A Better Way To Measure The Cost Of Equity Capital For Small Closely Held Firms

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ABSTRACT

A company's cost of capital is the average rate it pays for the use of its capital funds. Estimating the cost of equity capital for a publicly traded firm is much simpler than estimating the same for a small privately held firm. For privately owned firms there is the lack of market based financial information. In business damage cases, valuation of the firm is often a prime interest. A necessary variable in the valuation process is the estimate of the firm's cost of capital. Part of the cost of capital is the equity holders or owners required rate of return. The purpose of this paper is to explore the theoretical structure that underlies the valuation process for business damage cases that involve privately owned businesses. Specifically, cost of equity capital estimate methods which appear in the current literature are examined, and a theoretically correct and simple method to measure cost of equity capital for closely held companies is offered.

Keywords: Cost of Capital; A Closely Held Firm's Required Return; Valuation

INTRODUCTION

$\mathcal{T}$he purpose of this paper is to explore a theoretical structure that underlies the valuation process for business damage cases involving small closely held firms. Most methods that estimate damages employ a discounted cash flow methodology. The models generally rely on predictions of cash flows and cost of capital estimates, tasks that may be quite complex when applied to small closely held firms. This paper critiques cost of capital assessment methods that appear in the current literature and proposes a method that could be applied to the study of damages for a small closely held firm. This method is conceptually simple, theoretically correct and fair to all parties.

The need for an economic loss or damage study for closely held companies normally arises from litigation involving the owners of a firm and its employees, competitors, suppliers, the government or other stakeholders of interest. Litigation necessitating the valuation of closely held firms typically stems from disputes that range from divorce settlements, business dissolutions, estate taxation issues, to those involving business damages such as dissenting stockholder suits, lost business opportunities, breach of contract, antitrust actions, personal injury and insurance property or casualty claims. Governmental agencies may also condemn or seize business property through eminent domain or appropriation proceedings. In each situation, the value of the firm for at least one particular point in time must be determined.

Forensic economists usually are employed, whether by the plaintiff(s) or the defense, in order to measure the economic damages and produce an independent damage report. Ideally, the report and/or expert testimony of the economist provides the court or other arbitrator with an unbiased opinion regarding the facts and financial information. With sufficient and compelling information the court can make an informed ruling or decision by. Cases such as those involving divorce, sale or even dissolution usually require the expert to derive the value of the closely held firm "as is". However, cases involving damage analysis often require more stringent assumptions and greater computational effort than other types of valuation tasks because these proceedings require an expert to determine both the value of the firm "as is" and the value "but for" the damage action. In such cases, the value of

the firm is first estimated as though the event that adversely affected the business did not happen. This valuation is compared to a second valuation of the damaged firm to determine the economic loss suffered.

Some Forensic economists measure and report lost profits or reduction in cash flows to quantify damages. A firm's value is a function of its financial structure, its expected cash flows, the firm's cost of capital and the risk or uncertainty related to cash flows. Theoretically, the firm has been damaged because its value is less than if the event had not happened. The lower value could be the result of not only smaller expected cash flows but also a change in risk and or a change in the firm's financial structure. Thus, it is best to view business damages in the broad context of the firm's decline in value.

THEORY OF BUSINESS IMPAIRMENT

A variety of events and actions can cause business damages and eventually result in litigious activity. In theory, the value of any business or investment depends on the future benefits that will accrue to the owner(s) over time. In the case of closely held businesses, these future benefits are best measured as the value of the net expected after-tax cash flows available to the owner(s). In situations where an award for damages constitutes a taxable receipt, the value of the firm should be determined using pre-tax cash flows in order to fairly compensate the recipient. All estimated cash inflows and outflows must be discounted to present value at an appropriate rate of return which reflects the relative riskiness of the cash flows, as well as the required rate of return to the stakeholders of the business.

Theoretically, the cost of equity capital from the standpoint of the business is the same as the required return on equity from the standpoint of the investor. The present study focuses on estimating this cost of capital for small, closely held firms.

