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**Financial Engineering:  
Bullish for Now; Bearish Later**

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October 17, 2006

The latest record high in the *DJIA* is a bit surprising inasmuch as most of the conventional indicators for U.S. equities have, until recently, been fairly mixed, yielding a somewhat neutral outlook for the stock market. One of our favorite indicators, however, has remained staunchly bullish all year, and that is *the net change in trading float*. This figure is determined by calculating the total volume of equity shares newly issued, and subtracting therefrom, the total volume of equity shares recently eliminated. For more than two years, share *elimination*--which takes the form of share Buy-backs, the Cash portion of Mergers and Acquisitions, and Leveraged Buy-outs--has significantly exceeded share *issuance*--which takes the form of Initial Public Offerings and Secondaries. This is not the usual corporate underwriting dynamic, and it has necessarily resulted in a significant shrinkage in the floating supply of publicly traded equity shares. In fact, the net change in the trading float has recently set new all-time records. Through September of this year, for example, the float has *shrunk* by \$481 billion, which is more than the previous record decline for an entire calendar year. At this run rate, the floating supply of US equities will decrease by more than 3% this year.

A shrinkage of 3% or so may sound trivial, but we recall an old saw from our commodity trading days to the effect that a 10% loss in the physical supply of a crop will cause a 100% rise in market price of that particular

commodity. Now the mathematics of this little rule-of-thumb are admittedly metaphoric, but it does address a very profound phenomenon operative within publicly traded markets: And this is the fact that free market prices tend to react *disproportionately* to changes in the available supply. *King's Law of Prices* is one relatively objective way of investigating the effect that changes in supply should have on the prevailing price level. This ancient algorithm, developed by Gregory King, advisor to the British Crown in the 1600s, was originally designed to calculate the amount by which the price of certain grains would rise or fall given a rapid increase or decrease in the available supply of the subject commodity. And as it turns out, according to *King's Law* the effect that supply changes have on prices actually *is* an exponential one, just as the commodity traders' bromide claims. More precisely, when converted into modern mathematic notation, *King's Law* asserts that a diminution in the supply of a commodity will move the market price of that commodity in the following manner:

$$\text{relative price} = [0.98807915 \times \text{quantity}]^{2.69138}$$

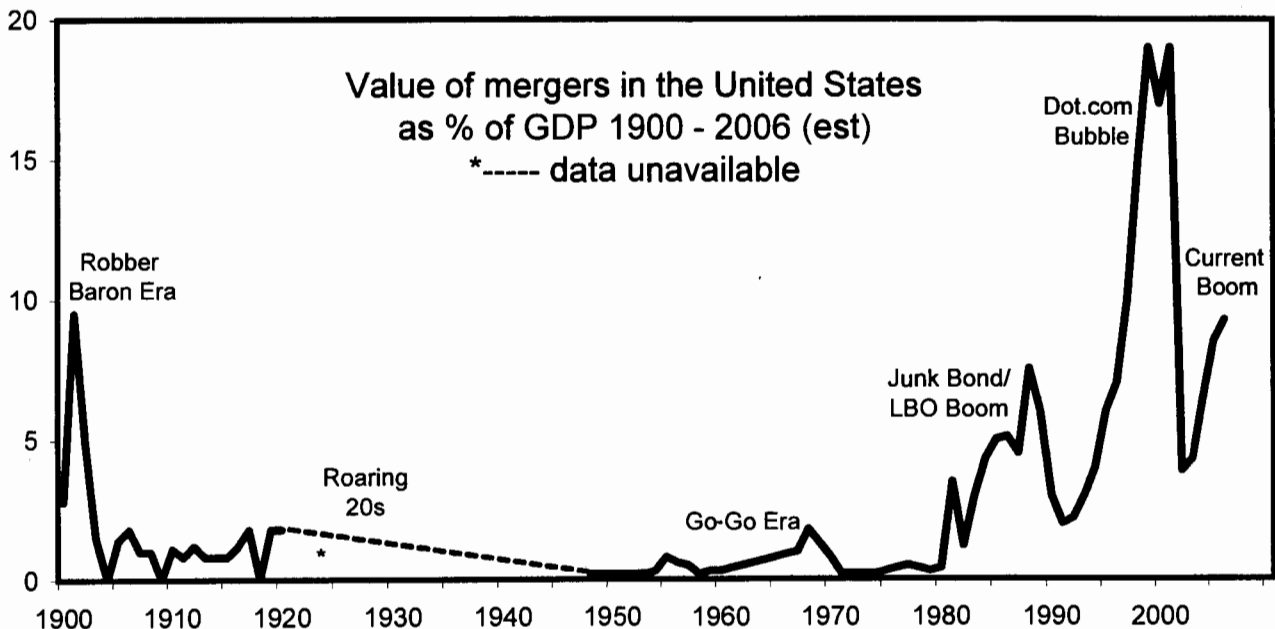
If one extends this principle to the stock market, the formula implies that at its current run rate of roughly 3%, the shrinkage in the equity trading float should be expected to lift the US Stock market roughly 12¼% above its prevailing price level--other things being equal. This is the reason we have long contended that Buy-backs, Take-overs

