

## Stock buyback programs and ratio analysis: A case study

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### ABSTRACT

This case study focuses on two virtually identical highly profitable firms. Each firm takes a different approach to provide returns to its shareholders. One firm chooses to issue dividends and the other firm chooses to initiate a share repurchase program. Even though the firms are very much similar in terms of size, industry, operations, and profitability, their different approaches returning profits to shareholders leads to dramatically different looking balance sheets, and thus to very different looking ratios. Students must examine the firms' financial statements, perform ratio analysis, and then reconcile the divergent results generated by similar firms.

Keywords: corporate profits, ratio analysis, stock buyback, stock repurchase, treasury stock, accounting and finance education



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## INTRODUCTION

The repurchase of common stock on the open market creates a reduction in the available supply of common shares, and the price of the shares remaining in the market increases. Therefore, the repurchase of common stock results in the return of corporate profits to the common shareholders. Similarly, the issuance of dividends, more directly, results in the return of corporate profits to the common shareholders.

In introductory accounting courses, the focus on explaining the more direct treatment: When successful, corporations make profits. Corporations return those profits to their shareholders through the issuance of dividends (Franklin, Graybeal, & Cooper, 2019, pp. 879-881).

Stock buyback programs, however, have been playing an increasing role in corporate financial strategy. Stock buyback programs, however, now play an increasing role in corporate financial strategy. For example, of the \$1.2 trillion in cash returned to stockholders by the S&P 500 in 2018, two-thirds came in the form of stock buybacks, and only one-third was in the form of dividends (Waldock & Zingales, 2019, para 46). When dividends are paid, once they are issued, they do not appear on the corporate balance sheet. However, when stock buyback programs are employed, a negative equity entry titled “Treasury Stock” is created and appears in the Stockholders’ Equity portion of the Balance Sheet.

Treasury Stock entries are recorded at historical cost, as were the initial entries for the sale of common stock (and any associated paid-in-capital-in-excess-of-par). It is important to note, however, that the market value of the stock will generally have risen significantly in the intervening years between initial issuance and repurchase. Thus the (historical) dollar value of a relatively small number of shares in Treasury Stock can often be higher than the (historical) dollar value represented by the issuance of the entirety of the corporation’s common shares.

Higher Treasury Stock values can lead, in turn, to significant impacts on the resulting character of the balance sheet. If a corporation has engaged in a substantial common stock buyback program, the total value of Stockholders’ Equity portion of the Balance Sheet may be substantially reduced (see Table 1 in the Appendix for the example of General Electric), or even become negative (see Table 2 in the Appendix for the example of Choice Hotels International).

When students are exposed to introductory accounting principles and encounter the techniques and recommended interpretations of ratio analysis, the examples shown usually assume that the corporation has not engaged in significant Treasury Stock transactions. Accordingly, the Balance Sheets analyzed will contain values within a normal range, and the associated ratios will follow suit. However, when significant Treasury Stock transactions are in play, as is increasingly the actual case, Balance Sheets can contain non-standard characteristics, and any resulting ratio analysis will therefore be substantially different than occurs in the standard case.

In this case study, students are asked to perform a ratio analysis on each of two firms showing strikingly similar Income Statements but dramatically differing Balance Sheets. Students are then asked to evaluate the divergent results of the resulting ratio analyses. The case study can also serve as an entry point to consideration of the public policy debates around the social and economic implications of stock buyback programs (Murphy, 2012; Lazonick, 2014; Edmans, 2017; Schumer & Sanders, 2019; Lazonick, Saking & Hopkins, 2020).

## CASE SCENARIO<sup>1</sup>

In its second year of operations, the Dividend (DIV) Corporation, a small consulting services firm, generated \$30 million in pre-tax net income. By a remarkable coincidence, the Stock Buy Back (SBB) Corporation, a competitor operating in the same region and same industry, reported identical performance during Year 2. The Board of Directors of each company is firmly committed to an approach of maximizing shareholder wealth and this philosophy guides each of their respective decision-making processes.

Management of DIV Corporation reported that they could not find any potential capital investments to undertake that would project the generation of a positive net present value, and so they recommended maximizing shareholder wealth by returning value to the shareholders through the issuance of a \$10 million dividend, just slightly over 40% of after-tax net income. The Board of DIV Corporation accepted this recommendation.

By a remarkable coincidence, the management of SBB Corporation reported that they also could not find any potential capital investments to undertake that would project the generation of a positive net present value. However, by contrast, they recommended maximizing shareholder wealth by returning the net income to the shareholders through a common stock repurchase program. The Board of SBB Corporation accepted this recommendation. The specific authorization made by the SBB Board was for SBB Corporation to repurchase 220,000 shares of common stock at the current market price of \$250/share.

