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The Biggest Business Valuation Myth

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The traditional capital asset pricing model and buildup method have failed to adequately quantify the required rates of return for equity holders. This paper discusses how profoundly business appraisers, the courts, investors, auditors, and the general public have been misled into thinking that these methods are valid, and suggests a way forward.

''Past performance is not indicative of future returns, which will vary.''[1]

Several years ago I had lunch with an old friend of mine with whom I had worked in the Bank of America Mergers and Acquisitions Group in the late 1980s. Tom was now a successful leveraged buyout investor with a private equity fund purchasing middle market companies. In the course of our noon repast, I asked him a question I have asked many investors over the years: ''How do you get your rate of return when you're buying a company; do you use the capital asset pricing model or the buildup method?''

His response wasn't unexpected, or that unusual: ''If I ever caught anybody in my shop using the capital asset pricing model or the buildup method, I would fire them on the spot! All that theoretical [*stuff*] is completely useless. I buy underperforming companies for four times EBIT,[2] fix them up to double or triple earnings, and sell them for five or six times EBIT.''

Something similar to this is a nearly universal response by individuals who put their own money at risk buying businesses. At the May 2010 San Francisco Business Valuation Roundtable Annual Seminar in Oakland, California, Stephen Etter (a lecturer at the University of California [UC] Berkeley Haas School of Business, private equity investor, and director of GrayRock Capital) freely admitted when asked that, even though he teaches traditional finance in the Berkeley MBA program, he and his firm never use the capital asset pricing model or the buildup method to actually price their acquisitions. In valuing an early-stage technology company recently, I spoke extensively with angel and early-stage venture capital investors; one in particular, who runs a large investing group, confessed to me that: ''These investments are just a seat-of-the-pants, gut feeling for the market valuations. Coming from a Pepperdine MBA and being an analyst on Wall Street for many years with a Series 7 license, it's almost embarrassing that we make this stuff up as we go along.''

Ask any private equity investor how they come up with their required rate of return on equity, and he or she may give you lots of information (probably along with some hand waving), but if they are telling the truth, you will find they never use the capital asset pricing model (CAPM) or the buildup method (BUM). Just one example among thousands: Whereas the power industry as a whole is fairly stable, the required rates of return on equity in merger and acquisition (M&A) deals has a significant range, which is not a function of historical, realized returns on public power companies. How could it be? A couple minutes of research turned up the following facts on power companies: In January 2011, the industry as a whole had a Value Line reported beta of around 0.75, but after unlevering, the industry beta was lower at around 0.50. These averages mask a lot of variability in risk, however. For instance, Cleco Corporation, which had a Google Finance reported beta of 0.50, had appreciated in value by nearly 60% to $2.2 billion in the last ten years to 1 July 2011. This would put Cleco Corporation in the fifth decile of the Ibbotson universe, with a minimal size premium. In contrast, TECO Energy, Inc., with a reported beta of 0.83, had declined in value by 40% to only $4 billion (fourth decile in Ibbotson, minimal size premium) over the same period. Suppose you were a buyer of power companies trying to figure out the risk and required rate of return for a prospective acquisition of, say, a single company that owned a biomass-fired plant in Southern California worth maybe $25 million; where would any of this market data lead?

The answer is: ''nowhere, really.'' The inclination of most business appraisers would be to start with the

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[1]Typical investment fund prospectus language.
[2]Earnings Before Interest and Taxes (EBIT).

risk-free rate of, say 2.5%, add a beta-adjusted market risk premium of, say, 2.5% (5% equity risk premium times beta of 0.5), and then perhaps add a size premium of 4% because the subject company is in the 20th Duff & Phelps decile, and maybe throw in a 3% specific company risk fudge factor because the business does not have regulated returns like larger power utilities. The total required rate of return on equity comes to 12%. Some might even go so far as to come up with a weighted average cost of capital (WACC) based on the observation that public power companies usually carry debt, which would bring the discount rate down even further. The seller in this case is going to really love talking with you because no one else will be able to touch the price you will come up with. The fact is, when bidding on an asset like this, the range of required rates of return that buyers use in their analysis will likely vary anywhere from 9% to 20%, but only the most conservative cash-flow forecast will warrant an equity rate less than 12%. The more optimistic the cash flows, the higher is the required rate of return, and you won't find any knowledgeable, serious buyers getting their required rates of return using the CAPM or buildup method, not to mention the fact that no one uses a WACC on single-plant power companies.

For higher risk opportunities, such as venture capital or angel investments, you can be sure that investors in these markets do not use MBA-type cost-of-capital models to figure out their hurdle rates of return. Even large public companies pay more attention to the investment-specific risks of a target than to volatility measurements/assumptions to get a required rate of return for an acquisition. Furthermore, not only do buyers of whole companies and investors in private businesses ignore the CAPM or the BUM, the individuals I have spoken with pay even less attention to the lodestar of these traditional models—the risk-free rate.[3]

Meanwhile, over the last three years, business valuation professionals have struggled with the fact that the traditional CAPM and BUM models have been providing ''anomalous'' risk measurements, raising fundamental, pointed questions about whether these models ever actually did work as advertised, and highlighting fundamental flaws that were perhaps harder to detect before the financial meltdown. Some of the foremost practitioners in the business valuation profession have raised the alarm that these traditional ways for estimating required equity rates of return have ceased to work in the normal way. Toward the end of 2008, Roger Grabowski observed:

''The current economic environment has created problems with the traditional methods of valuation [that] professionals [have] employed in estimating cost of equity capital (COEC) and in estimating…the appropriate overall cost of capital (weighted average cost of capital, or 'WACC'). Since October 2008, new complications have arisen in estimating the cost of capital…. the commonly employed methods we use for estimating betas, the risk measure in the traditional CAPM, are potentially flawed, providing faulty estimates of risk. The result is that at the very time when one assumes a priori that estimates of cost of equity capital have increased, the methods we use to estimate the cost of equity capital are providing calculations implying that risk has declined.''[4]