and Leveraged Buy-outs are currently the most bullish components within the price structure of the Stock market--so long as they continue. Our feeling, however, is that while its short term effect is *positive*, over the long term, the current tsunami of financial engineering is likely to have a *negative* influence on stock prices. This is not to say that share buy-backs and M&A activity "cause" tops in the stock market *per se*. It may be the case that extreme deal activity such as we are seeing today is simply an "indicator," much as "The Skyscraper Curse," discussed here in June, is an "indicator." Both phenomena may be indicating that the willingness and the ability to build mega-buildings and to do mega-deals have become so extreme that they are likely to be approaching their natural terminus. And so, before too long, business activity and/or the associated stock market prices are likely suffer one of their periodic eclipses.

We do not have a whole lot of empiric evidence to support the hypothesis that robust deal activity, such as we are seeing today, presages eventual pain in the economy and the stock market, but history certainly does

not contradict this notion. For example, in this country's history there have been five--arguably six--great re-structuring waves such as we are currently in the midst of. First there was the Robber Baron merger and acquisition boom that occurred between 1898 and 1903. This phenomenon was associated with the great Railroad build-out and the creation of the Steel empire that marked that era. The magnitude of this boom is illustrated by the fact that the value of M&A activity in 1901 was equal to 10% of GDP, which is more than ten times the century's average M&A activity of about 1% of GDP (see chart below).