Cash flows in damage cases are typically estimated using two basic scenarios. First, the sales, expenses, profits and other cash flows of the firm will be estimated under the assumption that the firm had not suffered any damages.   Second, the damaged firm's cash flows are estimated under the assumption of its actual present operations, that is, it is based on its expected future operating performance as the firm is. The difference between the two estimates is the theoretical loss (L). The equations below illustrate a model for the valuation problem for damage cases:

$$L = V_B - V_C \tag{1}$$

Where

$$V_B = \Sigma\, CF_{Bt} / (1 + k)^t \tag{2}$$

$$V_C = \Sigma\, CF_{Ct} / (1 + k)^t \tag{3}$$

and

V_B = value of the firm before it suffered damages (i.e., undamaged),
V_C = value of the firm given its current economic condition (i.e., damaged),
CF_{Bt} = the estimated firm cash flow for year t had it not suffered damages,
CF_{Ct} = the estimated firm cash flow for year t given its current economic condition, and
k = the cost of capital.

If the damages caused the firm to have lower cash flows than in the past, then these lost cash flows should also be included as part of the total loss. Theoretically, these lost cash flows should be compounded and calculated as a future value at the time of settlement. This compound rate would be the opportunity cost of funds for the business, as this is the rate the firm could have made on investments had there been no damage. In most instances, however, the expert employs a required rate of return as the cost of capital due to the relative difficulty in determining opportunity costs.

DIFFERENCES IN VALUATION OF CLOSELY HELD BUSINESSES AND PUBLICLY TRADED FIRMS

Differences between closely held firms and publicly traded corporations influence valuation methodology. For example, publicly held firms are required to have their financial statements annually audited by certified public accountants, and these statements also are made available to the public. Closely held firms do not have this requirement. Since financial statements are vital in determining expected cash flows, cost of capital and value, an expert may have to review unaudited financial statements of closely held firms with greater caution. Another key difference in publicly held versus closely held firms has to do with the reality that the cash flows available to owners of closely held firms typically encompass more than mere declared dividends. Such additional flows include salary or other direct and indirect compensation or perks, as well as benefits that may accrue from control over depreciation or similar non-cash expense recognition, among various other types of accounting and/or tax benefits.

An important part of the valuation process is the determination of the discount rate to be used in estimating the present value of the cash flow stream. This discount rate is the required rate of return for the primary stakeholders of the firm. For any firm, this would be the weighted average cost of capital, which is estimated from the marginal after-tax costs of debt, preferred stock, and common stock. The cost of capital for a publicly traded firm is the result of arms-length transactions that are empirically observable. For publicly held firms because stock and bond prices are market determined and made known, the cost of capital can easily be estimated. These financial transactions are required to be disclosed as public information, whereas closely held firms are under no such obligation. Thus, derivation of an appropriate cost of capital measure is much more difficult for closely held firms than for publicly traded firms.

One principle that investors and academicians usually agree is that small privately held firms have more risk so their cost of capital for small firms should be higher than that for large, publicly traded firms.

The components of the applicable cost of capital also differ by type of ownership. First, the cost of debt financing for a closely held firm is usually different (higher) than for a comparable publicly held firm. Closely held firms generally must rely on trade credit and loans or lines of credit from owners and financial institutions such as commercial banks, whereas publicly traded companies may issue more cost effective corporate bonds as well. Even though debt costs are generally higher for the small closely held firm, these costs can be estimated by reviewing loan interest rates and well as the marginal tax rate. Second, the costs of equity also differ for publicly held and closely held firms. For example, investments in publicly held firms generally impose less liquidity risk to owners than do closely held firms. The relative marketability or ease with which an owner may sell their stake in a firm impacts the cost of equity, required returns, and valuation. All things being equal, an interest in a business is worth more if it is readily marketable. Interests in closely held businesses are not liquid relative to most other investments. In valuation cases of closely held firms, both the Internal Revenue Service (see, in particular, Revenue Ruling 59-60) and the courts have consistently recognized that a higher discount rate should be applied to account for the lack of marketability.

