VALUATION

Does The Implied Private Company Pricing Line Make Sense? (Part III)

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This article represents the culmination of a three-part series that began in the January/February *The Value Examiner*. Beginning there, I was privileged to be allowed to publish my views on the Implied Private Company Pricing Line (IPCPL)—a small private firm cost of capital estimation methodology that had been initially devised by Messrs. Dohmeyer and Butler in 2012 (and subsequently joined by Burkert). I shall herein respectfully refer to these three creators as BB&D for convenience. BB&D also published a rebuttal in the same issue.[1]

The IPCPL represents something of an enigma for me—there are three core characteristics about the methodology that have just never made any sense. The first two of those were presented in Part I. Specifically:

1. It does not stand to reason that small firm revenues would be a good indicator of pre-tax risk rates.

2. There is no empirical evidence to show that small firm risk rates conform to a double Lehman curve as revenues increase.

Part II, "Does the IPCPL Make Sense?" appeared in the May/June *The Value Examiner* and was largely dedicated to explaining that the 'Gorshunov Chart', and the underlying regression Gorshunov relied upon is a relative measure of association. While there may indeed be a very strong direct correlation between the Operating Margin Percentages (OMP) (the explanatory variable) and the Price-to-Sales

(P/S) (dependent variable) ratios, it is a mistake to believe that this implies there is any association between revenues and risk rates. In fact, the Gorshunov regression does not even affirm any correlation between absolute revenue amounts and the P/S ratio (because the scale on both axes is proportional, not absolute). It would be incorrect to conclude that the P/S ratio increased as the absolute dollar amount of firm revenues increased.

This final installment of "Does the IPCPL Make Sense?" will further address claims that BB&D made in their January/February rebuttal. Finally, my third primary concern: the irrationally expansive look-back period IPCPL uses in the determination of 'Data Point 1' will be discussed below.

POINT-SPECIFIC GROWTH RATES

In my "Does the IPCPL Make Sense? (Part I)", Figure 2 presented two graphs that show actual IPCPL data. My purpose in using the data was to graphically show that when revenues were plotted against the Ratio of SDE[2]-to-Purchase Price (a ratio some might equate as a proxy for the Earnings-to-Price capitalization rate), no visible system of correlation could be identified and the measured R-Squared's were virtually zero. The IPCPL contends that, as revenues get larger, risk-rates systematically fall. However, no such relationship is apparent in the data BB&D freely provided in order to promote their model. In response to my graphical observation, the following BB&D comment has been offered:

> "…he [meaning Conn] has not considered that as firms get larger (i.e., moving to the right on the horizontal

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1   See Burkert, Butler, and Dohmeyer, *Rebuttal: The IPCPL Does Make Sense* p 14–16 and Gorshunov, Igor., *Letter to the Editor RE: Does the Implied Private Company Pricing Line Make Sense?*, p 17, both of the January/February 2016 *The Value Examiner*.

2   SDE = Seller's Discretionary Earnings, a quantity found in the data. In no way did I adjust or alter their original data.

axis), their growth rate on average slows. Thus, since Price to Operating Income is a function of both, required return and growth, the expected relationship of higher multiples as size increases will be muted by the average lower growth of these larger companies."[3]

What BB&D are suggesting, given that they believe firm's enterprise value gets larger as we move from two million dollars to ten million dollars in revenues (a point with which I disagree and is not empirically supported by any of the IPCPL datasets),[4] there supposedly is a declining system of growth rates that would be associated with each of these 232 or 752 SDE amounts that would have brought this observed random chaos into some semblance of correlation.

This is an incredible statement to make. It also seems to contradict what BB&D have already said about growth rates: "…we note that the growth rate assumption, within reason, is not critical. Since higher growth dampens $FCFF_1$ due to increased investments in fixed assets and working capital, we calculate that K_0/IRR changes only by about one-half of the assumed change in growth."[5] And further, "Based upon the foregoing, we estimate the real aggregate growth rate of the IPCPL 500 to be zero percent."[6] However, in providing an explanation for why their own dataset does not demonstrate any evidence of revenue-to-risk correlation, they now seem to be suggesting that the rate of growth is both significant and is specific to the size of each 'Data Point 1' constituent. This is a contradiction I fail to understand—it is either one or the other—growth rates are either firm specific or universal across the entire dataset. They cannot be both.