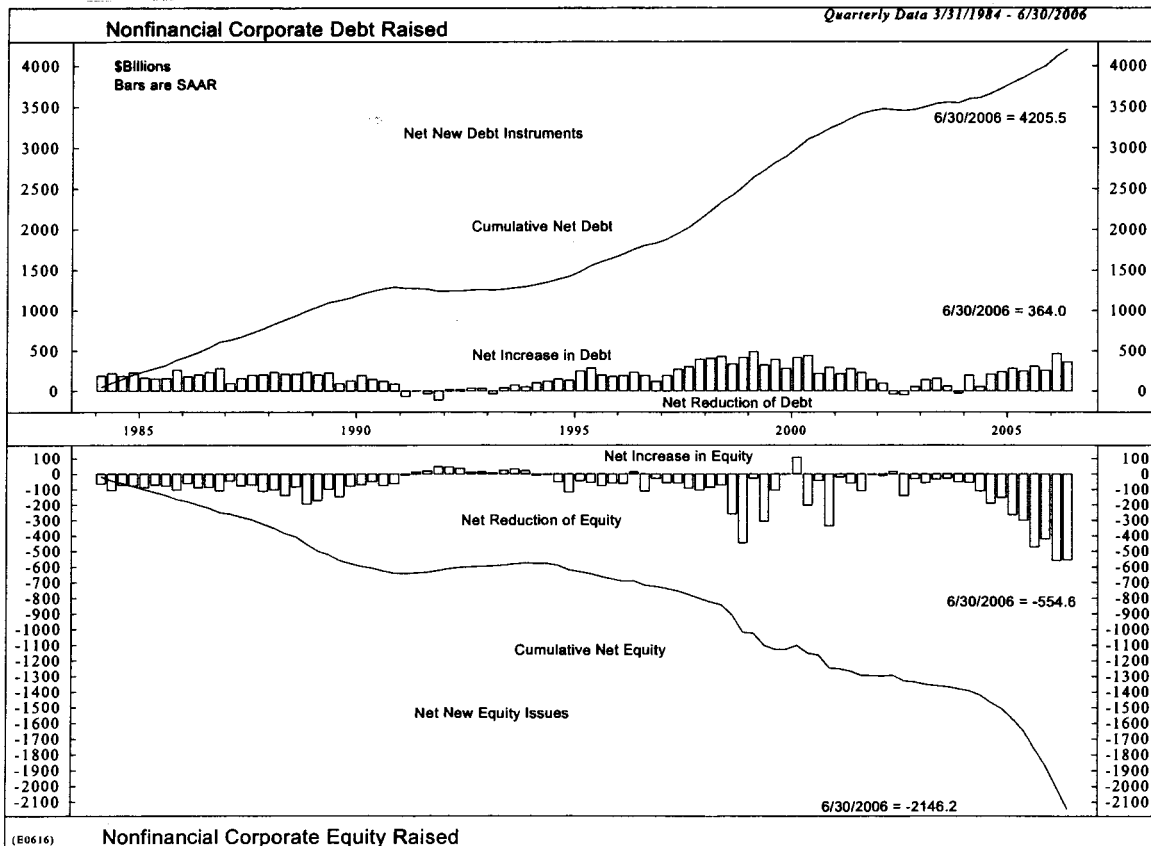
After the Robber Baron restructuring, there was the second great episode--the Roaring Twenties "Trust" and "Holding Company" boom--which started in 1919 and rode the back of that frothy bull market until 1929, when it finally died along with everything else. The third great wave of corporate hyper-activity occurred in the "Go-Go Era," between 1965 and 1969. This particular episode was marked by the infamous "Conglomerate Craze," and it ended coincident with the end of the attendant bull market in stocks. The fourth great



wave of corporate restructuring occurred between 1982 and 1989. This episode was notable for its "Leveraged Buy-out/Hostile Take-over" epidemic, and the associated rise and fall of the Junk Bond wheeler-dealers. The fifth wave of massive corporate financial engineering started in the mid 1990s. At its peak in 2000, the value of M&A deals neared an unbelievable 20% of GDP--twice the previous record set in the Robber Baron days at the end of the 19<sup>th</sup> century. We initially thought that the 2000 stock market peak and the associated Internet smash-up had put an end to the fifth great financial engineering boom in this country's history. But while deal activity *did* collapse with the stock market between 2000-2003, beginning in early 2003 and continuing through today, M&A activity has come roaring back. As noted earlier, corporate deal-making and share buy-backs are setting all-time records even now. (Total M&A activity as a % of GDP which is shown on the page 2 chart has not yet surpassed 2000, but the *net share shrink* has set new records).

Whether one more properly calls the two latest restructuring episodes "wave 5 and 6" or "wave 5a and 5b" is arguable. However, one thing that is clear from history is the fact that a short time after each of the *first* five waves of financial engineering this country went through, the stock market suffered a decline of *at least* 45%. Just recently, for example, after the dot.com bubble expired in 2000, from that year's high to its 2002 low, the *Wilshire 5000* declined 50.3%.

