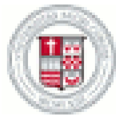

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A Teaching Note on the Treatment of Noncontrolling Interests in Financial Analysis, Cost of Capital and Valuation: A Case Study of Verizon communications

Bridget Lyons[1]
Sacred Heart University

A noncontrolling interest (NCI) arises when a firm fully consolidates subsidiaries that are not wholly owned by the parent. The existence of a noncontrolling interest complicates financial analysis and valuation. Failure to appropriately consider the NCI may lead to errors in equity valuation and share price since the NCI impacts equity value and implied share price of the parent firm. Return on equity calculations must be carefully constructed as there are several net income and equity values reported. Finally, the NCI can impact the weighted average cost of capital. Verizon Communications was selected as a case study based on the large noncontrolling stake of Vodafone in Verizon Wireless. This teaching note could be used in undergraduate and graduate level finance courses on financial analysis, investments, valuation or intermediate corporate finance.

INTRODUCTION

When developing consolidated financial statements under US Generally Accepted Accounting Principles (GAAP), firms are required to fully consolidate subsidiaries that are not wholly owned by the parent. While many firms do not have significant noncontrolling interests, there are firms and sectors where the NCI is fairly large in relation to total equity and can therefore have a significant impact on financial ratios, cost of capital and valuation. In this paper we suggest appropriate treatment of noncontrolling interests in financial analysis, weighted average cost of capital and enterprise and equity valuation. Verizon Communications was selected as a case study based on the large noncontrolling stake of Vodafone in Verizon Wireless.

Prior literature on noncontrolling interest, formerly referred to as minority interest, has focused on the changes in accounting following Statement of Financial Accounting Standards (SFAS) 160, accounting for business combinations with NCI,

fiduciary responsibilities to minority shareholders and the valuation of a control premium. Following the publication of SFAS 160 a number of papers examined the expected impact of the standard including Bahnson, McAllister and Miller (2008), and Frankel, Lee and McClaughlin (2010). The Bahnson et al. paper describes the supplemental disclosures required and analyzes the impact of the accounting change on accounting for acquisitions. Frankel et al. consider the costs and benefits associated with the accounting change and find a wealth transfer from bondholders to stockholders. There have also been prior cases published on the topic, for example Scofield (1997) considers minority interest using Alcoa as an example to demonstrate accounting for consolidated enterprises under the economic unit, parent company and proportionate concepts. The value of control is considered in Coates (1999) which focuses on the law covering the valuation of minority discounts in a transaction context.

ASSIGNMENT

A common assignment in an upper level undergraduate course in finance or in an MBA course is to conduct financial analysis, determine weighted average cost of capital or value the equity and implied share price of a firm. One complication for such tasks is the existence of a noncontrolling interest (NCI).

> Discussion Point
>
> Ask the class to analyze Verizon Communications. Verizon Communications owns 55% of Verizon Wireless while Vodafone owns the other 45%. Ask the class to find the Verizon's return on equity, cost of capital and/or equity value. Should the Vodafone stake in Verizon Wireless impact these metrics? If so, how? If not, why not?

OVERVIEW OF NONCONTROLLING INTERESTS

It is not unusual for a large firm to have ownership stakes in other firms. The size of the ownership may range from a very small percentage of ownership to 100% ownership. Under US GAAP, consolidated financial statements are prepared so that all subsidiaries that the parent "controls" are fully consolidated. While the percent ownership to exert "control", as defined under GAAP, may vary, depending for example on voting rights, for simplicity here we will think of control as when the firm owns 50% or more of the subsidiary. In such cases, 100% of income and expenses of the subsidiaries are consolidated and reported in the consolidated income statement (less intercompany transactions). Likewise, 100% of assets and liabilities are reflected in the balance sheets. The ownership interest in subsidiaries held by parties other than the parent has historically been called minority interest

and was typically displayed on the balance sheet either in liabilities or between liabilities and equity. On the income statement, the minority interest share of income was often shown as an expense.

