

FIN 325 Corporate Finance

L9 (Theory): Imperfect and Incomplete Capital Markets

Instructor: Adam Hal Spencer¹

Summer 2016

¹Departments of Economics and Finance, UW–Madison.

Midterm exam details

- Exam will be **in-class** on **Friday June 3**.
- Covers all topics **up to and including** agency problems.
- Don't worry about information asymmetry for the **midterm**. It will only **appear on the final**.
- Exam will consist of **multiple choice**, **true/false** and **analytical** style problems.
- Multiple choice and true/false problems will require you to **explain** your choice of answer.
- To prepare for the analytical problems, re-do your problem sets.
- The lecture notes are the best resource for the multiple choice problems.

Motivation

- Recall the Modigliani & Miller theorem said that capital structure was **irrelevant** under certain conditions.
- Let's now relax the assumption of perfect and complete capital markets.
- When we relax the assumption, arbitrage opportunities arise, which cause our MM proof to break down.
 - Recall we said that if two portfolios of securities in a firm yield the same cash flows **next period** then they must have the same value **today**.

What is a **perfect** capital market?

- A market in which arbitrage opportunities can not arise.
 - Traders are all rational and pursue the objective of utility maximisation.
 - There are no transaction costs or regulations and all assets are perfectly divisible.
 - Perfect competition in securities markets.
- “If you want to trade, you can!”

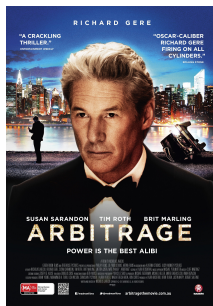
What happens when the markets are **imperfect**?

- There are two ways our argument in the MM theorem proof can fail.
 - (1) Market may not price securities.
 - (2) Investors cannot trade as they wish: there is some barrier preventing them from doing so, (may or may not be Gandalf).



Arbitrage (1)

- **Arbitrage:** the simultaneous buying and selling of securities, currency or commodities in different markets in order to take advantage of differing prices for the **same asset**.
- Such opportunities don't exist in perfect and complete markets due to the forces of supply and demand.
- If an asset is **undervalued**, demand will rise causing the price to **increase**.
- If an asset is **overvalued**, people will **short-sell** it until the price **decreases**.



Arbitrage (2)

- What if **short selling** is banned?
- It happens! (See below — August 3, 2015).

BloombergBusiness 

News

Markets

Insights

Video

China Limits Stock Market Short Selling to Curb Volatility

by Ye Xie, Lee Spears and Huang Zhe

Arbitrage (3)

- China recently put a ban on short sales in an attempt to reduce volatility in its equity markets.
 - Regulation that makes their capital market imperfect.
- What's the problem with this?
- Prices of over-valued stocks will remain **artificially high!**

Arbitrage (4)

- How does this fit within the context of our MM argument?
 - Two firms with the same cash flow at $t = 1$ may have different security prices at $t = 0$.
 - The price difference will stay there!
 - Capital structure will matter!
- E.g. say that corporate bonds are **over-valued**. Consider two firms — Firm Unlevered and Firm Levered — that have the same cash flows next period.
 - Say that Firm Unlevered is 100% equity.
 - But Firm Levered is 50-50 equity and debt.
 - Then Firm Levered may be worth more in spite of the same value of their underlying operations.
 - A ban on short-selling will prevent this from correcting!

What is a **complete** capital market?

- A capital market whereby a **state contingent claim** is traded for each potential **state of the world** in the future.
- E.g. Consider a world that faces two potential states next period — recession and boom.
- A **state contingent claim** for state j is a security, which gives a payoff of 1 next period **if state j prevails** and 0 otherwise.
- Comparison with insurance: the market is complete if the agent can insure himself completely for next period.

Fisher separation theorem

- *If capital markets are perfect and complete then investors in a firm will always direct the managers to accept projects with a positive NPV.*
- Says that the sole objective of the firm is to maximise its value.
- Holds regardless of the differing preferences of its individual investors.
 - E.g. different shareholders can have differing preferences.
 - Theorem says that all the equityholders will want to maximise their value.

What happens if markets are **incomplete**?

- Fisher separation theorem fails to hold.
- Firms may not all have incentive to maximise value as their objective.
- Investors no longer able to perfectly smooth their wealth across states, (no longer have full insurance with incomplete markets).
- E.g. consider a firm with two shareholders — Louis and David.
 - Say the firm faces two states of the world next period — high and low.
 - David prefers to receive a large dividend in the high state and a small dividend in the low state.
 - Louis prefers a large dividend in the low state and a small dividend in the high state.
 - When should the firm pay a large dividend?
 - Gives rise to the clientelle effect.

Clientele effect (1)

- **Clientele effect:** when investors are able to affect the price of a particular type of security to which they are attracted.
- E.g. say that investors can't borrow **themselves**.
- The inability to borrow will mean that some investors will pay more for the equity of firms who have higher leverage.
- A firm can then create more value through leveraging up.
- E.g. investors have a strong appetite for regular dividends.
- Your firm's equity can trade at a premium if you pay lots of dividends.

Clientele effect (2)

- A firm can create value by catering to the tastes of particular investors.
- We don't typically think that individual firms will take this into consideration much when choosing their own capital structures.
- Investment banks usually can cater to specific tastes of investors.
 - E.g. they can pool risky debt-ridden firm loans together and sell them to investors who have an appetite for risk and leverage.

Clientele effect (3): evidence

- **In favour** of the clientele effect:
 - Baker and Wurgler (2004): firms start dividends when demand for them is high and terminate when such demand is low.
 - Baker and Wurgler (2002): firms will issue equity when its overpriced.
- **Against** the clientele effect:
 - Lemmon, Roberts and Zender (2008): capital structure is quite persistent. It's too persistent to be explained by short term overpricing.

Takeaways

- Perfect capital markets are required for the MM theorem to hold.
- Imply an absence of arbitrage opportunities.
- In the presence of imperfections, firms with the same underlying cash flows from real operations may be priced differently for financial reasons.
- Capital market completeness is also required.
- Its failure can give rise to the clientele effect.