The precise causal mechanism underlying these five stock market declines is unclear. The M&A activity that preceded them *could* have been a causal factor, since studies show that two-thirds of mergers and acquisitions do not add value. Perhaps rising animal spirits lifted prices paid too much; or perhaps the purchases were financed by burdensome amounts of debt. But on the other hand, the fact that most financial engineering is not successful does not *necessarily* mean that such activity per se "caused" the bear markets



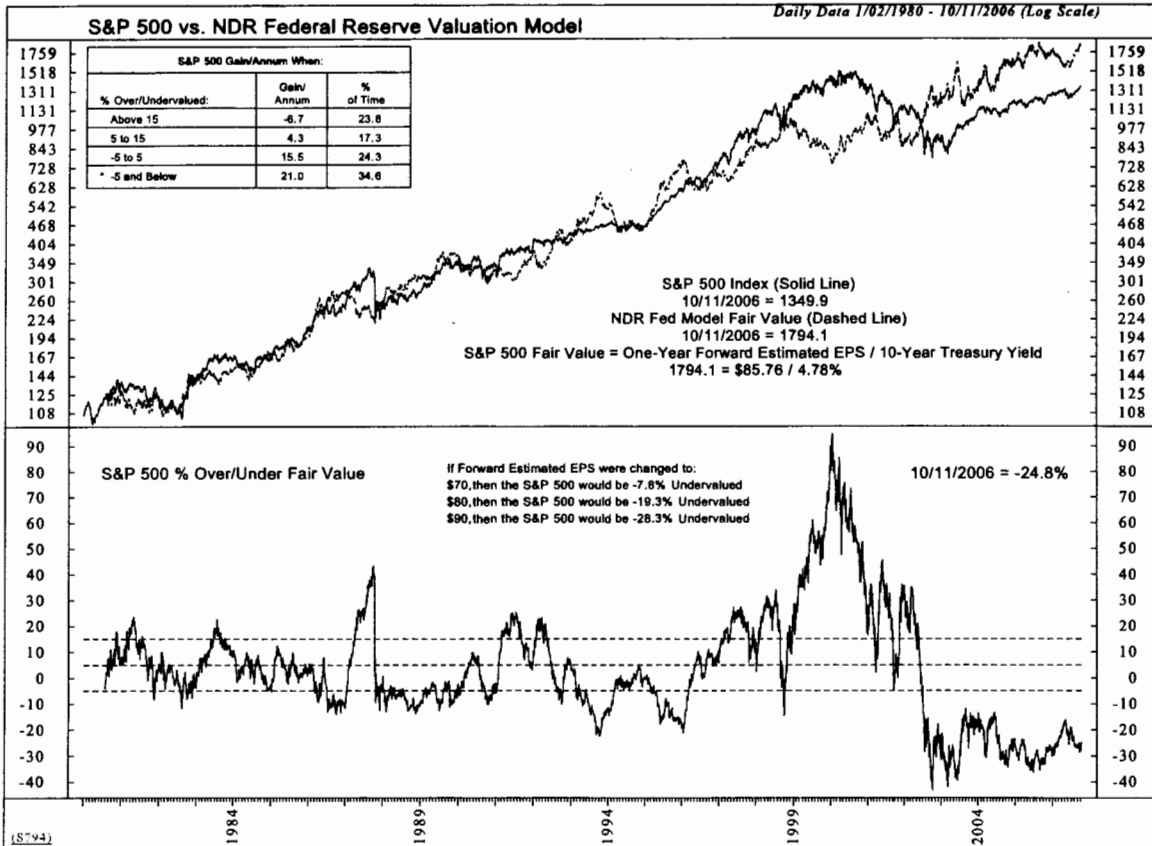
that have followed them. As noted earlier, it might instead be a case of *correlation*, wherein deal activity and restructuring act merely as "indicators" of approaching trouble. For example, the time of the first great wave of activity, the few years surrounding 1900, was also the time of the lowest interest rates in the history of the republic. With the cost of *debt capital* historically low, declining capitalization rates may have made the target companies look deceptively attractive. They probably looked less glamorous later, in the light of rising interest rates and higher cap rates.

