

# Silicon valley medical technologies assignment



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SAVVIED performed its own basic research, obtained patents on promising technologies, and then either sold or licensed the technologies to other firms which marketed the products. The firm has since then grown and is now contracted to perform research and testing for larger genetic engineering firms, biotechnology firms, the US government, and is now widely recognized as the leader in an emerging growth industry.

Sieve's founders were relatively wealthy individuals when they started company, and they committed a great deal of their own funds to the venture. Their personal funds, however, were soon exhausted by the extreme and rapid growth of the company. This caused them to have to raise capital from outside resources. They borrowed heavily for a few years until all funds were used. They then turned their sights to issuing both preferred and common equity. SIEVED is organized into 2 divisions: the Clinical Research Division and the Genetic Engineering Division.

The two divisions are both located in the same buildings, but the equipment they use and their personnel are quite different. In recent years, competition in this market has become stiffer and other large biotechnology firms have begun to recognize the opportunities in Sieve's research lines. This increased competition has forced the board of directors at SIEVED to upgrade their resources and apply state-of-the-art techniques in its managerial processes as well as in its technological processes. The financial vice president has developed an estimate for the firm's cost of capital to use in capital budgeting decisions.

He has requested that his cost of capital estimate and analysis be completed for the next board of directors meeting. Section 1 of this report discusses and analyzes the firm's cost of capital. It begins with a discussion of the weighted average cost of capital (WAC) and the cost components that make it up.

A firm's WAC is the overall required return on the firm as a whole and is often used by management to determine the feasibility of growth or expansion opportunities. For this reason, new, or marginal, costs are used in its calculation. WAC is calculated by multiplying the cost of each capital component by its proportional weight and then summing them together. The capital components included in this calculation are a firm's after-tax costs of debt, preferred stock, and common stock. The first component of a firm's WAC is its cost of debt.

This is the effective rate that a company pays on its current debt. Because interest expenses on debt are deductible, the after-tax cost is used in its calculation. Cost of debt is calculated by multiplying the before-tax rate by one minus the marginal tax rate. As given in the Silicon Valley case assignment handout, Sieve's long-term debt consists of 9.5% coupon, semiannual payment bonds with 15 years to maturity. The bonds last traded at a price of \$891.00 per \$1,000 par value bond. Given this data, Sieve's cost of debt is calculated at 6.6%.

It is often questionable as to whether flotation costs are included in the calculation of a firm's cost of debt. Flotation costs are the costs associated with the issuance of new securities. These costs should be included in this

calculation. For debt, however, this value is usually ignored because it is very small and does not have a significant effect on the outcome of the calculation. Also, when considering whether to use the nominal cost of debt or the effective annual rate, the cost of debt requires the use of the nominal cost to ensure its consistency with other financial calculations.

SIEVED normally issues 30-year long-term bonds. Because of this, the estimate of its cost of debt based on 15-year bonds is not very accurate. For the 15-year cost to better represent the 30-year cost, an additional cost, or premium, could be added to it. Currently, Sieve's outstanding bonds are not callable, meaning that they can not be redeemed by the issuer prior to its maturity. The firm's cost of debt could be affected if these bonds were callable. If the bonds were callable they would have to calculate both its cost to call and its cost to maturity.

The cost of debt would then be the lower of these two values. Preferred Stock is the second component of a firm's WAC. The cost of preferred stock is defined as the stated dividend rate of the individual preferred stock issue. It is calculated by dividing the annual preferred stock dividends by the net price of the preferred stock. Sieve's preferred stock pays a dividend of \$2.50 per quarter, has a par value of \$100.00, is non-callable and perpetual, and is traded in the over-the-counter (OTC) market at a current price of \$104.00 per share.

Using this data, Sieve's cost of preferred stock is calculated at 9.8%.

Although the firm's before-tax yield to investors is lower than the yield on its debt, Sieve's preferred stock is more risky to investors than its debt. This is

due mainly to the fact that most of the preferred stock is owned by corporations and a significant portion of their preferred stock dividend is nontaxable. If SIEVED were to enact a mandatory redemption provision specifying that the firm just redeem the issue in 5 years at the price of \$110.00 per share, its cost of preferred stock would increase from 9.8% to 11.1%. Common Stock

third component of a firm's WAC is its cost of common stock, or cost of retained earnings. This is the cost of internally generated funds or the dividends given up by the common stockholders. The reason that there is a cost associated with retained earnings is because of the opportunity for an investor to turn a profit from reinvesting any dividends paid to them instead of simply retaining it.

