



Sustainable growth

Notes on the concept and estimation of sustainable growth rates

Prepared by Pamela Peterson Drake, Ph.D., CFA

Sustainable growth is the rate of growth that is most realistic estimate of the growth in a company's earnings, assuming that the company does not alter its capital structure. The most common method of estimation is to estimate sustainable growth as the product of the return on equity and earnings retention:

$$\text{Sustainable growth} = \text{return on equity} \times \text{retention rate}$$

The **return on equity** is the return per dollar of owners' equity; the return is calculated as the ratio of net income to book value of equity. The **retention rate** is the percentage of earnings retained by the company – that is, not paid out in the form of dividends. In other words, the retention rate is the complement of the **dividend payout ratio (DPO)**.

This growth rate is assumed to be sustainable because the company is growing from internally generated funds – that is, **retained earnings**. Representing sustainable growth as g^* , this formula becomes:

$$g^* = \frac{\text{Earnings available to owners}}{\text{Owners' equity}} \times \frac{\text{Earnings available to owners} - \text{Dividends}}{\text{Earnings available to owners}}$$

↑
↑
 Return on equity Retention rate

Sustainable growth in economics is defined as growth considering that resources are finite and that the rate of resource depletion must be slowed in order to have long-term growth.

We can associate the sustainable growth with fundamental factors of the company's performance and financial condition using the Du Pont breakdown. In the **Du Pont analysis** of the return on equity, we see that the return on equity is the product of the net profit margin, the total asset turnover, and the equity multiplier:

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Owners' equity}} = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}} \times \frac{\text{Total assets}}{\text{Owners' equity}},$$

where the **equity multiplier** is a measure of financial leverage.¹ We can also restate the retention rate in terms of the dividend payout:

$$\text{Retention rate} = \frac{\text{Earnings available to owners} - \text{Dividends}}{\text{Earnings available to owners}} = 1 - \frac{\text{Dividends}}{\text{Earnings available to owners}} = 1 - \text{Dividend payout ratio}$$

Putting these pieces together and remembering that capital structure is held constant, we see that sustainable growth is affected by profitability, asset utilization, and earnings retention:

¹ **Financial leverage** is the extent to which debt sources are used to finance the firm, relative to equity sources; the greater the use of debt vis-à-vis equity, the more financial leverage, and hence risk, that a firm is assuming.

$$\text{Sustainable growth} = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}} \times \frac{\text{Total assets}}{\text{Shareholders' equity}} \times \left(1 - \frac{\text{Dividend}}{\text{payout ratio}} \right)$$

We can use this formulation to relate sustainable growth to fundamental factors:

Factor	Relationship with sustainable growth
Profitability	Positive
Asset utilization	Positive
Financial leverage	Held constant
Dividend payout	Negative

Capital structure and sustainable growth

Sustainable growth is defined as the growth the company is capable of if it does not alter its capital structure. A company's **capital structure** is its mix of debt and equity that is used to finance the company long-term. It is conceivable that a company could grow by simply increasing its borrowing, but this is eventually not sustainable because there is a point at which the company may not be able to handle the debt burden. Therefore, sustainable growth is determined assuming that the company's capital structure remains the same. In other words, if the company generates and retains earnings, hence increasing its owners' equity, it is assumed that the company would also borrow so that the company's capital structure is constant. This concept is consistent with the idea of a **target capital structure**: a company will try to maintain a relatively constant capital structure, even though there will be slight year-to-year deviations in the actual capital structure.

If a company changes its capital structure, this affects its sustainable growth: increasing its financial leverage increases its sustainable growth, *ceteris paribus*, and decreasing its financial leverage, *ceteris paribus*, lowers its sustainable growth.²

