333-201 Business Finance

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Lecture 21:
Debt, Dividends and Taxes IV

Debt, Dividends and Taxes IV

- Analyze the circumstances when dividend policy is irrelevant
- Examine dividend policy in a classical taxation system and an imputation tax system
- Summarize the main factors affecting dividend policy

Institutional Features of Dividends

- Dividend declaration (or announcement) date
- Ex-dividend date, which is 4 business days before the record date
- Record (or books closing) date
  - The date on which shareholders of record receive the announced dividend
  - This gives brokers time to notify the share register and ensure that the new shareholders receive the dividend
- Payment date
  - Date dividend is mailed or paid electronically

Institutional Features of Dividends

Interim and final dividends announced by the Commonwealth Bank (ASX code: CBA) in 2008

$1.13 interim dividend announced	13 February 2008 (Wednesday)
Ex-dividend date	18 February 2008 (Monday)
Record date	22 February 2008 (Friday)
Interim dividend payment date	2 April 2008 (Wednesday)
$1.53 final dividend announced	13 August 2008 (Wednesday)
Ex-dividend date	18 August 2008 (Monday)
Record date	22 August 2008 (Friday)
Final dividend payment date	1 October 2008 (Wednesday)

Source: CBA's website at *shareholders.commbank.com.au*

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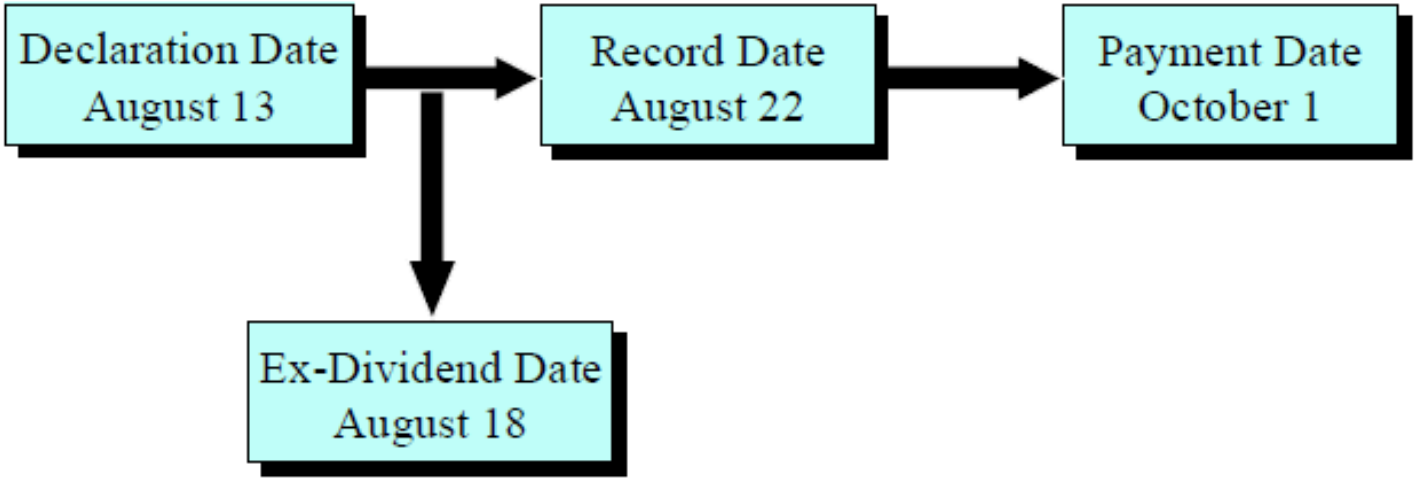
Institutional Features of Dividends



- The final dividend of $1.53 declared by CBA on August 13 is payable on October 1 to shareholders of record at August 22
- The ex-dividend date is 4 business days before the record date
- Stock trades without the dividend ("ex dividend") from August 18 onwards
- It trades with the dividend ("cum dividend") up to and including August 17
- What will happen to the price of shares on the ex-dividend date?

