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Information Systems 520

Visual Basic for Applications

Comparable Company Analysis

WACC Calculation

Final Project – Write-Up

EXECUTIVE SUMMARY

At Zions Bank, I would periodically recalculate the enterprise value of companies in the current investment portfolio. To arrive at an accurate value for each firm I would perform two types of valuation (1) discounted cash flow analysis and (2) comparable company analysis. Comparable company analysis is one of the most used and most important types of valuation that a firm can perform because it takes into account current market conditions. It provides a solid framework to discover what the market is willing to value the firm at by comparing it to the value of its peers.

This program walks the user through the process of performing the important function of valuing any company by using comparable company analysis. It also calculates the weighted average cost of capital; a key component in discounting cash flows. The program takes up-to-date market data from the web and user inputs from the user to accomplish these two important valuation functions.

IMPLEMENTATION DOCUMENTATION

Comparable company analysis is one of the most used and most important types of valuation that a firm can perform because it takes into account current market conditions. It provides a solid framework to discover what the market is willing to pay for your firm and allows the user to compare the firm to its peers. It is also helpful to value your firm if it is not publically traded. It should however be noted that this valuation should be performed for companies that are focused on companies that are generating EBITDA. The comparable companies' analysis should not be used for financial services companies or companies without EBITDA.

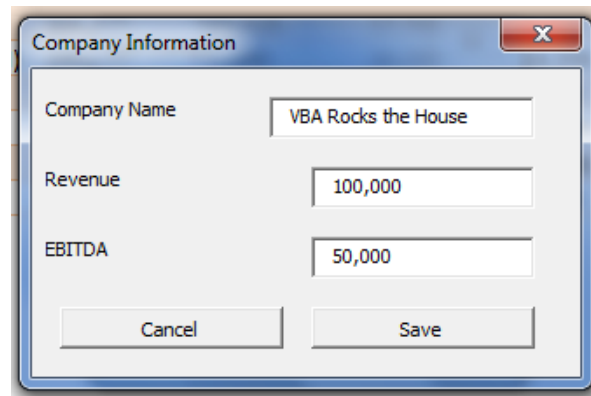
First, as the spreadsheet is opened the user has the option of running a new comparable company analysis or editing a previous analysis. If the user decides to perform a new analysis the user clicks on the button titled "Compute Comps." (see Figure 1)

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Comparable Company Enterprise Value Analysis									
CARL'S COMPANY									
Ticker	Company	Value	Revenue	EBITDA	Net Income	Sales Multiple	EBITDA Multiple	P/E Ratio	
TXN	Texas Instruments Inc. (TXN)	36.03B	13.45B	5.10B	2.90B	2.68	7.06	13.94	
MSFT	Microsoft Corporation (MSFT)	198.58B	65.76B	29.88B	20.60B	3.02	6.65	11.54	
IBM	International Business Machines Corp. (IBM)	196.97B	98.08B	24.29B	14.39B	2.01	8.11	13.2	
GOOG	Google Inc. (GOOG)	151.97B	27.55B	11.26B	7.94B	5.52	13.5	23.51	
INTC	Intel Corporation (INTC)	102.74B	42.74B	20.01B	10.57B	2.4	5.14	11.67	
HPQ	Hewlett-Packard Company (HPQ)	108.14B	126.03B	17.74B	8.76B	0.86	6.1	11.64	
Averages						3.31	8.83	15.55	
Actual Company Revenue		50000							
Actual Company EBITDA		20000							
ESTIMATED ENTERPRISE VALUE									
Company ENTERPRISE VALUE Range		\$ 165,375.00		\$ 176,600.00					

Figure 1: User is able to start a new analysis by clicking on Compute Comps

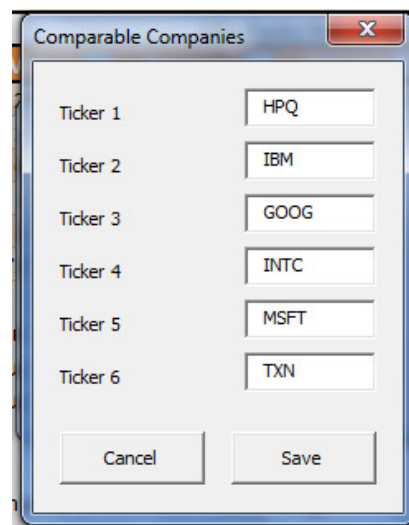
Message boxes guide the user through the input boxes to insure that everything is explained very clearly. When the user clicks “Compute Comps” the Company Information user form is brought up and the user enters information about the company such as the company name, revenue, and EBITDA. (see Figure 2)