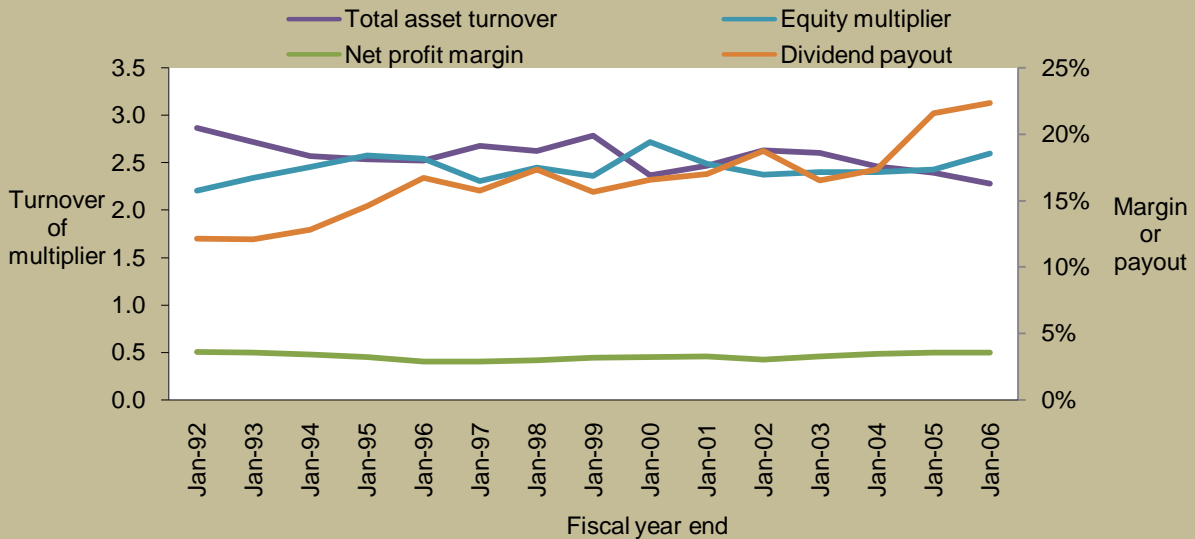
An example

We can see how sustainable growth relates to the fundamental factors by examining the estimated growth for an actual company. Consider Wal-Mart Stores. Using the financial data for its fiscal years from 1991 through 2005, as shown in Exhibit 1, we see that:

- The net profit margin is fairly constant throughout this period.
- The dividend payout has increased through much of this period, which is consistent with the patterns we see in maturing companies.
- The total asset turnover has declined over time.
- The equity multiplier remains in a limited range.

² The "ceteris paribus" is important because if the change in the financial leverage affects the company's profitability, then this would affect the sustainable growth. For example, if a company increases its debt burden beyond the point at which it can satisfy its obligations, this may reduce its profitability.

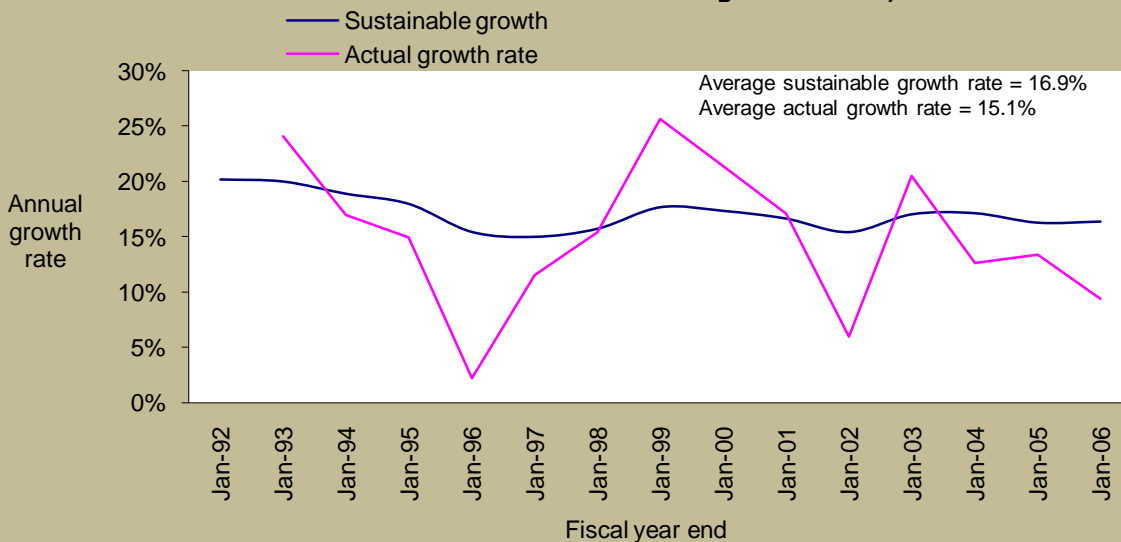
Exhibit 1 Wal-Mart Stores Sustainable Growth Components, 1991-2005



Source of data: Mergent Online

The financial leverage remains fairly constant throughout this period, with the equity multiplier between 2.2 and 2.6 times. You can see the resultant estimates of sustainable growth in Exhibit 2, where the sustainable growth estimates are plotted along with the actual year-to-year growth in earnings. The average sustainable and actual growth rates are similar, but the actual growth rate varies more than the sustainable growth rate due to factors that affect the return on equity that are not included in the sustainable growth rate.

