Estimating the Discount Rate for Smaller Closely Held Businesses

Introduction

In Chapter 11 (pages 249 and 252) we briefly discussed estimating the discount rate when valuing small and medium sized businesses (often referred to as small and medium sized enterprises, or SMEs). The following expands on that discussion.

Some authors have postulated that there is a difference in the private capital market confronting SMEs and the public capital market for public companies.[1] Specifically, the following factors differentiate the private capital market from the public capital market:

- Risk and return (cost of capital) are relatively unique to each market given the characteristics of each market.

- The expected holding period for investors in SMEs is generally different from that of investors in public companies and the liquidity of their investments is quite different within each market.

- Motives of owners of SMEs are oftentimes different from those of professional managers of public companies.

- SMEs are priced at specific points in time, while public companies are priced continuously.

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[1] See, e.g., Robert T. Slee, *Private Capital Markets: Valuation, Capitalization and Transfer of Private Business Interests* 2nd ed. (Hoboken, NJ: John Wiley & Sons, Inc., 2011). This section of the discussion is drawn from Chapter 1 of that book.

- Public markets allow relatively easy access to capital, while private capital investment is more difficult to arrange; while public companies typically have ready access to capital, smaller SMEs must create capital solutions one deal at a time with uncertainty as to success.

- Public markets are relatively efficient because of the availability, accuracy, and completeness of information published by public companies; private markets are relatively inefficient because many SMEs do not prepare audited financial statements and, even if they do, they are typically not prepared in a timely fashion nor in the level of detail compared to public companies.

- Transaction costs of either buying or selling interests are different in each market.

Commentators generally segregate SMEs into groupings (though there is no universal agreement as to the labels of each group nor the differences in size of companies comprising the groupings): small-market; lower-middle-market; and middle-middle-market and up. While there is also no universal agreement as to the size of which companies should be included in which groupings, the following Exhibit will help readers as we discuss the topic.

Exhibit 11A–3

	Defining Characteristics of SMEs		
Characteristic	**Small-Market**	**Lower-Middle Market**	**Middle-Middle-Market and Up**
Revenue Size	<$5 million	$5 -$150 million	$150 - $500 million
EBITDA size	<$500,000	$500,000-$15 million	$15 - $50 million
Ownership profile	Owner managed	Owner managed-Professionally managed	Professional managed
Ownership goal	Lifestyle	Lifestyle and entity value creation	Entity value creation
Role of key manager	Wears all hats	Wears few hats-functional management	Functional management
Financial information	Tax returns-Reviewed financial statements	Reviewed financial statements – audited by local CPA	Audited by regional/ national CPA firm
Capital access			
Debt	Business banking	Commercial banking	Corporate banking
Equity	Personal/family	Personal/private equity	Private equity
Intermediation	Business brokers	Local investment bankers	Regional/national investment bankers

Intermediation defines the specialists that serve as agents for buyers and sellers in each grouping.

The goal of the business appraiser is to evaluate the risk of the business and estimate the appropriate rate of return (discount rate), given the risk or likelihood of achieving a certain level of economic income.

Risk and expected return are viewed and defined differently by owners and managers in each business segment. For example, owners of small-market SMEs view risk/return more from a personal perspective while owners of middle-middle-market SMEs view risk/return more by comparison to investment markets. While both capital markets, the private and public capital markets, treat risk similarly: the greater the risk, the greater the return to compensate for the added risk, the returns for small-market SMEs are often measured in both personal and financial terms while the returns for middle-middle-market SMEs are measured almost exclusively in financial terms.

For many valuations, the prescribed standard of value is fair market value. Recall that:

Fair Market Value — a Standard of Value considered to represent the price, expressed in terms of cash equivalents, at which property would change hands between a hypothetical willing and able buyer and a hypothetical willing and able seller, each acting at arms-length in an open and unrestricted market, when neither is under compulsion to buy or to sell and when both have reasonable knowledge of relevant facts.[2]

For example, for valuations performed for federal estate and gift tax reporting purposes and for many federal income tax reporting purposes, the standard of value prescribed by statute is fair market value.[3] It is also the standard of value applied in some states in family law matters and is often the standard of value used in shareholder agreements that become the focus of disputes.

The natures of the willing buyer and the willing seller are abstractions. In arriving at an opinion of value the business appraiser must focus on the characteristics of the "hypothetical willing buyer" or the

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[2] *International Valuation Glossary—Business Valuation*, February 2022, reproduced on the online Appendix to Chapter 1.

[3] IRS Treasury Regulations 20.2031.1. IRS Treasury Regulations, Gift Tax Regulations 25.2512.1 define the term similarly. Transfer pricing is based on "the arm's length standard."

"hypothetical willing seller." The appraiser is to consider them as hypothetical persons, rather than specific individuals or entities. But applying the hypothetical willing buyer/willing seller test means that hypothetical buyers and hypothetical sellers have reasonable knowledge of relevant facts. The hypothetical buyer and seller are assumed to be able, as well as willing, to trade and to be well informed about the property and the market for the property.[4]

Risk of an investment and its fair market value must be developed based on the risks (and pricing) perceived by investors that comprise the pools of hypothetical willing sellers and likely buyers of the subject asset. The marginal investors in these pools set the market price.

The following exhibit can help the reader understand differences in behavioral motives, relating to capital and transfer motives, to help the valuator decide in which market segment a company is likely to be viewed and which data sources might be the most appropriate to use in developing the discount rate for a company in that segment.

