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FEATURED PERSPECTIVES

Diversification's Impact on Discount Rates in U.S. Cost-Sharing Agreements

by Stuart Webber

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U.S. cost-sharing agreements (CSAs) require multinational businesses to determine the present value of an investment. To do this, firms need to calculate a discount rate, which is used to discount future profits to their present value. This discount rate has a major impact on the present value of an investment, and thus it also affects the amount one related entity may owe another for intangible property contributed to a CSA. In a prior article, I showed an example in which changing the discount rate in a CSA by less than 3 percentage points reduced the present value of an investment by 23 percent, or $296 million.[1] In that example, the change would reduce the value of a buy-in payment one subsidiary would owe another by $178 million.[2] The discount rate is clearly an important figure that has a major impact on the worldwide tax rate of many businesses and on tax revenue in the United States and other jurisdictions.

Treasury regulations governing discount rates provide little guidance concerning how rates should be determined. In 2011 an IRS official said tax authorities thought it best to provide only general directions concerning how a discount rate should be calculated.[3] While the IRS may disagree, I believe both taxpayers and tax authorities would benefit from further guidance on this issue. Many businesses would prefer to have more confidence that they are selecting an appropriate discount rate. Further, stronger direction on discount rates would reduce disputes between businesses and the IRS. Well-accepted financial tools, such as the weighted average cost of capital (WACC) and the capital asset pricing model (CAPM), can be used to calculate the discount rate in a CSA.[4]

Since publishing an article explaining how these financial tools can be used in a CSA, I have received questions about the impact of diversification on discount rate calculations. In that article, I noted the well-known financial principle that diversification reduces investor risk, and that modern portfolio theory assumes investors are well diversified. This has prompted one firm to ask whether a business should be expected to reduce its risk by diversifying into different industries. In other words, if an investor can reduce risk by diversifying his investments, should a business do the same? Further, if businesses should diversify, should CSA discount rates change? The purpose of this article is to address these questions.

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[1]Stuart Webber, ''Financial Assumptions Regarding the Sensitivity of IRS Cost-Sharing Regulations,'' *Tax Notes Int'l*, Nov. 26, 2012, p. 855.

[2]*Id.*

[3]*See* David Stewart, ''Lack of Guidance on Cost-Sharing Is Good, Official Says,'' *Tax Notes Int'l,* Aug. 1, 2011, p. 337.

[4]Webber, ''Determining the Discount Rate in a U.S. Cost-Sharing Agreement,'' *Tax Notes Int'l*, Sept. 9, 2013, p. 1013.

Guidance on Discount Rate Calculation

As noted, Treasury regulations provide general guidance on how a discount rate should be determined, but they do not provide more specific instructions. One of the key regulations on this topic states:

> A discount rate or rates should be used that most reliably reflect the market-correlated risks or activities or transactions and should be applied to the best estimate of the relevant projected results, based on all the information potentially available at the time for which the present value calculation is to be performed. Depending upon the particular facts and circumstances, the market-correlated risk involved and thus, the discount rates, are most reliably determined by reference to market information.[5]

Some financial experts believe that the best approach to determining a discount rate is to calculate a firm's WACC. Joseph Ogden, Frank Jen, and Philip O'Connor write in *Advanced Corporate Finance*, ''A firm's WACC can be interpreted as the implicit discount rate used by the market to determine the value of the firm's assets under a specified capital structure.''[6]

Another financial expert, Michael Ehrhardt, says, ''You should use this weighted average cost of capital . . . to discount the appropriate after-tax cash flows of the project.''[7]

Many articles and texts explain how a firm's WACC can be calculated. In short, a firm must calculate its after-tax cost of debt, its cost of preferred stock, and the required return on common stock. Then it must estimate the proportion of debt, preferred stock, and common stock that will be used to finance future investments. With this information, a firm can calculate its WACC.

Conceptually, this appears to be straightforward, but in practice it can be challenging. One complication is that the WACC should be a forward-looking figure, not a historical one. In other words, firms need to determine their future costs and required returns, and their future mix of debt, preferred stock, and common stock. They should not rely on historical information. The future mix of financing is speculative, and a company may have an incentive to adjust the future proportion of debt, preferred stock, and common stock, since that will affect the discount rate and thus tax obligations. Second, there are a number of ways a firm's required return on common stock can be calculated, and different approaches can produce materially different figures.

One of the most popular ways to calculate the required return on common stock is to use the CAPM. Financial texts generally state that the CAPM is the most accepted approach to calculating the required rate of return on common stock.[8] The CAPM has also been used to determine the cost of equity in a variety of legal cases, including gift and estate tax disputes, intellectual property valuation, and bankruptcy cases.[9] Thus, there are a number of court cases in which the CAPM has been tested and validated.

