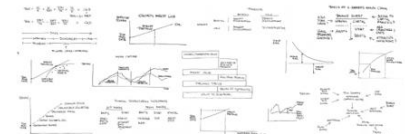


# Dividends and Buybacks

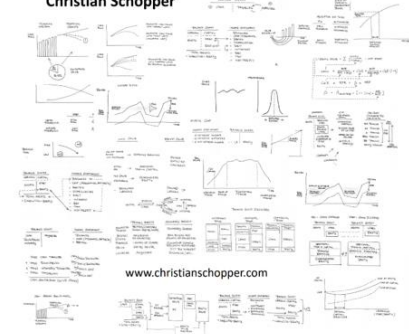
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## General Thoughts

## Dividend Strategy and the Life Cycle Model

	<u>Cash availability</u>	<u>Profit availability</u>	<u>Dividend policy</u>
Launch	No spare cash available All cash is needed for investment in developing the business	None. Probably making losses	Nil dividend payout
Growth	Cash is needed for development and investment in growing market share	May be profitable	Nil dividend payout is preferable. However, new shareholders might prefer a nominal payout
Maturity	The company is now cash positive and has fewer opportunities to invest in profitable growth	Profitable	A medium to high dividend payout is preferred
Decline	The company is cash positive, with no reinvestment potential	May be profitable	Full payout of available cash as dividend, even in excess of current profits

## What Does a Dividend Change Signal?

Interpretation	Increase the dividend level	Decrease the dividend level
Good news	The company is prospering, and we can afford to pay out more of our profits without damaging our prospects	The company has changed its strategy and the directors see these very profitable investment opportunities, which will provide more shareholder value than will mere payment of dividends
Bad news	The directors have run out of ideas for profitable growth	Profits and cash flow are way down, and the company is facing trouble for the foreseeable future

Signal for **advancing** one stage in the life cycle?

Signal for **moving back** one stage in the life cycle?

## Example: Smoothing Dividends over a Period of Time

- The directors of DivCo plc believe the company to be in its **mature** stage, ...
- ... and ideally would like to pay out **max 50%** (no more) of annual profits as **dividends**
- **However**, the company's business model includes taking on large **contracts**, ...
- ... the profits of which can fall either side of a year end, ...
- ... significantly **affecting year-on-year profitability** → **Volatility**

	Year 1	Year 2	Year 3	Year 4	Year 5
Profit after tax £ m	100	120	110	150	130
→ (a) Dividends using a 50% payout ratio	50	60	55	75	65
→ (b) Smoothed dividend policy	40	46	53	61	70

## Distribution of Economics - Stock Dividend and Buyback

### Stock Dividend

- A company declares a dividend but does **not actually pay out any cash**
- Some companies give their shareholders the option to take their dividends either in cash or in the form of new shares
  - When shareholders are offered stock dividends, it is always possible for those investors who want to receive cash to sell these new shares in the markets to realize the cash equivalent of their dividend ...
  - ... but this would dilute their respective stakes
- A company declaring a stock dividend is **effectively retaining the cash in the business for reinvestment**
  - ... and swapping retained earnings for shareholder equity

### Share Repurchases (Buybacks)

- An **alternative to a cash dividend** - effectively achieving the same aim - is to repurchase some of its own shares using its excess cash
- The repurchased shares are held in the balance sheet as '**treasury stock**', and can **later** be **re-issued**, at an appropriate market price ...
  - This is an area where the **legal** and **tax** positions vary by country
  - Some countries allow share repurchase, others still do not permit it, or impose severe tax penalties if it is undertaken. Such tax penalties differ from the US situation, where buybacks have a tax advantage over dividend payment, or other regimes, which are broadly neutral between buybacks and dividends
- ... or cancelled, resulting in re-levering the firm

## Share Buybacks

## Example: Share Repurchase Taken Up Pro-Rata

### Cash Rich Holdings plc:

- £100 million **surplus cash**
  - 500m shares trading at a market price of £2 each
  - **Rather than declaring a higher dividend, ...**
  - ... it announces that it intends to **purchase 10% of existing shares** in the market ...
  - ... at £2 per share
- 
- **If all shareholders accept the offer** pro-rata to their current shareholdings, **nothing will change** after the event
    - A holder of 10m shares before the deal would sell 1m shares and receive £2m in cash
    - After the repurchase, the investor owns 9m shares ...
    - ... representing the same 2% stake as prior the deal
  - This sounds remarkably **like a dividend payment**
    - If any particular shareholders do not want to receive cash at this time, they do not need to sell any of their shares
    - Their proportionate shareholdings will increase to compensate for the non-receipt of the cash payment
    - Whether the compensation is inadequate or excessive depends on the reaction of the share price to the news of the repurchase

$$\frac{9 \text{ million}}{450 \text{ million}} = \frac{10 \text{ million}}{500 \text{ million}}$$

## Example: Share Repurchase vs Dividend – Impact

### Mega Cash Holdings plc

- £400m **excess cash** ...
- ... generating an **interest income** of £20m at a pre-tax interest rate of 5%

	£millions
Operating profit	130
Interest income	<u>20</u>
Profit before tax	150
Taxation	<u>50</u>
Profit after tax	100
Dividends paid	<u>50</u>
Retained profits	<u>50</u>

- 500m issued shares resulting in an eps of 20p
- 50% payout ratio
- Current share price is £2, representing a P/E of 10
- Hence, market capitalisation £1bn

What is the **impact on the eps, P/E and share price** using the excess cash in case of:

- A one-off **extra dividend** or ...
- ... a **share repurchase** ?

## Example: Share Repurchase vs Dividend – Impact (cont'd)

### Mega Cash Holdings plc

	£millions	
Operating profit	130	• £400m excess cash
Interest income	20	• Interest income £20m (5%)
Profit before tax	150	• 500m issued shares / 20p eps
Taxation	50	• Share price £2 / P/E of 10
Profit after tax	100	• Market cap £1bn
Dividends paid	50	• 50% payout ratio
Retained profits	50	

- Operating income and effective tax rates kept the same ...
- ... whilst **interest income** is **eliminated**

	£millions		
Operating profit	130	Operating profit	130
Interest income	<u>20</u>	Taxation	<u>43</u>
Profit before tax	150	Profit after tax	<u>87</u>
Taxation	<u>50</u>		
Profit after tax	100		
Dividends paid	<u>50</u>		
Retained profits	<u>50</u>		

What is the **impact** on the **eps** using the excess cash in case of:

- A one-off **extra dividend** or ...
- ... a **share repurchase** ?