Exhibit 11A–4

	SME Owner and Management Motives		
Motive	**Small-Market owners want**	**Lower-Middle-Market owners want:**	**Middle-Middle-Market and Up managers want:**
Capital	Few or no partners	As few shareholders as possible	To build equity in the business
	To remove equity from the business	To minimize equity in the business	To optimize the firm's capital structure
	To manage cash in business, not balance sheet	To stretch required equity	To borrow at the firm's marginal return on invested capital
		To borrow without personal guarantees	To manage P&L and "net assets" on the balance sheet
		To manage the business, not the balance sheet	
Transfer	Simple transfer motives	To meet personal motives	To meet entity motives
	To create lifestyle business	To diversify the estate	To diversify the business
	To use business to have a job	To create family legacy	To create business legacy
		To use transfer to create wealth	

For example, many small-market firm owners have limited ability to build value in their business and have little likelihood of transferring ownership at anything more than the net tangible asset value while many lower-middle-market owners transfer ownership because they are retiring and relocating, they

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[4] *U.S. v. Simmons,* 346 F.2d 213,217 (5th Cir. 1965); Rev. Rul. 59–60, 1959–1 C.B. 237.

are "burned out" and/or have no family members that are interested in (or capable of) succeeding the owner/manager.[5] Many small-market firm owners have a large portion of their wealth tied up in their business (are poorly diversified)[6]; as the company size increases, opportunities for diversification (and reduction in personal risk) increase.

Measuring the Expected Return/Discount Rate for SMEs

Risk Premium Report – Size Study and Risk Study

For companies categorized as Middle-Middle-Market and Up and companies in the upper end of the Lower-Middle-Market, the Risk Premium Report – Size Study and Risk Study provide data on rates of return realized from investments in smaller public companies for use in developing discount rates.[7] For example, the 25th portfolio (comprised of the smallest companies) of the Size Study summarized in Exhibit 11–6 was comprised of companies with the following characteristics:

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[5] See *2022 Private Cost of Capital Report* discussed below, p. 93.

[6] Tobias J. Moskowitz and Annette Vissing-Jorgensen, "The Returns to Entrepreneurial Investment: A Private Equity Premium Puzzle? *American Economic Review* 92, pp. 745 – 778; See section II, Entrepreneurial Equity Concentration, subsection A. Ownership in Privately Held Firms, pp. 7 – 8.

[7] See Chapter 11, pp. 233–241.

Exhibit 11A–5

Size Measure of Companies Comprising Portfolio 25
of the Risk Premium Report as of December 31, 2019

Portfolio 25	Market Value of Equity (in $millions)	Book Value of Equity (in $millions)	5-Year Average Net Income (in $millions)	Market Value of Invested Capital (in $millions)
Largest Company	$346.585	$187.069	$12.961	$439.393
95th Percentile	329.802	179.189	12.220	414.209
75th Percentile	235.400	135.075	8.441	307.248
50th Percentile	125.179	80.325	4.853	182.977
25th Percentile	55.321	38.712	2.222	72.063
5th Percentile	18.357	14.922	0.301	25.086
Smallest Company	3.766	8.224	0.028	9.643

Portfolio 25	Total Assets (in $millions)	5-Year Average EBITDA (in $millions)	Sales (in $millions)	Number of Employees
Largest Company	$364.117	$43.622	$344.600	750
95th Percentile	339.038	40.055	317.697	700
75th Percentile	282.617	29.905	226.905	516
50th Percentile	162.848	16.719	113.459	284
25th Percentile	64.519	7.278	51.107	119
5th Percentile	26.638	2.284	22.465	10
Smallest Company	12.853	0.622	5.919	3

Source of underlying data: (i) CRSP U.S. Stock Database and CRSP U.S. Indices Database © 2019 Center for Research in Security Prices (CRSP®), University of Chicago Booth School of Business. CRSP® is a registered trademark and service mark of Center for Research in Security Prices, LLC and has been licensed for use by Kroll LLC. The Kroll publications and services are not sponsored, sold or promoted by CRSP®, its affiliates or its parent company. To learn more about CRSP, visit www.crsp.com. Calculations performed by Kroll.

As explained in Chapter 11 (pages 237 and 238 for the build-up method and pages 239 and 240 for the MCAPM), the Risk Premium Report Study portfolios provide two ways to match the subject company's size (or risk) characteristics to the appropriate size (or risk) premium: (i) the "guideline portfolio method" and (ii) the "regression equation method". Recall that with the guideline portfolio method, the analyst uses the premia calculated using the average size of companies in the given portfolio. With the regression equation method, the analyst can calculate a custom interpolated risk premium (i) "in between" portfolios, and (ii) can calculate a custom interpolated risk premium for companies with size characteristics *less* than the average size of companies in Portfolio 25. There are expanded examples of using the regression equation method in this Appendix.

In the guidance provided with the Risk Premium Report, the analyst is cautioned that it is likely inappropriate to extrapolate returns for companies smaller than the smallest companies comprising Portfolio 25.

In applying the Risk Premium Report data for closely held businesses, analysts need to remember that the data is derived from actual returns (after-taxes paid by the entity) for public companies and therefore the estimates of a discount rate (cost of capital) are *as if freely traded* discount rates which result in *as if freely traded* indication of value when applying the discounted economic income or capitalization of economic income methods. The appraiser then needs to apply appropriate discounts for lack of control (discussed in Chapter 17) and lack of liquidity/marketability (discussed in Chapter 19) to arrive at an indication of value for a closely held business or closely held business interest.

Empirical Evidence on Small-Market Business Equity Returns

Several academic studies have reported the equity returns realized from investments in Small- Market businesses.