An important, related issue pertains to the degree of control the ownership interest in the firm represents. The issue of control is often of prime concern in valuations of small or closely held firms because the trade of any portion of the stock of such firms may comprise a significant, though non-controlling, interest in contrast to that of publicly traded firms. All things being equal, an interest in a business may be worth more if it represents a controlling (majority) interest. Contrary to any fiduciary duty majority owners may owe, holders of a minority interest may be unjustly subjected to policies or practices that may limit the value of their minority position (e.g., excessive salary or compensation for majority owner/managers), and jurisdictions differ in the establishment of rights, privileges and protections afforded minority interest holders. The increase in discount rate attributable to the lack of marketability, in conjunction with the compound problem associated with a minority interest, may be a most difficult issue to resolve.

Differences in equity cost and required returns also may result from portfolio effects that stem from the investment holdings of firm owners. Publicly traded firms are generally owned by investors whose loss is limited to the market value of the shares held. Investors holding well diversified portfolios face a lower level of total risk, and variability in returns, because such diversification reduces the relative impact of company-specific (i.e.,

unsystematic) risk in their total portfolio of investments. By contrast, owners of closely held firms may be quite poorly diversified, as the bulk of their personal wealth, effort and self-worth may be tied up in their firm. The primary risk facing owners of such firms is the relative variability in returns for that individual firm, with no commensurate total portfolio reduction in unsystematic risk. Therefore, owners of closely held firms often bear greater total risk, and may have higher potential return expectations, than owners of publicly held firms. However, some of these increased expectations may be more easily satisfied by benefits that may be considered somewhat non-economic in nature (e.g., need for prestige or community standing, among others).

METHODS OF MEASURING COST OF EQUITY CAPITAL

Build-up Models

The build-up approach breaks down the cost of equity capital into different components and specifies a percentage for each component. Build-up models generally begin with a risk-free rate and add one or many factors based on the risk of the equity instrument. Some of the more common components used in this approach include:

1. risk-free rate
2. equity risk premium
3. size premium
4. specific company premium
5. country risk premium

This approach can be expressed as the following model:

$$Ke = Rf + RPm + RPs + RPu + Rpi$$

Where:

Ke = expected equity return or cost of equity capital
Rf = risk-free rate
RPm = equity risk premium for market (general market equity risk premium)
RPs = size premium
Rpu = specific company premium (u stands for unsystematic risk)
Rpi = country risk premium (international investing).

The risk-free rate (Rf) is usually proxied by the current yield on the twenty year US Treasury bonds. This rate is empirically observable. To estimate the market risk premium (RPm), historical yields or *Ex post* methods are commonly employed. Ibbotson Associates publishes historical risk premium data in its annual *Stocks, Bonds Bills and Inflation*. This is a source that is often used as the estimate for equity risk premium in the build-up method. Recent studies have provided evidence that the degree of risk and the corresponding cost of capital increase with the decreasing size of the company. The size premium (RPs) is to capture this higher risk and cost. There are no adequate empirical studies to quantify this higher cost for small non-publicly traded firms. Ibbotson Associates attempts to quantify the higher cost of capital for small firms listed on the New York Stock Exchange. However, sometimes the yields inverse and the smaller firms have lower yields than larger firms causing theoretical conflicts. Accordingly, the premium is mostly a subjective assignment based on an expert's experience and personal observations. The specific company premium (Rpu) encompass risk relating to the industry in which the company operates in, higher or lower company volatility of return, leverage differences, dependencies on key customers, suppliers, employees, lawsuits and other unsystematic risk factors. The size premium tends to capture most of the unsystematic risk and this adjustment should be for only very unique company factors. This premium is not quantified by research so it must be subjectively estimated.