One of the CAPM's key conclusions is that investors must evaluate both risk and reward when making investment decisions. As Eugene Brigham and Ehrhardt write, ''The Holy Grail of finance is the search for the relationship between risk and required rates of return.''[10]

Brigham and Ehrhardt say CAPM was the first widely accepted theory that incorporated risk and return, and that this contributed to its popularity with financial analysts, individual investors, and businesses. But beyond this, the CAPM emphasizes that investors can reduce risk without sacrificing rewards by diversifying their investment portfolio. Brigham and Ehrhardt write:

> The primary conclusion of the CAPM is this: The relevant risk of an individual stock is its contribution to the risk of a well-diversified portfolio. A stock might be quite risky if held by itself, but if half its risk can be eliminated by diversification, then its relevant risk, which is its contribution to the portfolio's risk, is much smaller than its stand-alone risk.[11]

Should Businesses Diversify to Reduce Risk?

If an investor can reduce risk through diversification, should a business do the same? Perhaps a business can help investors reduce their risk by diversifying into unrelated industries. However, investor and firm diversification are not entirely analogous, and other issues must be considered. There could be other benefits to business diversification. Perhaps lowering a business's risk helps it attract better employees. Maybe management best practices can be shared with low-performing business units. A diversified firm might also be able to achieve a lower cost structure through economies of scope and spreading the costs of centralized headquarters functions over a wider range of products and services. Further, financial stability might

[5]Treas. reg. section 1.482-7(g)(2)(v)(A).

[6]Joseph Ogden, Frank C. Jen, and Philip F. O'Connor, *Advanced Corporate Finance: Policies and Strategies*, Prentice Hall, New Jersey (2003), p. 33.

[7]Michael Ehrhardt, *The Search for Value: Measuring the Company's Cost of Capital*, Harv. Bus. Sch. Press, Boston (1994), p. 6.

[8]Eugene Brigham and Ehrhardt, *Financial Management: Theory and Practice*, 12th ed. (2008), Thomson South-Western, p. 346.

[9]*See* Shannon P. Pratt and Roger J. Grabowski, *Cost of Capital in Litigation*, Wiley, New Jersey (2011).

[10]Brigham and Ehrhardt, *supra* note 8, at 217.

[11]*Id.*

allow a firm to increase its mix of tax-deductible debt and generate higher returns for shareholders.

However, these benefits must be balanced against the potential costs of diversification. It can be challenging to manage a diversified company, as senior managers have less knowledge and experience with unfamiliar industries. As a result, they may make poor business decisions. Further, in a diversified company, stronger performing business units might subsidize less successful product lines.

These less successful businesses might be managed in a less disciplined way than their competitors, which are not subsidized by more profitable activities. Some have suggested diversified firms might have sufficient resources to overinvest in too many projects, some with low return on investment. So there are a number of challenges in managing diversified firms that might impede business success. Brigham and Ehrhardt said it was not clear whether benefits exceeded costs, saying, ''There is no clear prediction about the overall effect of diversification.''[12]

However, a number of economic studies have analyzed this question. Several of the key articles on this topic have concluded that businesses that diversify into unrelated industries are worth less than pure-play firms, which concentrate on a single business activity. For this reason, it does not make sense for companies to diversify into unrelated product lines. Diversification can and should be done by investors, who can reduce risk at a low cost and achieve the same high returns generated by equity investment. But it is challenging for businesses to diversify into unrelated activities and succeed.

Brigham and Ehrhardt discuss this in their book, *Financial Management*. They write:

> Managers often cite diversification as a reason for mergers. They contend that diversification helps stabilize a firm's earnings and thus benefits its owners. Stabilization of earnings is certainly beneficial to employees, suppliers and customers, but its value to shareholders is less certain. Why should Firm A acquire Firm B to stabilize earnings when stockholders can simply buy the stocks of both firms? Indeed, research suggests that in most cases diversification does not increase the firm's value. In fact, many studies find that diversified firms are worth significantly less than the sum of the individual parts.[13]

One of the key studies conducted on this topic was done by Philip Berger and Eli Ofek in their 1995 article, ''Diversification's Effect on Firm Value.''[14] They concluded that diversification reduced firm value, particularly when a company entered an unrelated industry in which it had little experience. They write:

> We use segment-level data to estimate the valuation effect of diversification and to examine the potential sources of value gains or losses. We compare the sum of the imputed stand-alone values of the segments of diversified companies to the actual values of those companies. We document that diversified firms have values that average, during 1986-91, 13 percent to 15 percent below the sum of the imputed values of their segments. The loss in value is, however, considerably less for related diversifications.[15]

In other words, the more a firm diversified into unrelated industries, the more value it lost. If a firm diversified into more closely related activities, it lost less value. But diversification into closely related business activities is unlikely to reduce a business's risk.