One study uses the secondary market prices for business credit card securitization to derive small-market business equity returns and equity risk premium. The credit cards are used as a means of financing small-market businesses typically those with fewer than 10 employees and less than $3 million in annual revenues.[8] These credit cards can only be used for business purposes and the entrepreneur that owns the business are personal guarantors of the business credit card; thus, the pricing of credit is a direct reflection of the risk of the risk of entrepreneurship.

The small-market business equity returns averaged 11.94% during 2000-2018 (and the premium in excess of the short-term risk-free rate was 10.74%). These returns can be compared to say the average

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[8] Matthias Fleckenstein and Francis A. Longstaff, "Small Business Equity Returns: Empirical Evidence from the Business Credit Card Securitization Market," (June 14, 2022) *The Journal of Finance* (forthcoming). Available at SSRN: https://ssrn.com/abstract=4230447.

returns on small, publicly traded company stocks reported for the 25th Portfolio of the Risk Premium Report – Size Study of over 15%[9].

The study found that small-market business equity returns are quite risky, with the equity returns having an estimated standard deviation of over 56%. These businesses are riskier than say the small, publicly traded company stocks that comprise the 25th Portfolio of the Risk Premium Report – Size Study which had a standard deviation of returns of nearly 30%.[10]

Another study for the period 1990–1998 estimated a small-market business equity returns were approximately 17.1% (and the premium in excess of the short-term risk-free rate was approximately 12.2%).[11] These authors also find that the survival rate for small-market closely held firms is only 34% over the first ten years of the firm's life. The authors find that investment in small- market closely held businesses exhibit a return less than small, publicly traded firms over the same timeframe.

The authors go on to hypothesize as to why entrepreneurs start or buy small- market businesses: "being your own boss;" over optimism; and misperceived risk of failure.[12]

Another study uses empirical data from *DealStats* to relate company-specific factors to observed capitalization rates and company-specific risk factors.[13] While they report results for both asset sales and stock sales, the sample of asset sale transactions represents about 95% of the transactions included in their data base. Of the asset sales studied, median sales was approximately $560,000 and median net income approximately $50,000, with a range of a loss of approximately $400,000 to a profit of approximately $8,300,000. The authors document factors that play an important role in the composition of capitalization rates and company-specific risk factors for smaller closely held businesses.

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[9] Geometric average returns for period 1963–2018 with company size ranked by revenues.

[10] For company size ranked by revenues.

[11] Moskowitz and Vissing-Jorgensen, Table 1, p. 45. The average revenue of the firms studied was approximately $4 million and the average number of employees was approximately 19.

[12] Ibid. pp. 32–35.

[13] Lauren A. Cooper, James A. DiGabriele, Richard A. Riley, Jr., and Trevor L. Sorensen, "Company-Specific Risk and Small Company Valuation," *Journal of Forensic Accounting Research* 6 (1) (2021), pp. 33–56; James A. Gabriele and Richard A. Riley, Jr., "Cap Rates and Company Specific Risk," *The Value Examiner* (September/October 2022): pp. 5–13.

For asset transactions, they observe that capitalization rates are a function of employee count (the greater the employee count, the lesser the capitalization rate[14]); sales (the greater the sales, the lesser the capitalization rate); the greater the number of years the firm was in operation, the lesser the capitalization rate; net income (the greater the net income, the lesser the capitalization rate); and the greater the seller's discretionary earnings[15], the lesser the capitalization rate.

The authors also estimate the factors that are significant in measuring company-specific risk for use in the build-up method.[16] They find risk factors that are significant in explaining differences in transaction price are net sales (the greater the net sales, the lesser the company-specific risk factor); the greater the number of years the firm was in operation, the lesser the company-specific risk factor; transactions with employment agreement with the former owner increases the company-specific risk factor; the greater the area covered by the non-competition provision, the lesser the company-specific risk; the greater the time to sell the subject business, the greater the company-specific risk factor; subject companies diversified across industries have a lesser company-specific risk factor; franchised businesses have a lesser company-specific risk factor; and subject businesses operating in regulated industries have a lesser company-specific risk factor.

Implied Private Company Pricing Line (IPCPL)

In Chapter 11 (page 252), the IPCPL was introduced. The IPCPL is intended to be used to estimate discount rates for companies with less than $150 million in revenues making it applicable for companies categorized in the Lower-Middle-Market and Small-Market.

The estimates of rates of return are estimated by curve fitting between the estimated discount rate for a public small company index (the discount rate for Lower-Middle-Market companies) and the lower

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[14] Recall that a smaller capitalization rate results in a greater value.

[15] Seller's discretionary earnings defined as operating profit plus depreciation/amortization plus owner's compensation.

[16] Company-specific risk = Capitalization rate minus risk-free rate (as measure by the U.S. Treasury Bill rate) minus equity risk premium (historical equity risk premium) minus size premia (as measured using CRSP Size Decile size premia data). The authors find that including published Industry Risk Premiums adds little to the significance of the findings.

end of the IPCPL (the discount rate for Small-Market companies). The lower end of the IPCPL was developed using transaction prices paid for companies with revenues between $4.4 and $10 million, with over 50% of the transactions within the $4 million to $5.9 million revenue range.

The authors reported an equity discount rate of approximately 18% for small companies with revenues between $4.4 and $10.0 million (pre-tax, unlevered discount rate to be applied to the free cash flow to the enterprise).[17]

Critique of IPCPL[18]

While updates to the IPCPL are no longer supported by its originators, a short critique is still warranted.