To illustrate the concept let's assume that Firm A owns 100% of Firm B, 80% of Firm C, 60% of Firm D and 20% of Firm E. When preparing consolidated financial statements, Firm A will consolidate 100% of Firms B, C and D (assuming control). This makes sense for Firm B since Firm A owns 100%. However, Firm A does not own 100% of Firms C and D. Still, under US GAAP Firm A will consolidate 100% of the results of Firms C and D since it controls these firms and so reports all profits for the group. The financial statements note the interests of the other owners in Firms C and D as minority interest (pre SFAS 160) or noncontrolling interest (post SFAS 160). Firm E is not consolidated since the ownership does not represent control.

Key Features of SFAS 160

SFAS 160, Noncontrolling Interests in Consolidated Financial Statements, effective for reporting in 2009, addresses the accounting for noncontrolling interests in a subsidiary and for the deconsolidation of a subsidiary. The standard requires that the ownership interests in subsidiaries held by parties other than the parent be clearly identified, labeled and presented on the equity section of the balance sheet. In the past these interests were often referred to as minority interest and were displayed in either the liability section of the balance sheet or between the liability and equity sections. Under SFAS 160, the amount of consolidated net income attributable to the NCI must be clearly presented on the income statement, and as well the income attributable to the parent must be shown. Prior to SFAS 160 income attributable to the NCI could be shown as an expense or deduction. SFAS 160 aligns the accounting for NCI more closely with the reporting by firms reporting under International Financial Reporting Standards (IFRS).

IMPLICATIONS FOR FINANCIAL ANALYSIS, VALUATION AND CAPITAL COSTS

In my experience as a banker and consultant, noncontrolling interest is an item that has puzzled more than a few analysts and investors and when not dealt with appropriately leads to errors in financial analysis and valuation. A sound understanding of the issue is also required when structuring loans and bond covenants. Here we consider the implications of noncontrolling interest on:

Financial analysis
Valuation
Weighted average cost of capital calculations

Case Study: Verizon Communications

Verizon Communications has been selected to highlight the issues associated with noncontrolling interests because the firm has a very significant NCI. Verizon Communications owns 55% of Verizon Wireless while Vodafone owns the other 45%. This represents over 98% of the NCI reflected on Verizon's financial statements (see Appendix for Note on NCI). Throughout we refer to the NCI as Verizon Wireless but there is 2% of the NCI related to other wireless partnerships. Excerpts of financial statements from Verizon showing NCI are included in the appendices.

Financial Analysis

Discussion Point

Ask the class to find the return on equity for Verizon Communications.

In order to perform financial analysis it is important to take care with NCIs when calculating ratios such as the Market to Book value of Equity, Total liabilities to Equity and Return on Equity.

Take-away # 1

Total book value of equity includes any noncontrolling interest, market value (market capitalization) does not.

Market/Book Value of Equity

The market to book equity ratio is meaningless unless calculated carefully. The ***market value of equity will exclude value associated with NCI*** since shareholders of the parent pay only for the parts of the subsidiaries that are owned and will not pay for the interests owned by other parties. However, if total equity from the balance sheet is used for the ***book value of equity it will include NCI***. Meaningful comparison requires that the NCI must be excluded from the book value of equity so that the ratio is market to book value of controlling equity only.

Total Liabilities to Equity

When calculating total liabilities to equity ratios use total equity (including NCI) since the liabilities represent the total liabilities of the group, including 100% of any liabilities related to noncontrolled interests.

