This is the third article in a series on our investment 'edges'. Our third investment edge is Portfolio Construction: how many holdings we have in the portfolio; how much of each holding we own; and how the composition changes over time.

Turtle Creek was founded in 1998 on six investment principles and the third and fourth of these address portfolio construction. The third principle is "Abhor Lazy Money" and the fourth is "Abhor Over-Diversification" (and were tongue-in-cheek references to Aristotle's adage, repeated by Galileo, that 'nature abhors a vacuum'). In one of our earlier (2004) annual letters, with respect to lazy money, we explained: "*Our goal is to ensure that Turtle Creek is always 'smart' money inasmuch as it is striving to achieve a constantly optimal portfolio. Often investors may make an excellent investment selection, but they do not appreciate that the investment process is dynamic and never-ending. Over time, the price and fundamentals of their investment will undoubtedly change as well as that of their other investments. Unless rigorous and persistent analysis is brought to bear on these changing factors, then it is 'lazy money'.*" In the same letter, with respect to over-diversification, we said: "*One of the consequences of modern portfolio theory has been an obsessive pursuit of greater and greater diversification to the point where some investors attempt to have their financial assets spread over an exceptionally large base. Simply put, it is impossible to outperform the market when you are diversified to such an extent that you become the market*".

The best way to explain how our portfolio construction works is to start with a stylized, simplified example. Imagine a portfolio comprised of two investments, Company A and Company B. Both companies have an intrinsic value of $20 per share and both companies trade at $10 per share on the stock market. To further simplify, assume that everything else about them is the same – they are of similar risk, financial leverage, management quality and alignment, growth opportunities, etc. In that case, an optimal portfolio might be comprised of 50% in Company A and 50% in Company B. Now imagine that the share price of Company A rises to $12 and the share price of Company B declines to $8. (Share price movements of this magnitude occur often in the public market). Now, Company A comprises 60% of the portfolio and Company B comprises 40%, and yet Company A is now relatively less attractive since its price has risen closer to intrinsic value and Company B has become more attractive since its price is further below intrinsic value. The way to fix this is to sell some of Company A and buy more of Company B. How much to sell and buy is subject to a number of factors beyond the spread between value and price, but common sense would suggest that one would prefer to own more of Company B than of Company A.

Now take this simple example and add an additional 23 companies, so that the portfolio is comprised of a total of 25 investments. And rather than assuming the companies are all similar, introduce the reality that each one has its unique risk profile (its own unique probability distribution of likely intrinsic values), and its own quality and alignment of the management team, growth opportunities, financial leverage, etc. You can see that the relatively straightforward portfolio construction described in the prior paragraph quickly becomes substantially more complex. However, the *principles* remain the same: in building an optimal portfolio it is better to own more of companies that are cheaper and less of companies that are more expensive and there should be a bias toward companies that rate higher on a host of other factors.

This brings us to a key point about portfolio construction: without our Edge 2 – Valuation, it would be impossible to construct an optimal portfolio, or even any logical sort of portfolio. You have to understand the value of each of your investments (how much free cash each investment will generate over time) – and most importantly, the *relative* value among your investments – before you can go about the process of portfolio construction. It is worth reiterating that we think about valuation probabilistically. In our recent Tao (on valuation), we provided the visual of a bell curve to show how we think about our intrinsic value estimates – while we use the 'best estimate' midpoint for each valuation we recognize that, in an uncertain world, value exists over a range.

We abhor lazy money and we abhor over-diversification.

Building an optimal portfolio is complex and difficult, but the principles are clear and straightforward.

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We wish we could come up with an appropriate visual representation of how these intrinsic value ranges for all of our companies (which are then adjusted by a variety of other factors) interact to create our optimal portfolio, but we haven't been able to. Even with an understanding of relative valuation, portfolio construction is not a simple matter. Sometimes, when we are asked by investors how we construct our optimal portfolio, we joke that "we have a secret algorithm"; but there is some truth in this. At the outset of Turtle Creek we devised a highly complex, multi-factor model that guides us in determining the portfolio weightings. We have enhanced and improved this multi-factor model over time but its essence hasn't changed since 1998. The most important factor in determining the portfolio weightings is the difference between each investment's intrinsic value and the current price, but there are many other factors that go into determining the weightings and, in aggregate, these other factors have a substantial impact on the ultimate weights.

All of the above process results in the creation of our 'optimal portfolio'. This portfolio has a number of interesting characteristics and we note some of them here.

1. Despite the fact that all of our companies have a North American head office (with the great majority having their head office in Canada), only a third of the cash flow comes from Canada, a third from the United States and a third from overseas. We like being exposed to growing markets around the world – but we believe the best way to gain that exposure is through North American based global businesses where we can have meaningful ongoing interaction with management teams.
2. Our portfolio is well diversified across industries. This is not an initial objective in our portfolio construction, it is simply an outcome of our investment process.
3. Our portfolio makes a lot of money. In 2012, the cash earnings were $2.65, which is roughly an 8.5 times price earnings multiple.
4. Our portfolio companies pay out a lot of the money they earn. In 2012, the cash distributed by our companies to their shareholders (primarily through regular and special dividends) was equal to $1.62 per Turtle Creek unit. That is a yield of over 7%.
5. A disproportionate number of our companies have had their existing executive management team in place for a long time, and many of them are still run by the founders of the company.
6. Our portfolio companies have lower debt levels than the average public company. Indeed, none of our companies have high yield debt.
7. An unusually large number of our holdings are very good at creating shareholder value through acquisitions. Most companies are bad at acquisitions – it's not easy to do them successfully. Our background as M&A specialists and then private equity investors where we made control investments helps us identify the management teams who are good at it.

In constructing our portfolio we aim to have approximately 25 holdings. That number is determined by two factors: i) how many companies we are able to develop and maintain a deep understanding of, given our current investment team format; and, ii) a belief that 25 holdings strikes an ideal balance between minimizing risk and maintaining the benefits of a focused portfolio. To take one last quote from our 2004 annual letter: *"Our general objective is to have at a minimum 50% of the fund's assets invested in no more than ten companies at any point in time".* Nine years later, the objective is unchanged and fits nicely with about 25 holdings that flex in their portfolio weightings such that it is always the case that ten holdings represent more than half of the fund.

We are long term owners of companies and once we construct our optimal portfolio – the correct weighting for each of our holdings – we have no intention of making changes unless our relative view of our companies change. However, the public market is constantly re-pricing our companies' share prices and so to maintain our optimal portfolio we simply must react to the price changes by adjusting the size of each holding. This often results in significant changes to the size of each holding but it is all within the context of optimal portfolio construction. We will shortly be releasing a fourth and concluding Tao in this series that will profile a long time holding of Turtle Creek which will serve as an excellent demonstration of all three investment edges, and in particular, portfolio construction and ongoing reweighting.

We have developed a proprietary, multi-factor model to assist our portfolio construction.

The portfolio is well diversified across industries and geographies. The holdings are highly profitable with very low debt levels. Most of the management teams have long incumbency and are good at acquisitions.

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