THE GOODMAN & MCLELLAND PAPER
BB&D mention the Goodman/McLelland (G&M) paper entitled, "The Implied Private Company Pricing Line (IPCPL): On the Nature, Scope, and Assumption of the IPCPL Theory".[7] While BB&D have pointed out that the paper serves as a general endorsement of the IPCPL as a whole, they have neglected to mention that G&M elect to disregard revenues as an explanatory variable. They opt, instead, to construct their IPCPL theory on a cash-flows-to-equity variable, symbolized as "π" throughout the work. Of course, 'cash flows to equity' as a determinant of risk

makes sense—investors are principally interested in cash flows (not revenues).

Further, BB&D do not disclose the fact that G&M reject the use of the double-Lehman formula in favor of a logarithmic function, but even here, G&M warn the reader that the use of this function is only a "hypotheses that must reasonably be tested empirically."[8]

SUBSTITUTION OF OPERATING INCOME FOR DIVIDENDS AND IPCPL AS A WACC RATE
In response to my observation that the IPCPL unquestioningly assumes that Operating Income is an acceptable substitute for D_1 (i.e., next-period dividends), BB&D respond: "We deduct increases in working capital and fixed assets [from Operating Income] to derive free cash flow to the firm, or D_1."[9] Here, it was my understanding that the IPCPL 'Data Point 1' was aggregated from the relatively limited information available either in Pratts Stats or BIZCOMPS. Neither of these databases provide a detailed history of past cash flows. Therefore, no matter how the BB&D estimation of the required working capital and fixed asset cash flows are made, the end result could not be anything more than purely superficial guesses. Moreover, no provision has been made for non-operating expenses and income taxes. Implicitly, BB&D are assuming that the Gordon Growth Model is just as applicable to an 'adjusted' stream of cash flows, which are pre-tax and ignore non-operating expenses. Should they?[10]

One of the IPCPL claims is that this discount rate can be applied regardless of whether the business directly incurs taxes or not. And, when the subject firm is taxable (or should be tax-affected), we are given the advice: "We also note that if the valuation assignment requires an analysis of after-tax income, the analyst simply needs to convert the cost of capital above by multiplying it by (1 – tax rate)." (IPCPL 2012, BVR Spring 2012, p 39).

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3   See supra note 1. p 15.

4   Part II, Figure 1 Panels A, B, and C showed that the revenue-to-firm-price-paid correlation within the IPCPL datasets is very low.

5   Dohmeyer et al., The Implied Private Company Pricing Line 2.0 K0 = FCFF1/P + g 2.0, Business Valuation Update Special Feature (2014), p 10.

6   *Ibid* p 11.

7   Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2609159.

8   See supra, note 7. p 14.

9   See supra note 1. p 15.

10   "One of the most difficult tasks in resolving the issue between dividends and earnings is a meaningful statement of the issue, and this will be our first concern. It will be shown that advocates of the earnings hypothesis cannot correctly maintain that the valuation of a share on the basis of its dividend expectation is incorrect. All they can argue is that doing so is unnecessary and it may lead to incorrect inferences. The issue between the two hypotheses reduces to a question of whether k, the rate of profit investors use in valuing a dividend expectation, is a constant or is an increasing function of *br*, the expected rate of growth in the dividend." Gordon, Myron J. 1962. *The Investment, Financing, and Valuation of the Corporation*. Homewood, Ill, R.D. Irwin, p 56.

However, BB&D now state: "The IPCPL calculates a weighted average cost of capital (WACC), not a cost of equity."[11] Basing my response solely upon what I have been told in the two published papers, I would reply that it is not possible for a pre-tax rate to have the characteristics of a WACC. A basic tenet of finance is that, in a world without taxes (which presumably also applies to pre-tax risk rates), the un-levered cost of equity represents the lower bound for the WACC.[12] That is, the WACC and unlevered cost of equity rates are the same when the impact of interest expense tax shields is not taken into account. Therefore, I would argue that the IPCPL, which is strictly a pre-tax rate, could not possibly produce a WACC rate as BB&D claim. Or, in any case, the Cost of Equity and WACC rate at a pre-tax level would necessarily have to be the same. However, I take their point that it is probably just as imprecise for me to be referring to the IPCPL risk-rate as a "Cost of Equity". Henceforth, I will use the term Pre-Tax Risk Rate.

