

Estimating Discounting Rates - Assignment IV

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In this paper I attempt to apply different methods of calculating the cost of equity and after tax cost of debt for Convergys Corporation. Also, I attempt to assess the change in the cost of capital based on factors such as length of time period of study and the effect of different methods of computation of cost of equity and cost of debt

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All data presented in this report is from secondary research on the internet. The analysis presented is original and not replicated from any other source

COMPANY OVERVIEW

Sector: Technology

Industry: IT Consulting and Services

Current Market Price: \$6.93

Table 1: (All Figure in \$Millions)

Total Debt	427.5
Total Equity	2141
Total Capital	2568.5
D/E Ratio	0.1997

Periods of Study: 2003 – 2008 through weekly returns of Convergys Corporation Inc., NASDAQ Composite Index.

Case 1 – 5 year weekly returns of Convergys corp. Stock and NASDAQ Composite Index for the period 2003 – 2008

Case 2 – Most recent 1 year daily returns of Convergys corp. Stock and NASDAQ Composite Index for the period

ESTIMATING WEIGHED AVERAGE COST OF CAPITAL BY ESTIMATING COST OF EQUITY THROUGH THE CAPITAL ASSET PRICING MODEL:

Table 2: Computation of Cost of Equity (Ke)

	Case I	Case II
Beta	0.910	0.544
RFR	3.66%	3.66%
RM - RFR	3.78%	3.78%
KE	7.100%	5.717%

Source: Thompson Reuters, Annual Reports of the company, www.finance.yahoo.com

Assumptions and Formulae used in Computation

Beta was arrived at by regressing the returns of the company stock against the returns of NASDAQ

RFR values are the most recent 10 Year Treasury Bond Rate as on November 13, 2008

RM – RFR was arrived at by finding the difference between monthly NASDAQ returns over the 10 Year Treasury Bonds for the period November 1978 – 2008

KE = RFR + Beta*(RM-RFR)

Table 3: Computation of Cost of Debt (Kd)

Pretax $Kd_1 = \text{Interest expense} / \text{Average Interest Bearing Liabilities}$

	<u>2007</u>	<u>2006</u>	<u>Average</u>
<u>Debt</u>	<u>427.5</u>	<u>679.8</u>	<u>553.65</u>
<u>Interest Expense 2007</u>			<u>17.5</u>
<u>KD</u>			<u>3.16%</u>

Source: Thompson Reuters, Annual Reports of the company, www.finance.yahoo.com

Assumptions and Formulae used in Computation

35% is the Marginal Tax rate in the United States of America

$Kd_2 = \text{Latest Rate of Borrowing} = 4\%$

The interest coverage ratio for the company is > 13

As per Damodaran on Valuation, Security Analysis for Investment and corporate finance rates a company with a ICR > 12.5 with a AAA rating. The default spread for the same is 0.35%. Adding the default spread to the RFR of 3.66% we get the Kd as approximately 4%.

Hence we take $Kd_2 = 4\%$

WACC COMPUTATION USING KE AS PER CAPM MODEL AND KD AS PER THE METHODS ILLUSTRATED ABOVE:

$WACC = K_e * E/V + K_d * D/V$
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	Case I		Case II	
	KD ₁	KD ₂	KD ₁	KD ₂
	3.16%	5.00%	3.16%	5.00%
KE	7.10%		5.717%	
WACC	6.26%	6.46%	5.11%	5.31%

Source: Thompson Reuters, Annual Reports of the company, www.finance.yahoo.com

Assumptions and Formulae used in Computation

The company does not have any of its fixed income instruments traded on an exchange. In absence of the same, I have considered the Book Value of debt as the Market Value while computing the Debt/Equity Ratio

WHICH APPROACH OF VALUING BETA IS MORE APPLICABLE TO CONVERGYS CORPORATION AND THE INFORMATION TECHNOLOGY OUTSOURCING AND SERVICES INDUSTRY?

Following are the reasons why taking last 5 years weekly returns of the company's stock prices and market returns is a superior methodology for Convergys Corporation and the IT Outsourcing industry:

1. The Beta is Case I ie: 5 Years weekly returns is 0.910 and as per Case II ie: 1 Year daily returns is 0.544.
2. If we take into the account the past 10 years returns the Beta of the company is approximately 0.72.
3. Also, the average beta of five of the company's closest competitors is 0.97.
4. The IT Outsourcing industry is a cyclical industry. Most companies follow a cycle of approximately 5 years.
5. The year 2008 was extraordinary for stock market indices around the world. The US market being particularly hit. Considering the year returns for the year 2008 may not be advisable.
6. Also, from an investors point of view, it is advisable to compute beta for a period longer than 1 year as most investor intend to stay invested for a reasonably long time horizon.
7. Growth rate of EPS for Convergys is 5.56% CAGR over the last 5 years. We can assume that the company is in a mature phase of its life cycle. A longer time frame is advisable.

