

Limitation of Dividend Discount Models

Introduction to Investments
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Sustainable Growth

- Volatility of prices is more than the volatility of dividends.
- k must be greater than g , otherwise model breaks down.
- What if no dividends are paid ? Use other cash flows, from operations, EBITDA, free cash flow?
- Where does g come from? Sustainable growth notion, compressed into $g = \text{ROE} * \text{retention rate}$.

Sustainable Growth

- Think of this g as an “equilibrium” or “target” growth rate. So, attempt to maintain all financial ratios at “optimal” levels. Any growth away from this sustainable growth causes imbalances.

Beginning-of-year balance sheet

CA	300	CL	200
NFA	<u>400</u>	Debt	150
		Equity	<u>350</u>
TA	700	TL	700

Income statement

Sales	1000
Cost of Goods	<u>800</u>
Earnings before tax	200
EAT	<u>100</u>
Dividends	30
Retained Earnings	70

Represents sales growth of 10% from previous year. Costs increase proportionately

- For simplicity, assume full capacity, so that 10% growth requires a proportional increase in assets from 700 to 770. Financed only by retained earnings. Thus, end-of-year balance sheet will look like:

End-of-year balance sheet

CA	330	CL	200
NFA	<u>440</u>	Debt	150
		Equity	<u>420</u> (350 + 70)
TA	770	TL	770

Sustainable Growth

- Retained earnings provided all the funds needed to grow at 10%. More funds available from “spontaneous” sources i.e. CL. Not using them causes ratios to change. So, can possibly achieve more growth (above 10%).
- Suppose growth of 15% in sales (and assets) is possible and funds are also generated from CL and debt from 15% spontaneous growth. The end-of-year balance sheet will look like:

End-of-year balance sheet				
CA	345	CL	230.0	Spontaneous liability change (350 +70)
NFA	<u>460</u>	Debt	172.5	
		Equity	<u>420.0</u>	
TA	805	TL	822.5	

- Now have too much money. Still more growth possible!

Sustainable Growth

- Suppose growth of 20% in sales was reflected in the previous income statement. Asset levels now need to be 20% higher.

End-of-year balance sheet			
CA	360 (300)	CL	240 (200)
NFA	<u>480</u> (400)	Debt	180 (150)
		Equity	<u>420</u> (350)
TA	840 (700)	TL	840 (700)

- Notice that all the ratios remain unchanged!
- This 20% rate is the sustainable growth rate. It is the rate of growth that is manageable without resort to additional **equity** financing. Debt and current liabilities have increased “spontaneously.”

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