More recently, Mr. Grabowski asked whether even the risk-free component of the CAPM may be reliably estimated from the market during ''flight to quality'' time frames:

''During these episodes of flight to quality (securities and assets), one needs to reevaluate simply using the quoted risk-free rate as the basic building block in estimating the cost of equity capital. One needs to identify whether the flight to quality has influenced the market interest rate. … Once analysts suspect that the market interest rates are abnormally low, they could use a buildup approach to estimating normalized risk-free rate, looking at the real rate of interest and inflation estimates.''[5]

Professor Aswath Damodaran found similar problems:

''The geometric average risk premium for stocks or treasury bonds, going back to 1928, was 4.79% at the end of last year [and] has dropped to 3.88%, with premiums over shorter periods (ten years) becoming negative. The implied equity risk premium,[6] which was 4.37% at the end of 2007, jumped to 6.43% at the end of 2008 in the data sets that compute cost of equity and capital. ***I have abandoned my practice of using historical risk premiums*** and use a higher value (5%). Even that may be too low a number. I would suggest that you up that number toward the current implied equity risk premium, if you want a cost of equity capital today'' (emphasis added).

So, what should you do if you are asked to compute a cost of capital or do a valuation today? The one thing you

[3]This is not to say that the debt markets themselves are irrelevant to buyers: The level of interest rates and availability of debt capital are obviously critical to the capital structure of an acquisition. The point here is rather that the risk-free rate is itself almost never an input to the ex ante required rate of return on equity for most buyers.

[4]Roger J. Grabowski, ASA, ''Problems with Cost of Captial Estimation in the Current Environment - update'' Volume 27, No. 4: 209-220 *Business Valuation Review*, Winter 2008:209.

[5]Roger J. Grabowski, ''What Happens to the Risk-Free Rate If (When) U.S. Debt Is Downgraded?'' *BVWire*, Leader, issue 107–1 (3 August 2011).

[6]''Implied equity risk premium'' will be defined and discussed later in this article.

cannot do is to act like nothing has happened and revert back to historic norms. Use the updated data numbers that you see in the data sets, but feel free to move numbers toward historic values over the long term. In other words, if asked to value a company today, I would use an equity risk premium of 6% for the next five years and then move it down to 4% after the fifth year.[7]

What Mr. Grabowski and Prof. Damodaran are saying is that there is simply no way to fit today's conditions into the traditional equity premium calculators. Consequently, both authors seem to be gravitating toward the implied equity risk premium, but not entirely—because the markets and the data are simply not cooperating, even on an implied equity premium basis. Instead, they both also seem to be using more or less elaborate ''smoothing'' techniques that massage the data into something that conforms more to their own judgment about what the cost of capital *should* look like given the risks in the market at this time.

Relying on judgment may be no bad thing if the judger is experienced and has good common sense. Of course, ''appraiser judgment'' has been a problem for the courts, auditors, and other reviewers because of its subjectivity and reliance on a single individual's opinion. While this author believes that judgment is a fundamental, intrinsic characteristic of valuation generally, it would nevertheless be desirable to find other empirical methods that provide better support for that judgment than the traditional method of analyzing backward-looking public company stock price movements.

The experience of the financial crisis has thus raised a burning question for business appraisers: If market participants do NOT use the theories we are taught in business school, and the traditional backward-looking cost of capital models have clearly failed us, then why do we persist with the same old tried and obviously untrue theoretical solutions rather than working to discover better ways to emulate the market? This is an existential question for business appraisers that goes to the core of what it is we are trying to accomplish: If the value of something is what someone would pay for it, shouldn't we be trying to reflect what that something would be worth to someone who would actually buy it in the marketplace instead of developing ever more elaborate, theoretical hypotheses?

If we really are interested in what something is worth, then the marketplace in which the asset might be sold is logically the best place to be focused. Specifically, if we are working with small- to medium-sized private companies, then the market for small- to medium-sized private companies should be our principal focus. For these types of assets, reliance on data-mining of backward-looking public stock market returns is tangential at best and completely misleading at worst. At the 2010 roundtable seminar, mentioned already, Judge David Laro commented on Mr. Etter's presentation: ''What [appraisers should do is try] to replicate Stephen's thinking. Stephen is the market …. he is an image of the market … [and what appraisers should try to do is] reflect the market.'' Judge Laro hit the nail squarely on the head—get into the minds of investors like Mr. Etter, better understand how they price investments, find out what rates of return they actually use, and emulate how they get those rates of return.

Does this mean that we should completely abandon all historical analysis of public stock market prices? After all, some fundamental principles have been uncovered through historical analysis. For example, it is probably an incontrovertible truth that the required rate of return on any equity investment should exceed the risk-free rate over the same duration as the life of the investment. It is probably also not too controversial to state that the relative historical volatility of different industry groups provides some information concerning the relative riskiness of industries as a whole. Power utilities are probably less risky than homebuilding or software development because power utilities tend to be less volatile both in terms of earnings and stock prices. It may even be possible to use historical stock return analysis to show that, more often than not, large companies are less risky as a class than small companies, and so will probably tend to have a lower required rate of return on equity. While most analysts suspect this to be true, the historical record does not always cooperate in supporting this conclusion, and it is necessary to cherry-pick certain time periods and data in order to support this concept.[8]

This article makes the case that studies of historical public stock returns and traditional cost of capital models may provide some useful information, but they fall far short of reliably quantifying true investment risk. Risk analysis, at least in the private company arena, is still at least as much an art as it is a science.

[7]Aswath Damodaran, *On-Line Update*, January 2009. Emailed to Damodaran Online members.

[8]The *2009 Ibbotson SBBI Valuation Yearbook*, *MorningStar*, pages 96 and 97, shows decile 10b excess returns in the range of 6% to 10% (depending on the assumptions) from 1926 to 2008. However, on page 105, SBBI discusses how small stock returns are unpredictable and includes a graph showing rolling twenty-year excess return on small stocks. The graph shows that from 1945 to 1965, small stocks had zero excess returns over the market as a whole. From 1961 to 1981, small stocks returned about 12% more than the market as a whole. Then, from about 1980 to 2000, the graph shows that small stocks lagged the overall market by about 3.5%. From this information, it is clear that very long periods of time can elapse when small stocks do not necessarily outperform the overall market.