The primary advantages of the build-up methods are simplicity and conceptualization. These models offer the appeal of logic to courts and non-experts. A small closely held firm should probably have a higher cost of equity capital. Also, many of the components are derived from actual, albeit historic, data. This method may be more

accurate when applied to very large American companies as many of the factors will not be included in the model (e.g. size premium, specific company premium, country risk premium), reducing the chance for error. The major problems associated with applying these methods to small closely held firms are that the expert has little hard evidence to specifically quantify many of the subjective components. Also, the different components are not perfectly separable and this makes the premiums also not separable. Similar to the nominal rate on a commercial bond, the interest rate cannot be broken down with great confidence and precision into a real interest rate, an inflation premium and a risk premium. Corporate bond yields are much less convoluted than required equity returns for small non-publicly held companies.

Discounted Cash Flow (DCF) Method

The single-stage DCF model is based on the Gordon Growth Model. This method measures the required (expected) return on equity. This method heavily relies on the knowledge of the present value of the common stock. The model can be expressed as:

$$Ke = (NCF (1 + g)) / (PV) + g$$

Where:

Ke   = expected equity return or cost of equity capital,
NCF   = recent yearly cash flow to investor for one share (dividend),
G   = expected long-term sustainable growth rate in cash flow to investor, and
PV   = market value of one share of stock

For a publicly traded company, the variables used in the DCF model are generally accessible. Most importantly, the market value of the stock is easy to observe. Dividends are the rule and not the exception for large companies. Most large publicly held companies use dividends as the normal method to reward equity investors. Growth estimates are published in Standard & Poor's Compustat Analyst's Consensus Estimates database. This database covers most large companies.

The advantage to this method is that it is well known and established as it has been used very successfully by utility companies to request rate adjustments from public utility commissions. The method is mathematically and theoretically pleasing as the Gordon Model defines value correctly as: $PV = (NCF (1 + g)) / (Ke - g)$. Therefore, Ke must be correctly specified in the cost of capital equation. The disadvantage is for a small privately held firm where the stock price is not known with certainty. Therefore, the solution to the cost of capital equation is not precise. Also, small firms may not pay dividends or the dividend it pays may have little to do with earnings. However, cash flow can be used as a substitute. A third problem is the growth rate estimate. This must be a perpetual annual growth rate which is more problematic. Dividends or cash flow will probably grow at different rates over the firm's life cycle. The DCF model is robust and can include the different growth rates, but the problem lies in the difficulty in projecting the growth rates.

CURRENT METHOD FOR MEASURING COST OF EQUITY CAPITAL ARE LIKELY BIASED

The methods most currently used, the build-up approach and DCF method, generally require the analysts to make many assumptions, use unsubstantiated variables and probably end up with a biased estimate. It was observed that the build-up approach method (35 times) and the DCF method (9 times) were used by economists that were employed by the defense to estimate the equity cost of capital during the period 2000 through 2006 in forty four small privately held firms' commercial damage cases in federal courts. For these cases, the economists estimated that the firms' average equity cost of capital exceeds 29.7 percent, with a range of 18.2 percent to 39.5 percent. Most of the estimates were above 24 percent. The average equity cost of capital for the Fortune Five Hundred companies during this same period was approximately 12.8 percent.

A survey of 86 finance professors by Boudreaux and Rao in 2006, with a majority of them being forensic economists, reveals that a cost of equity capital for small closely held firms should be larger than for a similar large

publicly traded business. However, most thought that the premium should be only a three to eight points higher and that an average rate of 29.7 percent seemed extreme and was most likely biased.   The professors agreed that a method that measured the cost of equity capital that captured what the investors at the margin required as a return would be theoretically superior to existing methodologies.