Berger and Ofek analyzed the causes of this result and said:

> We find additional support for the conclusion that diversification reduces value by documenting that the segments of diversified firms over invest more than single-line businesses do. We find that overinvestment is associated with lower value for diversified firms, and that segments of diversified firms over invest more than single-line businesses do. These results are consistent with one source of the value loss being the greater propensity of multi-segment firms to over invest. We also find evidence that suggests the subsidization of poorly performing segments contributes to the value loss from diversification.[16]

Another study also concluded that pure-play firms were more highly valued than diversified businesses, although its method was quite different from Berger and Ofek's paper. Larry Lang and Rene Stulz's 1994 paper, ''Tobin's q, Corporate Diversification, and Firm Performance,'' also concluded that firms focusing on a single industry are more highly valued by investors than diversified firms.[17] Their measure of performance was Tobin's q, named after economist James Tobin. Tobin's q is defined as the market value of a firm's assets divided by the replacement value of those assets. Firms that have high q ratios are more highly valued in capital markets than those with low q ratios, so a high q ratio is a sign of investor confidence. The authors preferred this metric over those used in other studies of performance, which they said were very sensitive to the

[12] *Id.* at 40.

[13] *Id.* at 884.

[14] Philip G. Berger and Eli Ofek, ''Diversification's Effect on Firm Value,'' *J. Fin. Econ.*, Vol. 37, No. 1 (1995), pp. 39-65.

[15] *Id.* at 40.

[16] *Id.* at 59-60.

[17] Larry H.P. Lang and Rene M. Stulz, ''Tobin's q, Corporate Diversification, and Firm Performance,'' *J. Pol. Econ.*, Vol. 102, No. 6 (1994), pp. 1248-1280.

start and end dates of the studies and how data were normalized to aid comparison between different firms.

Their study reached similar conclusions to Berger and Ofek. Lang and Stulz write:

> We find that through the late 1970s and 1980s single industry firms are valued more highly by the capital markets than diversified firms.[18]

However, Lang and Stulz were careful to say that it was possible that diversifying companies were performing poorly before they diversified, writing, ''In particular, it could be the case that firms that diversify do so because they are performing poorly and are seeking growth opportunities.''[19]

Despite this caveat, the paper provided further evidence that unrelated diversification is not a successful business strategy. The authors write, ''It follows from our results that shareholder wealth would increase on average if diversified firms could be dismantled.''[20] They also state, ''Our evidence is supportive of the view that diversification is not a successful path to higher performance.''[21]

While these studies demonstrate that pure-play firms are worth more than diversified firms, when teaching, I find it is sometimes helpful to present a tangible example that might illustrate the challenges of unrelated diversification. I teach near Seattle and sometimes find that referencing well-known, local firms can illustrate points more effectively. I ask students to identify major local companies, or firms with substantial business operations in the Pacific Northwest. Students frequently identify Microsoft, Starbucks, Amazon.com, Weyerhaeuser, Nike, Boeing, and Safeco.

In class, we discuss the advantages of constructing a diversified portfolio, using these seven firms. While investing in only seven firms does not create a highly diversified portfolio, an investor would reduce risk by investing in these seven firms, rather than risking all of his funds on one firm. The transaction costs associated with purchasing stock in seven firms, rather than one, are negligible. Then I ask students to consider the challenges these firms would face if they were to diversify and compete directly with each other.

Students quickly realize that it would be extremely difficult for Microsoft to produce athletic shoes successfully, for Starbucks to challenge Boeing, for Amazon to open coffee shops, for Safeco to supply lumber, and so forth. Sometimes students find these discussions humorous, speculating on what sort of shoes or coffee Microsoft would produce or the commercial airplanes Starbucks would develop. Nonetheless I think a serious point is made: Even some of the most successful businesses in the world would find it difficult to enter an unrelated industry. Further, each of these firms has attractive opportunities to expand their current business and leverage their existing core competencies. Students generally agree that a firm should focus on what it does well and allow investors to reduce risk by constructing a diversified investment portfolio.

While diversification into different product lines has negative economic consequences, geographic diversification has a positive impact. Brigham and Ehrhardt write:

> In general, geographic diversification works because the economic ups and downs of different countries are not perfectly correlated. Therefore, companies investing overseas benefit from diversification in the same way that individuals benefit from investing in a broad portfolio of stocks.[22]

Conclusion

Since investor diversification reduces risk, it may sound appealing for businesses to diversify into new industries. However, financial and economic literature has shown that pure-play firms are better investments than firms that diversify into unrelated industries. Investors can diversify their portfolios easily and cost-effectively, but it can be very challenging for firms to enter industries in which they have little or no experience. Therefore we should not expect firms entering a CSA to reduce their risk by diversifying into unrelated business ventures, or that discount rates should be adjusted to reflect diversification. ◆

[18] *Id.* at 1250.

[19] *Id.* at 1251.

[20] *Id.* at 1250.

[21] *Id.*

[22] Brigham and Ehrhardt, *supra* note 8, at 931.