The good news is that new research is emerging that involves forward-looking data, which will help clarify the picture and assist us in developing better required rates of return for various assets of different risk profiles, and I will discuss this in more depth in the following sections.

The Biggest Business Valuation Myth

Although study of the past cannot tell us what the future holds, it can provide us with an opportunity to avoid repeating the same mistakes. One of the biggest business valuation mistakes is confusing historical equity returns with expected or required equity returns. The antecedents to this mistake go back at least as far as the enactment of U.S. Code Section 2031, passed more than a half-century ago concerning the valuation of estates, and the contemporaneous implementation of Revenue Ruling 59–60. Both 2031 and 59–60 specify that valuation of an unlisted security should take into consideration the prices of similar public companies traded on an exchange. In conjunction with the advent of data from the Center for Research in Security Prices (CRSP), the means and the motivation were in place to begin mining historical stock prices as a way to develop statistical correlations, which were thought to be meaningful. Shortly thereafter, CAPM was invented, which took advantage of the newly implemented CRSP database. Although the inventors of CAPM never claimed that it could be used to develop a required rate of return for valuing individual companies, and despite the fact that it has been repudiated for such use by prominent academics and theoreticians,[9] appraisers have nevertheless doggedly persisted in their attempts to adapt it to business valuation.

The question of whether or not it is reasonable to analyze historical stock price movements (either as a group to get the equity risk premium, or by individual company relative to the group to get a beta) as a proxy for the forward-looking expected or required rate of return has always been an awkward question for adherents to traditional finance theory. Although Shannon Pratt and Roger Grabowski acknowledge in their *Cost of Capital* book[10] that historical data only ''give the appearance'' of being a valid proxy for current investor expectations, and hint that there truly is a question as to whether or not realized returns can be an accurate estimate of the expected equity risk premium (ERP),[11] the authors do not tackle head-on the logical implications of this question.

For such a fundamental question, one would think that there would be compelling arguments in favor. However, one would be wrong: In researching how this leap of faith could possibly be made, this author found only the following justifications in the literature:

1. Roger Ibbotson simply assumes the truth of this leap of faith in his *Stocks, Bonds, Bills and Inflation Valuation Yearbook*: ''Unfortunately, the expected equity premium is unobservable in the market and therefore must be estimated. Typically, this estimation is arrived at through the use of historical data …. In using a historical measure of the equity risk premium, one assumes that what has happened in the past is representative of what might be expected in the future. In other words, the assumption one makes when using historical data to measure the expected equity risk premium is that the relationship between the returns of the risky asset (equities) and the riskless asset (treasuries) is stable. The stability of this relationship will be examined later in this chapter.''[12]
2. Pratt and Grabowski go a little further in *Cost of Capital*: ''The underlying theory is that the past provides a reasonable indicator of how the market will behave in the future, and investors' expectations are influenced by the historical performance of the market. If period returns on stocks (e.g., monthly stock returns) are not correlated (e.g., this month's stock returns are not predictable based on last month's returns), and if expected stock returns are stable through time, then the arithmetic average of the historical stock returns provides an unbiased estimate of expected future stock returns. Similarly, the arithmetic average of realized risk premiums provides an unbiased estimate of expected future risk premiums (the ERP).''[13]
3. Pratt and Grabowski add: ''A more indirect justification for use of the realized risk premium approach is the contention that, for whatever reason, securities in the past have been priced in such a way as to earn the returns observed. By using an estimated cost of equity capital incorporating the

[9]Eugene Fama and Kenneth French, ''The Capital Asset Pricing Model: Theory and Evidence,'' *Journal of Economic Perspectives* 18(3):25–46 (Summer 2004). Also see Roger Dayala, ''The Capital Asset Pricing Model, a Fundamental Critique,'' Working Paper, dated April 1, 2010, posted May 21, 2010, last revision September 20, 2011, accessed at: http://ssrn.com/abstract=1612415, 2010.

[10]Shannon P. Pratt and Roger J. Grabowski, *Cost of Capital*, Fourth Edition (New York: John Wiley & Sons, Inc., 2010). Also see the article in the Winter 2010 edition of *Business Valuation Review*, Volume 29, No. 4, page 172, in which Mr. Grabowski reiterates the same concerns and proposes a temporary workaround (until markets return to more of a semblance of normalcy) in terms of using certain ''smoothing'' techniques on the historical data.

[11]Ibid, *Cost of Capital*, Fourth Edition, page 120.

[12]Ibid, 2009, *SBBI Valuation Yearbook*, page 55.

[13]Ibid, *Cost of Capital*, Fourth Edition, page 121.

average of realized risk premiums, you may to some extent replicate this level of pricing.''[14]

4. Finally: ''To the extent that realized premiums on the average equate to expected premiums in prior periods, such samples may be representative of current expectations.''[15]

Comments on the foregoing justifications:

1. In argument 1, *Stocks, Bonds, Bills, and Inflation* does not actually attempt to justify the use of historical returns to estimate costs of capital but simply assumes it to be true. If the assumption is wrong, then the conclusions are wrong. The last three years (mid-2008 to mid-2011), indeed the last twelve years (through mid-2011), have illustrated the potential folly in assuming that what has happened in the past may be blithely used to predict the future when it comes to expected/required equity returns.

Here, we run into an important distinction between forecasting company performance and estimating required returns on equity. When forecasting company performance, buyers of businesses want to know not only what the last few years have been like, but also what has happened recently, because trends can be observed, and realistic estimates of what is likely to happen in the near future may reasonably be made. Current stumbles or improvements in operating margins can rapidly affect prices, both in the public market and the M&A market because of the fact that recent history often correlates fairly well with prospects for the future.