## Example: Share Repurchase vs Dividend – P/E

### Mega Cash Holdings plc

	£millions
Operating profit	130
Interest income	20
Profit before tax	150
Taxation	50
Profit after tax	100
Dividends paid	50
Retained profits	50



Operating profit	130
Taxation	43
Profit after tax	87

- £400m excess cash
- Interest income £20m (5%)
- 500m shares / 20p eps
- Share price £2 / P/E of 10
- Market cap £1bn
- 50% payout ratio

- **Market cap** of £1bn **includes valuation of excess cash** (£400m)
- ...
- ... implying that the **core business's** net profits of £87m are capitalized at a **P/E of 6.9** (compared to a P/E of 10.0 pre-transaction)

PAT (exc. interest income)  
multiplied at implied P/E of  
gives market value of  
plus face value of cash  
Market capitalization of company

£87 million
<u>6.9</u>
£600 million
£400 million
<u>£1,000 million</u>



What is the **impact on the share price** using the excess cash in case of:

- A one-off **extra dividend** or ...
- ... a **share repurchase** ?

## Example: Share Repurchase vs Dividend – Share Price

### Mega Cash Holdings plc

	£millions
Operating profit	130
Interest income	20
Profit before tax	150
Taxation	50
Profit after tax	100
Dividends paid	50
Retained profits	50



Operating profit	130
Taxation	43
Profit after tax	87

- £400m excess cash
- Interest income £20m (5%)
- 500m shares / 20p eps
- Share price £2 / P/E of 10
- Market cap £1bn
- 50% payout ratio

- Core business valued at 6.9 P/E and market cap falling to £600m ...
- ... share prices adapt for dividend distribution ...
- ... but stay constant for repurchase

PAT (exc. interest income) multiplied at implied P/E of gives market value of plus face value of cash  
Market capitalization of company

£87 million
6.9
£600 million
£400 million
£1,000 million

Market capitalization  
Issued shares  
Resulting share price  
eps  
P/E multiple

Dividend distribution	Share repurchase
£600 million	£600 million
500 million	300 million
£1.20*	£2.00
17.4 p	29 p
6.9	6.9



\*The share price falls after the dividend payment, because this cash payment represents 80 p per share (ignoring the tax impact).

## Share Repurchase Enhancing EPS

Let

$N$  = number of shares in issue

$n$  = number to be repurchased

$p$  = price of shares to be bought

$K_d$  = bank interest rate on money borrowed (or not earned) for repurchase

$t$  = tax rate (corporate)

$PAT$  = profits after tax before the share repurchase

Then,

$$eps = PAT/N$$

and after the buyback

$$new\ eps = [PAT - npK_d(1 - t)]/(N - n)$$

If  $eps$  is to be enhanced by the transaction,  $eps < new\ eps$

that is,

$$PAT/N < [PAT - npK_d(1 - t)]/(N - n)$$

is simplified down to:

$$PAT > npK_d(1 - t)$$

$$PAT/N > pK_d(1 - t)$$

$$\text{that is, } eps > pK_d(1 - t)$$

$$\text{that is, share price paid for the repurchase, } p < eps/K_d(1 - t)$$

## Share Repurchase Enhancing EPS (cont'd)

Let

$N$  = number of shares in issue

$n$  = number to be repurchased

$p$  = price of shares to be bought

$K_d$  = bank interest rate on money borrowed (or not earned) for repurchase

$t$  = tax rate (corporate)

$PAT$  = profits after tax before the share repurchase

Then,

$$eps = PAT/N$$

and after the buyback

$$new\ eps = [PAT - npK_d(1 - t)]/(N - n)$$

If eps is to be enhanced by the transaction,  $eps < new\ eps$   
that is,

$$PAT/N < [PAT - npK_d(1 - t)]/(N - n)$$

Equation 13.1 can be simplified down to:

$$PAT > NpK_d(1 - t)$$

$$PAT/N > pK_d(1 - t)$$

that is,  $eps > pK_d(1 - t)$

that is, share price paid for the repurchase,  $p < eps/K_d(1 - t)$

- If eps to be enhanced  $\rightarrow eps < new\ eps \rightarrow p < eps/K_d(1 - t)$ 
  - If the share price paid is greater than the formula, eps will be diluted
  - if the price paid is less than the formula, eps will be enhanced
- Restating  $p < eps/K_d(1 - t)$  we can see that at equilibrium following is valid:

$$eps = \text{share price paid} \times \text{after-tax cost of debt}$$

## Share Repurchase Enhancing EPS (cont'd)

$$\text{eps} = \text{share price paid} \times \text{after-tax cost of debt}$$

- Therefore, eps is reduced by interest on the amount borrowed for the repurchase ...
- .... and: If interest rates are high, or the price paid is high, eps may not be boosted
- BUT – if the directors believe that profit is going to rise in the future, it will be worth the eps effect ...
- ... as eps will rise even more for the fewer shares that are left
- This is the same as:  $p/\text{eps} < 1/K_d(1-t)$

- **Eps will be enhanced if ...**
- ... **the P/E multiple of the company is less than ...**
- ... **the inverse of the post-tax opportunity cost of funding used to repurchase the shares**

## Example: Share Repurchase Enhancing EPS

### Mega Cash Holdings plc

	£millions	
Operating profit	130	• £400m excess cash
Interest income	20	• Interest income £20m (5%) ...
Profit before tax	150	• ... <b>with 3.35% after tax</b>
Taxation	50	• 500m issued shares / eps of 20p
Profit after tax	100	• Share price £2 / P/E of 10
Dividends paid	50	
Retained profits	50	

- Using  $p/eps < 1/K_d(1-t)$ , the **share repurchase will increase eps** ...
- ... if the **P/E multiple of the buyback is less than the inverse of the post-tax opportunity cost of funding** used to repurchase the shares:

$$P/E < 1/K_d(1-t)$$

How can **eps** be **enhanced**:

- ... if share buy-back has to be **funded**?
- ... if **excess cash is being used** to fund the share buy-back?

