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The Use of Dividends in Valuation: The Case of a Global Company

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Abstract
During the July 2015-Jan 2016 period, Apple Inc.'s shares had dropped by roughly 30% (60% in annualized terms). More recently, Apple's shares are on a bumpy track: it first went up from its January lows, and then, once again, it came down. This case focuses on Apple stock's price fluctuations and it attempts to estimate the fair value of the company's shares. It uses the dividend discount model of valuation. Students will first learn about the advantages and the disadvantages of this valuation method. Then, under different scenarios, they will use the dividend discount model to make an investment decision. Under each of these scenarios, they will first estimate the company's share value, and then compare it to the market value of the stock and then make an investment decision: Buy, hold, or sell. Apple's financial statements are provided in the case for students' use.

Keywords: financial statement analysis, valuation, dividend discount model, Apple
JEL classifications: L25, G11, G12, G15, F23

Introduction
It was Monday morning, and at Global Growth Investments, a group of analysts was working on a task: the valuation of Apple Inc.'s shares. During the July 2015-Jan 2016 period, the company's shares went down significantly. Mr. Jacobs, the chief analyst at Global Growth, asked the junior analysts to examine what was happening with Apple's shares. John Hancock and his colleagues want to start analyzing the company this week.

John, a recent graduate of a respected MBA program in the West coast, was chosen to lead the team. His objective is to present their finding next week at the weekly departmental meeting.

"Let's start working on this" he exclaimed. "Carol, have you looked at the company's financials? Do we have the statements ready?"

Carol, who has been working in the same department as John for the last six months, is glad that they will be working on this. "Yes, they are ready. They are on the table waiting for us (Exhibits 1 and 2). We can start working on this now. I think there is a lot of money to be made in this environment. The stock is going up and down like crazy".

Adam joined the conversation: "I think we can start looking at the company's dividends. Maybe we can focus on the dividends first. Then, we can look at the earnings, cash flows, competition, and other stuff".

"O.K. then. That's the plan" John responds. "Carol, how much was the drop in the stock over the last few months?"

Carol reached for a file sitting in the middle of the table. "On July 20, 2015, the stock was at $132.07. Less than six months later, on January 27, 2016, it was $93.42" Carol responded.

"So, there was like a 30% drop in the stock price over that period, which comes to roughly a 60% drop in annualized terms" Adam added.

"Wow! I can't believe this steep decline. I know the company has not offered the Iphone 7 yet, so the sales and the profits declined. But, this drop is too much in my opinion" John exclaimed.

Carol added "Yes, and I think valuing the stock correctly now is very important. Right now, lots of people are losing money in this stock".

John concludes "Guys, I will work on a few scenarios for dividends and work on Apple's valuation this afternoon. Meanwhile, you can collect other information on the company like cash flows, competition, etc. We can meet at 6 p.m. this evening to really delve into this. We can go from there. But, be ready for a long night".

"Sure. No problem for me" Carol responds.

Adam confirms "Yes, we need to hurry up. We don't want to make Mr. Jacobs mad for sure".

Apple's Recent Performance

Apple is the world's largest information technology company by revenue and the world's largest technology company by total assets.[6] It is the world's second-largest mobile phone manufacturer.[7] In November 2014, Apple became the first U.S. company to be valued at over US$700 billion.[8] As of July 2015, the firm employs 115,000 permanent full-time employees.[4]

As of March 2016, Apple has 475 retail stores in seventeen countries.[4] Apple also operates the online Apple Store and iTunes Store. The iTunes Store is currently the world's largest music retailer. As of March 2016, there are over one billion actively used Apple products worldwide.[9]

For the fiscal year ending in September 2015, Apple's worldwide annual revenue was $233 billion.[5] This is approximately 1.25% of the total United States GDP.[10] According to the 2014 edition of the Interbrand Best Global Brands report, Apple is the world's most valuable brand.[11]

Recently, however, the company's problems and its slowing sales have resulted in a sharp decline in its stock price. Apple's performance has been declining. The firm's second-quarter sales declined 13 percent to $50.6 billion from $58 billion a year earlier. That compared with an average analyst estimate of $52 billion. Its net income declined to $10.5 billion, while Iphone shipments fell 16 percent. Sales in the third quarter, which ends in June, will be $41 billion to $43 billion. On average, analysts estimated revenue of $47.4 billion. [1]