Almost the exact opposite exists when it comes to the way in which cost of capital models work. All the models rely principally on long-run realized returns, usually over at least thirty years or more, because short-term realized rates of return are so highly volatile and unreliable.

With respect to the SBBI comment on the stability of the relationship between returns on equities and treasuries, Ibbotson provides some interesting graphs, which show that over very long periods of time, you can be pretty sure that equities as a whole will perform better than treasuries.[16] As mentioned earlier, this is one of the fundamental truths that the historical analysis has uncovered. Yet, to the extent this is true, it is also mundane and not especially helpful because almost no investor has an investment horizon as long as SBBI indicates might be required to ensure such higher returns. Over more ''human-scale'' investment horizons, say five to ten years, the data suggest that the assurance of higher equity returns over risk-free securities vanishes.

Even if enhanced with size premiums and other adjustments, the historical market return analysis proposed in *SBBI* and *Cost of Capital* falls far short of where we ultimately need to be. For a hypothetical investor in a small middle market company, the difference between correlating long-term price movements in specific industries or company stocks against a completely diversified equity portfolio with a holding period equal to half a lifetime, and trying to understand the risk/required return dynamic for the potential acquisition is something like the difference between sailing to Cape Horn on an aircraft carrier versus doing the same trip in a twenty-four-foot Catalina.

2. Argument 2 is an invalid argument because it assumes that expected stock returns are stable over time (part of argument 1). The premise is not true over any realistic holding period, so therefore the conclusion is not true.[17] There may also be a question whether the first premise, i.e., that monthly stock returns are not correlated, is true.[18] Regardless, because the second premise is not true, the argument is invalid.

More to the point, however, is that while it might be reasonable to assert that past market behavior could *influence* investors' expectations, this tells us nothing about how *much* influence it has, nor does it lead anywhere close to the conclusion that the past is a *determinant* of investor expectations. For example, one only needs to reflect on the disappointing performance of small-cap stocks in comparison to large-cap stocks in the 1980s and 1990s to realize that the higher relative realized returns on large-cap stocks during that period of time could not possibly lead to the conclusion that small-cap stocks have lower risk than large-cap stocks, and that one should therefore require a lower rate of return on small-cap stocks. This is just one example among hundreds that illustrates the larger point, which is that regardless of how much or little an investment has returned over X number of years, this in no way changes what one *ought* to require as a rate of return for the risks coming up in the future. For example, just because your 4th venture capital fund lost money over the last ten years does not mean your expected returns for fund 5 should be in any way diminished.[19]

[14]Ibid, *Cost of Capital*, Fourth Edition, page 121.
[15]Ibid, *Cost of Capital*, Fourth Edition, page 117.
[16]Ibid, 2009, *SBBI Valuation Yearbook*, pages 62 and 63.

[17]See, for example, Aswath Damodaran's *Equity Risk Premiums (ERP): Determinants, Estimation and Implications* accessed at Damodaron Online/ Papers and Research. *2010 Edition*.
[18]Studies of momentum investing have shown that there is generally a strong month to month correlation for winning stocks in relation to losing stocks, both in the United States and in most other major foreign markets.
[19]Contrarians might even retort that the required rate of return for a particular investment will more often than not be the *inverse* of past realized returns, but this paper will not address this issue.

3. Argument 3 is also obviously invalid. The assumption that just because the market realized a rate of return of ''X percent'' in the past ''Y years,'' then that must have been what investors expected Y years ago is absurd. First of all, very few risky investments ever turn out just the way it was expected at the beginning, and the final results of most investments are usually wildly different than was expected.

The implicit assumption of argument 3 seems to be that current investors all bought the stock or the portfolio at the beginning of the time frame being analyzed. To give a specific example, suppose a mid-cap portfolio exhibited an average annual return of 8.7% from 1963 to 2009. Argument 3 appears to assume that all the investors in the portfolio made their investment in 1963 and all with the expectation of realizing an 8.7% annual rate of return over the next forty-six years. We know this is not true, as stocks continuously get repriced as investors enter and exit the market. So, at the end of 2009, some investors would have only been in the market for a day or two, some would have already been in for two, four, or five years and a small percentage would have been in for fifteen or twenty years. We know with almost absolute certainty that no individual investor at the end of 2009 had been continuously invested in diversified stock portfolios since 1963![20]

Therefore, for this argument to be true, the actual results for any given period of time would have had to have matched the combined weighted average expected results of all the investors who were in the market at the end of 2009 for the specific periods of time over which each one had been invested up to that moment. So, if we consider the S&P 500, did the person investing in that diversified portfolio at the beginning of March 2009 go into the market with the expectation that their portfolio would appreciate by over 160% in the next nine months? Probably not even in their wildest dreams. Did the person investing at the beginning of October 2007 do so in the expectation that their portfolio would likely lose 26% of its value over the next twenty-seven months? Certainly not. Did the person investing in the S&P 500 at the end of 1997 have a pretty good idea that doing so would probably give them about the same return as putting their money under the mattress for the next thirteen years? Again, certainly not. I'm fairly confident that we would have a hard time finding an investor who in 1963 had a forty-six-year investment horizon, so it is essentially meaningless to even speculate that such an investor expected the actual realized return of 8.7% over that period.

The fact of the matter is that nobody ever asked investors forty-six years ago what their expected returns were. Nobody asked investors even ten years ago what their expected returns were. Until now (see below), no one has ever asked anyone what their expected returns were at any time in history. The real truth is that we have absolutely no idea what rate of return on the market investors expected ten, forty-six, or eighty-five years ago. Indeed, we have very little idea what rate of return on the market public investors expect even today!

4. What argument 4 is really saying is that there might be a correlation between historical returns and expected returns, and there might not be. So, realized returns may *not* be representative of current return expectations; we simply have no idea and are just speculating.

This author could find no other support for the leap of faith that past is prologue anywhere in *Cost of Capital* or in any other source. Ultimately, the train of argument in all of the business valuation literature to date seems to follow the pattern of the academic literature on this topic—It raises the question of whether analysis of historical returns tells us anything about what investors actually expect for the future and then proceeds to ignore the answer, make some weak justifications that hold no water, or assume its truth in order to come up with the desired conclusion.