Table 1. Select Ratios of Verizon Communications

Verizon - $ millions except per share data	**2011**	**2010**	**2009**
Share price at year end	$37.17	$33.36	$31.59
Diluted shares outstanding year end	2,839	2,833	2,841
Market value of equity	105,526	94,509	89,747
Book value of equity - total from balance sheet	85,908	86,912	84,367
Non-controlled interest - from balance sheet	49,938	48,343	42,761
Book value of equity - excluding noncontrolled	35,970	38,569	41,606
Market to Book Value of equity- excluding noncontrolled	***2.93***	***2.45***	***2.16***
Net income - total	10,198	10,217	11,601
Net income NCI	7,794	7,668	6,707
Net income - controlled only	2,404	2,549	4,894
ROE - total income & total equity	***11.9%***	***11.8%***	***13.8%***
ROE - controlled income & equity	***6.7%***	***6.6%***	***11.8%***
ROE - NCI income & equity	***15.6%***	***15.9%***	***15.7%***
Total debt	55,152	52,794	62,256
Total liabilities	144,553	133,093	142,884
Liabilities to Equity	***1.68***	***1.53***	***1.69***

Return on Equity

Care must be taken to calculate return on equity so that the numerators and denominators are consistent. Either use total net income and total equity which both include the noncontrolled interest or use net income attributable to parent and equity of parent (after deducting NCI). Table 1 below shows that the method selected can have a significant impact.

Valuation

Discussion Point

Tell the class that you have estimated the enterprise value (EV) of Verizon and want to find the implied value of the firm's equity. What items will you have to adjust for to convert from enterprise value to equity value?

Enterprise value is the value of the firm and includes the value of all capital components including not just equity but also net debt and preferred stock. An important consideration in valuation is how to find implied equity value from a calculation of enterprise value. Here it is critical to treat the noncontrolling interest appropriately.

If Enterprise value has been estimated using a discounted cash flow approach

or through application of a multiple of earnings before interest and taxes (EBIT) or earnings before interest, taxes, depreciation and amortization (EBITDA), then the enterprise value will most likely include the value of the noncontrolled interests. This occurs when, as is typical, EBIT and EBITDA reflect operating earnings from all consolidated subsidiaries. This should be verified. In a discounted cash flow valuation, typically the free cash flow calculation includes 100% of the free cash flow from all consolidated subsidiaries. Therefore the resulting enterprise value includes the TOTAL value of the enterprise including the value attributable to the minority or noncontrolling interests. Likewise, if enterprise value was estimated using an EBIT or EBITDA multiple where EBIT includes 100% of the earnings from all consolidated subsidiaries, then the TOTAL value of the enterprise includes the value attributable to the minority or noncontrolling interests. In such cases, when moving from enterprise value to equity value the value of the minority interest must be deducted.

Equity Value = Enterprise Value + Cash - Debt - Preferred Stock (1)
- Noncontrolling Interest +/- Other adjustments

An important consideration is ***how to value the noncontrolling interest***. Several common approaches are detailed below.

1. Estimate value of NCI at its book value

2. Estimate value of NCI by applying the Market/Book value of equity multiple of the parent. This approach assumes that the NCI should be valued at the same multiple. If this multiple is not appropriate because the subsidiary related to the NCI has a higher(lower) expected growth rate or better(worse) margin, for example, it may be adjusted up(down) accordingly.

3. Estimate value of NCI using a P/E multiple applied to the earnings of the noncontrolling interest. This approach assumes that we can identify an appropriate P/E multiple. This may or may not be the P/E multiple of the parent. As above, the multiple may be adjusted to reflect differences between the parent and the subsidiary related to the NCI.

In a case like Verizon where the NCI is a significant portion of total value, consider valuing the subsidiary separately using a sum of the parts approach. To do so in this example, a discounted cash flow (DCF) valuation of Verizon Wireless could be developed separately from the DCF of the rest of Verizon and then the total enterprise value is derived by summing the value of the parts.