## Example: Share Repurchase Enhancing EPS (cont'd)

### Mega Cash Holdings plc

- £400m excess cash
- Share price £2 / P/E of 10
- Interest income £20m 5% pre-tax ... – which translates into **3.35% post-tax**

Increase eps if:  $P/E < 1/K_d(1 - t)$

#### Enhancing eps ...

... by funding share re-purchase

- **Buyback at market value** (P/E 10.0)
- ...
- ... **provided post-tax cost of funds below 10% ...**
- ... **with pre-tax cost of funds below approx 13.4%**

#### Buyback using excess cash ...

... with eps being **eps-neutral**

- £400m excess cash used to buy back 66.7m shares at a **maximum of £6** (P/E of 30; the inverse of 3.35% debt cost)

	Before £million	After £million
Operating profit	130	130
Interest income	20	0
Profit before tax	150	130
Tax	50	43
Profit after tax	100	87
Number of shares	500 million	433.3 million
Earnings per share	20 pence	20 pence

## Example: Impact of Share Repurchase on WACC

Share buyback, hypothetical example<sup>1</sup>

	Before	After		Before	After
<b>Balance sheet</b>			<b>Income statement</b>		
Cash, € million	200	0	Earnings before interest, taxes (EBIT), € million	94	94
Operating assets, € million	580	580	Interest, € million	6	0
Total assets, € million	780	580	<b>Net income, € million</b>	<b>100</b>	<b>94</b>
Equity, € million	780	580	Shares outstanding, million	100.0	86.7
<b>Value</b>			Share price, €	15.00	15.00
Value of operations, € million	1,300	1,300	Earnings per share (EPS), €	1.00	1.08
Cash, € million	200	0	P/E	15.0	13.8
<b>Total equity value, € million</b>	<b>1,500</b>	<b>1,300</b>	<b>Return on invested capital (ROIC)<sup>2</sup></b>	<b>16%</b>	<b>16%</b>

<sup>1</sup>Excludes corporate taxes; assumes cost of equity = 10%, cost of debt = 3%, growth = 5%.

<sup>2</sup>Posttax EBIT ÷ operating capital.

- Company's operations don't change; return on operating capital same after buyback
  - Equity value reduced** to €1.3bn
  - EPS rises** because the **number of shares has fallen more than earnings** have
  - Share price remains the same**, as company value has fallen in line with the number of shares
  - Therefore, **P/E**, whose inputs are intrinsic value and EPS, **drops** to 13.8, from 15
  - The impact is similar if the company increases debt to buy back more shares
- P/E declines, as the **buyback deconsolidates the company** into two distinct entities: an **operating company** and one that holds **cash**
  - The former has a P/E of 13.8; the latter, 33.3

## Example: Impact of Share Repurchase on WACC (cont'd)

Share buyback, hypothetical example<sup>1</sup>

	Before	After		Before	After
<b>Balance sheet</b>			<b>Income statement</b>		
Cash, € million	200	0	Earnings before interest, taxes (EBIT), € million	134	134
Operating assets, € million	580	580	Interest, € million	6	0
Total assets, € million	780	580	<b>Net income, € million</b>	<b>140</b>	<b>134</b>
Equity, € million	780	580	Tax, € million	-42	-40
<b>Value</b>			<b>Net income, € million</b>	<b>98</b>	<b>94</b>
Value of operations, € million	1,300	1,300	Shares outstanding, million	100	86.5
Cash, € million	200	0	Share price, €	14.80	15.00
Tax penalty of cash, € million	-18	0	Earnings per share (EPS), €	0.98	1.09
<b>Total equity value, € million</b>	<b>1,482</b>	<b>1,300</b>	P/E	15.1	13.8
			<b>Return on invested capital (ROIC)<sup>2</sup></b>	<b>16%</b>	<b>16%</b>

<sup>1</sup>Assumes cost of equity = 10%, cost of debt = 3%, growth = 5%; assumes no growth in excess, posttax interest streams discounted at cost of equity.

<sup>2</sup>Posttax EBIT ÷ operating capital.

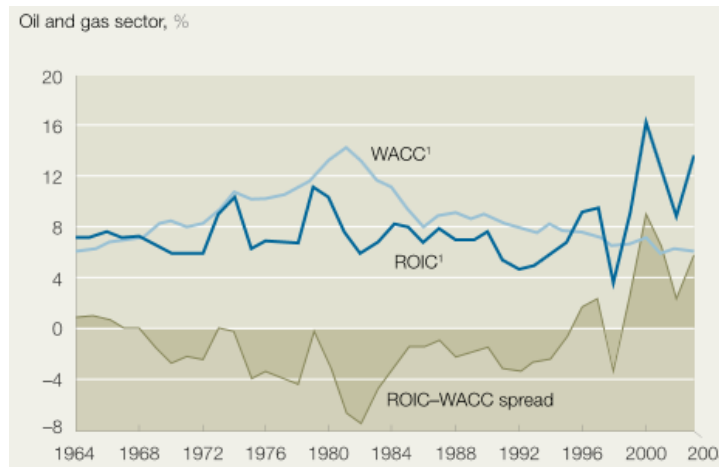
- If corporate taxes are part of the equation, the company's value does increase as a result of share buybacks, albeit by a small amount, ...
- ... because cost of capital fall from having less cash or greater debt ...
- ... not least because interest payments are tax deductible while dividends are not
- The share price increase from a buyback in theory results purely from the tax benefits of a company's new capital structure rather than from any underlying operational improvement