Exhibit 2 Wal-Mart Stores' sustainable and actual growth rates, 1991-2005



Source of data: Mergent Online

So what use is the sustainable growth rate?

The sustainable growth rate is often used in forecasting earnings and should reflect the general trend, rather than year-to-year fluctuations. Aside from the forecasting of earnings based on the current rates

of asset turnover, profit margins, payout, and financial leverage, the analysis of the sustainable growth rate provides a method for developing sensitivity analysis of growth to the changes in the fundamental factors. For example, the components of Wal-Mart's sustainable growth as measured in 2005 are as follows:

Ratio	2005	2008
Net profit margin	3.56%	3.304%
Total asset turnover	2.2843 times	2.4819 times
Equity multiplier	2.5989 times	2.5033 times
Dividend payout	22.36%	27.96%
Sustainable growth	16.40%	5.74%

Using the 2005 fiscal year data, if Wal-Mart Stores were to change its dividend payout to, say, 15%, we expect sustainable growth of 17.95%. If, as another example, the net profit margin falls to 2%, the sustainable growth is expected to fall to 9.22%.

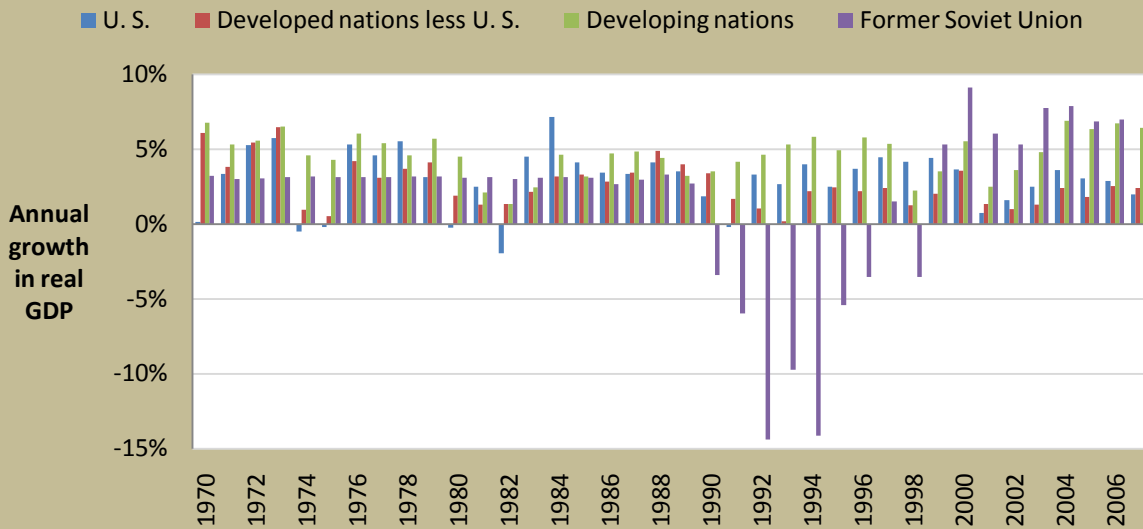
You will notice that the sustainable growth is different between 2005 and 2008. The primary difference in these two years is the dividend payout: by increasing the dividend payout, the sustainable growth declines.

The sustainable growth may also be an indicator of difficulty ahead for the company. For example, if actual growth exceeds sustainable growth for a period of time, it may be the case that this growth higher growth is not sustainable and, hence, there may be a substantial decline in growth ahead because the company is depleting its financial resources. On the other hand, if the company's sustainable growth rate exceeds its actual growth rate, it may be interpreted that the company is not using its financial resources to maximize owners' wealth.

