



New Tool Helps You Stay Afloat

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Awash in a sea of red ink, the underlying risks associated with certain trading styles have risen to the surface during the past year. What was not clear until now is how best to analyze the performance of an individual style, be it a trade or investment. Using the new tool Underwater Mass Index (UMI), you can properly assess the risks associated with any approach.

UNDERSTANDING UNDERWATER

To comprehend UMI, you first need to master the concept of being underwater. Suppose you turn a \$1,000 investment into \$1,300—you have garnered a 30 percent return. Not bad work. With a new equity high in place, you give back \$130, representing a 10 percent loss from your most recent high watermark of \$1,300. Lose another \$130? You are an additional 10 percent underwater, now 20 percent in total from the previous equity high of \$1,300. Until you break that old high, you are underwater, and time is working against the value of your investment.

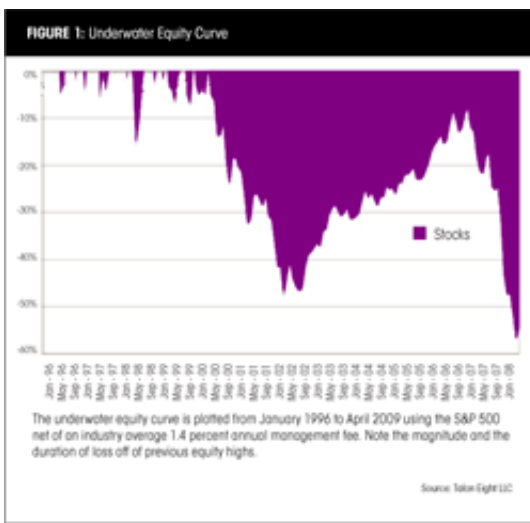
To get back “above water,” you need to overcome losses. It goes without saying that minimizing losses makes it easier to set a new equity high. Also, minimizing drawdown, or underwater episodes, is critical to the cause. The depth of your losses matters, as does your ability to overcome them.

Just like being underwater in the real world, being submerged in trading and investing creates an incredible weight to overcome. Left unspoken, though, is the effect of time. That’s where UMI reveals the true magnitude of pain and suffering experienced with loss. Unlike maximum drawdown, which solely measures the magnitude of one’s losses, true risk assessment should include duration.

DURATION MATTERS

Duration, in and of itself, is a simple concept. If you have been underwater for 10 months, then you are potentially better off than if you had been underwater for 20 months. “Potentially” is the key word here. Though time is truly a wasting asset in the financial realm, the combination of time and depth of loss creates a dynamic that must be assessed. Time or duration alone simply is not enough.

The best approach is to combine the two concepts—magnitude and duration (see Figure 1). Only then can you assess if one strategy is truly better than another.



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COMBINING THE TWO

So what of magnitude? Is being 40 percent underwater worse than being 30 percent underwater? Is a maximum drawdown of 30 percent truly any better than 40 percent? And what of duration? Is 10 months maximum duration any better than 20 months?

Before mastering UMI, you need an appreciation of both magnitude and duration. Consider the trading results from the previously posed questions. Two results, one with a magnitude of 40 percent and duration of 10 months would equate to a UMI of 400 percent (40 percent x 10 months). In contrast, a magnitude of 30 percent and duration of 20 months would equate to a UMI of 600 percent (30 percent x 20 months). In this case, the 40 percent maximum drawdown would seem superior.

This elementary calculation appears on its surface to offer insight. It is, however, flawed. It presumes, inappropriately, that the strategy in question fell to 40 or 30 percent below water immediately, stayed there for 10 or 20 months respectively and then immediately recovered to make a new high. Although not impossible, this is highly unlikely and does not tell the true tale of the stock regarding risk.

THE BEST OF BOTH WORLDS

Enter UMI. Using UMI, you can accurately assess which strategy has more downside risk than another. Like determining the area of a circle, UMI calculates the area represented by a strategy's underwater chart. The sheer volume of the underwater event provides a window into the strategy's risk.

With UMI, depth matters, but what is more important is the accumulation of underwater values over time—not simply their maximum drawdown values. Time is significant but cannot be registered by simply multiplying the maximum drawdown by its corresponding maximum loss period.

Bringing magnitude and duration together into a single calculation levels the playing field and offers an entirely new look into the risks associated with a trading or investment strategy.

To calculate UMI, you need the percentage loss for each episode. We define an episode as the value a strategy is underwater for any given month. For example, if in month one the strategy were 10 percent underwater, it would be assigned a UMI value of 10. By month two, if the strategy were an additional 5 percent underwater, that results in a total of 15 percent for the episode. UMI represents the accumulation of the episodes. In this case, two months into the drawdown, the UMI value has grown to 25 (10 + 15).

Using UMI, you can determine a strategy's ability to overcome a loss. Although no one

would deny that losing less is always a prudent exercise, the greater crime is losing not only more, but perhaps losing longer. To understand this more clearly, look at two portfolios and their associated individual components.