UNPUBLISHED IPCPL VERSIONS?

BB&D's insistence that IPCPL produces a WACC rate has made me wary of the possibility that undisclosed changes have been made to the published methodology. Some cursory web-surfing yielded an IPCPL data version 2.1[13] as well as a NACVA slide presentation Mr. Burkert gave in December 2015. Both seem to now customarily provide for a thirty-five percent tax provision and the resultant IPCPL risk-rates are now presented as after-tax. It appears that the IPCPL methodology and underlying assumptions in the data has evolved since the last formal publication explaining the theory. This represents a real threat to potential IPCPL users. The fact that the model creators have the ability to change the subjective assumptions about model inputs at will and incorporate these modifications into the electronic version immediately without necessarily making the user fully aware of the new approach puts the users at an extreme disadvantage.

THE THIRD ISSUE

The "IPCPL 500" as it is called, is simply a portfolio of past private equity FCFF/Price multiples. In a perfect world, all the constituents within this aggregation would be current.

However, this is not the case. In order to compensate for the persistent shortage of private equity data, the IPCPL methodology extends its look-back period. The 'Data Point 1' transactions may have occurred at any time between the years 2000 and 2013. Or, in the case of the IPCPL 2.0: "The IPCPL 500 is composed of transactions that occurred over the last fifteen years."[14] Regardless of whether the data is being sampled over a thirteen or fifteen-year period, it must be obvious that this is an enormous span of time in terms of macroeconomic cycles. Much has occurred in the U.S. economy over the past fifteen years and I am speculating that it is highly unlikely that a business that sold at a given $FCFF_1$/Price multiple in 2001 or 2005 or 2009 would have any similarity to the multiple it would sell at currently. We know that both private and public business prices are highly sensitive to the macroeconomic factors in which they are transacted. Prices are generally high in times of economic boon and low in periods of economic uncertainty. We also know that business prices are impacted by what industry that firm is in and whether that industry is in an emerging, mature, or declining state.

Recognize that in the '$K_0 = FCFF_1$/Price + g' construct, the g (according to the IPCPL methodology) is a simple proxy for future growth estimated at the current long-term bond rate minus the current T.I.P.S. rate. Therefore, the key driver in the accurate determination of 'Data Point 1' is the $FCFF_1$/Price ratio. In order for 'Data Point 1' to be meaningful, we need this ratio to reflect what these businesses would sell for now (or, at the valuation date) in the current economy—not fifteen or ten or three years ago. And yet, the IPCPL uses data observations that are a meaningless amalgamation of old ratios that may have no relation to what those businesses may have fetched on the current market (assuming they survived). And, the only means by which the IPCPL intends to compensate for this grossly out of date sample is: "We modestly reprice our fifteen-year sample of Pratt's Stats transactions to account for the risks of today's market versus the average market conditions that existed over the fifteen-year sampling period. To do so, we applied this formula: $(ERP_0 - ERP_{15yravg})/2$."[15, 16]

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11   See supra note 1. p 15
12   For an overview that explains why the unlevered cost of equity is the lower bound on WACC in a no-tax environment, see: Conn, R.R. 2013. Modigliani-Miller Propositions I & II as Applied to Business Valuation. *The Value Examiner*. March/April 2013: p 7–14.
13   At http://www.bvmarketdata.com/defaulttextonly.asp?f=IPCPL However, there is no companion paper documenting the nature of the changes or the underlying reasons why the approach explained in the 2013 paper are no longer being followed.

14   See supra note 5. p 11
15   See supra note 5. p 11
16   The implications of the IPCPL "Present Day" adjustment are interesting on a number of levels. One of the claims of the IPCPL is that users need not worry about 'non-systematic' or 'company-specific' risk because that is "baked-in" to each of the 830 constituents (i.e., when the $FCFF_1$/Price ratio is captured). Note, however, that the 'present day' adjustment of $(ERP_0 - ERP_{15yravg})/2$ only roughly approximates for a net change in systematic risk (the ERP or Equity

Pricing risk in the private equity market has always been elusive just because there is a scarcity of high-quality transparent and relevant data. The hope of taking these very old and disparate empirical ratios and transforming them into reliable current market measures would, in my opinion, involve just as much or more subjective reasoning than the largely inadequate and noticeably flawed methods that the IPCPL has claimed to replace.