To facilitate the analysis, some simplifying assumptions have been made. First, all financial results were available in real-time just before year-end. Accordingly, the Boards were able to make decisions and have those decisions implemented in real-time before year-end, thus allowing for inclusion in the Year 2 financial statements. Second, the market price of SBB Corporation shares appreciated substantially between issuance and repurchase. While this is an unrealistic assumption in terms of the time frame of the case scenario, it is not unrealistic in the case of stock repurchase programs more generally. Third, SBB Corporation was able to acquire an extremely large number of shares on the open market without changing the market price. SBB Corporation completed its entire stock buyback program in a single year; this likely would have been accomplished over a longer time period in a real-world scenario. Finally, in order to more specifically address the divergent impacts of the actions taken in Year 2, Return on Assets (ROA) should be calculated using Total Assets rather than Average Total Assets and Return on Equity (ROE) should be calculated using Total Shareholders' Equity rather than Average Total Shareholders' Equity.

The case data for DIV Corporation is shown in Tables 3 and 4 in the Appendix. The case data for SBB Corporation is shown in Tables 5 and 6 in the Appendix.

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<sup>1</sup> This is a fictitious case. All information contained herein was fabricated by the author. Any similarity contained herein to actual persons, businesses, events, etc. is purely coincidental and is the responsibility of the author. Please contact the case author directly with any concerns.

**QUESTIONS FOR ANALYSIS**

1. Using the data in Tables 3 and 4, compute the following ratios for the DIV Corporation for Year 2.

Liquidity Ratios -

Current Ratio

Quick Ratio

Debt Management Ratios -

Debt to Assets Ratio

Debt to Equity Ratio

Profitability Ratios -

Profit Margin

Return on Assets

Return on Equity

2. Using the data in Tables 5 and 6, compute the following ratios for the SBB Corporation for Year 2.

Liquidity Ratios -

Current Ratio

Quick Ratio

Debt Management Ratios -

Debt to Assets Ratio

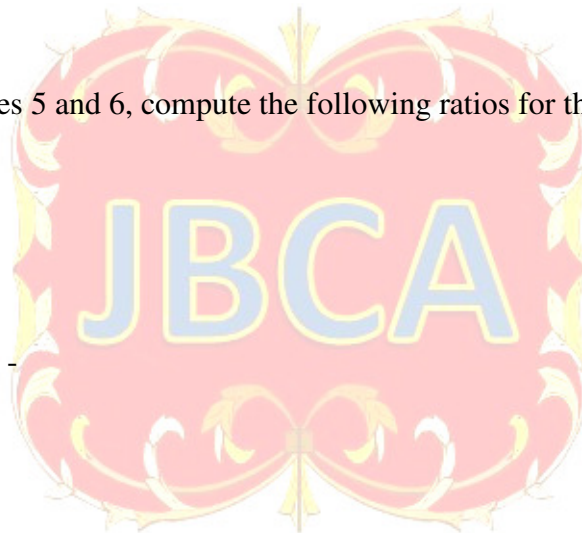
Debt to Equity Ratio

Profitability Ratios -

Profit Margin

Return on Assets

Return on Equity



3. The resulting Balance Sheets of these two companies look very different now that these actions are undertaken. What are the key differences? How should these differences best be interpreted?

4. How would you interpret the D/E and ROE ratios for the SBB Corporation? How do they compare to those ratios for DIV Corporation? What significance would you place on these results?

5. On the SBB Corporation Balance Sheet for Year 2, why is the (absolute) dollar value in the Treasury Stock account so much greater than the dollar value in the Common Stock and Additional-Paid-In-Capital accounts combined, even though it represents a lesser number of shares of stock?

6. Suppose that instead of repurchasing 220,000 shares in its stock buyback program, SBB chose to repurchase 270,000 shares. In this case, what would be the value shown on the SBB Year 2 Balance Sheet for Total Shareholders' Equity? What is the new D/E ratio? The ROE? How would you interpret these figures?
7. Based all available and relevant information, as well as on the ratio analysis that you have prepared, compare the current performance and future prospects for DIV Corporation and SBB Corporation. Which company would you prefer to invest in? Why?
8. What is the significance of the reports by the two management teams that they could not find any potential capital investments to undertake that would project the generation of a positive net present value? If one of the management teams had chosen to invest in the purchase of new productive assets, how might this impact your answer to question 7?



**TEACHING NOTE**

Solutions to questions for analysis.

