Topic B1 – Styles, What They Are and Why They Matter

It's hard to imagine anyone who has contact with the investment world to have not had at least some exposure to the concept of "style."

- Warren Buffett is well known as a "value" investor, even by people who aren't quite sure what that means.
- Jim Cramer is seen by many as an anti-value guy; a go-go "momo" (momentum investor) – even though that's not actually true.
- Many have seen or at least heard mention of Morningstar's style box.
- "I want growth!" How many times have you seen or heard that?

The concept of style is definitely out there. So the addition of Style scores to the Designer Model platform seems logical.

Note, though, that we don't simply do this because style is out there. We do it because style is very-much substantive. That's not apparent from the chatter out in the world. Hence the purpose of this Topic: to strip away the chatter and see what styles really are and how the information can be used.

Definition of Style

A Style is a set of characteristics that are rationally and demonstrably shown to influence stock performance (return and/or risk).

> NOTE: We use the word "style" because we believe subscribers will relate more comfortably to it. Actually, though, sophisticated strategists and researchers don't use that word. Instead, they speak of "factors."

The operative words in the above definition are "rationally and demonstrably."

- One who researches the past can identify characteristics held in common by stocks that turned out to have been winners during the time period(s) studied. That is what attracted many from a variety of quantitative disciplines to Wall Street; they saw potentially lucrative opportunities to apply their unique skills. They are exceptionally well equipped to nail down "demonstrably."

- Suppose, though, one demonstrates a statistically robust relationship between whether the zip code of company headquarters ends in an odd or even digit, and whether the company's stock outperforms the market in comparably numbered months? Would the Zip Code-Month relationship be a style?

- It would not, no matter how effectively it tested. The reason is because there is no rational basis for assuming a connection between this ratio and the performance of company shares. (The rational basis we need, a logical chain of thought tracing to DDM, the Dividend Discount Model, was discussed in the content to which the introductory PDF linked.)

The reasonableness requirement is critical. Whether quants succeed or fail in investing does not typically depend on their mathematical skills; in this, they tend to be superior. They make or break based on their whether or to what extent they address "rational." For more on this increasingly public and controversial topic, see:

- Adviser Perspectives: *Why You Shouldn't Trust Most Financial Research*
  - http://www.advisorperspectives.com/articles/2015/08/18/why-you-shouldn-t-trust-most-financial-research
- My rebuttal on Forbes: *Is Financial Research A Sham?*
  - http://www.forbes.com/sites/marcgerstein/2015/09/01/is-financial-research-a-sham/

So in sum, we define a style as a set of characteristics that:
1. Is associated with future stock performance, and
2. For which the association is objectively demonstrated, and
3. Where the association is explainable in terms of sound financial reasoning as opposed to luck or coincidence

Introducing the Established Styles

There are many ideas out there that are said to be styles, but the ones most readily recognized nowadays are:

- **The Market:** Research has made it clear that much of what drives stock performance is the market itself. You see this all the time as wonderful stocks fall during bear markets and terrible stocks rise during bull markets.

- **Size:** Intuitively, many find this easy to accept based on ad hoc observation.

- **Value:** This is the one that even the most casual of observers are likely to have encountered. Yes, it's for real.

- **Momentum:** This comes as a surprise to many, who have been prompted by casual rhetoric and more than a few popular gurus to assume it's nonsense. It's not. It's real.

- **Quality:** You rarely, if ever, hear this style discussed in casual conversation or in the media. But it's very likely you've heard of one of it's most well-known and successful devotees; Warren Buffett.

Two Sides of a Coin

It's tempting to assume that when it comes to Style scores, higher is better. That is, indeed, the popular notion. But it's not correct.

The labels are adopted for convenience. Actually, though, each label depicts one side of a scale. The exception is Market. It's a singular thing. As to the other four, here are the two-sided coins:

- **Large versus Small**

- **Value versus Glamour**

- **Momentum versus Contrarian**

- **Quality versus Junk**

That last label is a hard one to swallow. Academicians instinctively recognize that the word "junk" as used here is not meant as a term of insult. They simply treat the word as just another label as they go about researching the characteristics of "quality minus junk".

I have to confess, here, that as we developed the Designer Models interface, I often advocated for two-sided labeling. Ultimately, though, I couldn't get around the fact that had we used the word "junk," it would have caused more problems and misperceptions than it was worth. (I thought of "Aggressive" but that does not really cut it: It can also apply to much of the Momentum and Glamour categories.)