A screenshot of a Windows-style dialog box titled "Company Information". It contains three text input fields: "Company Name" with the text "VBA Rocks the House", "Revenue" with "100,000", and "EBITDA" with "50,000". At the bottom are "Cancel" and "Save" buttons.

Field	Value
Company Name	VBA Rocks the House
Revenue	100,000
EBITDA	50,000

Figure 2: Company Information Input Box.

The next step is to enter comparable company information, up to six company ticker symbols. These tickers should be companies that are comparable to the target company. This means that they should be in the same industry and have as many similar qualities as possible to the company being valued. (see Figure 3)

A screenshot of a Windows-style dialog box titled "Comparable Companies". It contains six text input fields labeled "Ticker 1" through "Ticker 6", with values "HPQ", "IBM", "GOOG", "INTC", "MSFT", and "TXN" respectively. At the bottom are "Cancel" and "Save" buttons.

Ticker	Value
Ticker 1	HPQ
Ticker 2	IBM
Ticker 3	GOOG
Ticker 4	INTC
Ticker 5	MSFT
Ticker 6	TXN

Figure 3: Comparable Companies Input Box

From here the program will take over and calculate the firm value by using Revenue and EBITDA multiples. Essentially the program will go and get data from Yahoo! Finance including the comparable companies' official name, enterprise value, revenue, EBITDA, Net Income as well as the Sales Multiple (Enterprise Value/Sales) EBITDA multiple (Enterprise Value/EBITDA) and the P/E Ratio. (see Figure 4)

