BUSINESS VALUATION

The Butler Pinkerton Model: Empirical Support for Company-specific Risk

by Peter J. Butler, CFA, ASA, and Keith A. Pinkerton, CFA, ASA

We have been encouraging debate on the topic of company-specific risk (CSR) for over two years. While we welcome debate, there have been some recent criticisms of the Butler Pinkerton Model (BPM) that we believe mischaracterize the BPM and miss the technique's ability to capture CSR. We wish to clarify a number of points so valuators better understand the BPM's usefulness and application. We respond to those criticisms, paraphrased below:

1. Using the BPM in an engagement to value a privately held company requires the use of the guideline public company method.

You do not have to use the guideline public company method (market approach) if you use the BPM—although in some cases it may be appropriate. There might not be any "good" *comparables* for the market approach, yet there may be good *guidelines* to help estimate CSR for private companies, because company-specific risk is just that: company-specific.

We have consistently stated that the appropriate use of BPM is with the income approach. After all, the BPM uses the same data that analysts use to calculate equity risk premiums (ERP), Betas, and size premiums as well as industry risk premiums. We as an industry do not exclude the income approach when good comparable companies are not available. Thus, we should not exclude the BPM now if there are no good comparable companies. We believe there are always "good" guidelines. Any time valuators have relied on Betas (CAPM) or industry risk premiums (build-up method), they have implicitly assumed that there were good guidelines.

2. Even if a valuator uses the BPM, then he or she still needs to identify company-specific risk factors for the privately held company contributing to a CSRP. The BPM provides no indications for this step.

We discussed the microbrewery industry in some of our articles. For that industry, we listed 18 direct factors to compare/contrast our private brewery with the public benchmarks. We found these 18 different CSR factors in the guidelines' Forms 10-K. In today's litigious environment, public disclosures are generally very detailed related to the company-specific, as well as the systematic, risks that companies face.

Other industries invariably reveal other relevant factors. So we reject the idea that the BPM and the related process provide no indications of CSR factors. The need to identify CSR factors should not be considered a weakness of the BPM. Isn't understanding the "why" of valuation a primary goal of an analyst?

3. The risks represented by Beta do not equate to the risks of a privately held company.

If Beta is transformed into Total Beta, described in more detail below, it most certainly equates with the risks of a private company. Total Beta captures total risk. Total risk is the frame of reference we use to value private companies most of the time.

4. Using the Beta of a set of guideline public companies and then extrapolating this Beta to the privately held company is not "company-specific." The subject company may have a very different situation than the average guideline, and this leads the valuator back to the traditional method of determining a CSRP which is based on subjective analysis of these factors.

We agree: Using an average of guideline Betas is not really company-specific. But Beta is the systematic component of total risk. The BPM provides empirical benchmarks for CSR—a first for the industry—as well as empirical benchmarks for total risk, or the total cost of equity (TCOE) through the Total Beta calculation developed by Aswath Damodaran, PhD, professor of finance at New York University, in the 1990s. The math behind these calculations is incontrovertible and is referred to in the third edition of *Cost of Capital: Applications and Examples*, by Shannon P. Pratt and Roger J. Grabowski (Wiley, NJ, 2008).

Any remaining subjectivity is not a weakness of the model. Valuation is not purely robotic. The BPM provides empirical data to better analyze CSR—yes, still subjectively, but not nearly as subjectively as relying upon traditional factor models alone.

In future presentations, we will show participants the CSRPs of guideline companies used in either the CAPM or the build-up method. Wouldn't it be nice to know the CSRPs for your guideline companies, meaning the guideline companies that you used to calculate Betas (CAPM) or implicitly used in the build-up approach? The BPM does just that; the technique extends the usefulness of the guideline publicly-traded data.

Picture this scenario. You and an opposing expert have developed the same cost of equity (prior to appropriate consideration of CSR) using the same guideline companies. The opposing expert then selects a CSRP for the subject company relying upon purely subjective factor models. You, on the other hand, using the BPM, show the opposing valuation analyst that his or her selection of CSR is at odds with the empirical evidence developed from the same guideline companies. The valuator with the empirical data has a big advantage.

5. The BPM does not contribute anything that was not already available to a valuator using the guideline public company method, since the inverse of the earnings multiple illustrates the relative risk of the guideline company.

First, the inverse of the earnings multiple, E/P, is equivalent to a capitalization rate, not a discount rate. The BPM provides TCOEs and CSRPs—discount rates. Second, a public company multiple is a multiple observed, at least according to traditional financial theory, as part of a well diversified portfolio, and therefore only captures systematic risk completely. The BPM removes the public company from the well diversified portfolio perspective and views the company as a standalone asset. It is therefore a completely different perspective. So, the BPM does provide something to the analyst—namely objective measures of CSRPs, which we never had before.