**1. DIV Corporation — Year 2**

Liquidity Ratios -

Current Ratio — Current Assets ÷ Current Liabilities

$$66/8 = 8.25$$

Quick Ratio — Quick Assets (Cash + Marketable Securities + Receivables, net) ÷ Current Liabilities

$$66/8 = 8.25$$

(Since the DIV Corporation does not carry any inventory, the current ratio and the quick ratio are the same.)

Debt Management Ratios -

Debt to Assets Ratio — Total Debt ÷ Total Assets

$$38/94 = .40:1$$

Debt to Equity Ratio — Total Debt ÷ Total Shareholders' Equity

$$38/56 = .68:1$$

Profitability Ratios -

Profit Margin — Net Income ÷ Total Revenues

$$24/80 = 30.0\%$$

Return on Assets — Net Income ÷ Total Assets

$$24/94 = 25.5\%$$

Return on Equity — Net Income ÷ Total Shareholders' Equity

$$24/56 = 42.9\%$$

**2. SBB Corporation — Year 2**

Liquidity Ratios -

Current Ratio — Current Assets ÷ Current Liabilities

$$21/8 = 2.63$$

Quick Ratio — Quick Assets (Cash + Marketable Securities + Receivables, net) ÷ Current Liabilities

$$21/8 = 2.63$$

(Just as with the DIV Corporation, the SBB Corporation does not carry any inventory, and so the current ratio and the quick ratio are the same.)

Debt Management Ratios -

Debt to Assets Ratio — Total Debt ÷ Total Assets

$$38/49 = .78:1$$

Debt to Equity Ratio — Total Debt ÷ Total Shareholders' Equity

$$38/11 = 3.45:1$$

Profitability Ratios -

Profit Margin — Net Income ÷ Total Revenues



$$24/80 = 30.0\%$$

Return on Assets — Net Income ÷ Total Assets

$$24/49 = 49.0\%$$

Return on Equity — Net Income ÷ Total Shareholders' Equity

$$24/11 = 218.2\%$$

3. SBB Corporation has much lower levels of liquid assets, as substantial cash was used in the stock back program. SBB Corporation has a substantially lower level of Shareholders' Equity, because of the large negative value in the Treasury Stock account.

4. When compared to the DIV Corporation, the SBB Corporation D/E ratio is alarmingly high. By contrast, the SBB Corporation's ROE result looks strong. Both of these impacts are as a direct result the Treasury Stock transaction, and are not caused by operational results or managerial actions.

5. At the IPO, the shares were issued to the public at a relatively low price. This transaction is recorded on the Balance Sheet at the historical price level. When, at a later date, the company went to repurchase the shares on the open market, the market price had risen dramatically. The company must pay the going market rate if it desires to repurchase the shares. This transaction is recorded on the Balance Sheet at the actual cost of repurchase.

6. If SBB had purchased 270,000 shares of as part of the repurchase program, the amount in the Treasury Stock account would instead be \$67.5 million (270,000 x \$250). The value of Total Shareholders' Equity would then be —  $1 + 65 - 67.5 = -\$1.5$  million. The new ratios would then be —

Debt to Equity Ratio — Total Debt ÷ Total Shareholders' Equity

$$38/-1.5 = -25.33:1$$

Return on Equity — Net Income ÷ Total Shareholders' Equity

$$24/-1.5 = -1600\%$$

Because total equity is now negative, the results generated by these calculations do not make logical sense. Therefore, these results should be eliminated from the analysis; and other tools and methods must be found in order to evaluate these aspects of the company's performance.

7. In general, the DIV ratios look superior to the SBB ratios. However, operationally, the two companies are identical. The only substantive difference between them at the end of Year 2 is that DIV has substantially more cash available, as it has returned less to its shareholders than SBB. Given that there is nothing separating the companies, both regarding current operations and future prospects, there appears to be little reason to favor one over the other.

8. The fact that neither company could find any viable new investment opportunities is extremely significant. The prospects for future growth in total sales and thus in net income for either company are significantly limited. DIV is in a better position to act on any new growth opportunities as, for now, it is holding significant cash. However, if DIV cannot find ways to invest and grow, it will ultimately be forced to follow suit with SBB, and make increased returns to its shareholders.