The authors used 500 transactions from the *DealStats* and *BIZCOMPS* databases (100% controlling interest transactions) in developing their reported results (see Chapter 14, p. 334 for a description of each database). An appraiser utilizing the IPCPL should be familiar with the strengths and weaknesses of the databases from which the underlying transactions are sourced.[19]

The following are some points that the analyst should be aware of concerning the 500 transactions that make up the underlying IPCPL:

- The dataset is comprised of 243 *DealStats* transactions. Of these transactions, 72 are classified as stock sales and 171 are classified as asset sales. The dataset is comprised of 257 *BIZCOMPS* transactions.

- A main difference between the two databases involves the treatment of inventory. Inventory is assumed to be included in an asset transaction under the *DealStats* database; although the

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[17] Bob Dohmeyer and Peter Butler, "The Implied Private Company Pricing Line: Empirically Observing the Cost of Capital: CofC = FCFF/P + G," *Business Valuation Review* (Spring 2012), pp. 35–47 where the theory was introduced and initial results reported; Bob Dohmeyer, Peter Butler and Rod Burkert, "The Implied Private Company Pricing Line 2.0," *Business Valuation Update* (September 2013), pp. 1–9 where the theory was updated and revised results reported.

[18] This section is drawn from Kim Linebarger, "Cost of Capital for Closely Held Businesses," Chapter 27, in Pratt and Grabowski. Used with permission.

[19] The uses and abuses of these databases and other transactional databases have been laid out in great detail in Nancy Fannon and Heidi Walker, *Comprehensive Guide to the Use and Application of the Transaction Databases*, 2009 Edition (Portland OR: Business Valuation Resources, October 30, 2009).

database FAQs direct the analysts to look closely at the underlying transaction. Inventory is excluded in the transaction price in the *BIZCOMPS* database. In developing the IPCPL database, the *BIZCOMPS* market value was adjusted to include inventory based on the average percentage of inventory to sales of each data sets' selected transactions.

- The sale date of the selected transactions spans from December 4, 1997 through September 30, 2012, a 15-year timeframe. The developers indicated that they applied adjustments for the current equity risk premium on the market and the expected rate of inflation and growth when they were providing updated data.[20]

Note that *BIZCOMPS* annually removes multiples that are older than 11 years.[21]

The changes, or lack thereof, in pricing multiples over time has been the subject of research. One 1993 study concluded that transaction data several years old can validly be employed.[22] Another study concluded that certain industries have been fairly consistent over time while other industries exhibit a great deal of variability.[23] The analyst should be aware of the timeframe adjustment and that the adjustment used by the developers of the IPCPL does not take into account the degree of changes experienced within specific industries overtime.

- In analyzing the make-up of the 500 transactions used, it was found that over 50% of the transactions are within the $4.0 million to $5.9 million revenue range. The most common industry in the 500 transactions is automotive dealers and gasoline service stations (74; of which 48 were gasoline stations).

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[20] Dohmeyer and Butler, p. 46.

[21] Jack R. Sanders, *BIZCOMPS User Guide* (Business Valuation Resources), p. 7.

[22] Raymond Miles, "Business Values in the Real World: Evidence from the IBA Market Database," ASA Business Valuation Conference (Houston: October 23, 1993), p. 12.

[23] Gary R. Trugman, *Understanding Business Valuation* 6th ed. (Portland OR: Business Valuation Resources, 2022), p. 369; Fannon and Walker, op. cit., pp. 9–1; Larry J. Kasper, "The Effect of Willing Sellers on Valuations of Privately Held Businesses," *Valuation Strategies* (May/June 2013), pp. 4 – 19, 42.

- Owners' compensation in each of the transactions was adjusted. While adjustment to owners' compensation is one of the most common valuation adjustments, it is also one of the most debated adjustments in the valuation of a closely held business.[24]

- The observed transaction prices reported in *DealStats* and *BIZCOMPS* databases used for the first data point are for completed transactions. That is, the marketing of the closely held business has been successful in matching a willing buyer with a willing seller. With regards to a closely held business, there is no guarantee that the business will be successful sold at a price represented by the reported transaction prices. The smaller the closely held business, the more difficult it is to locate a willing buyer. Overall data suggests that only 20% to 30% of small businesses that the buyer takes to market to sell are sold.[25] The data used in that first datapoint in developing the IPCPL is based on the selling prices of successful sales and not weighted for the number of small businesses offered for sale that never sell. The rate of return for closely held businesses put up for sale but never sold is likely greater (i.e., the value needed to be less than the price offered) than for the ones that sold.

Besides data issues, the analyst using the IPCPL should be aware that their rates of return/discount rates results already imbed:

- Increase in discount rate for lack of liquidity inherent in closely held businesses, so caution should be used in applying any additional discount for lack of liquidity as to not double count.

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[24] For more information concerning officers' and owners' compensation adjustments, see Chapter 7, p. 126 and Trugman, pp. 202 – 204.

[25] See, e.g., "What are the Odds That You Will Sell Your Business," https://exitoasis.com/what-are-the-odds-that-you-sell-your-small-business/; and "Study Shows Why Many Business Owners Can't Sell When They Want To," https://www.forbes.com/sites/sageworks/2017/02/05/these-8-stats-show-why-many-business-owners-cant-sell-when-they-want-to. Also see the discussion in Chapter 19. In the *2022 Private Cost of Capital Report* discussed below, business brokers reported that 36% of business listings/engagements terminated without closing in the prior 12 months, p 86.

- company-specific risk factors of small companies not captured by size premiums drawn from public company data.

- company-specific risk factors applicable to the pool of undiversified investors which may represent the pool of likely willing buyers for the businesses comprising the dataset.