"These subjective adjustments, combined with the several subjective guideline private company transaction selection criteria decision and guideline private company transaction price/financial data adjustments, provide strong evidence to reasonably conclude the application of the IPCPL model to calculate the present value discount rate in appraisal practice would not entail significantly less subjective adjustments relative to ACAPM and BUM."[17]

SUMMARY AND CONCLUSIONS

There is no empirical evidence to support the premise that revenues are even weakly correlated with risk rates. Indeed, even the IPCPL datasets do not show this tendency. Goodman and McLelland have specifically employed cash flows rather than revenues in their general overview of the

IPCPL theory. Further, they abandon the use of the Double-Lehman curve and hypothetically employ a logarithmic curve instead. While there was one instance of only a weak correlation between revenues and firm size observed, it is highly unlikely that this tendency would be pronounced over the narrow range of two million to ten million dollars. [18] This single most important criterion of the IPCPL—the unfounded hope that small-firm revenues can somehow be used as a yardstick for risk does not make sense.

Finally, there is the issue of the fifteen-year look-back period used to quantify IPCPL 'Data Point 1'. Intuitively it does not make sense to me that one could take a transaction from, say, 2003 and add that to a current transaction and hope that the combined multiple (however calculated) could represent a meaningful measure of current risk. One of the most strongly advertised advantages of the methodology is that "the IPCPL is empirically tethered to economic reality."[19] And yet, these empirical observations that have been collected for the aggregation of the 'Data Point 1' originate from an unrealistically wide expanse of time that could not reasonably be expected to yield meaningful results. VE

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Risk Premium, by definition only measures systematic risk). Therefore, the implication for those transactions that are fifteen or ten or five years old, is that all the different paths that these purchase prices may have subsequently travelled as a result of company specific risk over the missing time periods are ignored. There is no provision in the 'present day' adjustment for company specific risks. Therefore, the IPCPL inherently assumes that whatever level or degree of company specific risk that was captured in these older transactions is static—it would not have changed regardless of whether the business was sold in 2002, 2008, or 2015. Observing publicly traded firms we know such an assumption to be faulty—a given firm's degree of exposure to non-systematic risk will change over time. Further, the claim that the IPCPL includes a provision for non-systematic risk is, in my mind, astounding and hypocritical. Recognize that 'Data Point 1' is simply a large portfolio of transaction prices in the same way that the S&P500 is a large portfolio of transaction prices. Dohmeyer and Butler spend an inordinate amount of space in their 2012 paper showing that the Law of Large Numbers works in such a manner that, the larger the sample becomes, the less impact errant data will have upon the overall aggregate results. They state: "As we can see from the statistical analysis (Fig. 4), even assuming a very significant portion of the data is highly unreliable, our data set of 830 transactions is nearly perfectly reliable." It is this very 'large-sample aggregation process' that mitigates the effects of data errors and outliers but also non-systematic risk as well. In fact, when we wish to observe a market measure of pure systematic risk-only, we use large-sample indexes like the S&P500 for the very reason that we can be confident that company specific effects have been eliminated in the consolidation process. The Central Limit Theorem and powers of diversification insure that non-systematic price variations are eliminated from large-sample portfolios. How BB&D can possibly claim that their large-sample 'Data Point 1' process has eliminated all the worrisome data errors but somehow left in the impacts of non-systematic risk is a contradiction of statistical theory.

17   Peter C. Dawson, PhD (2016). An Independent Evaluation of the Reliability of the Implied Private Company Pricing Line Model in Appraisal Practice. p 27. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2666677.

18   Intuitively it makes some sense that, over a much wider domain—say, the complete breadth of revenues in the entire Market, from $0 to $100 billion, revenues will be an important contributory determinant of firm size. This is how Duff & Phelps employs revenues as one of seven key explanatory variables in regressing firm size for the entire public market.

19   See supra note 5. p 13.