## Example: Impact of Share Repurchase on WACC (cont'd)



- The impact on share prices from a tax effect can be assessed, ...
- ... **but** historical and **recent buyback announcements typically result in a much bigger rise in share price**
  - Positive **signal** in a buyback is that management believes that the **stock is undervalued**
  - Management's confidence that the **company doesn't need the cash to cover future commitments** such as interest payments and capital expenditures
- **But: Seemingly also a *negative***, signal that **management team sees few investment opportunities ahead ...**

## Example: Impact of Share Repurchase on WACC (cont'd)



- Therefore, the overall **positive response** to a buyback **may result from investors being *relieved* that managers aren't going to spend** a company's cash on "bad" mergers and acquisitions or **on projects with a negative net present value** ...
  - In many cases, a company seems to be undervalued just before it announces a buyback, reflecting an uncertainty among investors about what management will do with excess funds.
- In many industries, **management teams have historically allocated cash reserves poorly**. The oil industry since 1964 is one example
  - For almost three decades the spread between ROIC and cost of capital for the industry as a whole was negative
  - The petroleum industry could not deliver a balanced source of income, many companies committed their excess cash to what turned out to be value-destroying acquisitions or other diversification strategies

## Mechanics of a Buyback

- The buyback decision, because of its '**one-off**' nature, is **more complicated than the dividend** decision:
  1. **How much** can the company afford to repurchase?
    - Issues to consider are whether or not there is surplus cash in the business; the impact on the company's debt:equity ratio of a buyback; and whether available reserves will permit the desired level of buyback
  2. Is it the intention to give all shareholders an **equal chance of selling** their shares to the company?
    - This will impact the method by which the buyback is undertaken
- There are 2 main ways to repurchase shares
  1. **Stock market**
    - Is quick and straightforward, with maximum time-flexibility
    - Suitable for relatively small amount (e.g. 2–3% of outstanding capital)
  2. **Tender offer**
    - Suitable for higher volume
    - Offer to all shareholders (not only such active in the capital markets) and advertised this to shareholders. In many ways the process is the same as that for issuing shares on a market

## Reasons for Companies to Repurchase their Own Shares

- To **increase EPS**
- To **strengthen management incentives** by reducing the number of outstanding shares so that management ends up with a higher percentage of the company
  - This obviously can lead to agency conflicts
- Buybacks are considered to be **more flexible than dividends**, as they are seen as one-offs and do not reflect a trend
- To **buy out 'weaker' shareholders** who may otherwise sell to a hostile bidder
  - This obviously can also lead to agency conflicts
- To **give shareholders a choice** of how to take their return.
- To offset EPS dilution from the exercise of share options
- To improve management's business focus by limiting their opportunities to invest in non-core or value-reducing projects
- To **reduce the cost of capital.**

## Do Buybacks Add Value?

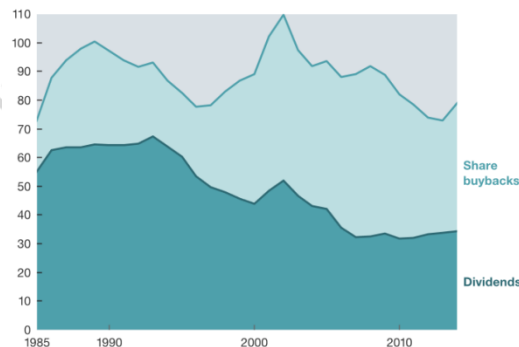
- What is the market impact of a company's buyback announcement? -- As with dividends the **signalling effect may vary...**
- Generally – if markets in favor - buybacks **eliminate 'slack' for directors**, and often the company's share price rises disproportionately
  - **However** - as with dividend increases - if the market believes that the directors are proposing a buyback because they have **run out of investment ideas** - the **negative impact** could damage sentiment about the company's future
- Interestingly, many companies **announce** share buybacks **without** actually **undertaking** them
  - This way they get the **flexibility** of financial **choice**, and benefit of the positive market sentiment without all the messiness of losing control of the company's funds
- **Eventually, share buybacks only add value for the shareholders if they can be achieved at a buying price below the fundamental value of the company**
  - ~~Buying back shares which are overpriced by the market – however it affects the EPS or market sentiment – is not a value-enhancing strategy~~

## Do Share Buybacks Jeopardize Future Growth

- **Returning cash to shareholders is on the rise for large US-based companies**
- Some investors and legislators have wondered whether that increase is tantamount to **underinvestment** in assets and projects that represent **future growth**
- It isn't
  - Distributions to shareholders overall, including both buybacks and dividends, are currently around 85 percent of income, about the same as in the early 1990s
  - Instead, the trend in shareholder distributions reflects a decades-long evolution in the way companies think strategically about dividends and buybacks—and, more broadly, mirrors the **growing dominance of sectors that generate high returns with relatively little capital investment**

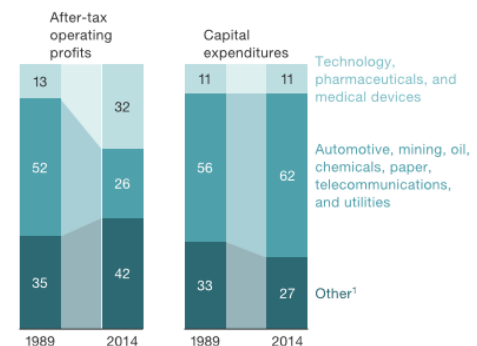
Overall distributions to shareholders have fluctuated cyclically since deregulation in the mid-1980s, though the ratio of buybacks to dividends has grown.

Distributions as % of adjusted net income, 5-year rolling average<sup>1</sup>



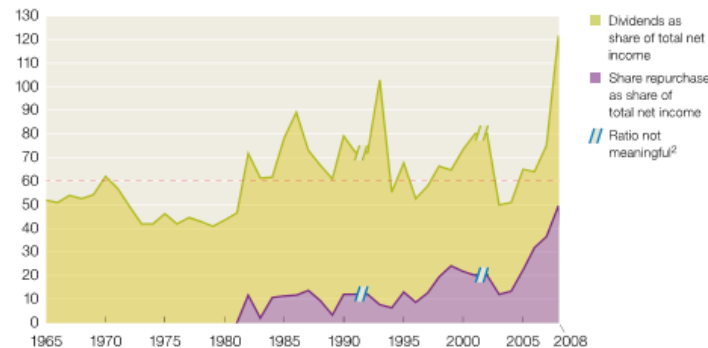
The composition of the US economy has shifted away from capital-intensive industries.