Notice What's Missing

Surely you expected to see Growth. It's constantly talked about. I discussed it in two books I published in the early 2000s. I included it in the suite of pre-set ranking systems available to Portfolio123 strategy designers.

The plain, simple, hard-core objective demonstrated reality is that it does not stand up as an independent factor, or style. In a subsequent Topic, I'll focus on Growth and discuss

why it isn't a style and how we use the information. For now, though, understand that its omission was not an oversight.

The same holds true for other things you may have heard much about, particularly Sentiment, Financial Strength and Risk.

It's not as if any of these are unimportant. In fact, they and many other important ideas about which you may be wondering are included, usually under the umbrella of one of the identified styles.

This has important implications for your use and interpretation of Designer Model styles. It's not just a taxonomy. It's a set of categories that works together in a specific way that combines to give you a deeper understanding of what is happening in the market and where a particular model fits. In subsequent portions of this topic, I'll discuss the Styles individually. But I want to conclude this unit by showing you how the styles relate to one and other and combine to tell us about the market as a whole.

How the Styles Work Together

It all begins with recognition of what we want Styles to do for us. We want them to reveal what's driving performance (when I use the word "performance," I'm talking about the combination of returns and risk). We want this because:

- We'd like to know what's going to happen in the future. (That's the *real* question we all want answered.
- Unfortunately, that question cannot be answered.
- But if we know the performance drivers of the investments we hold and are considering, we are able to better position ourselves for the unknown by
  - Taking on the return-risk characteristics most suitable based on our personal preferences and our expectations regarding the future, and
  - Knowing how to adjust should things evolve differently than we expected.

Step One: A Famous Two-Style Approach

Our ability to use styles to answer questions such as those posed above owes much to a long-standing academic effort that started with the Nobel-Prize winning Capital Asset Pricing Model (CAPM), introduced in the 1960s.

> *NOTE: You do not have to know this to work with Styles in Portfolio123 Designer Models. You can skip to Step Three if you wish.* But for the curious, what will now follow should be of interest to help you see, in a deep way, how we can gain valuable insight through stylistic deconstruction.

Before CAPM, the market had been seen as a big impenetrable incomprehensible monolith. CAPM changed all that by explaining returns (let's assume we're considering equities) in terms of two factors:

1. RF – The rate of return available on Risk-Free investments such as U.S. Treasury securities
2. RP – The extra return, the "risk premium" investors expect to receive as an inducement to refrain from investing in risk-free instruments and to instead cope with the uncertainties inherent in equities

Although the CAPM developers did not think in this way, we can now characterize these items as two "styles" or "factors."

- One style involves going as conservative as possible by investing in risk-free securities. We can rephrase it and say Style #1 is to go risk-free.
- The other style involves investing in (assuming the risk of) the entire equity market. We could also say Style # 2 is the market, or the SPY ETF.

To complete the model, we need one more input:

3. B – Beta is a number that tells us how important a particular style is.

   o In the context of CAPM, Beta is a statistical measure of how risky an individual stock is relative to the market which determines how much additional risk premium we should get as compensation for bearing the company-specific risks.
   o A Beta of 1.00 tells us the stock is exactly as risky as the market. Therefore, we get no extra premium for investing in it.
   o A beta of 1.15 means the stock is 15% more risky so we should expect 15% more than the standard equity risk premium.
   o And a beta of 0.75 means the stock is 25% less risky than the market; so in this case, the risk premium it commands is 25% less than what one would expect of the overall market.

4. There is no B-type "factor loading" associated with RF. That's because we always expect to get the return associated with it. So mathematically, it's B is implied and is equal to 100%, or 1.00.

These factors combine through a formula that looks like this:

$R = RF + (B * RP)$

So if the risk-free rate is 1%, the equity risk premium is 5% and the stock's beta is 1.10, it's required or expected return would be 6.5%

R = 1% + (1.10 * 5%) = 6.5%

NOTE: Although this formulation looks simple, the RP and B inputs can be notoriously difficult to credibly estimate. Many who try to apply the model tend to base these forecasts on historical data. That can lead to bizarre results since the past is often a very imprecise and sometimes downright terrible indicator of what can be expected going forward. What's valuable here is the framework, as opposed to the tool.

Step Two: Test-Driving our Two-Style Model, the CAPM

The significance of this formulation, for our purposes, lies in the way it teaches us to deconstruct market return into its underlying components.