Bloomberg reports that "Apple Inc.'s streak of 51 consecutive quarters of uninterrupted sales growth is over -- and its expansion may not resume until late this year. A boom in demand for smartphones, music players and other electronic devices propelled Apple's annual revenue by $227 billion in the 13 years since the last quarterly drop, resulting in a skyrocketing stock price that made Apple the world's most valuable company. That era of untrammeled expansion hit a wall in the quarter that ended in March as fewer people upgraded to the latest iPhones, and the company is predicting another decline in the current period. [1]

Bloomberg report adds that "With the introduction of a new model still months away, Apple investors are seeking answers on whether lackluster sales of the device, the company's biggest revenue generator, reflect a broader slowdown in the market for high-end smartphones -- or just the pause before the next upgrade frenzy. Forecasts from suppliers such as Qualcomm Inc. and Taiwan Semiconductor Manufacturing Co. have suggested demand is cooling, and stalled economic growth in China is paring Apple's sales in that region". [1]

Iphones constitute most of the firm's revenues and this is a problem because now some of the analysts are expecting to see people hold onto their smartphones longer, just like it happened with PCs.

Legendary investor Carl Icahn just recently sold all of his shares in the company. Deutsche Welle reported that "Shares in the US tech giant have extended losses, which were caused by weaker-than-expected quarterly results but were aggravated after investor tycoon Carl Icahn said he had sold his entire stake in the company". [2]

USA Today recently reported that "Apple's streak of iPhone-powered sales ended Tuesday (April 26) when the company reported its first quarterly sales drop in more than a decade". The newspaper added "The news sent Apple's (AAPL) stock into a tailspin with shares plunging 6.5% to $97.55 in late trading Wednesday". [3]

The Two-Stage Dividend Growth Model (Supernormal Growth Model)

John wants to use the two-stage dividend growth model to estimate the value of Apple shares. He has prepared some notes on this model. He wrote:

"With the supernormal growth model, we assume that the dividends will grow at a faster rate in the near future, and then at a lower rate after that. To estimate the value of the stock, we use the following formula (assuming a 2 year initial growth period as an example):

$$P = (D_0*(1+g_1))/(1+r) + (D_0*(1+g_1)^2)/(1+r)^2 + CV/(1+r)^2$$

$$\text{Where CV = Continuing Value} = (D_0*(1+g_1)^2*(1+g_2))/(r-g_2)$$

where P is the value estimate, D0 is the current (most recent) dividend amount, r is the cost of common stock (or the required return by the shareholders), g1 is the initial growth rate, and g2 is the second growth rate".

The Big Decision

John has collected some data on the firm from Yahoo finance as shown below:

The expected annual growth by the analysts for Apple for the next 5 years: 11.63%
The expected annual growth by the analysts for the industry for the next 5 years: 11.44%
The expected annual growth rate by the analysts for the whole market (S&P500): 5.28%
The most recent closing price for the stock: $109.85 (April 15, 2016)

He also gathered the financial statements for the company (Exhibits 1 and 2). He wants to use the two-stage dividend growth model to estimate the value of Apple shares. He wants a 15% annual return from the Apple stock.

John used the dividend discount formula to estimate the analysts' expected return from the Apple stock:

$$r = (D_1/P) + g$$

Since the last dividend paid was \$1.98 (Exhibit 1), he took it as D_0. To find the next dividend (D_1), he just multiplied \$1.98 by (1+analyst expected growth for Apple) which is 1.1163.

So, he found that $D_1 = (1.98)*(1.1163) = \$2.21$

Then, he computed the analysts' expected return from the stock as shown below:

$r = (2.21/109.85) + 0.1163 = 0.1364 = 13.64\%/\text{year}$

Therefore, he estimated that the analysts, on average, expect 13.64% return each year from the Apple stock.

Then, he proceeds with the valuation of the stock under different scenarios. John wants to answer the following questions:

1. If John desires a 15% annual return, and if he assumes that Apple's dividends will grow by its historical rate (i.e. the average growth in the last 2 years) each year for the next 5 years, and then by the analyst expected growth rate for the whole market (i.e. S&P500) each year after that forever, what would be the value of an Apple share? The stock closed at $109.85 on April 15, 2016. What would be his investment decision in that case? Buy, hold, or sell?