Take-away # 2: Share price of the parent firm should reflect only the stake of subsidiaries owned by the shareholders of the parent

- If NCI is ignored the equity will be overvalued.
- If book value is deducted to move from enterprise value to equity value, and the book value is less than market value then NCI will be undervalued and therefore equity will be overvalued

Table 2. Verizon Communications: Valuation of Noncontrolling Interest

Verizon - $ millions except per share data	2011	2010	2009
Approach 1 - Book value			
Value - Noncontrolled interest - from balance sheet	49,938	48,343	42,761
Approach 2 - Apply Market/Book value multiple*			
Multiple for Verizon has averaged about 2	2	2	2
Value - Noncontrolled interest - from Mkt/Book multiple	99,876	96,686	85,522
Approach 3 - Apply P/E multiple*			
Multiple for Industry = 12	12	12	12
Non-controlled income	7,794	7,668	6,707
Value - Noncontrolled interest - from P/E multiple	93,528	92,016	80,484

Table 2 illustrates how the noncontrolling interests in Verizon may be valued. The approaches lead to different valuations of the noncontrolling stakes but the key take-away is that implied share price must reflect only the stake owned by the shareholders in the parent so the value of subsidiaries reflected in the share price must only include the share owned by the shareholders of the parent firm. Failure to deduct an appropriate value for the NCI leads to an overvaluation of equity in the parent firm. Note that the multiple applied may be adjusted to reflect operating and liquidity factors.

Weighted Average Cost of Capital

Discussion Point

Ask the class to consider the components of the weighted average cost of capital (WACC) of Verizon Communications.

Most practitioners do not include noncontrolled interests in weighted average cost of capital (WACC) calculations. Consider why. Assuming no preferred stock,

$$WACC = \%Debt * \text{Cost of Debt after tax} + \%Equity * \text{Cost of Equity} \quad (2)$$

When determining the amount of debt and equity, market values are used for equity. But recall, the market value of equity of Verizon does not include the NCI. This means that the capital provided by the NCI is not included in the capital structure even though this may be a significant source of capital to the firm. For

firms with significant NCIs this can lead to inaccurate results. Since equity has been provided to the subsidiaries and has been used to provide capital to the enterprise, NCIs should be included as a source of capital. For many firms the value of the NCI is not significant so the impact on WACC is also insignificant. But for some firms, including Verizon, the NCI provides a significant amount of total capital. In such cases, an accurate estimate of the WACC requires including the noncontrolled interests.

Here we first consider the sources of capital assuming the NCI is ignored. Then in Cases 2, 3 and 4 we use the 3 approaches to valuing NCI from the prior section and examine the sources of capital that would be included in a WACC calculation. The take-away here is that ignoring NCI in the WACC calculation may lead to an inaccurate measure of capital costs. Table 3 shows that debt is 34% of the capital structure in 2011 when NCI is ignored but debt drops to between 21 - 26% (depending on the valuation method used) when NCI is included as a source of capital. This could have a significant impact on WACC and therefore capital budgeting analysis and enterprise and equity valuation. It is particularly important since ignoring the NCI will typically lead to lower equity percentages and therefore a lower and inaccurate WACC estimate. This in turn implies that valuations are biased upward and projects may be undertaken that do not generate a return in excess of the cost of funds.

> Take-away # 3:
>
> If there is a significant noncontrolling interest, ignoring the NCI in the WACC calculation will lead to underestimating the weight of equity and therefore underestimating the WACC.

In a valuation, if the NCI is ignored in both the estimation of equity and the WACC calculation there may be a significant overvaluation of equity and implied share price since each error positively impacts the equity value.

> Apply it:
>
> As an example, assume a risk free rate of 2.5%, an equity risk premium of 7%, an after tax cost of debt after tax of 3.5% and a beta for Verizon of .45

In our example above, debt comprises as little as 21% and as much as 34% of total capital. Here are the WACC calculations using these values.