The Capital Asset Pricing Model (CAMP) approach calculates the cost of common stock as the risk-free rate plus a risk premium that is multiplied by the stock beta coefficient.

Given that Sieve's current yield on long-term T-bonds is 8.0%, its market risk premium is estimated at 6.0% points over Treasury bonds, and the stock's beta coefficient is 1.2, their cost of common stock is calculated by the CAMP approach to be 15.2%. It is considered that the T-bond rate is a better estimate of the risk-free rate than the T-bill rate. The only scenario that makes the T-bill rate favorable over that of a T-bond would be if this were a perfectly risk-free market. Unfortunately, the reality is that there is no such thing as a perfectly risk-free environment, making the T-bond rate more favorable.

There are three different betas that might be used; historical betas, adjusted historical betas, or fundamental betas. Historical betas are estimated by a regression of historical returns on an investment against the historical

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returns on a market. Adjusted betas are estimated by taking a raw beta times 0.67 and adding it to 1.00 times 0.33. Fundamental betas are estimated in regards to the fundamentals of the particular business with which a firm is involved. There are different methods to which SIEVED could calculate its market risk premium for use in a CAMP cost of common stock calculation.

One method could be to obtain it from some other organization. Another method could be to calculate it within the firm by collecting historical data on the risk-free rate and return on market.

2. The Discounted Cash Flow (DC) method is another way of calculating the cost of common stock. Using this method, all future cash flows are estimated and discounted to give them a present value. Sieve's estimated cost of common stock, using the DC method, is calculated at 14.8%. SIEVED has, for the past couple of years, had a 14.0% average return on equity (ROE) and has paid out about 25.0% of its net income as dividends. Using this information, the firm's expected future growth rate is estimated to be 10.5%. Inserting this value into the equation for DC will, yet again, determine an estimated cost of common stock for SIEVED. This cost is estimated at 15.32%.

3. Sleeve's cost of common stock and also be estimated by yet another method, the Bond-yield-plus-Risk-premium method. This method is used where reliable inputs for neither the CAMP nor the DC approaches are available. It is calculated by adding a firm's bond yield and its corresponding risk premium.

Using this approach and an estimated bond risk premium of 5.0%, Sieve's cost of common stock is estimated at 15.0%. Applying equal weights to each of the three estimates calculated above and taking their average, the final

estimate for Sieve's cost of common stock is 15.0%. Cost of New Common Stock  
Stockton cost of new common stock is another method of calculating a firm's cost of common stock. It is similar to the DC method except that it accounts for flotation costs. Flotation costs are the percentage cost of issuing new common stock. Given a flotation cost of 30.%, Sieve's cost of new common stock is estimated at 16.85%. The components used to calculate the WAC. These two types are Book-Value weights and Market-Value weights. 1. Book-value weights of the WAC components can be determined by simply referring to the firm's balance sheet for the total amount of long-term debt, preferred stock, and common stock. The weights are then calculated by determining the proportion that each source of capital is of the total capital. Sieve's book-value weights are calculated to be 39.31% for long-term debt, 9.63% for preferred stock, and 51.06% for common stock. Market-value weights are different than book-value weights in that, while book-value weights are calculated from historical book values, market-value weights are determined from the continuous recalculation of the values of each type of capital. This makes market-value weights more appropriate values to use when calculating a firm's WAC. The market-value weight for Sieve's long-term debt is calculated at 11.66%, 3.34% for preferred stock, and 85.0% for common stock. SECTION 2: Marginal Cost of Capital firms Marginal Cost of Capital (MAC) is their cost of obtaining an additional dollar of new capital.

It can also be thought of as the weighted average cost of the last dollar of new capital raised. The MAC schedule is a graph that relates the firm's weighted average of each dollar of capital to the total amount of new capital raised. It reflects changing costs, depending on the amount of capital raised.

Using the information provided in the table in Appendix D on page 9, it has been determined that, for new financing up to \$3 million, SIEVE'S WAC can increase to 12.08% before it is forced to sell new common stock. For new financing of more than \$3 million, their WAC can increase to 13.6%. These costs of capital should not be used by both divisions at SIEVED. The two divisions have different risks associated with them making this an inappropriate value for both. Sieve's MAC schedule would not remain constant beyond the retained earnings break point, no matter how much capital is raised. This is because of the simple fact that the cost of capital increases as the firm raises more and more capital. Another factor that may affect the MAC schedule is depreciation. It plays an important role because, if ignored, it could understate the firm's net cash flows.