Although the hypothesis that past returns form a solid basis for investors' expectations for future returns has probably never been true, it wasn't necessarily so obviously false until the 2008/2009 time frame. At that point, however, everyone who had believed that historical stock returns could provide a reliable cost of equity estimate was suddenly presented with the harsh reality that the S&P 500 could have a *negative* real and nominal return over a relatively long period of time (twelve years: from 1 February 1997 through 1 February 2009, excluding dividends), whereas risk-free securities over

[20]The original classic data on historical returns came from the analysis of stock market performance since 1926 (an eighty-five-year look-back as of 2011). More recently, analysts have gravitated to shorter periods of time, with 1963 (forty-six years ago) generally considered to be the starting point for measuring returns in the modern era. The reality is that people simply don't invest using a forty-six- or eighty-five-year time horizon (probably not even Warren Buffet, who noted in the Berkshire Hathaway 2008 shareholder letter that ''The stupefying losses in mortgage related securities came in large part because of flawed, history-based models ….''). To use a personal example, in 1963, the author of this paper was in junior high school. He did not really start investing until about twenty years later. The question of how such an unrealistically long look-back period can possibly be relevant to flesh and blood investors is answered by the traditional theorists who cite this as a ''simplifying assumption'' that is necessary to make the models work. Unfortunately, along with all of the other simplifying assumptions in the traditional models, this is another example of just how far the models depart from reality.

the same period of time (treasuries) would have provided a nominal return of around 5.5%. Twelve years is not an extremely long time, but it is probably longer than the investment horizon for most of the investing public and longer than most investment or business cycles.[21] Granted, the Great Recession has been unusual, but most twelve-year periods are unusual in their own way, which is why a longer look-back period has been recommended by the academics. However, then we are faced with the previously mentioned problem that most investors in the public market do not have a forty-six- or eighty-five-year investment horizon. Theory claims that the only way you can figure out an exit price is by looking at the long horizon equity premium because corporations are assumed to have an infinite life. However, in practice, investors generally use some multiple of earnings before interest, taxes, depreciation and amortization (EBITDA) or other pragmatic metric to estimate an exit price, not a Gordon Growth perpetuity at the end of the forecast period.

Ultimately, trying to develop a forward-looking required rate of return on equity by looking at long-term historical stock returns is no different than trying to drive a car with a fogged-over windshield by looking in the rearview mirror. It doesn't work. You might get several blocks if you go fairly slow on a very straight road with no traffic, but sooner or later there is no doubt this journey will end in tears.

Is Implied Return the Answer?

In response to the untenable premises in the backward-looking approaches, some academics have begun to endorse ''implied return'' as an equity risk measure.[22] ''Implied return'' is simply the internal rate of return (IRR), which equilibrates the forecast cash flows of a company with its current stock price. Implied return gives the appearance of an improvement in that it is forward looking. Nonetheless, implied return also has intrinsic problems of its own, and it does not provide data that are reliable enough for determining required rates of return in most instances for the following reasons:

- The forecast cash flows used in the IRR calculations for a given public company are largely derived from security analysts' forecasts. Unfortunately, security analysts have been shown to be notoriously wrong, and research suggests there is a systematic bias to being overly optimistic about future cash flows. Contributing factors might be:[23]
  - Although there is more separation now between research and banking, most securities analysts still work for investment banks, so they may more inclined to put out ''buy'' recommendations but avoid ''sell'' recommendations.
  - If an analyst believes a company is overvalued, they may not publish a recommendation. This author's understanding is that it is extremely rare for an analyst to put out a negative report on a stock they believe will do poorly.
  - Analysts are also human, and they tend to look on the positive side of things. It is possible that this leads to being generally more upbeat than might be justified based on objective analysis of the big picture.
- It is unlikely that very many investors actually plug analysts' forecasts, unadjusted, into a valuation model to derive a price at which they will buy or sell a particular stock.
- Most analysts' forecasts only go out two years (Value Line provides soft forecasts for some companies as far out as five years). Yet, valuation of a security presumably extends out for the full duration of the life of the security. Since public companies have an indefinite and theoretically infinite life, future cash flows could extend for decades beyond the analyst's horizon and account for most of the value of a company.
- To solve the problem above, of short-term forecasts and potentially infinite corporate life, publications of statistics on forward-looking implied rates of return make simplifying assumptions about perpetual growth in cash flows beyond the analysts' forecasts. Different publications make different assumptions about perpetual growth rates. Dramatically different implied returns can be calculated with small changes in assumed perpetual growth rates beyond the security analysts' forecasts. This circumvents the basic logic of implied return and undermines their derivation with pure speculation.

[21]A webinar on 7 June 2011 sponsored by Business Valuation Resources included Jeff Thomas of SecondMarket, who indicated in his remarks that the average holding period of all investors in the stock market as a whole in the 1970s was approximately seven years, but that in 2011, the average holding period was down to about 2.8 months. This author supposes that the holding period has shortened due to the advent of computer trading. However, the larger issue is that if investors do not have a forty-six- or eight-five-year investment horizon, upon which the theoretical models are based, but instead have investment horizons averaging 2.8 months, then how is it possible to bridge the time gap in the data when the research shows that returns on equities can be extremely volatile over short periods of time?

[22]Ibid, *Cost of Capital*, page 130.

[23]Overoptimism of analysts has been written about repeatedly in the popular financial press. Possible reasons for this bias come from anecdotal discussions with experienced valuation professionals connected with the investment banking business.