To further prove this point, we selected Exxon Mobil (ticker: XOM) to analyze, as we have made numerous illustrations of this stock in our previous articles and presentations. We chose the following as our inputs:

Risk-free rate = 5.00%
ERP = 5.00%
Market proxy: S&P 500
Look-back period: 5 years
Effective date: March 7, 2008
Size premium = -0.27%
Closing prices: non-dividend adjusted.*

These inputs result in a TCOE equal to 12.79 percent with an implicit CSRP equal to 3.59 percent. (The BPM allows analysts to re-calculate the TCOE and CSRP, satisfying the *Daubert* criterion on testing.)

Again, please note these two numbers. The first one, the TCOE, was calculated with a formula developed by Professor Damodaran. As we have shown in our other articles:

TCOE = risk-free rate + Total Beta × (ERP),

where Total Beta = Beta ÷ R, or

Total Beta = standard deviation of stock ÷ standard deviation of the market

R is the correlation coefficient between the stock and the market. Dividing Beta by R removes the stock from the well diversified portfolio perspective. The stock now stands alone and is not correlated to anything. In other words, it is now the only stock in your portfolio. On the other side of the equation, it shows that Total Beta completely depends on standard deviation.

This TCOE formula looks strikingly familiar to the CAPM, except now we are concerned with Total Beta and standard deviation, rather than Beta and covariance. We are concerned with Total Beta because it captures total risk, not just systematic risk.

The CSRP component is the BPM's contribution to the valuation industry, calculated in the following manner:

TCOE = risk-free rate + (Beta × ERP) + size premium + CSRP

Solving these two equations simultaneously results in the following new equation for CSRPs:

CSRP = (Total Beta – Beta) × ERP - size premium

*We have previously shown that inclusion or exclusion of dividends to calculate CSRPs is immaterial for most companies.

That is the formula! Contrary to traditional wisdom, a formula now exists for publicly traded guidelines. To quote another finance professor, Ashok Abbott, PhD, at West Virginia University, "The total beta calculations are very clean and conceptually sound."

Now, let's look at another well accepted formula, derived from the dividend discount model to further illustrate our point.

$P_0/E_1 = D_1/E_1/(k - g)$

where P_0/E_1 = the forward-looking price-to-earnings ratio
D_1/E_1 = the forward-looking dividend payout ratio
g = expected growth rate
k = required rate of return

But which required rate is k, the TCOE or the systematic rate of return? Let's find out in the next few paragraphs.

As of 3/7/08, Exxon Mobil closed at $82.49, and its expected 2008 earnings were $8.07 per share (per Yahoo!Finance), resulting in a forward-looking P/E ratio of 10.22.

Expected dividends were approximately $1.50 per share, using a 7 percent rate of increase over the current dividend of $1.40 per share, leading to a forward-looking payout ratio of 18.56 percent ($1.50 ÷ 8.07). Using an expected growth rate of dividends equal to 7 percent results in a discount rate (k) equal to approximately 8.80 percent.

Please compare this to the TCOE calculated with the BPM. This discount rate is significantly lower because this rate does not capture total risk. The BPM captures total risk by calculating TCOE. In other words, depending on your reference point, you would require an investment return of either 8.80 percent in a well diversified portfolio (using the inverse of the P/E ratio as the criticism suggests) or 9.20 percent (using the BPM, where 12.79 percent minus 3.59 percent equals 9.20 percent).

Importantly, however, if you had only Exxon Mobil in your portfolio, and were therefore very interested in CSR, you would require an investment return of 12.79 percent to invest in Exxon Mobil stock. This is the same reference point we use to value privately held companies. Thus, we now have empirical benchmarks to compare and contrast with our privately held companies. The inverse of the P/E ratio fails to capture CSR; the BPM does not fail here.

Thus, the inverse of the P/E ratio does not show the relative total risk of two public companies, for example. Rather, it may only completely incorporate the relative systematic risk of two public companies, much like the CAPM, as traditional financial theory tells us that CSR can be completely (or at least very significantly) diversified away in a well diversified portfolio.

Moreover, we have shown in previous articles that CSR and systematic risk are not necessarily correlated. Thus, by capturing CSR, we have provided "something" to the valuation community. One cannot look at public company market multiples and gauge much, if anything, about CSR.

