is proven, for example, that the market overreacts to information, and therefore predictably reverses itself. It's not clear, however, that one can make money from these phenomena, because the transaction costs of buying and selling the securities in question would likely more than wipe out any possible gain.

Seasonal regularities in the stock market have also been known for decades and confirmed by rigorous statistical analysis. These include a tendency for stocks to go up in January, and to go up on Fridays and down on Mondays. The psychology (or maybe rational economic decisions) underlying these effects can only be surmised. These are only tendencies, not predictable repeated patterns, and again, it's very unlikely that you can make money by trading on these patterns.

Then, too, many quantitative analysts (those who use computerized methods that are statistically tested and driven by large quantities of data) incorporate some version of "price momentum," that is to say, price trends, in their stock selection procedures. I can't vouch for the predictive value of price momentum; I am saying that stock analysts who know how to perform statistical tests have evidently found that it's good enough to use as one of many predictors.

Most significantly, there is some very interesting and continuing research into technical patterns over very short spans of time, like minutes or seconds. You may have heard the term "high-frequency trading," which is what this is all about.

[5] The reader who is familiar with the concept of discounting will realize that the only way that the first and second propositions can be simultaneously true is if the discount rate is continuously changing, which is crazy, regardless of whether the changes are predictable.

Over such short intervals, real economic news that might affect the prospects for an investment is very, very sparse, so most of the influence on changes in price is probably the psychology of those who are trading and what they divine in the patterns of historical prices—but very, very short-term history. Professor Andrew Lo of MIT has for some years led a research program into technical analysis (and not just over short spans of time) and recently published the first in a trilogy of books on the subject.[6]

In short, there may be something to technical analysis, but either that something isn't useful for making money, or if it is, you have to be able to trade at extremely low costs, and if you're not buying and selling by the minute or second, you're going to require something like an MIT graduate education in finance.

You're not going to make money by visual inspection of price charts and divining the hidden messages in their patterns. And you shouldn't believe for a moment anyone who says he can do this.

So we've selected investments; Now what?

Selection of an investment doesn't imply what to do next. Obviously, you can choose to buy or to sell (or to **short**, which is a form of selling). But you can also choose to do nothing. You might, for example, think that once you determine that an investment that you own is priced at more than its intrinsic value, you should sell it. This is not, however, what Warren Buffett necessarily does. But a proper consideration of Buffett's investment methods would take us off on a tangent. Let it suffice to say that deciding whether and how much to buy, to sell, and to hold is a matter of portfolio construction, which we will consider in a later article.

Is security selection worthwhile?

The question may seem surprising, given how I have defined security selection. At some level, an investor must engage in security selection, even if this means only choosing asset classes; without security selection, there's nothing to put into the portfolio.

But it is worth remembering that in selecting individual stocks or bonds, not everyone can be a winner. That is, not everyone can choose stocks that will produce better returns than the stock market as a whole, or bonds that will beat

[6] Andrew W. Lo and Jasmina Hasanhodzic, *The Heretics of Finance: Conversations with Leading Practitioners of Technical Analysis* (Bloomberg Press, 2009). This first book actually doesn't demonstrate anything about technical analysis. It's a series of interviews with prominent technicians, exploring how they got into the field and how they think about investments.

the bond market. Far from this: the chances that any single investment manager, identified at random, will beat the market are not favorable.

Consider stocks. The stock market's returns as a whole are the average of the returns of all investors in the market, after taking into account the amounts of money they are investing. Half the dollars invested in the stock market will perform better, and half will perform worse. Speaking very roughly, to get better returns than the market, you or your investment advisor has to be in at least the top half during whatever measurement period you choose to analyze.[7] And if you believe that there is at least some element of luck in investment results, then some of the top half of investment managers achieved their distinction through luck alone, rather than skill, and therefore cannot be relied upon to repeat their superior performance.

Don't be fooled by the claim—which you will see asserted now and then—that "now" is a great time for picking stocks. There is never a time when most people who select stocks are better than average. Similarly, you may from time to time see a report showing that, in some year just past, a majority of mutual fund managers had better returns than the stock market. If that was so, then someone other than mutual fund managers—Hedge fund managers? Institutional money managers? People advised by their stockbrokers?—must, on average, have had worse results than the market. Or, maybe many small mutual funds sometimes beat a few very large mutual funds. (I'd buy the argument that some times are better than others for those who do have skill at selecting stocks to prove their abilities, but the claim is seldom qualified in that way.)

This argument is irrefutable. It also in no way depends on the notion of market "efficiency," which we will consider in a later article. Basically, roughly half the people who select stocks are not good at it. And even if all of them improve their skills, still, roughly half of them will not be good at it, because "good at it" is relative.

[7] These statements are only very approximate. I will go into this subject in much more depth in later essays. On the one hand, the median, which divides in half the entire range of returns, is not the average; for the stock market over time, it is greater than the average, and the consequence is that more than 50% of historical stock market annual returns beat the average. Within any given period of time, the median stock return is also greater than the average stock return. Also, there are, presumably, many advisors managing small amounts of money invested in the stocks of smaller companies, and fewer advisors managing large amounts. But some of those small managers, such as individuals advised by their stockbrokers, may simply be carrying out the instructions of large investment companies, so the definition of who is a manager of large amounts and who is manager of small amounts can be disputed. On the other hand, very few managers just hold the same stocks indefinitely, so, over time, the opportunities for any one manager to have performance worse than the top half of all stocks increase in number the longer the period under consideration. And the costs of buying and selling eat into the investors' returns. The median manager is going to have worse performance than the median stock over time.

"Apple is a great company and a great stock to own" is casual and sloppy fundamental analysis, and "Citibank stock have been beaten down so far that now it's a good bet to go up" is casual and sloppy technical analysis. Anyone who picks stocks had better go a long way beyond this kind of thinking if he hopes *consistently* to place in the top half over time. But many investors have a more modest goal than "beating the market": They aim only to have a portfolio that serves their financial needs, and they (and their advisors) can choose investments wisely for portfolio construction without competing to be a winner in security selection.