The authors of the IPCPL claim that their results represent an unlevered rate of return/discount rate. But prices paid for acquisitions as reflected in the *DealStats* and *BIZCOMPS* databases reflect leverage used by buyers in making the purchases. While multiples are expressed as a return on operating income, prices paid are dependent upon amount of financing available and used by buyers. The average multiple reflects typical financing used by buyers.

Pepperdine Private Capital Markets Report

The *Private Capital Markets Report* (PCMR) is an extensive annual survey covering different types of buyer side investors within the private capital markets, including both debt and equity investors.[26] The project also presents owner data via the inclusion of a business owner survey. The survey is unique in that it provides a wealth of current forward-looking data that can be very useful to an analyst in the private equity markets.

The PCMR outlines expected rates of return within the closely held markets. This is a key benefit of the survey as valuation is a forward-looking concept. As of the 2022 PCMR the following investors and advisors were surveyed:

- Limited partners

- Bank, asset-based and mezzanine lenders

- Investment bankers

- Private equity investors

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[26] Craig Everett, *2022 Private Capital Markets Report* (Malibu, CA: Pepperdine Graziadio Business School, 2022), p. 1.

- Venture capital investors

- Angel (start-up) investors

- Business appraisers and brokers

- Equipment leasing

- Business owners.

The publication provides a wealth of information from the various sources of capital within the private capital markets. The data is extremely helpful in understanding the distinctive drivers and range of expected rates of return from each of the sources of capital. For example, 594 business owners responded to the 2022 survey, 74% of the businesses had less than $5 less million in revenues, 92% had had net income less than or equal to $5 million, and 78% had total assets of $5 million or less. As for their estimated rate of return (discount rate) on equity capital, 16% of respondents said their estimated rate of return is between 9% and 10% while 77% of respondents said their estimated rate of return on equity capital is less than or equal to 20%.

However, as with any data source an analyst needs to be cognizant of the underlying data and understand its degree of usefulness in any specific situation. Slee and Paglia address the unique characteristics of each of the capital market sources:

- Each segment has its own rules regarding capital access and is important in creating a capital structure [for a] subject company.[27] Some items that the practitioner should assess when determining the usefulness of the PCMR data for estimating a rate of return for a specific closely held business:

- An analyst who is relying on the PCMR must also be careful to match the presented expected returns with the appropriate cash flow. The rates of return data presented in the PCMR are

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[27] Bob Slee and John K. Paglia, "Private Cost of Capital Model," *The Value Examiner* (March/April 2010), p. 25.

expected gross cash-on-cash pretax internal rates of return.[28] But it is not clear from the

survey results as to whether the respondents of the private equity portion are reporting pretax

returns to the entity in which they invested or pretax returns to the investment funds (after-tax

to the entity).

- The analyst should be cautious when using the survey responses from business appraisers.

   These likely do not represent results from analyzing transactions between unrelated parties.

   Many respondents may be providing their opinion of the cost of capital used in valuations for

   estate and gift tax reporting. These rates of return may be biased high.

The PCMR may be the best attempt to date for arriving at an expected rate of return/discount rate

estimate for equity capital that comes directly from the private equity capital markets. The corresponding

Private Cost of Capital Model (PCOC) which utilizes the PCMR data may become more reliable as the

number of respondents continues to increase (the survey was first published in August 2009) and has

become another tool for estimation of the appropriate rate of return/discount rate for a closely held

company.

The Private Cost of Capital Model

The equation and steps for using the PCOC Model are as follows:[29]

Formula A11–1

$$PCOC = \sum_{i=1}^{N}\left[(CAP_i + SCAP_i) \times \frac{MV_i}{\sum_{i=1}^{N} MV_j}\right]$$

where:

PCOC	=	Private cost of capital (expected rate of return or discount rate)
N	=	Number of sources of capital
MV_i	=	Market value of all outstanding securities i
CAP_i	=	Median expected return for capital type i
$SCAP_i$	=	Specific company CAP risk adjustment for capital type i

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[28] Slee and Paglia, "Using the Private Cost of Capital Model," op. cit., p. 9.

[29] Slee and Paglia, "Using the Private Cost of Capital Model," op. cit., pp. 14–15.

The four steps in applying the PCOC Model are as follows:

1. Determine the appropriate capital types by which to compare. Review the credit boxes described in the most current PCMP survey. Select the appropriate median CAP from the survey results for each qualifying capital type.

2. Determine the market value of each capital type.

3. Apply a specific CAP risk adjustment (SCAP) to the selected median capital type based on a comparison of subject results to the appropriate survey credit box. Use first and third quartile returns as a guide to this adjustment.

4. Calculate the percentage of capital structure component by its CAP. Add the individual percentages to derive PCOC.

The estimated rate of return (also called "cost of capital" derived using the above equation would then be applied to the subject company's EBITDA (if utilizing rates from both debt and equity capital) or to earnings before taxes depreciation and amortization (EBTDA) (if utilizing rates from only equity capital).

The steps of the PCOC Model are quite simple in their basic form as outlined. In practice, however, the steps incorporate a great deal of subjectivity resulting in the practitioner being easily challenged.

The first step determines a subject company's optimal capital structure. Choice of the optimal capital structure alone can have a high impact on the estimation of equity value.

The second and third steps involve selection and comparison of the PCMR data with that of the subject firm. In essence this is quite similar to the estimation of the company-specific risk premium.

The model attempts to fill a gap in the current tools available to practitioners in that it provides the practitioner a way of estimating an implied discount rate for a closely held business using forward-looking data from the private capital markets. The model has weaknesses inherent in any model that relies on survey data:

- First, the forward-looking data are guestimates. One does not know if the returns provided by some investors are really their expected returns or do they include an adjustment upward to compensate for upward bias that may exist in the projections which they were provided.