Dividend Payout Policies

- Pure residual dividend policy
  - Pay out any earnings that the firm does not need to reinvest
  - Dividends and dividend payout ratios tend to be unstable

- Smoothed (or fixed) dividend policy
  - Target a proportion of earnings to be paid out as dividends
  - Objective here is for the dividends to equal the long run difference between expected earnings and expected capital expenditures - Stable dividends over time

- Constant payout dividend policy
  - Pay a constant proportion of earnings as dividends
  - Stable dividend payout ratio but unstable dividends

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MM and the Dividend Irrelevance Theory

- The main assumptions underlying the irrelevance theory are…
  - Perfect capital market
  - The firm can issue and sell new shares when needed
  - No personal taxes
  - The firm is all equity financed
  - The firm has a given investment plan which is not affected by changes in dividends

- Firm value is determined only by what earnings are generated by the firm's assets
  - The manner in which the earnings stream is divided between dividends and retained earnings does not affect shareholders' wealth

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MM and the Dividend Irrelevance Theory

Recall from Lecture 4 that the price of ordinary shares is…

$$P_0 = (D_1 + P_1)/(1 + k_e)$$

Since the price at time 1 depends on the dividend in time 2, and so on, we get…

$$P_0 = \sum_{t=1}^{\infty} \frac{D_t}{(1 + k_e)^t}$$

The puzzle…

- If the price today depends on the stream of future dividends how can a firm's dividend policy be irrelevant?
- Investors should care about how much of earnings are paid out as dividends!

MM and the Dividend Irrelevance Theory

- Dividend policy is a trade-off between…
  - Retaining profits, versus
  - Paying dividends and issuing new share issues to replace the dividends paid out

- The overall effect of paying a dividend and issuing new shares to replace the cash is…
  - No change in the value of the firm
  - No change in the wealth of the old shareholders
    - The value of their shares will fall by an amount equal to the cash paid to them

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MM and the Dividend Irrelevance Theory

Sources of funds	
Cash from operations	X
Cash from *new* shares issued (Number of shares = m)	mP_1
Uses of funds	
Dividends paid (Number of shares = n)	nD_1
Investments	I

Since the sources and uses of funds must be equal, we have…

$X + mP_1 = nD_1 + I$

Alternatively, $mP_1 = nD_1 + I - X$

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MM and the Dividend Irrelevance Theory

If the firm has n shares outstanding, the value of the firm is…

$$V_0 = nP_0 = (nD_1 + nP_1)/(1 + k_e)$$

To replace the dividend paid out (nD_1), the firm sells m new shares at a price of P_1 each…

$$V_0 = [nD_1 + (n + m)P_1 - mP_1]/(1 + k_e)$$

Substituting for $mP_1 = nD_1 + I - X$ in the above expression, we get…

$$V_0 = [(n + m)P_1 - I + X]/(1 + k_e)$$

Note that D_1 does not appear in the above equation so dividend policy is irrelevant to firm value

MM and the Dividend Irrelevance Theory

Illustration: TXT Ltd has 1,000,000 shares outstanding, and its current market price is $5.00. Assume that the firm operates in a perfect capital market and is considering paying a dividend of $0.50 per share one year from now. The required rate of return on its shares is 10% p.a. and cash from operations is $100,000 while its investment requirement is $500,000

Given: P_0 = \$5.00, k_e =10%, D_1 = \$0.50, X = \$100,000 and I = \$500,000

The current total shareholder wealth is…
1000000 × 5.00 = \$5,000,000

MM and the Dividend Irrelevance Theory

Recall that…

- $P_0 = (D_1 + P_1)/(1 + k_e)$

Case 1: If the dividend *is* paid, we have…

- So, $P_1 = P_0(1 + k_e) - D_1$
- $P_1 = 5.00(1.10) - 0.50 = \$5.00$

Case 2: If the dividend *is not* paid, we have…

- $D_1 = 0$
- $P_1 = P_0(1 + k_e)$
- $P_1 = 5.00(1.10) = \$5.50$

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MM and the Dividend Irrelevance Theory

Case 1: If the dividend is paid the firm will need to issue new shares in the amount of…

$mP_1 = nD_1 + I – X$

$m(5.00) = 1000000(0.50) + 500000 – 100000$

So, $m = 900000/5.00 = 180{,}000$ shares

Case 2: If the dividend is not paid the firm will need to issue new shares in the amount of…

$(500000 – 100000)/5.50 = 72{,}727$ shares

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MM and the Dividend Irrelevance Theory

What happens to shareholder wealth in each case?