- Security analysts usually make forecasts in the form of earnings per share, not cash flow. In order to conform to the requirements of CAPM or the buildup method, publishers of implied rates of return are then faced with the problem of whether to calculate implied rates of return on earnings, or convert earnings to cash flow. Do the statistics publishers convert earnings to cash flow? If so, the assumptions and calculations are not prominently explained in the publications.
- Only some public companies (mostly larger) actually have analytical following; most public companies do not. This leaves a huge information gap in precisely the (smaller) size range in which most business valuers work. It is anybody's guess what kind of cash flow forecast should be assumed for the majority of companies listed in the public markets that have no institutional following. Without a reliable cash-flow forecast, no reliable implied rate of return can be calculated.
- The gap between investing in the public stock market and investing in a private company is still a huge issue that is not solved by analyzing implied returns on public company stocks. Just to give one example, this author hypothesizes that the public market might tend to systematically trade at prices that are higher than if each of the companies in the market were private because of the effects of diversification. Since diversification reduces overall risk, making the contribution of risk from an individual company in the portfolio relatively unimportant, investors may become less cautious and less discriminating in what they will pay for each individual company. So, for example, the contribution of one particular company in the Russell 5000 index is a tiny percentage. An investor in the Russell 5000 pays no attention to whether ''Company X'' is overpriced, only to whether they believe the prospects of the market as a whole are positive or negative. If everyone is buying ''the market'' as a whole, there will naturally be less focus by individuals on analyzing and selecting good investments versus bad investments. The effect of this ''indiscriminant'' buying by index funds and other diversified investors would seem to naturally tend to create upward overall pressure on prices for all public companies. In turn, this will systematically overvalue public stocks and create artificially low implied rates of return.
- In combination with the previous point, because prices in the public market are often more a function of overall demand, driven by emotion, gut reaction, herd mentality, technical factors, fear, greed, etc., and less a function of the much-heralded ''rational investor'' busily discounting forecast cash flows with his or her independently derived required rate of return, it is almost inevitable that highly anomalous implied rates of return will arise on a routine basis. For example, very small, highly risky technology companies often trade at completely unjustifiable prices in relation to future cash flows (one thinks of dot.com stocks in the late 1990s or LinkedIn after its initial public offering in 2011). Mathematically, this phenomenon will result in misleadingly low implied returns, which traditional theory would conclude to be a safe investment, when in fact the exact opposite is true. This specific example could be extended into a general rule: In a bubble, as investments become more and more overpriced in relation to future cash flows, and therefore more and more risky, the investment's implied return goes down, indicating a safer investment. Perhaps implied return has been a magnifying factor in the investment bubbles we have experienced recently?

In summary, while ''implied return'' might offer some new information that could be relevant, there remain many seriously questionable aspects to the practical implementation of this concept. Furthermore, the published data do not even consider the unknown, and probably significant, adjustments that would be needed to reconcile this public market methodology with the small- and medium-sized private companies that are the vast majority of businesses in the United States and the world, and are the bread and butter clients of most business valuers. None of the observations presented here are new, nor are they original with the author. Many in the academic literature and in the business community have been writing about these intrinsic flaws with the CAPM, beta, buildup method, implied return, etc., for years. Yet, somehow the business valuation profession has been impervious to these criticisms. Practitioners tend to follow without question practice leaders, who are themselves locked into standard operating procedures for fear of contradicting books and papers they have published, case law precedents based on these flawed theories, and corporate policy of the larger valuation firms to not be on the forefront of change. It's also easier to pretend there isn't a problem when everyone else is doing it.

''Risk'' has never been limited to just the two-dimensional measurement of volatility of a company's

stock price relative to the S&P 500, as the proponents of CAPM and its various offspring would have us believe. The world is a messy and contingent place, and risk has always been a more complex and nuanced concept than the theoreticians have led us to believe. Elements such as absolute risk (the risk that downward movement in a stock's price is not just volatility, but is permanent) and human perception (greed and fear, herd mentality, neuro-economics, etc.) are outside the boxes of CAPM and BUM. For example, *The Economist* reported on an experiment that highlights the role of subjective perception in assessing risk: ''A glimpse of a beautiful woman can change the way a man thinks … from the kind of chap who prefers $100 a year hence to $25 tomorrow, into one who simply cannot wait the extra 364 days … (in the experiments) men who had seen pictures of pretty women discounted the future more steeply than they had done before.''[24] If just seeing a pretty woman can make a man throw caution to the wind, imagine what might happen if millions of money-mad individuals thought they could get 100% annual returns on dot.com stocks, which were already so overpriced that the implied rate of return was a negative 95%? This is an extreme example of the more insidious and pervasive problems that always exist with any simple, overarching risk measure such as CAPM, BUM, or Implied Return.

Is There a Better Way?

So, the question becomes, if analysis of historical data doesn't work, and implied rates of return do not seem to be much of an improvement, is there a better way?

Rather than guessing, and using impenetrably elaborate, indirect, historical data-mining methods, perhaps one solution to the required rate of return question is to just simply go out and ask investors what rates of return they actually do use, and how they go about pricing investments when they are putting their own money on the line. If the purpose of an appraisal is to get an answer that is as close as possible to what would happen in the real world in an actual transaction, then why not systematically gather information from the particular market that is relevant to the asset under study?

Until recently, there was precious little information concerning forward-looking (ex ante) required rates of return used by actual investors prior to investing their own money. Due to this lack of information, for the last twenty years I have engaged in primary research of my own by interviewing investors in a variety of asset classes. Because I tends to focus on private company valuations, and often the minority interests of such companies, I focused considerable effort into the secondary markets for investments such as venture capital funds, notes, tenant-in-common interests, private real-estate partnership investments, restricted stocks in public companies, real-estate limited partnerships that are publicly syndicated but not traded on an exchange, and private equity investments in middle market companies (i.e., so-called ''used investments''). I interviewed scores of investors in these types of investments over two decades and never found anyone who developed their required rates of return using CAPM, the buildup method, historical stock market returns, beta, or any of the other traditional cost of capital techniques employed by business appraisers.