- Second, the SCAP must be carefully analyzed. Otherwise, the user may be criticized for making unsubstantiated adjustments just to drive a result. As such, it is likely prudent that the analyst does not rely solely on the PCOC implied by the PCOC model. However, when the analyst deems the underlying data of the model to be reasonable for a basis of comparison with the subject company, the PCOC Model does provide one more resource or data point for supporting an estimated discount rate for a closely held business.

Total Beta

Some authors have postulated that it is appropriate to adjust pure CAPM or MCAPM when considering the rate of return appropriate for the owner of closely held businesses because the owners are typically undiversified as discussed above. Proponents of the use of total beta (TB) recognize that the risk of being undiversified is an extra risk confronting the investor in the subject company stock if the investor is not diversified or cannot diversify his or her holdings. They hold that TB is one method for quantifying the risk taken on by that undiversified investor.

TB is a risk measure equal to the standard deviation of total returns expected for a stock divided by the standard deviation of total returns expected for the market portfolio. Practitioners promulgating TB generally use the standard deviation of realized returns over a look-back period as an estimate of expected future returns for the subject stock and the market portfolio.[30]

This Appendix highlights key issues surrounding TB.

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[30] See, e.g., Aswath Damodaran, *Damodaran on Valuation: Security Analysis for Investment and Corporate Finance*, 2nd ed. (New York: John Wiley & Sons, 2006), pp. 58 – 59; Peter Butler and Keith Pinkerton, "Company-Specific Risk—A Different Paradigm: A New Benchmark," *Business Valuation Review* 25(1) (2006), pp. 22 – 28.

Proponents of TB[31] wrote that TB can be used in calculating what they coined the total cost of equity (TCOE). The concept was borrowed,[32] though the originator himself has warned practitioners about the use of TB.[33] The originator explains that a closely held business has more firm-specific risk than systematic risk (calculated as using the market beta of the firm). Hence, he proposed to use the square root of the R-square from the market model regression to extend the beta coefficient to the total risk and hence become TB. The intent of this adjustment is to extrapolate the risk exposure of the investor to cover 100% of the wealth invested in the closely held entity.

For example, assume an investor is interested in buying a high-end restaurant where he is planning to invest all his savings. In estimating the risk of the single restaurant using TB, the investor extrapolates the systematic risk of investing in publicly traded restaurant companies (as measured by their betas) to a measure of the total risk of his target restaurant investment.[34] This is not necessarily fair market value; rather that investor is measuring investment value to himself.

The total risk in this case is calculated as the systematic risk calculated by beta multiplied by the inverse of the square root of average of R-squares obtained from market model regressions of guideline publicly traded firms in the restaurant industry. The formula is as follows:

Formula 11A–2

$$TCOE = Rf + T\beta(Rm - Rf) = Rf + \frac{\beta}{\rho_{m,s}}(Rm - Rf)$$

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[31] Peter Butler and Keith Pinkerton, "Company-Specific Risk—A Different Paradigm: A New Benchmark," *Business Valuation Review* 25(1) (2006), pp. 22–28.

[32] Damodaran, pp. 58–59. Damodaran provides total beta calculation by industry on his website. http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/totalbeta.html.

[33] "The idea of total beta is something I mentioned in passing a number of years ago, but it seems to have taken on a life of its own and is being used in ways I never intended." See, https://www.bvresources.com/blogs/bvwire-news/2012/04/26/damodaran-total-beta-has-taken-on-a-life-of-its-own.

[34] http://pages.stern.nyu.edu/~adamodar/pdfiles/ovhds/inv2E/PvtFirm.pdf.

where $\rho_{m,s}$ is the correlation between the market (m) return (Rm) and the guideline public firms used to develop the beta estimate, β (s), $|\rho_{m,s}| \leq 1$ and $\rho_{m,s}$ is constant for any company (s). Recall, beta is defined as $\beta_i = \frac{cov(r_i, r_M)}{\sigma_M^2}$, which is the ratio of the covariance between a firm's returns and the market (the degree to which the return on a particular security and the overall market's return move together). Recall, covariance is not volatility, but rather covariance is a measure of the two variables' tendency to vary in the same direction and in the same relative amounts.

We can rewrite $\frac{\beta}{\rho_{m,s}}$ as $\beta(1 + \gamma)$, and then the TCOE equation becomes:

Formula 11A–3

$$TCOE = Rf + \beta(1 + \gamma)(Rm - Rf) = Rf + \underbrace{\beta(Rm - Rf)}_{Systematic\ Return} + \underbrace{\gamma\beta(Rm - Rf)}_{Company-Specific\ Return}$$

The major assumption underlying this extrapolation of risk pricing is that the price of a unit of company-specific risk is the same as the price of unit of market risk. Hence, the investor is leveraging the risk-free rate to invest in the market portfolio and move up on the security market line (see Exhibit 11–4, Chapter 11, page 226).

This assumption goes against the whole concept of company-specific risk which is supposed to be independent, by design, from the market risk. Considering that the variability of returns of any public stock is in part a function of its market risk, the measures of TB and beta are clearly related.

The following is an example of calculating TB. Assume that the standard deviation of the excess returns for a *pure play* guideline publicly traded company equals 36.79% (annualized standard deviation of returns over a look-back period equal to 60 months), and the standard deviation of the excess returns on the market portfolio over that same look-back period equals 18.921%. By regressing the excess return of the company on the market excess returns over the same period we get a beta estimate[35] of 1.351 and a correlation coefficient of 0.695. We can calculate TB as follows:

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[35] By applying ordinary least squares regression of excess returns over the look-back period.

$$T\beta_i = \left(\frac{\sigma_i}{\sigma_m}\right) = \frac{0.36790}{0.18921} = 1.94$$

One can also estimate TB in a less direct fashion by taking a beta estimate calculated over a look-back period divided by ρ, the correlation coefficient from the regression used to estimate beta (i.e., R, not R^2).