**APPENDIX**

Table 1 -- General Electric Company -- Selected data

As of December 31, 2018	
Summary of the Balance Sheet (in millions)	
Total Assets	\$309,129
Total Liabilities	\$257,266
Total Equity	\$ 51,481
Summary of Common Stock (in thousands)	
Number of shares of Common Stock issued	11,693,841
Number of shares of Common Stock outstanding	8,702,277
Number of shares of Common Stock in the treasury	2,991,614
Book value of Common Stock (historical cost at issuance, in millions)	\$ 702
Book value of Treasury Stock (historical cost at repurchase, in millions)	\$(83,925)

Notes: (1) The negative book value of the Treasury Stock exceeds the book value of the company's Total Equity. (2) Balance sheet accounts do not add due to rounding.  
Source: General Electric Company (2019, pp. 98, 139).

Table 2 -- Choice Hotels International, Inc.-- Selected data

As of December 31, 2018	
Summary of the Balance Sheet (in thousands)	
Total Assets	\$1,138,370
Total Liabilities	\$1,322,142
Total Deficit	\$ (183,772)
Summary of Common Stock	
Number of shares of Common Stock issued	95,065,638
Number of shares of Common Stock outstanding	55,679,207
Number of shares of Common Stock in the treasury	39,386,431
Book value of Common Stock -- includes both Common Stock and Additional paid-in-capital accounts (historical cost at issuance, in thousands)	\$ 214,121
Book value of Treasury Stock (historical cost at repurchase, in thousands)	\$(1,187,625)



Note: The (negative) book value of Choice Hotels' Treasury Stock is so large that the book value of its Shareholders' Equity is negative, creating instead a Shareholders' Deficit.

Source: Choice Hotels International, Inc. (2019, p. 65).

Table 3 -- Income/Expense Statement -- DIV Corporation -- Year 2

DIV Corporation	
Income/Expense Statement	
Year 2	
In millions (except per share amounts)	
Net sales	\$80
Selling, General and Administrative Expenses	(45)
Depreciation and Amortization Expenses	(2)
Interest Expense	(3)
Income Before Income Taxes	\$30
Income Taxes (@20%)	(6)
Net Income	\$24
Earnings per share	\$40/share
Dividends issued	\$16.67/share

Table 4 -- Balance Sheet -- DIV Corporation -- End Years 1 and 2

DIV Corporation		
Balance Sheets		
As of December 31, Year 1 and December 31, Year 2		
In millions (except share amounts)	Dec 31, Year 1	Dec 31, Year 2
Assets		
Current Assets		
Cash and Cash Equivalents	\$30	\$30
Marketable Securities	10	20
Accounts Receivable (Net of Allowance for Doubtful Accounts)	10	16
Total Current Assets	50	66
Property, Plant, and Equipment, net	10	8
Goodwill	20	20
Total Assets	\$80	\$94

Liabilities and Shareholders' Equity		
Accounts Payable	\$ 8	\$ 8
Long-term Debt	30	30
Common Stock \$0.01 par value; 1,000,000 shares authorized; 600,000 shares issued and outstanding	-	-
Additional paid-in-capital	1	1
Retained Earnings	41	55
Total Liabilities and Shareholders' Equity	\$80	\$94

Table 5 -- Income/Expense Statement -- SBB Corporation -- Year 2

SBB Corporation	
Income/Expense Statement	
Year 2	
In millions (except per share amounts)	
Net sales	\$80
Selling, General and Administrative Expenses	(45)
Depreciation and Amortization Expenses	(2)
Interest Expense	(3)
Income Before Income Taxes	\$30
Income Taxes (@20%)	(6)
Net Income	\$24
Earnings per share	\$40/share
Earnings per share (diluted)	\$63.16/share

Table 6 -- Balance Sheet -- SBB Corporation -- End Years 1 and 2

SBB Corporation		
Balance Sheets		
As of December 31, Year 1 and December 31, Year 2		
In millions (except share amounts)	Dec 31, Year 1	Dec 31, Year 2

Assets		
Current Assets		
Cash and Cash Equivalents	\$30	\$ 7
Marketable Securities	10	-
Accounts Receivable (Net of Allowance for Doubtful Accounts)	<u>10</u>	<u>14</u>
Total Current Assets	50	21
Property, Plant, and Equipment, net	10	8
Goodwill	<u>20</u>	<u>20</u>
Total Assets	\$80	\$49
Liabilities and Shareholders' Equity		
Accounts Payable	\$ 8	\$ 8
Long-term Debt	30	30
Common Stock \$0.01 par value; 1,000,000 shares authorized; 600,000 shares issued; and 600,000 and 380,000 shares outstanding at Dec 31, Year 1 and Dec 31, Year 2, respectively	-	-
Additional paid-in-capital	1	1
Retained Earnings	41	65
Treasury Stock (220,000 shares at acquisition cost)	-	(55)
Total Liabilities and Shareholders' Equity	\$80	\$49

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