The way in which these investors derive their required rate of return is largely based on an intuitive sense of risk that is informed by making lots of mistakes, gaining experience, and the judgment that comes with living long enough. Several examples were provided in the introduction to this paper. One investor I interviewed purchases used venture capital funds for many millions of dollars and always applies a 30% to 35% required rate of return to the investments he purchases; *however*, this particular investor must sift through at least 100 different investment possibilities before finding one that is worth purchasing! In his view, the other ninety-nine investments are either worthless, or they are so risky one would need to use much higher rates of return in order to price the investments correctly. Similarly, most private equity investors I interviewed require minimum rates of return of 25% or better but are highly selective in their investment choices. Some private equity investors require 35%, 45%, or higher, depending upon the sector in which they are focused. As everyone knows, there is a lot of chaff in the private equity and venture capital markets, so only cream-of-the-crop companies actually have a ''cost of equity'' in the 25% to 45% range. By process of elimination, the rest would logically have to be priced low enough to pay significantly higher returns to their investors, assuming they could even find an investor.

Pepperdine Survey

My previous research on this subject always suffered from the fact that it was essentially anecdotal evidence. In order to overcome this lack of empirical rigor, I have long sought to expand the effort and was therefore an early collaborator in the formation of Pepperdine University's Private Cost of Capital study (PCOC). PCOC represents the first systematic, large-scale effort to get into the heads of real-world investors to try to understand the actual ***future*** rates of return they are currently ***requiring*** to

[24] 20 December 2003, page 115.

invest in assets of different risk classes. Based on the ''wisdom of crowds'' concept,[25] PCOC uses online survey software to poll large numbers of investors in different types of assets.

The beauty of this type of empirical research is that, though each individual investor in the survey comes at their own perception of risk and reward differently from every other investor, by aggregating large numbers of responses we may be able to gain an understanding of the forward-looking (ex ante) rates of return required by the marketplace that is perhaps even more scientifically supportable than any backward-looking ex poste analysis can possibly be. By compiling the data from thousands of responses, a capital market line can be drawn showing a band of required rates of return for different classes of risky assets. The PCOC study is still in its early phases, but *it is nothing if not forward-looking*. In addition, even a cursory review of the early results shows that they conform to the a priori expectations of most appraisers, which is that investors in riskier investments do, in fact, require higher rates of return. Figure 1 is an example of the capital market line from one of Pepperdine's latest surveys.

Although the Pepperdine University study is still young, and the procedures, questions, and reporting will no doubt continue to be refined and improved,[26] it is nevertheless a much more plausible and believable means for obtaining a forward-looking required rate of return than the historical-based models and data published by traditional sources.

I believes that the importance of the Pepperdine University study should not be underestimated. The PCOC survey opens up a new line of inquiry that has never been attempted before, partly because it requires so much data that mechanisms of the survey were difficult to achieve without recent advances in Internet survey software. Other survey methods on rates of return have historically been aimed at university finance professors (i.e., the blind leading the blind because the academics all went to the same business schools and learned the same CAPM theory), or chief financial officers (again, failing to target the particular investors who are putting their own money at risk and driving the deal negotiations). Also, previous survey methods may not have been targeted specifically at ex ante returns, whereas the Pepperdine survey does not ask respondents about historical returns at all—only about expectations for the future.

As is evident from the capital market line presented here, there is a great deal of variability associated with rates of return, even within a particular asset class, and especially at the higher-risk end. Developing an appropriate rate of return or discount rate for a subject investment requires interpolation, extrapolation, or both, on the capital market line. What is readily apparent from the chart is that even with this improvement, developing a reliable rate of return on equity for a given investment or company still requires sound intuition and wise judgment by the valuer.

Some Thoughts on the Terms ''Required Rate of Return,'' ''Expected Rate of Return,'' and ''Cost of Capital''

Generally, authors on this topic have assumed that the terms ''required rate of return,'' ''expected rate of return,'' and ''cost of capital'' are interchangeable substitutes. This lack of distinction between terms has led to some fuzzy thinking, and it might be a good thing to be more precise in our language in order to avoid arguments over semantics rather than concepts. For example, ''expected return'' can have two very different meanings depending upon whether one is a price taker or a price setter. If one is a price taker, say an investor in public stocks, ''expected return'' may be a passive description about what the market is anticipated to return based on its current pricing level. Investors have essentially no ability to negotiate a different price or a different ''expected return''; it is take it or leave it. On the other hand, if you are a price setter, say a private equity investor seeking to acquire a particular business in a direct deal, if you say ''my expected return on this business is 35%,'' what you are really saying is that 35% is the minimum return you will accept, and if the price isn't low enough to give you that expected return, then you will not pursue the

[25]Crowd-sourcing has been found to be useful in understanding the boundaries and central tendency of uncertainty. For example, averaging the estimates of fifty people as to the weight of a large pumpkin has a much better chance of being accurate than any one estimate by a single individual, however experienced.

[26]My hope is that the investor categories currently surveyed by Pepperdine will be just a start. Many other types of asset risk classes could be added in the future that would provide the ability to create finer detail to the capital market line. Categories such as commercial property, secondary market investments in partnerships, private equity, restricted stock, and other illiquid securities would enrich the study and make it even more useful for valuation professionals. One of the most difficult but possibly the most productive areas of exploration would be minority interests in smaller private companies. In addition, one of the areas this author would be particularly interested in seeing surveyed is public stock market investors! It might be quite instructive to compare the responses of a broad range of investors in the public market using the survey method with the implied rates of return as published by Ibbotson/Morningstar and Damodaran, as well as with the required rates of return indicated by the CAPM and buildup methods. Finally, a related issue that has not yet been the subject of a survey is whether or not investors ever really use CAPM or the buildup method in pricing assets. The author's experience has been that most deal makers do not and instead take a fairly simplistic approach, such as applying a multiple to EBITDA; in my experience, many do not even engage in a discounted cash flow (DCF) analysis, or if they do, it comes into play as a backup model by the staff to create a justification for the ultimate decision.