Case 1: If the dividend is paid…
Shareholder wealth = [(1180000)(5.00) + 100000 – 500000]/1.10
Shareholder wealth = (5900000 – 400000)/1.10 = $5,000,000

Case 2: If the dividend is not paid…
Shareholder wealth = [(1072727)(5.50) + 100000 – 500000]/1.10
Shareholder wealth = (5900000 – 400000)/1.10 = $5,000,000
The decision to pay or not pay a dividend does not affect firm value and dividend policy is irrelevant under these assumptions

Is dividend policy really irrelevant in the “real world”?

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Dividends and Taxes

- The differential tax treatment of dividend income versus capital gains (arising from retained earnings) can result in shareholders preferring the payment of dividends, or not

- We examine this difference in the tax treatment of dividends by comparing a firm's dividend policy under…
  - A classical tax system
  - An imputation tax system

Dividend Policy in a Classical Tax System

- Recall from Lecture 18 that under the classical tax system…

- From a dollar of corporate earnings, the shareholder ends up with $(1 – t_c)(1 – t_p)$ dollars of after-personal-tax dividend
    - That is, dividends are effectively taxed twice

- Capital gains are taxed at a lower rate and the effective tax rate on capital gains may even approach zero if share sale are postponed well into the future

- Does it make sense for firms to ever pay dividends under the classical tax system?

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Dividend Policy in a Classical Tax System

- A classical tax system will tend to lead to the creation of different shareholder "clienteles" depending on their tax rates
  - Shareholders who pay higher tax on dividends than on capital gains would choose a low dividend paying firm
  - Shareholders who pay lower tax on dividends than on capital gains would choose a high dividend paying firm

- What should the firm do?

- Bottom line?
  - Dividend policy may still be irrelevant via the shareholder clientele effect

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Imputation and Dividend Policy

- Recall from Lecture 18 that under the imputation tax system…
  - Earnings distributed as franked dividends to resident shareholders is effectively taxed once at the shareholder's (marginal) personal tax rate

- If all a firm's shares were held by resident shareholders with marginal tax rates *less than the corporate tax rate, then the* optimal dividend policy would be to pay dividends and exhaust the available franking credits

- However…
  - Many individuals have personal marginal tax rates that are higher than the corporate tax rate who may prefer the retention of earnings
  - Not all shareholders are resident shareholders

Imputation and Dividend Policy

Bottom line?

- The interaction of capital gains tax and the imputation tax system means that shareholders with low marginal tax rates would prefer earnings to be paid out as dividends
- Those in high marginal tax rates may tend to prefer earnings to be retained
- "Imputation clienteles" may exist at the firm level

Does Dividend Policy Matter?

- Probably not a resounding “yes”, but a qualified “yes”…

- Markets are not perfect and market imperfections drive managers to pay attention to do “what the market wants”

- Taxes are the obvious market imperfection but in some cases the irrelevance of dividend policy may still hold
    - The classical tax system versus the imputation tax system

- Dividends do contain information and possess strong “signaling” elements as well

- Dividends also result in lowering the agency costs between management and shareholders

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Key Concepts

- Dividend policy is about the trade-off between retaining profit and paying out dividends

- Dividend policy does not affect shareholders' wealth in a perfect capital market

- Dividend policy becomes important when we consider taxes and other market imperfections

- The imputation tax system does eliminate double taxing of dividend income and encourages higher dividend payout ratios

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Key Relationships/Formula Sheet

Price at time 0: $P_0 = (D_1 + P_1)/(1 + k_e)$

Sources and uses of funds: $X + mP_1 = nD_1 + I$

Dividend irrelevance: $V_0 = [(n + m)P_1 - I + X]/(1 + k_e)$

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