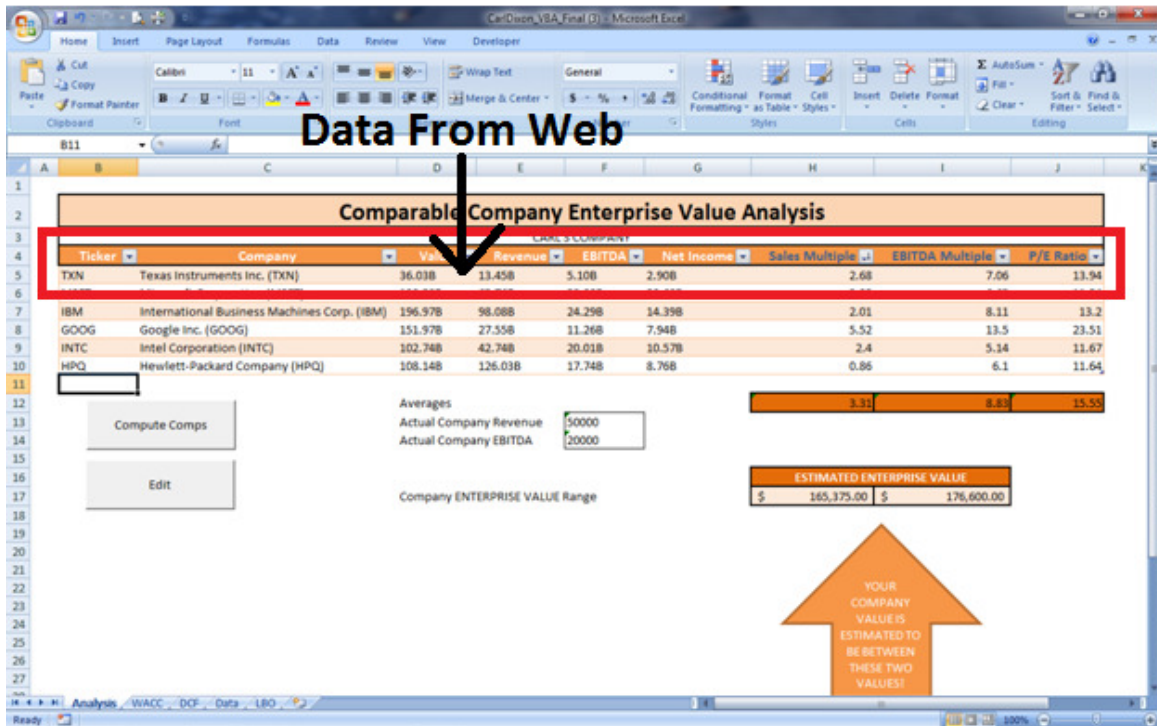


Figure 4: Program gets appropriate data from Yahoo! Finance.

The program then calculates the Total Enterprise Value, which is one of the most important functions that analysts perform. It calculates the value of the firm by using both the Revenue Multiple and the EBITDA Multiple. A Message Box comes up and says that a value has been found for the firm based on the Revenue and EBITDA Multiples. The valuation range is found above the orange arrow. (see Figure 5)

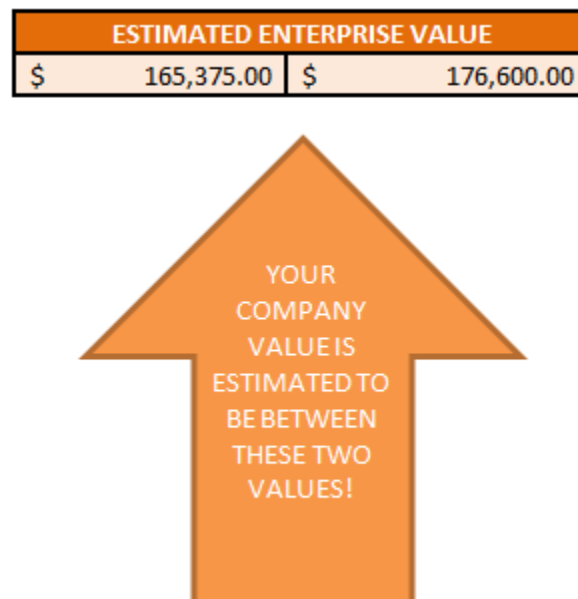


Figure 5: Value is presented to the user

This process of calculating the Total Enterprise Value of the Firm was exactly what I wanted to accomplish and am very happy with its accuracy and performance.

In writing the comparable company program, I first recorded a macro that would go to the web and get data from Yahoo! Finance. This essentially grabbed up-to-date market data and injected it into the spreadsheet. I created a Do Until Loop that would populate the spreadsheet with up-to-date market data for each of the comparable company tickers entered. After the information was populated in the spreadsheet the spreadsheet then was able to take the Revenue and EBITDA multiples and use them to calculate the Total Enterprise Value of the Firm; providing a high valuation and a low valuation. Message boxes lead the user throughout the process. Input boxes are very organized and are user friendly. There is also an Edit button which allows the user to edit specific parts of the analysis.

In writing the WACC program, I first used a non-copyrighted spreadsheet from a professor from NYU that acted as the skeleton for the project. The program is written so that by clicking "WACC Attack" the user is able to enter specific information about the company's capital structure to be able to construct the discount rate. (see Figure 6)

<i>Estimation of Weighted Average Cost of Capital (WACC)</i>				
<i>Results</i>				
Estimating Market Value of Straight Debt =	\$	6,025.05	<div>WACC Attack</div> <div>Edit</div>	
Estimated Value of Straight Debt in Convertible =	\$	-		
Value of Debt in Operating Leases =	0			
Estimated Value of Equity in Convertible =	\$	-		
	Equity	Debt	Preferred Stock	Capital
Market Value	\$ 10,000.00	\$ 6,025.05	\$ -	\$ 16,025.05
Weight in Cost of Capital	62.40%	37.60%	0.00%	100.00%
Cost of Component	8.82%	4.55%	7.14%	7.21%