2. If John goes with the analyst expectations and use the 13.64% required return by the analysts (as computed above) and if he assumes that Apple's dividends will grow by 11.63% per year for the first five years (as analysts expect for the next 5 years) and then by 11.44% per year (as analysts expect for the industry as a whole) after the fifth year forever, what would be the value of an Apple share? What would be his investment decision in that case? Buy, hold, or sell?

3. If instead of comparing value to price, let's assume that John wants to compare his required return (i.e. 15%) to the expected return in this investment. The average Apple investor's required return can be found by entering the most recent share price (i.e. $109.85) and the expected dividends into the equation. Again, John is assuming that Apple's dividends will grow by 11.63% per year for the first five years (as analysts expect for the next 5 years) and then by 11.44% per year (as analysts expect for the industry as a whole) after the fifth year forever. In the end, should John invest in this stock? If there is another investor with a 10% required return, would this be a good investment?

Exhibit 1: Apple's Annual Income Statement Data

Consolidated Statements of Operations
(In millions, except number of shares which are reflected in thousands and per share amounts)

	Years ended September 26, 2015	**September 27, 2014**	**September 28, 2013**
Net sales	$ 233,715	$ 182,795	$ 170,910
Cost of sales	140,089	112,258	106,606
Gross margin	93,626	70,537	64,304
Operating expenses:			
Research and development	8,067	6,041	4,475
Selling, general and administrative	14,329	11,993	10,830
Total operating expenses	22,396	18,034	15,305
Operating income	71,230	52,503	48,999
Other income/(expense), net	1,285	980	1,156
Income before provision for income taxes	72,515	53,483	50,155
Provision for income taxes	19,121	13,973	13,118
Net income	$ 53,394	$ 39,510	$ 37,037
Earnings per share:			
Basic	$ 9.28	$ 6.49	$ 5.72
Diluted	$ 9.22	$ 6.45	$ 5.68
Shares used in computing earnings per share:			
Basic	5,753,421	6,085,572	6,477,320
Diluted	5,793,069	6,122,663	6,521,634
Cash dividends declared per share	$ 1.98	$ 1.82	$ 1.64

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Exhibit 2: Apple's Annual Balance Sheet Data

Consolidated Balance Sheets
(In millions, except number of shares which are reflected in thousands and par value)

	September 26, 2015	September 27, 2014
Assets:		
Current assets:		
Cash and cash equivalents	$ 21,120	$ 13,844
Short-term marketable securities	20,481	11,233
Accounts receivable, less allowances of $82 and $86, respectively	16,849	17,460
Inventories	2,349	2,111
Deferred tax assets	5,546	4,318
Vendor non-trade receivables	13,494	9,759
Other current assets	9,539	9,806
Total current assets	89,378	68,531
Long-term marketable securities	164,065	130,162
Property, plant and equipment, net	22,471	20,624
Goodwill	5,116	4,616
Acquired intangible assets, net	3,893	4,142
Other assets	5,556	3,764
Total assets	$ 290,479	$ 231,839
Liabilities and Shareholders' Equity:		
Current liabilities:		
Accounts payable	$ 35,490	$ 30,196
Accrued expenses	25,181	18,453
Deferred revenue	8,940	8,491
Commercial paper	8,499	6,308
Current portion of long-term debt	2,500	0
Total current liabilities	80,610	63,448
Deferred revenue, non-current	3,624	3,031
Long-term debt	53,463	28,987
Other non-current liabilities	33,427	24,826
Total liabilities	171,124	120,292
Commitments and contingencies		
Shareholders' equity:		
Common stock and additional paid-in capital, $0.00001 par value: 12,600,000 shares authorized; 5,578,753	27,416	23,313

and 5,866,161 shares issued and outstanding, respectively		
Retained earnings	92,284	87,152
Accumulated other comprehensive income	(345)	1,082
Total shareholders' equity	119,355	111,547
Total liabilities and shareholders' equity	$ 290,479	$ 231,839

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