ALTERNATIVE APPROACHES TO COMPUTE COST OF EQUITY

1. COMPUTING KE THROUGH THE COUNTRY RISK PREMIUM METHOD

KE USING COUNTRY RISK PREMIUM METHOD

Mature Country Risk Premium (eg. USA, Germany)	4.79%
Country Risk Premium USA	0%
Equity Risk Premium (RM – RFR)	4.79%

Source: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html

Assumptions and Formulae used in Computation

Equity Risk Premium = Mature Country Risk Premium + Country Risk Premium

WACC USING KE AS PER COUNTRY RISK PREMIUM METHOD:

$$\text{WACC} = K_e * E/V + K_d * D/V$$

	Case I		Case II	
	KD ₁	KD ₂	KD ₁	KD ₂
KE	3.16%	5.00%	3.16%	5.00%
WACC	7.10%	7.23%	6.27%	5.76%

Assumptions and Formulae used in Computation

$$K_e = RFR + \text{Beta} * (RM - RFR)$$

2. COMPUTING KE THROUGH THE ACCOUNTING KE METHOD

BETA = 0.0983 + 0.08 * Coeff of Variance in Operating Income – 0.126 * Dividend Yield + D/E Ratio + 0.034 Growth in EPS – 0.00001 * Total Asset

ACCOUNTING KE

Coefficient of Variance of Operating Income	0.1638
Growth Rate of EPS	5.56%
Dividend Yield	0*
Debt/Equity Ratio	19.97%
Total Assets	2564
BETA	1.172

Source: Annual Reports of the company

* The company has not distributed dividends since listing in 1998

WACC USING KE AS PER ACCOUNTING KE METHOD:

	KD₁	KD₂	KD₁	KD₂
	3.16%	5.00%	3.16%	5.00%
KE	8.09%		8.09%	
WACC	7.09%	7.28%	7.09%	7.09%

Assumptions and Formulae used in Computation

$KE = RFR + \text{Beta} * (RM - RFR)$

3. COMPUTING BETA THROUGH THE COMPETITORS' BETA COMPARISON METHOD

<u>COMPETITORS BETA METHOD</u>	
Amdocs Ltd.	1.02
IBM	1.08
Sykes Enterprise	1
Accenture Ltd.	0.94
APAC Customer Services Inc.	0.8
Average Levered Beta	0.97
Average Unlevered Beta	0.81
Levering Beta for Convergys	0.97

Source: Thompson Reuters

Assumptions and Formulae

Under this method I have taken the average of Convergys closest five competitors, Unlevered the average beta and relevered it with the capital structure of Convergys

$BL = BU * (D + E) / E$

WACC USING KE AS PER COMPETITORS' BETA COMPARISON METHOD:

	Case I		Case II	
	KD₁	KD₂	KD₁	KD₂
	3.16%	5.00%	3.16%	5.00%
KE	7.32%		7.32%	
WACC	6.44%	6.64%	6.44%	6.64%

Assumptions and Formulae

$KE = RFR + \text{Beta} * (RM - RFR)$

Inferences and Conclusion

Different methods of capital structure computation and cost of equity are used for different purposes.

My observations are follows:

Beta is not only dependent on the leverage of the company, but also the time frame of the analysis.

The applicability of the **country risk premium approach** depends on whether the risk of investing in the market in which the company operates can be diversified. Obviously there is a different risk a marginal investor would face if he were to invest in emerging markets such as China, India or Brazil. However, the million dollar question is whether the risk if investment in diversifiable. If yes, then there is no need for an additional risk premium. If not, it may be advisable to add the country risk premium to the mature market equity risk premium. Also, as per "Equity Risk Premiums" by Ashwath Damodaran, for the country risk to not matter, much of the risk for the country in which the money is invested must be country specific. This however, in my opinion may not be

The **Accounting Beta** method may not be the most applicable method as it may not be account for the depreciation generated funds, there may be measurement problem of the variable especially for closely or privately held companies. Also, it may not be applicable for small firms. Such a method may be useful for estimating the beta of companies that are not listed on a stock exchange.

Estimating the company's beta by computing it from its **competitor's/ industry beta** may be applicable in this case as Convergys is a company in a mature phase and so are most of its competitors. The Beta as per computation base for last 5 years weekly returns is 0.9 where as that as per this method is 0.97 which suggests the applicability of this method. However, it would not be applicable for start up companies or those in a high growth phase. The Beta for such companies would usually be higher than most other companies in the industry. Hence, an industry average may not be applicable.

Recommendation

In today's world of increasing volatility and the desire of individuals to invest in alternative forms of investment, the **Arbitrage pricing model** may be a model that I would like to recommend. The ATP model takes into account five economic factors ie: time frame, business cycle, investor confidence, inflation and market timing risk. It helps to estimate the risk premium for each variable. This is particularly useful as different investors may view different variables differently and may assign different risk criteria.

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