CHAPTER 13
CORPORATE FINANCING
and MARKET EFFICIENCY

FINANCING STRATEGY

• WE NOW MOVE FROM LEFT-HAND SIDE TO RIGHT HAND SIDE OF THE BALANCE SHEET
• GIVEN THE FIRM’S CURRENT PORTFOLIO OF REAL ASSETS AND ITS FUTURE INVESTMENT STRATEGY, WHAT IS THE BEST FINANCING STRATEGY?

THE DIVIDEND POLICY QUESTION (CH. 16)
– SHOULD THE FIRM REINVEST EARNINGS OR PAY THEM OUT AS DIVIDENDS?

THE CAPITAL STRUCTURE QUESTION (CH. 17)
– IF THE FIRM NEEDS TO RAISE ADDITIONAL CAPITAL, SHOULD IT ISSUE STOCK OR BORROW MORE?
WE ALWAYS COME BACK TO NPV

• NPV = AMOUNT BORROWED - PV OF AMT REPaid
• EXAMPLE: GOVERNMENT OFFERS TO LEND YOUR FIRM $100,000 FOR 10 YEARS AT 3% (PREVAILING RATE IS 10%)

\[
NPV = +100,000 - \left[ \sum_{t=1}^{10} \frac{3,000}{(1.10)^t} \right] - \frac{100,000}{(1.10)^{10}}
\]

\[
= +100,000 - 56988 = +$43,012
\]

SHOULD YOUR FIRM TAKE THIS DEAL?
WHAT IS THE COST TO THE GOVERNMENT?
WHERE ELSE CAN FIRMS FIND SUCH DEALS?

EFFICIENT CAPITAL MARKETS:
IF CAPITAL MARKETS ARE EFFICIENT, THEN THE PURCHASE OR SALE OF ANY SECURITY AT THE PREVAILING MARKET PRICE IS NEVER A POSITIVE NPV TRANSACTION…OR,

THE PRICE IS RIGHT!

STOCK PRICES CHANGES ARE RANDOM

EXAMPLE OF A RANDOM WALK PROCESS:
COIN FLIP EACH DAY DETERMINES THE VALUE OF YOUR INVESTMENT:
– HEADS, YOUR INVESTMENT INCREASES BY 3%
– TAILS, YOUR INVESTMENT DECLINES BY 2.5%

THUS, SUCCESSIVE CHANGES IN VALUE ARE INDEPENDENT


CAN YOU TELL WHICH IS WHICH?
THIS ONE?

OR THIS ONE?
TESTS OF RANDOM WALK

• “STARTLING DISCOVERY” IN THE 1950’S LED TO ADDITIONAL TESTS OF WHETHER PRICE CHANGES TEND TO PERSIST OVER TIME:
  – SCATTER DIAGRAMS
  – CORRELATION COEFFICIENTS
  – RUNS TESTS
  – TESTS OF FILTER RULES

• RESEARCHERS HAVE LOOKED AT MANY STOCKS
  – DIFFERENT COUNTRIES, VARIOUS TIME PERIODS

BOTTOM LINE:

THERE IS A LARGE QUANTITY OF EVIDENCE THAT THERE IS NO USEFUL INFORMATION CONTAINED IN PAST PRICES

WEYERHAEUSER DAILY PRICE CHANGES ON SUCCESSIVE DAYS BETWEEN 1963 AND 1993

T. CRACK AND O. LEDOIT
Filter rule tests

Chartists (technical analysts) claim that simple correlation tests are unable to capture the “art” of charting. They can see patterns, e.g., heads and shoulders.

FILTER RULE TESTS:
- A filter rule: If price moves up by X%, then buy and hold...until price moves down by Y%, then sell and go short.
- Lots of different buy and sell filters were investigated.

Findings:
- Filter rules can’t beat a buy and hold strategy.
- When commissions are included they do worse.

What is the basis for technical analysis?

Price changes are not independent due to the slow dissemination of information

• For example, consider the following scenario:
  - A firm is expected to pay a $2.00 per share dividend in perpetuity. Investors require 10%.
  - Announcement indicates that dividends will increase to $3.00 per share in perpetuity.

• Compare the change in stock price over time if information dissemination is rapid versus slow.
  - What are the implications for serial correlation?
  - What causes the randomness in stock prices?
THREE FORMS OF MARKET EFFICIENCY

- **WEAK FORM EFFICIENCY**
  - PRICES REFLECT ALL INFORMATION CONTAINED IN PAST PRICES
  - RESEARCH ON RANDOM WALKS SHOWS MARKET IS AT LEAST WEAK FORM EFFICIENT

- **SEMI-STRONG FORM EFFICIENCY**
  - MARKET REFLECTS ALL PUBLIC INFORMATION, INCLUDING INFORMATION CONTAINED IN PAST PRICES
  - TESTED BY LOOKING AT STOCK PRICE RESPONSE TO SPECIFIC ITEMS OF NEWS, E.G., EARNINGS, DIVIDENDS, MERGERS, STOCK SPLITS, ETC.
  - EVIDENCE SHOWS THAT PUBLIC INFORMATION IS RAPIDLY IMPOUNDED IN STOCK PRICES
THREE FORMS OF MARKET EFFICIENCY

• STRONG FORM EFFICIENCY
  – PRICES REFLECT ALL INFORMATION ABOUT THE COMPANY INCLUDING INFORMATION THAT CAN BE ACQUIRED BY ANALYSIS OF THE COMPANY (AS WELL AS INSIDE INFO)
  – WITH STRONG FORM EFFICIENCY, WE WOULDN’T FIND SUPERIOR INVESTMENT MANAGERS WHO CONSISTENTLY BEAT THE MARKET...NOR WOULD INSIDERS BE ABLE TO EARN ABNORMAL PROFITS

• Evidence indicates that, on average, professional money managers do not earn above average returns. (Does this mean you should avoid mutual funds?)