Also, coincident with the second great restructuring wave, which came during the stock market boom of The Roaring Twenties, the cost of *equity capital* fell to unprecedented lows, prompting unbridled financial engineering. But extremely cheap capital is not the only spur to deal-making. For example, neither interest rates nor the cost of equity capital was remarkably cheap during the 1980s Hostile Take-over era: But a *new* financial invention--"Junk Bond Financing"--supplied the new "Masters of the Universe" with unlimited amounts of currency with which to acquire their targets. The current wave of corporate restructuring activity is *somewhat* reminiscent of the 1900 boom in that interest rates are near their lowest levels in 60 years: With the cost of debt capital compellingly cheap, equities have *appeared* extremely attractive. But if past is prologue, the M&A, LBO, Buy-back mania of today, will likely devolve into the buyer's remorse of tomorrow.

Apologists tell us that today's deals are much more reasonable than past deals, and that the current boom is much more sustainable than previous booms which ultimately led to

disappointment. This time is different, we are told, because today "*The Fundamentals are very good.*" Well, maybe. But when one is told, for example, that some proposed deal is "*immediately accretive to earnings*" one legitimate response is to ask, "So what?" If balance sheet Cash is earning 4%, and if one spends it to buy a mature company at just under 25 times earnings, then such a deal is "*immediately accretive to earnings.*" But that is not the same as saying that it is *smart* to spend one's hard-earned Cash for an equity deal with a total return of 4%. Some might consider it smarter to husband one's Cash until one can find a use for it that promises 8% or 10% or whatever one considers an appropriate equity return.

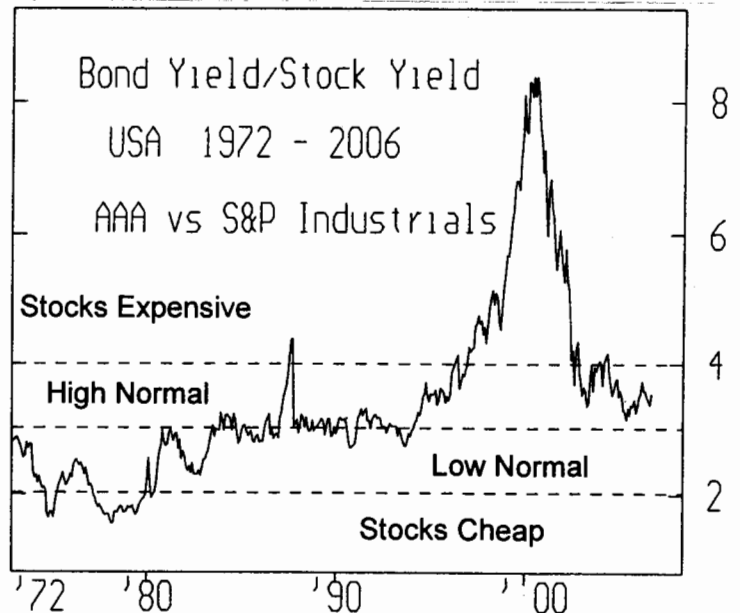
This issue of hurdle rates, or appropriate equity returns, is pertinent not just to Take-overs and Buy-backs and LBOs, but to the valuation of the stock market as a whole. For example, we often hear that today the stock market is the cheapest it has been in decades--25% to 30% "undervalued" by many formulae. And this claim is theoretically true if one relies solely upon the widely cited "Fed Model" and/or certain other iterations of the *Discounted Present Value Model* (see chart following page). However, we feel that while algorithms such as these definitely have their uses, they also have their flaws. In the first place most of these models primarily bespeak *relative* value instead of *absolute* value. The former may be the legitimate goal when managing "other people's money," but with one's own money, the latter normally takes precedence. Another flaw in these models is that they implicitly assume that the "Equity Risk Premium" is a *constant*, when in truth it is an independent *variable*. *Most* of the time, misidentifying