Share of total profits and capital expenditures for US-based companies, %



## Do Share Buybacks Jeopardize Future Growth (cont'd)

US net income payout ratio,<sup>1</sup> %

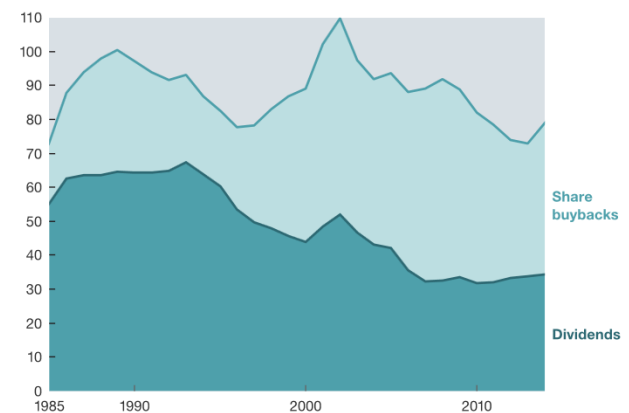


<sup>1</sup>Sample includes nonfinancial US companies with real revenue >\$100 million in any year between 1989 and 2008.

<sup>2</sup>Data for 1991-92, 2001-02 are excluded because of abnormally low net incomes.

Overall distributions to shareholders have fluctuated cyclically since deregulation in the mid-1980s, though the ratio of buybacks to dividends has grown.

Distributions as % of adjusted net income, 5-year rolling average<sup>1</sup>



## Developing a Dividend Policy

## Developing a Dividend Policy

- An **increasing dividend payout ratio** signals to shareholders that **future growth prospects are not as exciting** as in the past
  - The company now has the ability to support a consistent high level of dividends and the cash required to pay these dividends is also readily available from within the company
  - The reinvestment needs of the business can be met from the lower retention ratio on existing profits supplemented by raising a reasonable proportion of debt funding
- The **P/E multiple will reduce** as the market reassesses the potential for future growth
  - However, If substantial future growth expectations are allowed to be believed by shareholders for too long, the share price may rise too high and subsequently overreact in the opposite direction
- With the arrival of the maturity stage the **need for reinvestment reduces** significantly just as the availability of finance increases substantially
  - The company runs a potential risk of retaining profits for which it has no profitable use, which can lead to a declining overall rate of return for the business
  - Alternatively, the company can start to diversify, which frequently destroys shareholder value

## Dividends Whilst Growing

### STAR Limited

- Share price 125p
- Eps 5.0p
- Dividend 1.0p (20% payout ratio)
- Shareholders expect future growth at 15%
- Steady state cost of equity for an equivalent company 10%

$$\begin{aligned}K_e &= D_1/P_0 + g \\&= 1/125 + 15\% \\&= 0.8\% + 15\% \\&= 15.8\%\end{aligned}$$

- 0.8% of shareholders' required 15.8% yield is met by dividends, ...
- ... therefore 15% must represent required capital growth
- • STAR is perceived by the markets as a growth company

How much of STAR Ltd's share price embeds **growth expectations**?

## Dividends Whilst Growing (cont'd)

### STAR Limited

- Share price 125p
- Eps 5.0p
- Dividend 1.0p (20% payout ratio)
- Shareholders expect future growth at 15%
- Steady state cost of equity for an equivalent company 10%

$$\begin{aligned}K_e &= D_1/P_0 + g \\&= 1/125 + 15\% \\&= 0.8\% + 15\% \\&= 15.8\%\end{aligned}$$

#### ➡ (a) Present Value of Growth Opportunities

At steady state, STAR's P/E ratio would be 1/0.1

= 10 times

Share price at steady state is  $10 \times 5\text{p}$

= 50p

Current share price is 125p

Therefore, 75p of the current share price represents PVGO – 60% of the price.

#### ➡ (b) Steady State P/E

Current P/E is  $125/5 = 25$  times

Steady state P/E is 10 times

Therefore current P/E is considerably greater than steady state P/E, demonstrating the market's growth expectations.

Determine STAR Ltd's **required rate of reinvestment (RoR)** to achieve expected growth?

## Dividends Whilst Growing (cont'd)

### STAR Limited

- Share price 125p
- Eps 5.0p
- Dividend 1.0p (20% payout ratio)
- Shareholders expect future growth at 15%
- Steady state cost of equity for an equivalent company 10%

$$\begin{aligned}K_e &= D_1/P_0 + g \\&= 1/125 + 15\% \\&= 0.8\% + 15\% \\&= 15.8\%\end{aligned}$$

**Rate of internally funded sustainable organic growth** determined by ...

- **Retention ratio** and ...
- ... **Return achieved on reinvested funds**  
$$g = \text{retention ratio} \times \text{return on reinvestment}$$
$$= (1 - \text{payout ratio}) \times \text{return on reinvestment (ROR)}$$
- STAR future expected growth:  $15\% = (1 - 0.2)\text{ROR}$
- Therefore, required ROR =  $(15\%/0.8) = 18.75\%$

Assume STAR Ltd **retained 100% of its earnings**:

- Would this have an **impact** on STAR Ltd's **share price**?