UMI IN ACTION

For purposes of this discussion, we use the monthly returns (gross of fees) of three separate asset classes: stocks, bonds and the CTA Index. These uncorrelated asset classes provide the building blocks to a truly diversified investment portfolio. First, study their individual risks. Only then can you assess the improvement of creating an asset allocation strategy using all three.

Comparing the individual asset classes in Figure 2, it's easy to see that stocks have inherently greater risk when compared to bonds and the CTA Index. You can see it not only in magnitude and duration, but also—and more importantly—from the accumulation perspective using UMI.

FIGURE 2: Asset Class Review (January 1996-April 2009)			
	Stocks	Bonds	CTA Index
Max. Percent Drawdown	57.04%	4.05%	7.73%
Max. Duration (months)	104	13	19
Underwater Mass Index	-2,920%	-109%	338%

Simply multiplying their maximum drawdown and duration values skews the data. A 100 percent long-only stock strategy still fares far worse, but the values are misleading, with stocks taking on -5,932.16 percent downside risk (-57.04 percent x 104 months) to bonds - 52.65 percent (-4.05 percent x 13) and the CTA Index 146.87 (7.73x19). The calculation is not only more elegant, it's more accurate, hence UMI is a more dynamically time-weighted solution.

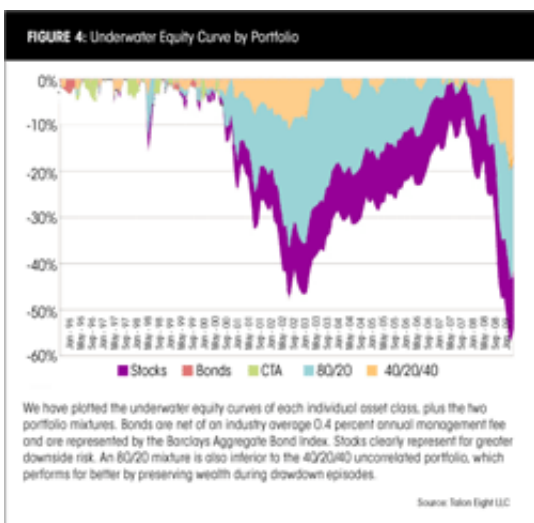
MAKING THE GRADE

To appreciate the value of UMI, look at two separate asset allocation strategies. In the first strategy, we calculate UMI using a traditionally constructed long-only stock and bond portfolio in an 80/20 asset class mix. The second strategy introduces the CTA Index in a 40/20/40 mix. Introducing an uncorrelated asset class offers not only further diversification, but also reduces overall risk (see Figure 3).

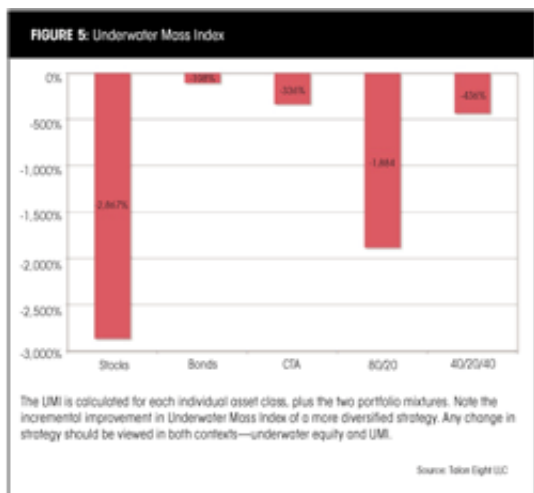
FIGURE 3: Asset Allocation Review (January 1996-April 2009)			
	Traditional Portfolio	Diversified Portfolio	Percent Change
Max. Percent Drawdown	-44.80%	-20.20%	54.81%
Max. Duration (months)	80	32	-60.00
Underwater Mass Index	-1,924%	-453%	-76.46%

Notice the improvement in UMI using the traditional portfolio, up from an abysmal -2,920

percent in the 100 percent long-only stock strategy to -1,924 percent—a nearly 1,000-point reduction in risk. In a vacuum, the strategy seems to offer a far better solution. The diversified portfolio solution, however, reduces UMI far more, lowering the risk an additional 1,471 points, or more than 2,400 points better than the 100 percent stocks strategy (see Figure 4 and Figure 5).



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BOTTOM LINE

Often, traders and investors concentrate on the upside of their strategies, but few truly take the time to analyze their downside risks. Looking at single events in isolation, such as maximum drawdown or maximum duration, is insufficient when measuring total risk.

With UMI's time-weighted approach, not only is downside risk taken into account, but any improvement associated with a change in strategy is far better assessed.

Jeffery E. Lay, CMT, and David C. Stendahl are co-founders of Talon Eight LLC (TalonEight.com), a firm concentrating on absolute return strategies and preservation of wealth using a proprietary mix of highly uncorrelated asset classes. To see the downside risk of your own portfolio, go to TalonEight.com/umi.html for the Underwater Mass Index calculator.

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