• However, there is evidence that insiders can earn superior returns.

MUTUAL FUND & MARKET RETURNS 1962-1992
(Figure 13-4)

M. M. CARHART, UNPUBLISHED PAPER, UNIVERSITY OF CHICAGO, DECEMBER 1994
Semi-strong form tests

**Event studies:**
Measure the effect of some event (e.g., stock split) on the value of the firm. First, need to control for changes in stock price due to normal relation with the overall market.

**Calculating abnormal returns:**

<table>
<thead>
<tr>
<th>Event Time</th>
<th>Actual Return</th>
<th>Normal Return</th>
<th>Abnormal Return</th>
<th>Cumulative Abnormal Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>15%</td>
<td>12%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>-1</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>0</td>
<td>12</td>
<td>14</td>
<td>-2</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>-3</td>
<td>-5</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>-9</td>
<td>-8</td>
<td>-1</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>24</td>
<td>15</td>
<td>9</td>
<td>15</td>
</tr>
</tbody>
</table>

Note: Event period 0 is the period in which the event is announced.

**Stock splits**

- What are they? Why are they interesting?
- Fama, Fisher, Jensen and Roll study (1969)
  - Looked at 940 splits between 1926 and 1960
  - Defined “month 0” as the month of stock split
  - For each month calculated abnormal return (-29 to +30)
  - Calculated average abnormal return for each month across the 940 splits
  - Examined the average cumulative abnormal returns over the 60 months surrounding the split
- What explains the pre-split price run up?
- What explains the announcement price reaction?
- What does the post-split performance imply?
Abnormal Returns for Companies
Announcing Stock Splits

Cumulative abnormal returns rise prior to month of split. Very likely this occurs because splits take place in good times, that is, they take place following a rise in stock price. Abnormal returns are flat after month of split, a finding consistent with efficient capital markets.


Do perfect substitutes exist for securities?

\[
\text{Elasticity of demand} = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}
\]

If close substitutes exist → demand is elastic
If no close substitutes → demand is inelastic

Example: Demand for coffee vs. Demand for Maxwell House

- Stocks should be almost perfect substitutes for each other
  - What does this imply about selling large blocks of stock?
  - Do you have to lower your price more to sell larger blocks?
Scholes’ study of secondary distributions

- **Price pressure hypothesis:** To sell a large block of stock you have to offer a discount (sweetener)...to entice investors. Assumes firm’s securities are unique, do not have perfect substitutes thereby resulting in a downward sloping demand curve for the firm’s stock.

- **Perfect substitute hypothesis:** Do not need to offer a discount to sell block. There are perfect substitutes for the firm’s stock so that the demand curve is horizontal. If a discount is offered, the buyer earns an abnormal return.

- **Information hypothesis:** Seller may have to offer a discount if the buyer believes the sale is based on inside information.

![Diagram of competing hypotheses of price behavior around the sale of a large block.](image-url)
Scholes’ study of secondary distributions

- Using daily data found slight (permanent) reduction in stock price, which was independent of the amount sold.
- Also partitioned by identity of the seller:

<table>
<thead>
<tr>
<th>Category</th>
<th>CAR (-10, +10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment companies and mutual funds</td>
<td>-2.5%</td>
</tr>
<tr>
<td>Banks and insurance companies</td>
<td>-0.3</td>
</tr>
<tr>
<td>Individuals</td>
<td>-1.1</td>
</tr>
<tr>
<td>Corporations and officers</td>
<td>-2.9</td>
</tr>
<tr>
<td>Estates and trusts</td>
<td>-0.7</td>
</tr>
</tbody>
</table>

- What do these results suggest?

Stock prices and the publication of second hand information (Davies and Canes, 1978)

- Can analysts information be used to earn abnormal returns?
  - Do prices adjust when analysts revise stock recommendations?
  - Does rate of price adjustment depend on how recommendation is disseminated?
  - Do buy recommendations have different effects then sell recommendations?
  - Are analysts’ recommendations self-fulfilling prophesies?

- Tests focus on recommendations in the “Heard on the street” column in the Wall Street Journal.
  1. Analyst has information which is old to the firm’s clients.
  2. Later, published in WSI (one or two week lag.)

- Necessary conditions for a stock price response to the column:
  1. Readers believe analyst has information.
  2. Analysts clients haven’t captured all the profits?
Capital market anomalies

- Stock price performance of small firms
- The January effect
- The “week-end” effect
- The October 87’ crash

**VERDICT:**
- CAPITAL MARKETS FUNCTION WELL
- OPPORTUNITIES FOR EASY PROFITS ARE RARE
- FINANCIAL MANAGERS SHOULD ASSUME, AT LEAST AS A STARTING POINT, THAT SECURITY PRICES ARE FAIR AND THAT IT IS DIFFICULT TO OUTGUESS THE MARKET