The cost of equity = .025 + .07 * .45 or approximately 5.65%.
At 23% debt, WACC = .23*.035 + .77*.0565 = 5.2%
At 34% debt, WACC = .34*.035 + .66 * .0565 = 4.9%

Table 3. Verizon Weighted Average Cost of Capital Components

Verizon - $ millions except per share data	2011	2010	2009
Case 1 - NCI ignored in WACC			
Total Debt	55,152	52,794	62,256
Mkt value of equity	105,526	94,509	89,747
Total capital for WACC calculation	**160,678**	**147,303**	**152,003**
VZ Equity - % of capital	***65.7%***	***64.2%***	***59.0%***
Debt - % of capital	***34.3%***	***35.8%***	***41.0%***
Case 2 - NCI at BV in WACC			
Book value of noncontrolled interest	49,938	48,343	42,761
Total capital including noncontrolled interest at BV	**210,616**	**195,646**	**194,764**
VZ Equity - % of capital	*50.1%*	*48.3%*	*46.1%*
NCI Equity- % of capital	*23.7%*	*24.7%*	*22.0%*
Total equity - % of capital	***73.8%***	***73.0%***	***68.0%***
Debt - % of capital	***26.2%***	***27.0%***	***32.0%***
Case 3 - NCI at MV from MV/BV ratio in WACC			
Verizon MV/BV to estimate NCI - about 2	**2.0**	**2.0**	**2.0**
Market value of Noncontrolled interest	99,876	96,686	85,522
Total capital including noncontrolled interest at MV	**260,554**	**243,989**	**237,525**
VZ Equity - % of capital	*40.5%*	*38.7%*	*37.8%*
NCI Equity- % of capital	*38.3%*	*39.6%*	*36.0%*
Total equity - % of capital	***78.8%***	***78.4%***	***73.8%***
Debt - % of capital	***21.2%***	***21.6%***	***26.2%***
Case 4 - NCI at MV from P/E in WACC			
PE to apply to noncontrolled income	**12.0**	**12.0**	**12.0**
Non-controlled income	7,794	7,668	6,707
Market value of Noncontrolled interest	93,528	92,016	80,484
Total capital including noncontrolled interest at MV	254,206	239,319	232,487
VZ Equity - % of capital	*41.5%*	*39.5%*	*38.6%*
NCI Equity- % of capital	*36.8%*	*38.4%*	*34.6%*
Total equity - % of capital	***78.3%***	***77.9%***	***73.2%***
Debt - % of capital	***21.7%***	***22.1%***	***26.8%***

Discussion Point:

Does a 30 basis point change in the WACC estimate significantly impact valuation?

While the difference in WACCs may seem small at 30 basis points, the impact on valuation can be significant. To get an idea of the magnitude, let’s look at a simple constant growth calculation.

Let's look at valuing a constant growth firm with estimated free cash flow next year of $100 and a long run constant rate of growth of 3%. Value the firm using a WACC of 5.2% and then revalue with a WACC of 4.9%. The results follow.

$\$4{,}546 = 100/(0.052-0.03)$
$\$5{,}263 = 100/(0.049-0.03)$

Note the valuation using more debt is over 15% higher.

CONCLUSION

Some firms have significant noncontrolling interests arising from the consolidation of subsidiaries that are not wholly owned. The NCI impacts financial ratios, valuation and capital costs. It is essential that care is taken to select the appropriate equity and net income values when calculating ratios such as market to book value of equity, return on equity and liabilities to equity. Further, when determining implied equity value from an enterprise value calculation, it is important to deduct the value of the noncontrolled interest. Valuing the NCI at book value for this purpose can lead to an over valuation of equity when the market value of the NCI exceeds the book value. Finally, if a significant portion of capital accrues from noncontrolled interests, then ignoring this component of capital may lead to an inaccurate estimate of the WACC.

ENDNOTE

[1] I am most appreciative of feedback and comments from the 2012 meetings of the Financial Education Association.

REFERENCES

Bahnson, P. R., B. P. McAllister, P. Miller, 2008. Noncontrolling interest: much more than a name change: new consolidation rules for partially owned affiliates: FASB 160, *The Free Library* (01 November), Retrieved from http://www.thefreelibrary.com/ Noncontrolling interest: much more than a name change: new...-a0188422841.

Coates, John C. IV, 1999. Fair Value as an Avoidable Rule of Corporate Law: Minority Discounts in Conflict Transactions, *University of Pennsylvania Law Review* 147 (6), 1251-1359.