Considerations in Estimating the Fair Market Value for a Small, Closely Held Business

Generally, markets, other than possibly for the pool of buyers for small-market businesses, are comprised of well diversified investors. To what extent have private equity (PE) investors expanded the market of likely buyers for closely held businesses? The responses from discussions with business brokers was that PE investors are active market participants for closely held businesses whenever the business for sale has earnings before interest and income taxes (EBIT) over $1 million.[36] Some PE investors reported that 8% of their buy-out investments were in firms with less than $1 million earnings before interest expense, income taxes, depreciation and amortization expenses (EBITDA) and 17% of their non-buyout investments were in firms with less than $1 million EBITDA..[37] Further, PE investors often acquire smaller businesses to add onto other businesses they own. Their goal is often to take a *platform* business and grow that business through acquiring synergistic businesses to add-on to (or tuck-into) the platform. That is, they also consider the synergies that they may be able to obtain in making an offer for a closely held business.[38]

The market for closely held businesses is not necessarily comprised of non-diversified buyers and sellers since there are many market participants who are active buyers and sellers and are relatively diversified given their mandate. Think of an angel investor or venture capitalist investing in small, closely held firms,[39] or the same venture capitalist or a PE firm for larger entities. By design, these types of

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[36] Pratt and Grabowski, p. 709.

[37] *2022 PCMR*, pp. 54 and 56.

[38] Investment bankers reported at 51% of closed business transactions involved platform investments, while 49% involved add-on investments, *2022 PCMR,* p. 52.

[39] See *2022 PCMR*, p. 75, for statistics on the size of angel investor investments by company stage of development; and p. 67 for statistics on the size of venture capital investments by company stage of development.

investors are buyers and sellers holding relatively diversified portfolios of firms with different levels of covariances with the market.

And there is a growing willingness among PE firms to buy a minority position along with existing owners to allow firms to take advantage of the potential value of these firms without obtaining control of the firm. This allows PE firms to build relationships with key stakeholders and learn if these smaller acquisitions would fit their overall portfolio strategies. "Assuming a non-controlling stake also allows PE firms to gain visibility into a target company's operations in ways that can pave the way for an acquisition at a later date," says Chris Le Roy, U.S. Leader, PE Transaction Advisory Services, Ernst & Young LLP.[40]

These developments in the PE market show that the market for closely held businesses is more integrated with the rest of the equity market than is often thought.

There are basic issues with applying TB. First, estimating the TCOE based on TB and applying that result in a valuation, may result in a conclusion that may not meet the fair market value standard. The proponents of TB assert that the result is applicable where the market is determined by non-diversified investors; applying a TCOE to anything other than small-market companies likely does not meet the fair market value standard. This interpretation of TB as the risk measure in estimating total returns is based on the premise that most owners of closely held businesses are completely undiversified and, therefore, the discount rate appropriate for the closely held business should include that extra amount due to the owner being undiversified.

One cannot make any assumption about the market for the subject interest or business by simply looking to the current owner of the subject interest or company. The valuator must examine the market for the subject interest or company and determine if the willing buyers are predominantly or exclusively

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[40] https://www.ey.com/en_gl/growth/six-ways-private-equity-will-help-drive-value-in-m-a. PE investors reported making average investments of $500,000 in closely held firms for a median of 35% of the equity in non-buyout transactions; see *2022 PCMR,* p. 56.

comprised of non-diversified investors. Remember, fair market value is not based on the characteristics of the current holder.

Second, given the differences in the market characteristics of investors in small-market and publicly traded companies, does it make any sense to extrapolate risk measures for investments in large, publicly traded companies as you do in applying TB to measure the risks of investing in small-market companies?

Third, we have demonstrated that the derivation of TCOE using TB is a faulty theory.

Why should a valuator use a faulty theory when there are better sources of data to estimate the discount rates for valuing small-market business interests or small-market businesses such as the PCMR?

Considerations in Estimating the Fair Market Value of a Controlling Interest

What does the hypothetical willing buyer/willing seller test mean in the context of valuing a controlling interest in a business (e.g., 100% of the stock of a closely held corporation or an entire LLC)?

Some practitioners contend that the correct premise of value in these situations is value of the subject business as a stand-alone entity. But consistent with achieving maximum economic advantage, the willing seller would investigate the marketplace for the subject business and may conclude that the market consists of a number of potential synergistic buyers. Theoreticians espouse that the synergistic buyer should not give the seller any of the benefits that the seller expects to realize from the proposed transaction. But the reality is that synergistic buyers often yield some (and sometimes a great deal) of the synergistic value to the sellers in order to outbid other buyers.[41]

Again, Courts have determined that fair market value of property (in this case a company) should reflect the highest and best use to which the property could be put on the valuation date. The highest and best use requires studying the market for the property to determine in which market will the likely selling price be maximized. While the hypothetical willing buyer is an abstraction and not a single buyer with

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[41] See Boston Consulting Group, "The 2018 M&A Report: Synergies Take Center Stage," (Sept 2018), p. 18, discussed *In re Appraisal of Regal Entertainment Group*, 2021 Del. Ch. Lexis 93; 2021 WL 1916364.

unique circumstances, for many sellers highest and best use may equate to sale of the subject business to any one of several likely synergistic buyers.