A PROPOSED METHOD FOR MEASURING COST OF EQUITY CAPITAL FOR A SMALL CLOSELY HELD FIRM

A hallmark of well-developed financial securities markets is that publicly-traded stocks have been fairly valued in the competitive marketplace by willing buyers and sellers under no compulsion to act, each having reasonable knowledge of all the relevant facts. This concept of fair market value is the most widely accepted basis for valuation in both academic and legal environments [see: *O'Malley v. Ames*, 197 F.2d 256, 257 (8th cir. 1952)]. It is this methodology that should be used to fairly estimate the cost of equity capital for the small closely held firm. Another important point for consideration is that historically, over long periods of time, studies have shown that small capitalization stocks outperformed large capitalization stocks in the market, thus smaller firms should be expected to have higher required returns because it is believed that they have higher risk. However, these studies that measure the small capitalized firms' high performance did not included in their sample the small firms that failed. The neglect to include in the calculations those small firms that failed overestimates small firms' financial performance.

In equilibrium, the required rate of return for the investor is the same as the investor's actual rate of return. The model is the often used Discounted Cash Flow Method but the traditional DCF model is altered by using the total equity value represented as Stockholders' Equity on the Balance Sheet and the cash flow is not the free cash flow available to lenders and equity but just the operating cash flow for the investors. The model is expressed as:

$$ORRR = (CFI/\ EQUITY)\ +\ g$$

Where:

ORRR is the owners required rate of return,
CFI is the investors operating cash flows,[1]
Equity is the total common stock equity on the balance sheet, and
G is the growth rate in the firm's free cash flows

Cash Flow t (CFI) is found by:

$$CFI = ([\ (EBIT * (1 - T)] + D) - NFAI - NCAI - P$$

Where:

CFI is Operating Cash Flow to the Investors
EBIT is Earnings before interest and taxes
T is the firm's tax rate
D is the firm's depreciation expense
NFAI is net fixed asset investment, and
NCAI is net current asset investment
P is the debt principle payment

The significant difference between using the traditional DCF model to measure the shareholders' required return and the ORRR model is the ORRR uses book value of equity rather than market value for DCF.   The book value of the equity represents all of the capital infused or invested by the owners into the firm as well as all profits of the owners that were reinvested in the firm. For a small privately held firm, the equity book value actually represents what the owners have risked and is a true depiction of the real equity value to the owners. Also, the cash flow used in the ORRR model is the cash flow generated strictly for the owners.

EXAMPLE

Thibodaux' Metal Fabricator (TMF) is a small privately owned firm that has been in operation for twelve years. Thibodaux's current balance sheet is presented in Table I. For the most recent year, Thibodaux had EBIT of $600,000, with a tax rate of 34%, depreciation of $200,000, fixed asset investments of $250,000, net current asset investments of $80,000 and principle payments of $50,000. ORRR for the firm is calculated as:

ORRR = ([600,000 * (1 - .34)] + 200,000) – 250,000 – 80,000 – 50,000
ORRR = 216,000

Thibodaux's Metal Fabricator has experienced an average annual growth rate in its ORRR of 3.8%. The firm's owners required rate of return is found using the ORRR model.

$ORRR_{MTF}$ is (216,000 / 1,300,000) + .038
$ORRR_{MTF}$ is 20.4%

This figure of 20.4% is the best estimate for the cost of equity capital for this small closely held firm.

Table I
Thibodaux's Metal Fabricator
Balance Sheet
('000,000s)

Total Current Assets	0.8	Total Current Liabilities	0.4
Gross Fixed Assets	3.2	Long Term Debt	1.1
Accumulated Depreciation	1.2	Common Stock	0.3
Net Fixed Assets	2.0	Retained Earnings	1.0
Total Assets	2.8		

CONCLUSION

Cost of equity capital for a small firm is not readily observable in financial markets. This paper has contributed to the practice of business loss estimation or business damages by demonstrating the construction of an efficient and theoretically sound methodology that can be used by practitioners to accurately determine the cost of equity capital for closely held firms. The underlying framework of currently employed valuation techniques was presented, and the explicit reliance of these techniques on various assumptions and speculation-based estimation procedures was highlighted.

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