## Dividends Whilst Growing (cont'd)

### STAR Limited

- STAR future expected growth:  $15\% = (1 - 0.2)\text{ROR}$
- Therefore, required ROR =  $(15\%/0.8) = 18.75\%$

$$\begin{aligned}K_e &= D_1/P_0 + g \\&= 1/125 + 15\% \\&= 0.8\% + 15\% \\&= 15.8\%\end{aligned}$$

### STAR Limited – What if: 100% Retention Rate Scenario

$g = \text{retention ratio} \times \text{return on reinvestment}$

If no dividends are paid, the retention ratio is 100%

$$\begin{aligned}g &= 100\% \times \text{ROR} \\&= 100\% \times 18.75\% \\&= 18.75\%\end{aligned}$$

Therefore, using Gordon's dividend growth model:

$$\begin{aligned}K_e &= 0 + 18.75\% \\&= 18.75\%\end{aligned}$$

... higher than shareholders' expected return of 15.8%

- If no increased risk due to change in financial strategy ...
- ... **share price should increase** to adjust to shareholders' expected returns (from 125p to ca 146p)

## The Logic of a High Retention Ratio and High Payout

### High Retention Ratio

- In theory shareholders are indifferent between dividends and capital growth, ...
- ... however a high retention rate is only logical for a growth-orientated company
- Hence it could be argued that an increase in the retention rate should indicate higher future growth expectations and ...
- ... the greater volatility associated with higher growth may increase the risk perception of investors

### High Dividend Payout

- If a company is to pay out all of its current profits as dividends, this means that no future growth should be expected
- Therefore all the return to shareholders comes through dividend yield, and dividends are likely to stay at their current level
  - This potentially places the company in a steady state position

## Example: 100% Dividend Pay-Out in Growth Company

### STAR Limited

- Share price 125p
- Eps 5.0p
- Dividend 1.0p (20% payout ratio)
- Shareholders expect future growth at 15%
- Steady state cost of equity for an equivalent company 10%
- STAR future expected growth:  $15\% = (1 - 0.2)\text{ROR}$
- Therefore, required ROR =  $(15\%/0.8) = 18.75\%$

$$\begin{aligned}K_e &= D_1/P_0 + g \\&= 1/125 + 15\% \\&= 0.8\% + 15\% \\&= 15.8\%\end{aligned}$$

### STAR Limited – What if: 100% Dividend Payout Scenario

$$\begin{aligned}g &= \text{retention ratio} \times \text{return on reinvestment} \\&= (1 - \text{payout ratio}) \times \text{return on reinvestment (ROR)} \\&= (1 - 1) \times \text{ROR} \\&= 0\end{aligned}$$

- STAR Limited maximum sustainable dividend: 5.0p (i.e. the current eps)
- If share price is to stay at 125 p, then the shareholder's return is reduced to:

$$K_e = 5/125 + 0 = 4\%$$

But STAR Ltd shareholders previously wanted a return of 15.8%:

- Would this expectation have an **impact** on STAR Ltd's **share price**?

## Example: 100% Dividend Pay-Out in Growth Company (cont'd)

### STAR Limited

- Share price 125p, eps 5.0p, dividend 1.0p (20% payout ratio)
- Shareholders expect future growth at 15%
- Steady state cost of equity for an equivalent company 10%

$$\begin{aligned} K_e &= D_1/P_0 + g \\ &= 1/125 + 15\% \\ &= 0.8\% + 15\% \\ &= 15.8\% \end{aligned}$$

### STAR Limited – What if: 100% Dividend Payout Scenario (cont'd)

- Sustainable dividend: 5.0p (i.e. the current eps)
- ... with shareholders now investing in a stable-state company (100% payout ratio) ...
- ... but with investors now also to (only) expect a 10% return

- Current company performance profile:  $K_e = 5/125 + 0 = 4\%$

- Current shareholder perspective:  $10\% = 5 p/P_1 + 0$

- Consequence: **Adjustment / Reduction in share price**

$$P_1 = 5/0.1 = 50 \text{ p (a reduction of 75 p, or 60\%)}$$

- ... with P 1 being the share price after announcing the change in dividend policy

## Example: Dividends Whilst Maturity


### DEAR OLD GERIATRICS Inc

- Share price 100p
- Eps 12.0p
- Dividend 9.0p (75% payout ratio)
- Shareholders only expect future growth of 2%

$$\begin{aligned}K_e &= D_1/P_0 + g \\&= 9 \text{ p}/100 \text{ p} + 2\% \\&= 11\%\end{aligned}$$

### Implied Return on Re-investment (RoR)

$$\begin{aligned}g &= \text{retention ratio} \times \text{return on reinvestment (ROR)} \\2\% &= 0.25 \times \text{ROR}\end{aligned}$$


$$\text{return on reinvestment} = 2\%/0.25 = 8\%$$

What if DEAR OLD GERIATRICS decided a 100% payout ratio:

- Would this revised policy have an **impact** on DEAR OLD GERIATRICS **share price**?

## Example: 100% Dividend Pay-Out in Maturing Company

### DEAR OLD GERIATRICS Inc

- Share price 100p
- Eps 12.0p
- Dividend 9.0p (75% payout ratio)
- Shareholders only expect future growth of 2%
- DEAR OLD GERIATRICS future expected growth: :  
$$g = \text{retention ratio} \times \text{return on reinvestment (ROR)}$$
$$2\% = 0.25 \times \text{ROR}$$
- Therefore, ROR =  $\text{return on reinvestment} = 2\% / 0.25 = 8\%$

$$\begin{aligned} K_e &= D_1/P_0 + g \\ &= 9 \text{ p}/100 \text{ p} + 2\% \\ &= 11\% \end{aligned}$$

### DEAR OLD GERIATRICS Inc – What if: 100% Dividend Payout Scenario

- If all current profits are paid out ( $g = 0$ ) assuming the same share price (100p) and applying Gordon's model, yield calculates as:

$$\begin{aligned} K_e &= D_1/P_0 + 0 \\ &= 12 \text{ p}/100 \text{ p} + 0 \\ &= 12\% \end{aligned}$$

But DEAR OLD GERIATRICS shareholders previously wanted a return of 11% (when 25% of profits were being re-invested):

- Would this expectation have an **impact** on DEAR OLD GERIATRICS **share price**?