Unsustainable growth

Companies may grow at high rates, but this is not sustainable in the long run. To put this in perspective, consider that the U.S. economy in real terms grows at an average annual rate of 3 percent per year. Even for companies with substantial interests outside the U.S., the typical growth rate of these economies is not too far from the 3 percent; for example, the average annual growth rate for developing nations is slightly less than 5 percent. You can see the growth rates for different types of economies in Exhibit 3. Adding inflation to this real growth and the typical annual growth for the U.S. economy is around 4.5 – 5 percent.

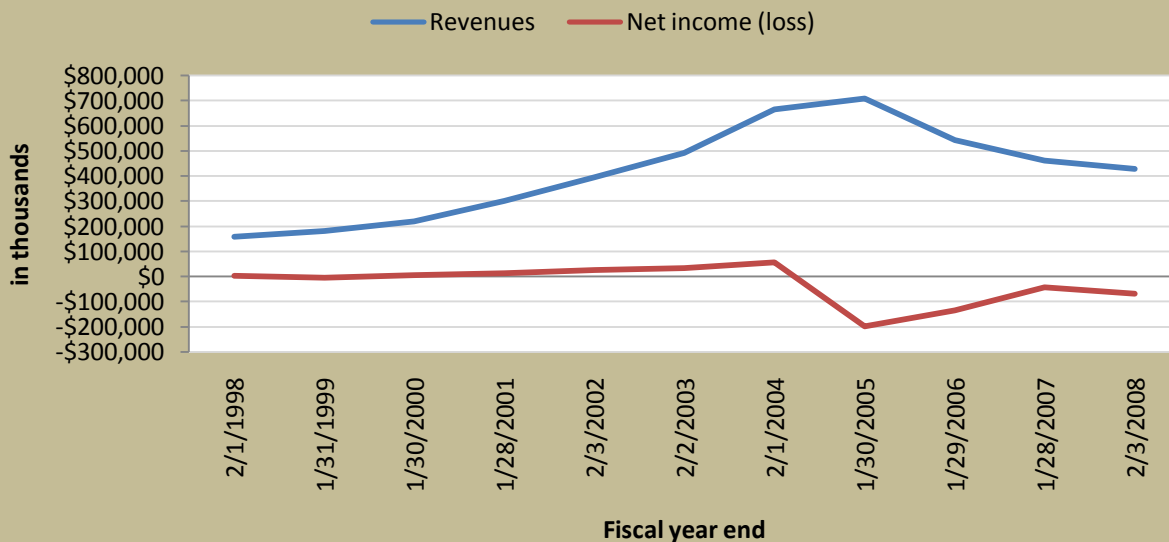
EXHIBIT 3 ANNUAL RATES OF GROWTH



Source of data: World Bank

Consider the growth of revenues for Krispy Kreme, as shown in Exhibit 4. Revenues were growing at a quick pace – with annual rates ranging from 13.9 percent to 36.5 percent – up until the 2003 fiscal year. Most of this growth in revenues was due to the expansion of stores, which brought in revenues from the sale of equipment to franchises.³ This type of growth is not sustainable in the long-run because the growth in the number of franchises will slow over time and the company would have to rely on the

EXHIBIT 4 KRISPY KREME REVENUES AND NET INCOME, FISCAL YEARS 1997 THROUGH 2007



Source: Mergent Online

³ This is generated from the KK Supply Chain segment, which sells mixes, supplies, and equipment.

growth of product sales in the long-term. Once this growth in franchisees slowed, the revenues declined and the company generated net losses following this supernormal growth.

Summary

- Analysts use sustainable growth in forecasting future performance of the firm, but also in valuation.
- Historical rates of growth should be used with caution because some companies may experience supernormal growth, but this super growth is almost always short-lived.
- The sustainable growth rate calculation is based on the return that the company can generate, as well as the proportion of funds that company retains.

Index

Capital structure, 2
Dividend payout ratio, 1
Du Pont analysis, 1
Equity multiplier, 1
Financial leverage, 1

Retained earnings, 1
Retention rate, 1
Return on equity, 1
Sustainable growth, 1
Target capital structure, 2

References

1. Deloitte, "Sustainable Growth: Is There Room to Grow?" A Deloitte Research Viewpoint, November 2005.
2. StudyFinance, "Sustainable Growth Measures," University of Arizona.