Volatility

We recently read an excellent article titled "Owner's Lack of Diversification and the Cost of Equity Capital," by Daniel L. McConaughy, PhD, and Vincent Covrig, PhD, in the Winter 2007 issue of *Business Valuation Review*. Their technique is based on a certainty-equivalent approach and uses Monte Carlo simulations to calculate a private company discount using a risk-free rate. Their technique is also somewhat dependent on the stock market's volatility, as is the BPM.

Since the mathematical theory behind the BPM is incontrovertible, the only remaining criticism (as far as we know) is that the volatility of public company stock price returns does not represent the volatility of privately held companies.

Quoting the *Business Valuation Review* article cited above:

> …the use of larger and more established public companies, which are not exactly comparable, may understate significantly the volatility of the private companies' cash flows and, thus, understate the risks facing the undiversified entrepreneurial investor.

On the other hand, the article also states:

> Second, the entrepreneurial investor faces cash-flow risks that may not be represented well by stock price volatilities. Public companies' stock price volatilities many not represent the cash-flow risks faced by the entrepreneurial investor. These (public) companies may experience wild stock price fluctuations. Volatilities estimated from these companies' stock prices may be excessive….

Which is it? Are the public stock volatilities too high or too low to use for comparison to private companies? Or is the relative comparison very much company-specific? We like that term, company-specific.

By using the BPM, you can have a good mix of companies (some larger and some smaller, which potentially bracket the volatility of your private company) to gain a better appreciation of the CSRP and the TCOE for your private company. Since company-specific risk is just that—company-specific—you do not need perfect comparables do get good indications of CSRPs to assist in determining an appropriate CSRP for a private company.

Thus, we believe that if market evidence now exists, which it does with the use of the BPM, why ignore the data? Valuators observe the market, they do not set it. Therefore, we believe valuators should observe the

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FBI when certain drugs expected to be administered every other week were being given 25 to 26 times every three to four months. Patients allegedly received "incentive" cash of $200 for each visit to a clinic.

Paul Egan, "5 Charged in $10M Medicare Fraud Case," Detroit News, 23 February 2008; available at www.detnews.com/apps/pbcs.dll/article?AID=/20080223/LIFESTYLE03/802230390/1409/METRO, accessed 26 February 2008. VE

James Martin, MS, CIA, CMA, CFFA, senior manager with Cendrowski Corporate Advisors, LLC (www.frauddeterrence.com), provides comprehensive risk assessments, focusing on the evaluation of operating effectiveness of business processes and the internal control structure.

R. Austin Marks, CPA, CFFA, consultant with Cendrowski Corporate Advisors, LLC, specializes in risk assessment, internal control evaluation, business process review, and litigation support for partnership and divorce proceedings.

Todd Michael Jolicoeur, CFFA, staff tax professional and consultant with Cendrowski Corporate Advisors, LLC, works with management to identify operational and financial issues to improve business performance, and provides litigation support for partnership and divorce proceedings.

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public markets with the use of the BPM, not automatically disregard a market rich with data.

Moreover, depending on the valuation assignment, the public market may just be the best market to use to value your privately held company. Additionally, Revenue Ruling 59-60 essentially requires us, at least, to look at publicly traded data. Following is the pertinent requirement that we must consider:

> The market price of ownership interests of entities engaged in the same or similar lines of business having their ownership interests actively traded in a free and open market, either on an exchange or over-the-counter.

This requirement does not state that we must have perfect, or even great, comparables.

The BPM gives significant instruction as a risk allocator. It captures total risk (TCOE) of guideline companies and allocates this risk (discount rate) among the risk-free rate, systematic risk (Beta × ERP), the size premium, and the CSRP. Now, the analyst is free to compare and contrast his or her subject company to the guidelines. This is exactly the process the courts have been demanding: thoughtful comparisons to empirical data.

If you are interested in learning more about the BPM, please go to www.bvmarketdata.com and click on "Company-Specific Risk Calculator," then click on "FAQs" or "Articles." On those Web pages there are six free articles and extensive frequently asked questions available for download. VE

Peter J. Butler, CFA, ASA, is a director of valuation at Hooper Cornell, PLLC (www.hoopercornell.com), a full-service CPA firm in Boise, ID. He is responsible for valuation of privately held companies for mergers and acquisitions, estate and gift tax, financial reporting, and litigation support.

Keith A. Pinkerton, CFA, ASA, is a director of valuation at Hooper Cornell, PLLC, in Boise, ID. He specializes in the appraisal of closely held businesses and business interests, and has performed valuations of professional practices, manufacturing conglomerates, construction, automotive, wholesale, retail, and investment companies, as well as debt securities, pass-through entities, and intangible assets.