Figure 6: Creating the WACC

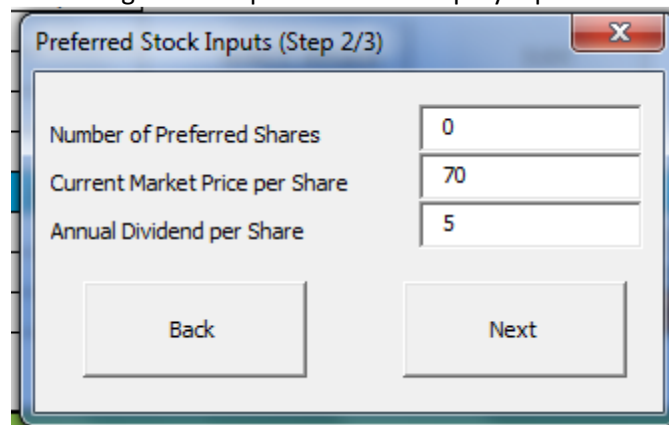
The user is prompted to enter company specific information in a three step process; information about the common stock of the firm, the preferred stock, and debt. (see Figures 7-9)

Equity Inputs (Step 1/3)

Number of Shares Outstanding	1000
Current Market Price per Share	10
Number of Warrants Outstanding	0
Current Market Price per Warrant	3
Current Beta	1.2
Riskfree Rate %	0.03
Risk Premium %	0.0485

Cancel Next

Figure 7: Step 1 – Common Equity Inputs

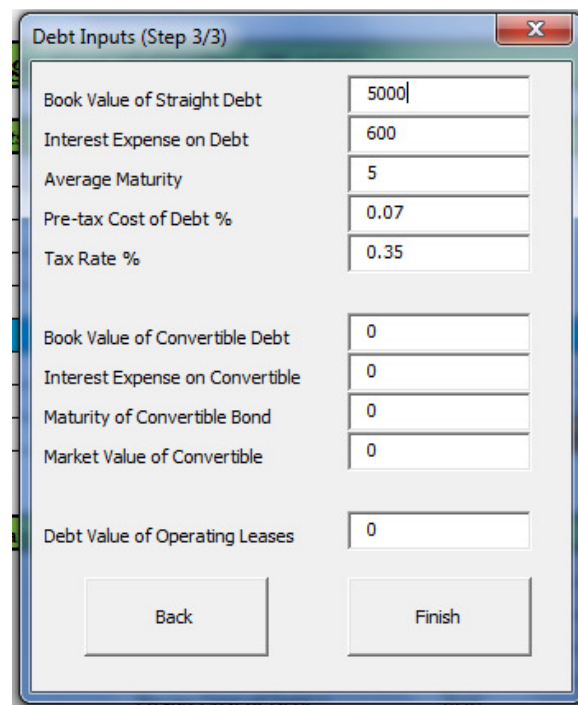


A dialog box titled "Preferred Stock Inputs (Step 2/3)" with a close button (X) in the top right corner. It contains three input fields: "Number of Preferred Shares" with value 0, "Current Market Price per Share" with value 70, and "Annual Dividend per Share" with value 5. At the bottom are "Back" and "Next" buttons.

Number of Preferred Shares	0
Current Market Price per Share	70
Annual Dividend per Share	5

Back Next

Figure 8: Step 2 - Preferred Stock Inputs



A dialog box titled "Debt Inputs (Step 3/3)" with a close button (X) in the top right corner. It contains two groups of input fields. The first group includes: "Book Value of Straight Debt" (5000), "Interest Expense on Debt" (600), "Average Maturity" (5), "Pre-tax Cost of Debt %" (0.07), and "Tax Rate %" (0.35). The second group includes: "Book Value of Convertible Debt" (0), "Interest Expense on Convertible" (0), "Maturity of Convertible Bond" (0), "Market Value of Convertible" (0), and "Debt Value of Operating Leases" (0). At the bottom are "Back" and "Finish" buttons.