In one decision,[42] the Court stated that the hypothetical buyer and hypothetical seller must be disposed to maximum economic gain and since in that case the Court determined that there were six potential synergistic buyers for the subject business, synergy should be considered (while bids were solicited from all potential synergistic buyers, only the actual buyer submitted a bid). That Court found that in estimating fair market value of the subject business, the price that would be paid by a synergistic buyer should be considered because the pool of likely buyers for the subject business consisted of synergistic buyers.

The Court further found that application of a small company risk premium and company-specific risk premium in building up the discount rate used in the discounted cash flow method equated to a stand-alone valuation, which was rejected given the facts in that matter.

In fact, one of the taxpayer's experts did both a stand-alone and a synergistic scenario discounted cash flow analysis and gave the results equal weight because there was no clear indication that a synergistic buyer could be found other than the actual buyer. The opposing expert was able to find only one acquisition over a period of three years in the subject industry. The Court found that there was not a large enough difference between the two scenarios (even though the actual difference was 28.6%—about the average size of observed acquisition premiums).[43]

The first thing that is clear is that the valuation consultant must study and understand the market of potential buyers for a subject business. If the market is made up of many synergistic buyers (not a single synergistic buyer), fair market value should consider what those market participants would pay for the subject business. As discussed above, businesses and interests in businesses (or any asset) sell in

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[42] *BTR Dunlop Holdings., et al. v Comm.*, T.C. Memo 1999–377. See also *2022 Private Cost of Capital Report*, p. 51, where investment bankers reported that in 44% of transactions, the strategic buyer paid a premium of between 1% and 20% compared to the price offered by financial buyers.

[43] The decision is discussed in Chapter 38, pp. 873 – 875. Lawrence B. Gooch and Roger J. Grabowski, "A Critical Analysis of the BTR Dunlop Case," Working Paper, is reproduced in the Chapter 38 online Appendix.

various markets made up of pools of likely buyers. The marginal investors in the pool of likely buyers set the market price. Is the market of likely willing buyers comprised of entrepreneurs (or financial buyers) who will value the subject business only as a stand-alone? Or is the market of likely buyers made up of potentially synergistic buyers?

Considerations in Estimating the Fair Market Value of a Non-Controlling Interest

In valuing a non-controlling ownership interest in a closely held entity (e.g., a block of stock in a private corporation, or ownership interest in a private partnership or LLC), because the willing buyer and willing seller would have reasonable knowledge of all relevant facts, they would know the marketplace in which the hypothetical sale occurred.[44]

The fair market value standard does not contemplate whether the current owner of the subject non-controlling interest is diversified or not. Nor is it relevant. Rather, one needs to examine the pool of hypothetical willing buyers and determine whether those hypothetical buyers would typically be diversified or not. Courts have determined that fair market value of property (e.g., an interest in the closely held entity) should reflect the highest and best use to which the property could be put on the valuation date.[45] Highest and best use requires study of the market for the property to determine in which market will the likely selling price be maximized.

For example, in one family law matter, that Court found that the owners of interests in a series of real estate entities had a long and intertwined history of investing together. The Court concluded that a willing seller would sell to other insiders to maximize his or her selling price and that the pool of likely buyers for the subject non-controlling interests were the other insiders. Because of their long history of investing together insiders would pay a higher price than would outsiders (in part to keep outsiders out).

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[44] Generally, when working on behalf of one or more of the shareholders in estate or gift tax matters, shareholder lists can be obtained from the subject company. In real market settings, potential outside investors may not be able to obtain such information.

[45] *Mitchell v U.S.*, 267, U.S. 341,344-345 (1925); *Hilbo v Comm.*, 85 T.C. 677 (1985); *Stanley Works & Subs v Comm.*, 87 T.C. 389,400 (1986).

Therefore, the interests were to be valued as if sold to an insider and only a small discount from a proportionate value was allowed.[46]

Further, application of the willing buyer/willing seller test should reflect the reality that some blocks of stock, though small non-controlling interests in and of themselves, represent so-called *swing* blocks. Remember that knowledge of the marketplace includes the identities of the other shareholders and the blocks of stock owned by the various shareholders. Such blocks afford some existing shareholders the opportunity to gain a controlling position (and afford some other shareholders the opportunity to block another from gaining control). Since the hypothetical willing buyer and willing seller are presumed to be dedicated to achieving the maximum economic advantage,[47] the value of such a *swing* block may be valued embodying a control premium (compared to even a proportionate value of the enterprise).

Summary

Risk of an investment and its fair market value must be developed based on the risks (and pricing) perceived by investors that comprise the pool of likely buyers of the subject asset—not based on whether the current owner is a diversified or a non-diversified investor.[48] The marginal investors in the pool of likely buyers set the market price. No market—other than the pool of buyers for the smallest businesses— is comprised of fully undiversified investors. "The cost of capital (i.e., the appropriate discount rate) is a function of the investment, not the investor."[49] Thus, the cost of capital should reflect the risk of the investment, not the cost of funds to a particular investor.

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[46] Unpublished decision, *Wilf v Wilf*, Family Court, Essex County, New Jersey.

[47] *Estate of Curry v U.S.*, 706 F2d 1424, 1429 (7th Cir. 1983).

[48] One may want to analyze the impact on the cost of equity capital (change in beta) as the possible diversification of the pool of willing buyers varies. See Tony van Zijl, "Beta Loss, Beta Quotient: Comment," *Journal of Portfolio Management* 11(4) (Summer 1985), pp. 75 – 78.

[49] Roger Ibbotson, *Cost of Capital Workshop* (Chicago: Ibbotson Associates, 1999).