Suppose, for example, we encounter a stock with return of 6.5%. Is it suitable for us? Maybe it is, or maybe it isn't.

Example A

Suppose the 6.5% comes about because:

- RF = 5%
- RP = 0.5%
- B = 3.00

- R = 5% + (3 * 0.5%) = 6.5%

That is a challenging proposition. The 6.5% return seems reasonable, but by breaking the 6.5% down into its component parts, we see that we could have received most of the return (5%) without taking any risk at all. But by foregoing the risk-free alternative (say a U.S. Treasury security), we wound up assuming a highly speculative degree of risk (three times as much risk for this stock as for the overall market). But our reward for having walked blindfolded to the edge of a cliff was just a pittance (0.5%).

CAPM, or, rather, our two-style analysis, sheds quite a lot of light on this seemingly benign 6.5%-returning stock, perhaps a lot more light than a bullish hyper analyst on CNBC might have wanted it to shed.

Example B

Now, let's change the scenario.

- RF = 0.5%
- RP = 6%
- B = 1.00

- R = 0.5% + (1 * 6.0%) = 6.5%

Compared to the first example, it might seem, without CAPM as if we're looking at the exact same opportunity; a stock with a 6.5% expected return. Actually, though, the two scenarios are as different as night and day. CAPM style analysis is now telling us that to get a decent return, we cannot sit back and park money in U.S. Treasuries. We have to inhale and dive into the equity market, which is the source of the vast majority of our return.

But that's not all. Would it have paid for us to devote countless hours to the analysis of many stocks to ultimately wind up with this one? The answer is "no." We wound up getting no additional return beyond what we could have earned by having invested in the entire market (i.e. through the SPY ETF). We'll come back to this in a later topic when we discuss Descriptive Statistics in general and Alpha in particular.

Example C

Here's one more variation on this situation:

- RF = 1.5%
- RP = 3.0%
- B = 1.67

- R = 1.5% + (1.67 * 3.0%) = 6.5%

This is a more balanced scenario. The risk-free choice (1.5%) is OK, but we'd like to do better.

Buying the equity market, SPY, is also tolerable, but not by much. There is a risk premium (3.5%), and it's not offensively low. But it's not eye-catching either. To get our return up from a so-so 4.5% to a better 6.5%, we'll take some additional stock-specific or company-specific risk. That leads us to this stock with a Beta of 1.67. This is definitely risky, but not outrageously speculative. Is the risk-reward balance reasonable? Every investor must answer that for himself or herself.

Step Three: From Two-Style CAPM to APT (More Styles)

Like DDM (see content linked to from the Introduction), CAPM made for profound theory. Day-to-day practice, however, turned out to be a different matter. The concern that is most relevant to us now is the reluctance of academics and practitioners to settle on the notion that aside from the risk-free return, the only thing we had to think about was the market itself (and the relationship of each individual asset to the market). In other words, two styles didn't seem to cut it in the real world.

That led to the development of what became known as Arbitrage Pricing theory, or APT.

APT expands the CAPM formula to encompass multiple risky factors-styles in addition to the market as a whole. Here's the new formulation:

$$ER = a + x_1b_1 + x_2b_2 + x_3b_3 + \ldots + x_nb_n + e$$

Were

ER = Expected (equity) return
a = a constant value
x = a style (factor)
b = a beta-like "coefficient" or "factor loading" that reflects the relative importance of each factor within the model
n = the total number of factors being used
e = residual error, which is usually presumed to be random

As a matter of practice, the *e* term is implicitly understood to exist but is widely assumed to average out to zero and, hence be omitted. So factor models are typically expressed as:

$$R = a + x_1b_1 + x_2b_2 + x_3b_3 + \ldots + x_nb_n$$

So what are these x factors? They could be anything that can reasonably be expected to influence returns. Early practitioners used economic variables for the x items. Others combined economic items with company/stock-oriented fundamental items. Others, including Portfolio123, work only with fundamental items.

To bring us back to Designer Models, the x items are the styles we adopted, – the market itself, size, value, momentum and quality.

- In terms of the Designer Models platform, we don't sort and search based on the market because it's not usually seen to predictable. (Some Designers claim to be able to time the market; you can evaluate this separately and it will be discussed in a later Topic.)
- We could publish Size rankings and include those on the platform as a fourth style, but the same benefit can be and is attained by allowing Users to search and

evaluate in terms that are already familiar; large cap, mid cap, small cap and micro cap. (We'll discuss Size in greater depth in Topic 2.)
- The other three Styles – Value, Momentum and Quality – will be addressed in this Topic.