the nature of the factors within the investment equation in this manner does not invalidate the associated analytic process. But other times it can be fatal. For example, when Stocks soared between 1996 and 2000, and when Stocks crashed between 2000 and 2003, both of these historic moves, up and down, had precious little to do with either interest rates or earnings. Both the historic upmove and the subsequent collapse were the result of a dramatically fluctuating equity Risk Premium. Consequently, analytic disciplines which focus on interest rates and/or earnings, could not explain this historic market action even *ex post facto*. And portfolios which relied exclusively on these fundamentals were caught short on the way up, and were caught over-invested during the subsequent bear market.

Mercifully, this particular flaw is not a problem today because the "Equity Risk Premium"—which is very much the same thing as our "Bond Yield/Stock

Yield Ratio"—is back to normalcy (see chart below). This return to "normalcy" suggests that future bull or bear markets *should* be more "rational," because they should be much more closely connected to fundamentals such as earnings and interest rates. However, these standard valuation models have another flaw which is very relevant today, and that is the fact that they implicitly value equity returns and debt returns equivalently.



The standard Fed Model, for example, assumes that stocks are fairly priced if their earnings yield is equal to the coupon yield on the 10-year Treasury Note. *Mathematically* such a practice may make sense, but *practically*, valuing stock yields on the basis of Treasury yields violates one of the most fundamental rules of business--which is "Never run an equity risk for a debt return." One can perhaps violate this rule when interest rates and earning yields are both at very desirable levels--such as they were in the early 1980s. But when interest rates are *low*, as they have been in recent years, such a practice can make Stocks appear deceptively attractive. This principle applies to the Stock of one's own company, as well as to the Stock of other corporations. So the generational low interest rates we have recently been treated with do much to explain the recent Buy-back, M&A, and LBO phenomenon. But we say that low interest rates make Stock "deceptively" attractive because investing is not about "Returns"--it is about "Risk and Return." And to equate uncertain equity returns with guaranteed Treasury returns is to implicitly ignore the differential *risk* characteristics of these respective asset classes. Such a process typically over-rates the benefits of Stock ownership.

There are other phenomena that may be working to underprice equity risk and to overprice Stock ownership today--such as the dramatic growth in the amount of money allocated to "professional management." In theory the owners of a business enterprise--as represented by shares of common stock--bear the risks and reap the rewards attendant thereupon. But as decision making migrates from the actual owners to a class of professional business

managers and/or professional investment managers, the natural incentive structure is altered. This "other peoples money" phenomenon becomes extremely powerful in the case of, for example, LBO firms and hedge funds, whose very *raison d'etre* is to promote and exploit asymmetric risks and rewards. The managers of a sufficiently aggressive private investment partnership potentially can earn returns for themselves beyond the dreams of avarice, while potentially running virtually zero personal risk: the risk of loss being borne entirely by the investor and/or lender cohorts. Also, LBO firms have to do deals with other people's money--irrespective of the cost--if they are to build up their own Treasures on Earth. Also, management often does not *want* their company taken over and/or taken private. Today average CEO pay is 260 times average worker pay--a record high except for the 300 times seen at the last M&A peak in 2000. This is a job worth keeping, and some of today's Buy-backs and M&A and liberal borrowing may be driven by the desire of management to boost the value of their options and/or to protect their lucrative fiefdoms from others. In any event we no longer have the ideal relationship, where there is an identity of interests among management and ownership, and among investors and investment management.

Whether or not the growing risk/reward asymmetries noted above are largely responsible for the current round of financial engineering is indeterminate. The outcome of this adventurism, however, is predictable. Namely, the dramatic shrinkage in the floating supply of U.S. equities will propel the, already pricey, U.S. Stock market even higher. But when it abates, a very serious decline will likely be the end result.