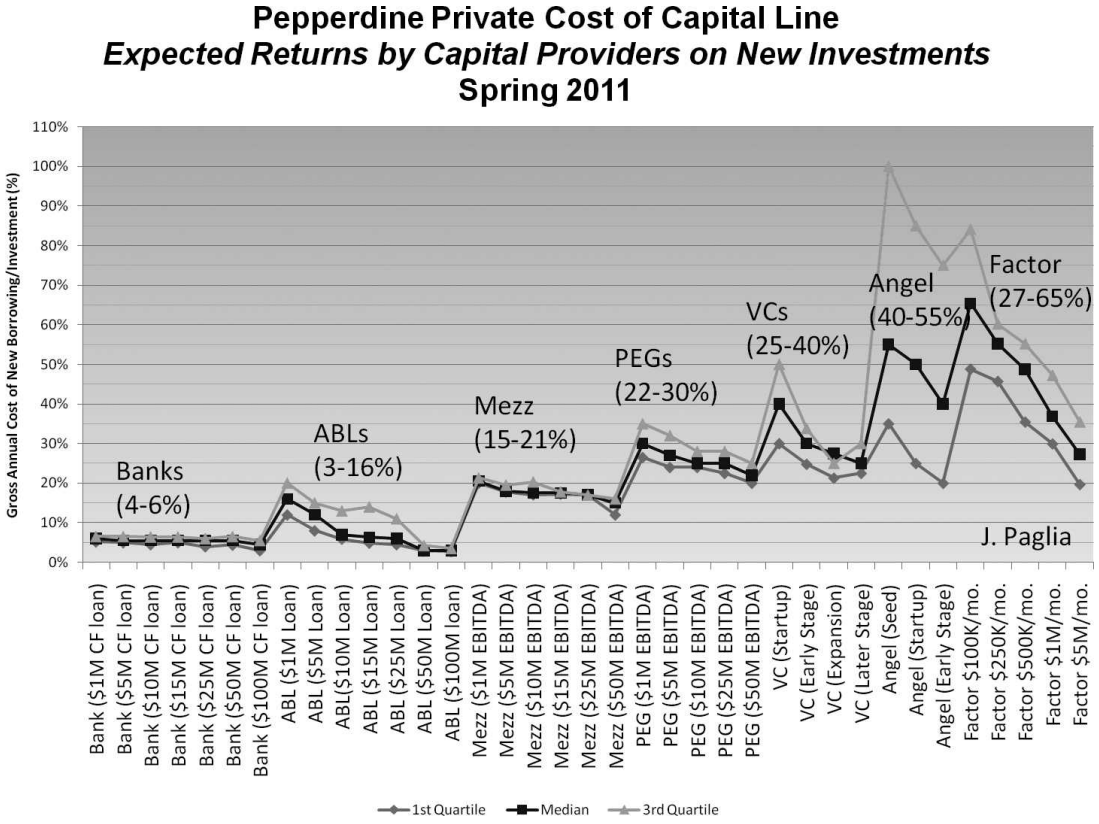

Figure 1

Pepperdine Private Cost of Capital Line

Categories: Bank = bank lenders, ABL = asset-based lenders, Mezz = mezzanine investors, PEG = private equity groups, VC = venture capital investors, Angel = Angel investors (i.e., start-up and seed money), Factor = investors in receivables portfolios. Used with permission

deal. In this case, the seller could be the one who is in more of a take-it-or-leave-it position. Obviously, this is not to say that the seller is powerless, just that the meaning of ''expected return'' to the buyer has more of the meaning of ''required return.''

''Required return'' thus seems to connote a more active, investor-driven concept, while ''expected return'' could have either a passive or active meaning. ''Cost of capital'' seems to be even more passive than ''expected return'' and therefore is possibly more prone to misunderstanding. For example, the ''cost of equity'' component of the ''cost of capital'' could be subject to varying interpretations depending on whether one is thinking about the investment as a price setter or a price taker.

Conclusion

Historical and traditional methods for deriving cost of equity capital give the illusion of science and reliability based on sophisticated statistical techniques, historical data-mining, repetition in the valuation literature, and support from a variety of court cases.[27] A factor that is obscured in this blizzard of tradition is its failure to distinguish information from wisdom, cause from effect, statistical significance from plausible explanation, and theoretical elegance from the messiness and complexities of the real-world marketplace.

The bottom line is that the traditional backward-looking models do not provide anything close to a reasonable estimate for the required rate of return on equity capital for most investments, with the possible exception of a highly diversified portfolio of public companies that will be held for at least a generation. CAPM and BUM as typically applied are not a product of reliable procedures, they cannot be applied in a way that creates a reliable result, and, indeed, if done blindly and without the application of

[27]Unfortunately, judges generally are bound by what the experts tell them and have heretofore had no substantive basis for questioning the history-based models of the experts who have appeared before them. Hopefully, this paper will allow the courts more basis for questioning backward-looking rate of return techniques.

judgment, the results obtained from use of these methods will almost always be wrong, because, in isolation, they are incapable of reflecting the thought processes of actual buyers and sellers in the market.

We can no longer pretend that analysis of the past is the way forward. The fact that the history-based models failed so spectacularly during the recent crisis is not the exception that proves the rule—it is the exception that proves the rule is invalid. We should turn on the defogger and stop relying so much on the rearview mirror approach. By applying more resources and effort to understanding how investors in the real world actually make pricing decisions, we will get much closer to the goal of emulating true market behavior in developing a business valuation.

While courts, taxing authorities, and, yes, appraisers all seek scientific proof that will make the conclusions of an appraisal indisputable, for now the reality remains that assessing the value of even an established business continues to be more art than science. For the foreseeable future, risk analysis will remain largely the purview of judgment by well-informed, knowledgeable, and experienced human beings, not mechanistic statistical analysis and history-based data-mining.

The Sage of Omaha also had this to say in his 2008 Berkshire Hathaway year-end letter to shareholders: ''Investors should be skeptical of history-based models. Constructed by a nerdy-sounding priesthood using esoteric terms such as beta, gamma, sigma, and the like, these models tend to look impressive. Too often, though, investors forget to examine the assumptions behind the symbols. Our advice: Beware of geeks bearing formulas.''