Book Value of Straight Debt	5000
Interest Expense on Debt	600
Average Maturity	5
Pre-tax Cost of Debt %	0.07
Tax Rate %	0.35

Book Value of Convertible Debt	0
Interest Expense on Convertible	0
Maturity of Convertible Bond	0
Market Value of Convertible	0
Debt Value of Operating Leases	0

Back Finish

Figure 9: Step 3 - Debt Inputs

Calculating the WACC is a tedious process and this program, which takes user inputs and calculates the discount rate will be very helpful for any banker looking to calculate this important number. Users are also able to see and edit the data that they have previously entered by clicking on the EDIT button. (see Figure 10)

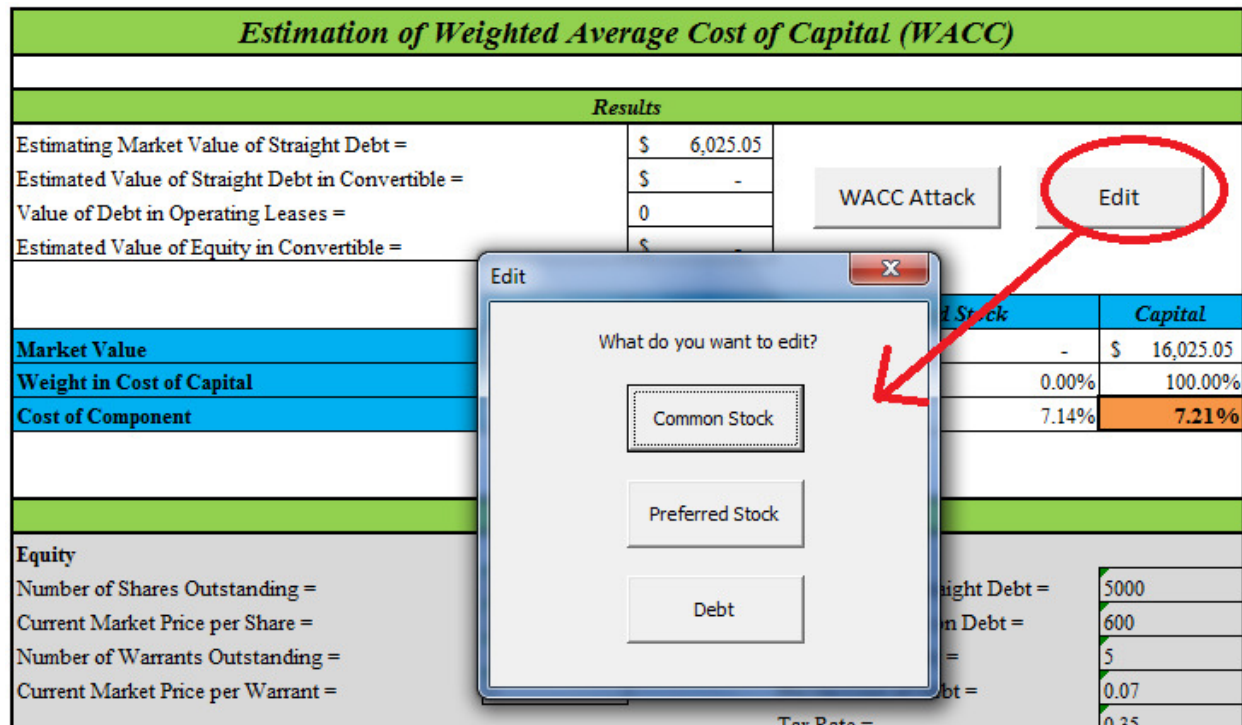


Figure 10: Edit Button Options

In conclusion, this project accomplishes exactly what I proposed plus the calculation of the WACC. I am happy with it and am confident that I will be able to actually use it in the future to calculate enterprise value for a company. I feel that this project will be something that I will be able to talk about in an interview and will be something that bankers will find very interesting.

LEARNING AND CONCEPTUAL DIFFICULTIES ENCOUNTERED

The project was a difficult one but was something that I was able to work through and accomplish by referring to things that I had done in the past. One of the things that made it difficult was knowing what exactly I needed from the Web. I decided that I would import specific parts of the page instead of the whole page and after doing so I was able to get accurate data every time.

The spreadsheet focuses specifically on companies that produce EBITDA and revenue. For example, this model would not be useful for calculating an enterprise value for a financial services company. If a user enters a ticker for a company that is not producing EBITDA there will be an error in the program and the program will simply skip that particular company.

Overall, I believe that the project was doable and was very helpful in helping me learn and feel more comfortable with Visual Basic for Applications.