## Example: 100% Dividend Pay-Out in Maturing Company

### DEAR OLD GERIATRICS Inc

- Share price 100p, eps 12.0p, dividend 9.0p (75% payout ratio)
- Shareholders only expect future growth of 2%
- Shareholders achieve yield of 11%

$$\begin{aligned}K_e &= D_1/P_0 + g \\&= 9 \text{ p}/100 \text{ p} + 2\% \\&= 11\%\end{aligned}$$

### DEAR OLD GERIATRICS Inc – What if: 100% Dividend Payout Scenario (cont'd)

- Sustainable dividend: 12.0p (i.e. the current eps)
- Company performs 12% with full pay-out
- Shareholders required 11% rate of return ...
  - ... when 25% of profits were being reinvested
- In general: If their **risk perception** has been **reduced** due to the higher payout ratio, the required rate of **return should also reduce** rather than increase
- Consequence: If expected return stays the same **adjustment / increase in share price**
$$P_1 = D_1/K_e = 12/0.11 = 109 \text{ p}$$
- ... with P 1 being the share price after announcing the change in dividend policy

What if DEAR OLD GERIATRICS decided a 50% payout ratio:

- Would this revised policy have an **impact** on DEAR OLD GERIATRICS **share price**?

## Example: Higher Retention Ratio in Maturing Company

### DEAR OLD GERIATRICS Inc

- Share price 100p
- Eps 12.0p
- Dividend 9.0p (75% payout ratio)
- Shareholders only expect future growth of 2%
- DEAR OLD GERIATRICS future expected growth: :
 
$$K_e = D_1/P_0 + g$$

$$= 9 \text{ p}/100 \text{ p} + 2\%$$

$$= 11\%$$

$$g = \text{retention ratio} \times \text{return on reinvestment (ROR)}$$

$$2\% = 0.25 \times \text{ROR}$$

- Therefore, ROR = return on reinvestment =  $2\%/0.25 = 8\%$

### DEAR OLD GERIATRICS Inc – What if: 50% Retention Ratio

- Expected dividend payment reduces to 6.0p
- Assume that shareholders' required return remains at 11%

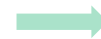
$$K_e = D_1/P_1 + \text{growth}$$

$$= D_1/P_1 + (\text{retention ratio} \times \text{return on reinvestment})$$

i.e.

$$11\% = 6/P_1 + (0.5 \times 8\%)$$

$$= 6/P_1 + 4\%$$



$$P_1 = 6/7\%$$

$$= 85.7\text{p}$$

- ... with P1 being the share price post-announcement of the change in dividend policy

## Equity Repurchases and Other Value Creation Matters

## Reasons for Stock Buy-Backs

- Unlike regular dividends, which typically commit the firm to continue payment in future periods, firms use equity repurchases primarily as one-time returns of cash
- The decision to repurchase stock affords a firm much more flexibility to reverse itself and to spread the repurchases over a longer period than does a decision to pay an equivalent special dividend
  - In fact, there is substantial evidence that many firms that announce ambitious stock repurchase plans do not carry them through to completion
- Equity repurchases may offer tax advantages to stockholders, since dividends are taxed at ordinary tax rates
- Equity repurchases are much more selective in terms of paying out cash only to those stockholders who need it
- Equity repurchases may provide a way of increasing insider control in firms, since they reduce the number of shares outstanding
- Equity repurchases may provide firms with a way of supporting their stock prices, when they are declining

## Choosing between Dividends and Equity Repurchases

The net benefit of equity repurchases vis-à-vis dividends will depend upon the following:

- *Sustainability and Stability of Excess Cash Flow*
  - If the excess cash flows are temporary or unstable, firms should repurchase stock; if they are stable and predictable, we would be more inclined to pay dividends, because they provide a stronger signaling benefit
- *Stockholder Tax Preferences*
  - If stockholders are taxed at much higher rates on dividends and, consequently are averse to dividends the firm will be better off repurchasing stock
- *Predictability of Future Investment Needs*
  - Firms that are uncertain about the magnitude of future investment opportunities should use equity repurchases as a way of returning cash to stockholders
- *Undervaluation of the Stock*
  - First, if the stock remains undervalued, the remaining stockholders will benefit if managers buy back stock at less than true value
  - Second, the stock buyback may send a signal to financial markets that the stock is undervalued, and the market will react accordingly, by pushing up the price
- *Management Compensation*
  - Managers with significant option positions may be more likely to buy back stock than pay dividends

## Divestitures

### *Reasons for Divestitures*

- The divested assets may have a higher value to the buyer of these assets
- Immediate cash flow needs of the divesting firm ...
  - ... and less value-driven
- Re-focus on core activities

## Spin Offs, Split Offs and Split Ups

- Spin off
  - A firm separates out assets or a division, and creates new shares with claims on this portion of the business
  - Existing stockholders in the firm receive these shares in proportion to their original holdings
- Split up
  - Considered an expanded version of a spin off
  - The firm splits into different business lines, distributes these shares to the original stockholders, in proportion to their original ownership in the firm, and then ceases to exist
- Split off
  - Like in a spin off creates new shares in the undervalued business line
  - In this case, however, the existing stockholders are given the option to exchange their parent company stock for these new shares, which changes the proportional ownership in the new structure

### Primary differences between a divestiture and a spin off

- No cash generated for the parent firm from a spin off
- Division being spun off usually becomes an independent entity, often with existing management in place
- As a consequence, the first two reasons given for divestitures – a buyer who generates higher value from the assets than the divesting firm and meeting cash flow needs – do not apply for spin offs



## Equity Carve Outs (ECOs)

- A firm separates out assets or a division, creates shares with claims on these assets and sell them to the public
- In contrast to a spin off, the sale brings in cash into the firm
- In general, the parent company retains control of the carved out unit, though some equity carve outs are accompanied by spin offs or the issue of tracking stock

### *Reasons for Equity Carve Outs*

- ECOs bring in cash either to the parent company or the subsidiary
  - Much likely to use an equity carve out for a division that has both high growth opportunities and significant investment needs
  - The cash raised from the equity carve outs can be utilized to meet these needs
- Parent company usually retains control after the spin off
  - Hence, some of the operating improvements that follow after spin offs, that result from separation from the parent company, may not occur in equity carve out

## Tracking Stocks

- In the last few years, a number of companies have created shares in divisions or subsidiaries that track the performance of just these units
  - The firm may receive cash from issuing tracking stock, but the transaction can also be cash-free
  - The parent company usually retains complete control over the units
  - Tracking stock are often referred to as designer or letter stock, since another letter is usually added to a stock's symbol, with its introduction