Frankel, R. M., J. A. Lee and M. McClaughlin, 2010. The Impact of SFAS 160: An Investigation of the Economic Consequences of the Reclassification of Minority Interest (February 12). Retrieved from http://ssrn.com/abstract=1557805 .

Scofield, Barbara, 1997. Alcoa: Toward Understanding Minority Interest, *Case Journal of Accounting Education* 14 (4), 579-606.

APPENDIX

VERIZON COMMUNICATION FINANCIAL STATEMENT ABSTRACTS

CONSOLIDATED STATEMENTS OF INCOME

		(dollars in millions, except per share amounts)	
Years Ended December 31,	**2011**	2010	2009
Operating Revenues	**$ 110,875**	$ 106,565	$ 107,808
Operating Expenses			
Cost of services and sales (exclusive of items shown below)	**45,875**	44,149	44,579
Selling, general and administrative expense	**35,624**	31,366	30,717
Depreciation and amortization expense	**16,496**	16,405	16,534
Total Operating Expenses	**97,995**	91,920	91,830
Operating Income	**12,880**	14,645	15,978
Equity in earnings of unconsolidated businesses	**444**	508	553
Other income and (expense), net	**(14)**	54	91
Interest expense	**(2,827)**	(2,523)	(3,102)
Income Before Provision For Income Taxes	**10,483**	12,684	13,520
Provision for income taxes	**(285)**	(2,467)	(1,919)
Net Income	**$ 10,198**	$ 10,217	$ 11,601
Net income attributable to noncontrolling interest	**$ 7,794**	$ 7,668	$ 6,707
Net income attributable to Verizon	**2,404**	2,549	4,894
Net Income	**$ 10,198**	$ 10,217	$ 11,601

APPENDIX

VERIZON COMMUNICATION FINANCIAL STATEMENT ABSTRACTS

Liabilities and Equity		
Current liabilities		
Debt maturing within one year	**$ 4,849**	$ 7,542
Accounts payable and accrued liabilities	**14,689**	15,702
Other	**11,223**	7,353
Total current liabilities	**30,761**	30,597
Long-term debt	**50,303**	45,252
Employee benefit obligations	**32,957**	28,164
Deferred income taxes	**25,060**	22,818
Other liabilities	**5,472**	6,262
Equity		
Series preferred stock ($.10 par value; none issued)	**-**	-
Common stock ($.10 par value; 2,967,610,119 shares issued in both periods)	**297**	297
Contributed capital	**37,919**	37,922
Reinvested earnings	**1,179**	4,368
Accumulated other comprehensive income	**1,269**	1,049
Common stock in treasury, at cost	**(5,002)**	(5,267)
Deferred compensation – employee stock ownership plans and other	**308**	200
Noncontrolling interest	**49,938**	48,343
Total equity	**85,908**	86,912
Total liabilities and equity	**$ 230,461**	$ 220,005

See Notes to Consolidated Financial Statements

APPENDIX

VERIZON COMMUNICATION NOTE ON NCI

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 6

NONCONTROLLING INTEREST

Noncontrolling interests in equity of subsidiaries were as follows:

		(dollars in millions)
At December 31,	**2011**	2010
Noncontrolling interests in consolidated subsidiaries:		
Verizon Wireless	**$ 49,165**	$ 47,557
Wireless partnerships	**773**	786
	$ 49,938	$ 48,343

Wireless Joint Venture
Our Verizon Wireless segment, Cellco Partnership doing business as Verizon Wireless (Verizon Wireless) is a joint venture formed in April 2000 by the combination of the U.S. wireless operations and interests of Verizon and Vodafone. Verizon owns a controlling 55% interest in Verizon Wireless and Vodafone owns the remaining 45%.

In July 2011, the Board of Representatives of Verizon Wireless declared a distribution to its owners, payable on January 31, 2012 in proportion to their partnership interests on that date, in the aggregate amount of $10 billion. As a result, during January 2012, Vodafone Group Plc received a cash payment of $4.5 billion and the remainder of the distribution was received by Verizon.