Andreas Krause

Signalling with dividends

- We can now investigate how companies can overcome adverse selection in that investors cannot distinguish between companies that have good prospects through highly profitable investments and companies that do not have such investments available.
- One way companies could achieve that is through their dividend payments and use this decision as a signal to investors about their quality.

Dividends and future investments

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→ We will first make the connection between dividends and investments.

- Typically, managers have better information about the prospects of a company than investors. This is because they have better access to information, much of which could not be disclosed for reason of competition.
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  - If managers pay out high dividends, they reduce the amount of equity the company has and thus the funds available.
  - With less funds available, the company can make less investments.
- Making less investments would impact the company value negatively.
- With higher future earnings the impact on the company value would be less pronounced as they would be able to generate sufficient profits to maintain their investments, despite paying out high dividends.
- It is therefore that paying high dividends might be used as a signal that the company has such profitable investment opportunities and can afford to pay high dividends.

→ We will now explore in more detail how this signalling might work.

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- If managers pay out higher dividends, they retain less earnings

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Company value

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  - The current value of the company is determined by the dividend the company pays
  - and the future inferred earnings, which are based on the investment return of the inferred investment amount. This inference will be high if the dividend is high and low if the dividend is low.
- The future value will depend on the return the company can earn based on the actual state of the company, thus the equity that is actually available after the dividend has paid. γ denotes the relative importance of current and future values to the manager.
- *Formula*

→ The manager's remuneration will now be based on this value and therefore he will seek to choose the dividend payment that gives him the highest payment, which is the highest value as described here.

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- A company will have a current value to outside investors consisting of its dividend
- $\Pi_M^{ij} = \gamma \; d_j$

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- A company will have a current value to outside investors consisting of its dividend and the value of future inferred retained earnings that are invested

- $\Pi_M^{ij} = \gamma \left(d_j + (1 + R) \left(E_j - d_j \right) \right)$

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- ▶ [⇒] This condition can be solved for this *formula*.
- → We have thus established the condition that ensures the company with good prospects chooses the high dividend.

High future earnings

- High dividends:
  $\Pi_M^{HH} = \gamma \left(d_H + (1+R)\left(E_H - d_H\right)\right) + (1-\gamma)(1+R)\left(E_H - d_H\right)$

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- Company pays high dividends if $\Pi_M^{HH} \geq \Pi_M^{HL}$

$\Rightarrow d_H - d_L \leq \frac{\gamma(1+R)(E_H - E_L)}{\gamma R + (1-\gamma)(1+R)}$

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Low future earnings

- High dividends:
$\Pi_M^{LH} = \gamma\left(d_H + \left(1+R\right)\left(E_H - d_H\right)\right) + \left(1-\gamma\right)\left(1+R\right)\left(E_L - d_H\right)$

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- Company pays low dividends if $\Pi_M^{LL} \geq \Pi_M^{LH}$

$\Rightarrow d_H - d_L \geq \frac{(2\gamma-1)(1+R)(E_H-E_L)}{\gamma R+(1-\gamma)(1+R)}$

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- ▶ He will pay a low dividend if the value of the company is higher than with a high dividend.
- ▶ [$\Rightarrow$] This condition can be solved for this *formula*.
- $\rightarrow$ We have thus established the condition that ensures the company with bad prospects chooses the low dividend.

Low future earnings

- High dividends:
  $\Pi_M^{LH} = \gamma\left(d_H + (1+R)\left(E_H - d_H\right)\right) + (1-\gamma)(1+R)\left(E_L - d_H\right)$
- Low dividends: $\Pi_M^{LL} = \gamma\left(d_L + (1+R)\left(E_L - d_L\right)\right) + (1-\gamma)(1+R)\left(E_L - d_L\right)$
- Company pays low dividends if $\Pi_M^{LL} \geq \Pi_M^{LH}$

$\Rightarrow$ $d_H - d_L \geq \frac{(2\gamma-1)(1+R)(E_H-E_L)}{\gamma R+(1-\gamma)(1+R)}$

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Signalling the company's prospects

→ We now combine these two results to ensure that the dividend choice conveys information about the prospects of the company.

- We can now combine the condition that the company with good prospects chooses the high dividend and the company with bad prospects chooses the low dividend.
- This requires the differences in the dividends to be sufficiently large, but not to be too large.
- [$\Rightarrow$] By choosing the dividends appropriately, companies can signal through high dividends that they have good prospects.

→ Dividends can therefore be used by companies to signal their future prospects and investor would know their type by observing the dividend they announce.

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Impact on company value

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→ This information will affect the company value.

- Dividends are used as a signal to convey the prospects of the company and investors will take this information to determine the value of the company.
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  - They know that high dividends reduce future value as the investments need to be reduced,
  - they know that such high dividends are only beneficial to the manager if the company obtains high earnings to make substantial investments.
- This will increase the value of the company as investors know that the company has these good prospects and the reduced ability to invest after the high dividend payment has a smaller impact.

→ Hence, higher dividends increase the value of the company, but not because of the dividend itself, but because of the information such a high dividend conveys to investors about the prospects of the company.

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