### ***Reasons for Using Tracking Stocks***

- Key difference between equity carve outs and tracking stock is the degree of control that the parent company maintains over the separated unit
  - In an equity carve out, it maintains effective control, but the carved out entity still has its own management and board of directors; stockholders in the unit get voting rights. With
- There are two conditions under which a firm might choose to use tracking stock rather than an equity carve out
  - If the tracked division gains substantially from its association with the parent company
  - If the parent company needs to preserve control of the tracked division, because it supplies a product or service that is viewed as integral or irreplaceable to the parent

## Choosing among the Alternatives

### Common Objectives

- All of these actions serve to highlight the undervaluation
- All of these actions might also result in additional information being provided to markets on the operations of the separated units
- Firms that are interested in a market estimate of the value of different portions of the business will gain by using all of these actions

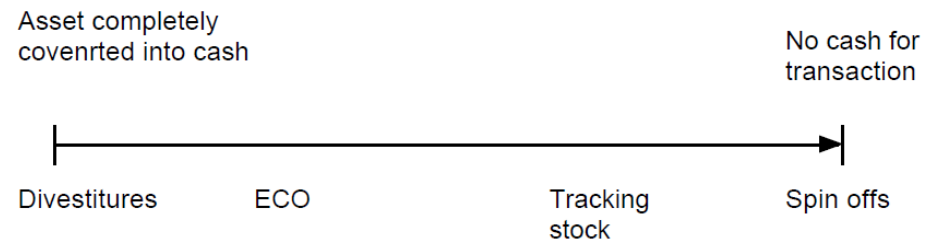
### Key Differences

- Effect on Cash:
- Effect on Control
- Effect on Taxes
- Effect on Bondholders

## Key Differences among the Alternatives

### Effect on Cash

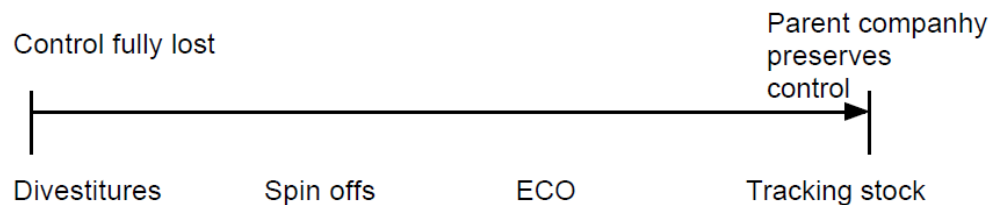
- Divestitures, equity carve outs and tracking stock result in cash proceeds, whereas spin offs do not generate cash for the parent company



## Key Differences among the Alternatives (cont'd)

### Effect on Control

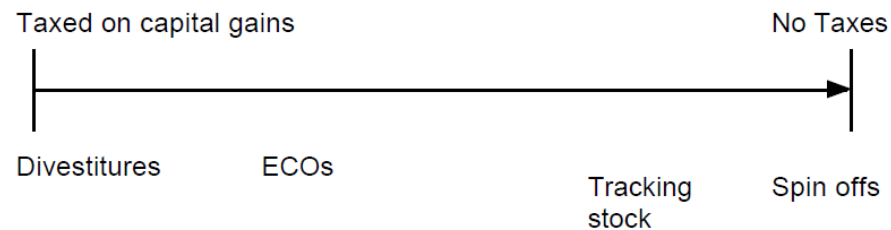
- In a divestiture, the divesting company has no control over the assets once they are divested
- At the other extreme, when tracking stock is issued, the parent company usually retains complete control over the tracked unit, and stockholders in the unit get no voting right



## Key Differences among the Alternatives (cont'd)

### Effect on Taxes

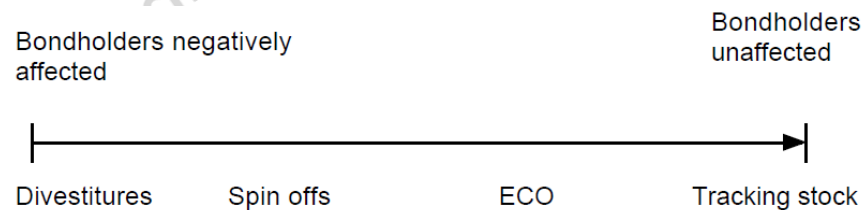
- Spin offs and tracking stock generally create no tax obligations for the stockholders of the parent company
- Divestitures, on the other hand, create a capital gain for the parent company, on which taxes are due



## Key Differences among the Alternatives (cont'd)

### Effect on Bondholders

- The bondholders in the parent company have no claim on the assets that are divested
  - If the cash from the divestiture is paid out as a special dividend or used to buy back stock, the bondholders will be worse off
  - Bondholders can also be negatively affected by spin offs, since the parent company has only a minority interest in the spun off units



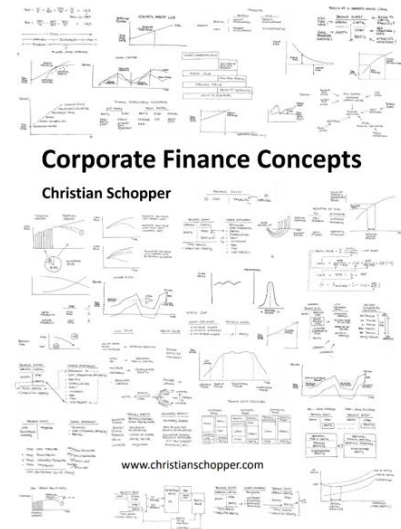
## Choosing between the alternatives

- Divestitures should be the preferred course of action for firms that need the cash proceeds to pay off outstanding debt or to make investments in other businesses
- A spin off makes the most sense for firms that have sufficient cash on hand to meet their investment needs, and do not need additional cash
- An equity carve out will add the most value for firms that need the cash from the carve out
- Issuing tracking stock makes sense for firms that want to retain complete control over the unit or assets being separated, but still want to highlight their value

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55