The Designer Models Smart Alpha Platform Presentation

Had we chosen to go all out in quant terms, we'd have shown you the impact of the styles (the x items in the APT formulation) in terms of their respective b coefficients as calculated through a series of regressions involving long-short upper decile-lower decile hypothetical portfolios. Such a presentation would not have, for example, shown you information on size or value per se but on the market's response to the size- and value effects (Returns Based Style Analysis, or RBSA). We concluded that this would likely have resulted in confusion. So we opted instead to provide the information in a much more user-friendly manner, through ranking systems based on Value, Momentum and Quality accompanied by traditional size-based classification.

Know, however, that our use of Value, Momentum and Quality for our Style presentation is not something that came about casually. It is derived from APT. Regressing the market performance of the investable stock universe used for the Designer Models against the full five-style suite (Market, Size, Value, Momentum and Quality) produced an overall R-Squared above .9, which means the model explained more than 90% of universe performance.

Eliminating the market, the great unknowable, size explained about half of the remaining performance while the Value, Quality and Momentum shared the other half (with Quality having a bit more of its fair share of this remainder. Value had close to its one-third fair share; Momentum had a bit less, but was still significant).

I don't want to go further in terms of numbers because that will likely confuse. We can't always assume each "b coefficient" is positive. Remember, we're dealing with two-sided coins. So, for example, a negative coefficient for Value would mean the universe favored Glamour. Also, the R-square figures are aggregated for the universe and the entire measuring period used in our study (1/2/99 through 11/15/15). Different things drive the market at different times.

Key Takeaways

For now, the key takeaway is recognition of how you can organize your thoughts re: model selection:

1. *What do I think of the market?*
2. *What about Size?*

a. What Size characteristics are most compatible with my view of the market and my personal reward-risk preferences?
b. What Size characteristics are currently being favored by the market?
c. Does it appear that the performance of the Model I'm looking at is being driven by its exposure to a size characteristic the market loves or hates?

3. *What about Value-Glamour?*
   a. What Value-Glamour characteristics are most compatible with my view of the market and my personal reward-risk preferences?
   b. What Value-Glamour characteristics are currently being favored by the market?
   c. Does it appear that the performance of the Model I'm looking at is being driven by its exposure to a Value-Glamour characteristic the market loves or hates?

4. *What about Momentum-Contrarian?*
   a. What Momentum-Contrarian characteristics are most compatible with my view of the market and my personal reward-risk preferences?
   b. What Momentum-Contrarian characteristics are currently being favored by the market?
   c. Does it appear that the performance of the Model I'm looking at is being driven by its exposure to a Momentum-Contrarian characteristic the market loves or hates?

5. *What about Quality-Junk?*
   a. What Quality-Junk characteristics are most compatible with my view of the market and my personal reward-risk preferences?
   b. What Quality-Junk characteristics are currently being favored by the market?
   c. Does it appear that the performance of the Model I'm looking at is being driven by its exposure to a Quality-Junk characteristic the market loves or hates?

This seems like a lot. It really isn't. Much of this will become entrenched habit once you get a bit of experience. Still, if you want to get systematic with your own due diligence and track yourself over time, you could use this as the basis for a checklist you can create and manage in Excel or Word. But you don't have to get formal. This really will become second nature very quickly.

Coming Attractions

To make this work, you'll have to understand what Value, Momentum and Quality really mean, in their full two-sides-of-the-coin sense. We'll cover those in Topics B2, B3 and B4 respectively. Then, we'll go on to Size in Topic 2, Themes in Topic 3, etc. etc. etc.

Among the topics we'll cover later on is number of portfolio positions: We have a lot to do before we get there, but for now, I'll tell you that based on the way investment-related data "behaves," to actually get a portfolio that truly reflects it's apparent style, you need to diversify among a reasonable number of positions. This motive for diversification is different from the risk-control ideas about which you've undoubtedly heard. It's necessary simply to get what you think you're getting. If, for example, you want Quality (as you may and probably should if you're nervous about the market), a portfolio with more positions is likely to perform consistently with what you should expect from quality than would be the case with a very small number of positions; the latter is necessarily heavily exposed to randomness.