Momentum Trading: The New Alchemy

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Tech stocks made phenomenal gains in 1999 and early 2000, more than doubling in just the ten months leading up to their peak in late March, and outstripping the Old Economy S&P 500 by more than 150% on an annualized basis. While the ride to the top of this market seemed much faster than a roller coaster's labored ascent, everyone knows the top of the ride is followed by those dips and loops that churn one's stomach. It seemed inevitable that something would have to give. How much longer could companies paying no dividends, with no earnings in sight, support stratospheric prices?

Yet, as tech stocks soared, momentum investors kept buying and buying. Why? Alan Greenspan has likened these hot stocks to lottery tickets; investors apparently ignore the odds stacked against them in the hope of winning the big prize. In fact, the driving force behind market movements today might be better understood by reference to option pricing theory, and the way some option-like strategies seem to offer the promise that they can turn base metal into gold.

When Fischer Black, Myron Scholes, and Robert Merton cracked the option pricing code in 1973, they also offered a formula investors could follow to attempt to replicate the payoffs on options. For call option replication, investors borrow to buy stock as prices rise, capturing the upside of price movements, and sell stock as its price declines, limiting their downside.

In essence, momentum traders today are trying to obtain the benefits of a call option—upside participation with limited risk on the downside—without payment of an option premium. These traders buy as stock prices rise, often financing their purchases with margin debt borrowing. Further price advances lead to more borrowing and more buying. When prices fall, momentum traders expect to be able to limit their downside by selling.

Provided sales can be executed quickly, in liquid markets, the strategy appears to offer a lot of upside with not much downside. And, with trading on the Internet now vying with long-distance telephone service for price competitiveness, it's pretty cheap to boot.

Furthermore, the strategy is easy to implement, especially compared with traditional security analysis. After all, trying to determine the worth of a company requires devoting a great deal of time and effort to research. All momentum investors have to do is repeat the mantra, "The trend is your friend."

A chance of huge gains with little risk and minimal cost—no wonder every man, woman, and child in America seemed to jump on the momentum bandwagon. And no wonder so many felt empowered to enlarge their stakes via borrowing. By the end of March, margin debt had ballooned to a record $278 billion.

So what can go wrong? In essence, momentum investing sows the seeds of its own destruction. As more and more of the market's capital becomes concentrated in this type of strategy, market stability becomes increasingly tenuous. Rising prices encourage more buying, and more borrowing, which raises prices further. Eventually, prices reach such a delusional height that the merest whiff of bad news is capable of deflating them.

At this point, the market becomes susceptible to damage from the momentum strategy's "fail-safe" mechanism. That is, with substantial capital riding on momentum strategies that are poised to cut and run when the going gets tough, the slightest price decline can result in an avalanche of sell orders. Concentrated selling by momentum investors pushes prices downward. As prices fall, of course, margin calls lead to further selling pressure, forcing more sales into already declining markets. Momentum selling panics other investors and crushes market values.

Only then does the real cost of the strategy, to its followers and to investors generally, become known. Momentum traders find they cannot exit their stocks so easily, or cheaply. Rather, they sell out at prices much lower than they may have expected. Their "riskless" strategy suddenly becomes very risky. Meanwhile, other investors find that their equity holdings are decimated.

Today's momentum trading has retraced the paths of other strategies that seemed to offer the formula for creating gold but in reality held only the formula for destroying market value. In the 1980s, portfolio insurance attempted to replicate a protective put option offering upside gains with a floor on downside losses (see Jacobs [1998]). Again, the formula called for buying stock as stock prices rose and selling as prices fell. As with the call option replication of momentum investors, portfolio insurance investors paid no premium at the outset of the strategy. Furthermore, they could execute the strategy in futures markets for a fraction of the cost spot market trading would incur.

The promise of high return potential with limited losses at minimal cost had attracted tens of billions of pension dollars by mid-1987. But when the market began to decline in October of that year, much of the equity in portfolio insurance programs ended up abruptly dumped. Stocks fell 22% in one day, October 19.

In the 1990s, Long-Term Capital Management used option-based models to seek out and exploit arbitrage opportunities across the globe (see Jacobs [1999]). Unlike the trend-following trading of portfolio insurance and momentum investing, which are inherently destabilizing to markets, arbitrage trades are inherently stabilizing, working to narrow mispricings. Yet, like portfolio insurers and momentum traders, LTCM was overconfident in the safety of its strategy. The global diversification of LTCM's trades and their offsetting nature were presumed to provide an initial defense against unexpected price moves.

LTCM piled on huge amounts of leverage, via borrowing and low-margin derivatives, which allowed the hedge fund to magnify minuscule profit margins on each trade into stellar gains on gargantuan positions. When Russia defaulted in August 1998, however, LTCM's highly leveraged, low-cost, low-risk trades suddenly turned extremely risky. The hedge fund faced massive margin calls, and found neither investors nor lenders willing to supply the needed liquidity. At this point, its only recourse was to the same loss-limiting solution used by portfolio insurers and momentum traders—the sale of assets into a declining market. With markets already in turmoil, the threatened liquidation of LTCM sent market volatility soaring to levels not seen since the 1987 crash.

Strategies that appear to offer the rewards of investing without the risks are almost irresistible, and when they appear low-cost as well, they probably *are* irresistible. After all, investors, being human, are greedy for gains and fearful of losses. Unfortunately, as such strategies become more successful at attracting capital, their fail-safe mechanism for limiting losses becomes less likely to work, and more and more likely to wreak havoc on markets.

We witnessed this most recently in April 2000, when the momentum-driven tech sector collapsed, driving some highly leveraged investors into bankruptcy and sending others scurrying for the exits. Let's hope it doesn't take an even bigger catastrophe for investors to recognize the real cost of momentum strategies today.

REFERENCES

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