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LEVEL 1: EQUITY INVESTMENTS

Reading 35 (3rd out of 6): MARKET EFFICIENCY

Difficulty: **easy**

Benchmark Study Time: **1.8h**

2022

THIS E-BOOK:

- is a selective summary of the corresponding Reading in your CFA® Program Curriculum,
- provides place for your own notes,
- helps you structure your study and revision time!

How to use this e-book to maximize your knowledge retention:

1. **Print** the e-book in duplex and bind it to keep all important info for this Reading **in one place.**
2. **Read** this e-book, best twice, to grasp the idea of what this Reading is about.
3. **Study** the Reading from your curriculum. **Here add** your notes, examples, formulas, definitions, etc.
4. **Review** the Reading using this e-book, e.g. write your summary of key concepts or revise the formulas at the end of this e-book (if applicable).
5. **Done?** Go to your study plan and change the Reading's status to **green**:
   (it will make your Chance-to-Pass-Score™ grow ☺).
6. **Come back** to this e-book from time to time to **regularly review for knowledge retention!**

NOTE: While studying or reviewing this Reading, you can use the tables at the end of this e-book and mark your study/review sessions to hold yourself accountable.

INFORMATIONALLY EFFICIENT AND INEFFICIENT MARKETS

Definitions

informationally efficient markets = markets with instruments whose prices reflect past and present information and adjust to new information quickly

inefficient markets = markets with instruments whose prices don't reflect all past and present information

Market value vs Intrinsic value

market value = the price at which transaction is actually conducted

intrinsic value (fundamental value) = the value of a financial instrument calculated given a complete set of data on its issuer

If the intrinsic value > the market value → the asset is undervalued → investors decide to buy the instrument

If the intrinsic value < the market value → the asset is overvalued → investors decide to sell (short) the instrument

If the intrinsic value = the market value → the asset is fairly valued by the market

HERE KNOWLEDGE RETENTION HAPPENS | WRITE: notes, examples, formulas, definitions, relations, etc.

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MARKET EFFICIENCY

Factors affecting market efficiency

Factors affecting market efficiency:

- the number of market participants,
- availability of information,
- trading limits.

the higher the number of market participants → the higher the market efficiency

Information availability:

- depends on the level of financial information disclosure required by regulations in a given market,
- should be equal for all market participants.

Examples of trading limits:

- constraints on arbitrage (arbitrage is a process thanks to which an investor earns a profit without bearing any risk),
- constraints on short selling.

the tighter the trading limits → the lower the market efficiency

Types of costs

Costs related to trading and gathering information:

- transaction costs,
- information-acquisition costs.

transaction costs = the higher the transaction costs, the higher the divergence from arbitrage-free value should be for the arbitrage to be possible

information-acquisition costs = costs borne when gathering and analyzing information

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FORMS OF MARKET EFFICIENCY

The classification of market efficiency developed by E. Fama:

- weak form of market efficiency,
- semi-strong form of market efficiency,
- strong form of market efficiency.

Weak form of market efficiency

In the case of the weak form of market efficiency, all historical data are included in the prices of instruments. So, analyzing historical patterns of prices and searching for correlations between the returns to predict price movements in the future is pointless because it will not allow investors to make abnormal returns.

Semi-strong form of market efficiency

In the case of the semi-strong form of market efficiency, the prices reflect all publicly known and available information.

A semi-strong efficient market is also a weak efficient market.

Strong form of market efficiency

In the case of the strong form of market efficiency, the prices reflect all public and private information. So, even insiders can't make abnormal returns.

A strong efficient market is also:

- a semi-strong efficient market, and
- a weak efficient market.

Fundamental analysis

Fundamental analysis:

- is used to determine if investing in the stock of a certain company can be a profitable investment,
- uses the company's earnings, sales and cash flows forecasts,
- allows investors to understand how information affects the value of instruments,
- affects the dissemination of information,
- supports the semi-strong form of market efficiency.

Technical analysis

A technical analyst:

- studies changes in prices of financial instruments using only historical pricing and volume data,
- tries to achieve abnormal profits by searching for profitable patterns of prices.

Technical analysis supports the weak form of market efficiency.

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MARKET PRICING ANOMALIES

Definition

market pricing anomaly = a situation in which changes in the price of financial instruments may not be explained by information currently available about these instruments

Types of market pricing anomalies:

- time-series anomalies,
- cross-sectional anomalies,
- other anomalies.

Time-series anomalies

Time-series anomalies:

- calendar anomalies,
- momentum and overreaction anomalies.

Calendar anomalies

Examples:

January effect, turn-of-the-month effect, the day-of-the-week effect, the weekend effect, the holiday effect.

January effect:

- is (was) observed in many markets,
- January is characterized by significantly high returns,
- Explanation: many investors sell unprofitable assets at the end of December to lower tax liabilities and repurchase assets at the beginning of January → assets prices in January increase

turn-of-the-month effect = higher return on the last trading day of an old month + 3 trading days of a new month

day-of-the-week effect = lower returns on Mondays

weekend effect = lower returns on weekends

holiday effect = higher return on the day before a holiday

HERE KNOWLEDGE RETENTION HAPPENS | WRITE: notes, examples, formulas, definitions, relations, etc.

Momentum and overreaction anomalies

momentum and overreaction anomalies = too strong and extreme reactions of investors to negative or positive market information

Cross-sectional anomalies

Cross-sectional anomalies:

- size effect,
- value effect.

Size effect:

- is connected with small-cap companies yielding higher returns than large-cap companies,
- was first spotted in the 80s; nowadays, because investors know about this effect and want to exploit it, achieving abnormal returns over long periods of time is no longer possible.

Value effect means achieving higher returns over a long period of time by companies which have:

- below-average price-to-earnings ratio and price-to-book ratio,
- above-average dividend yields.

Other anomalies

Examples of other anomalies:

- closed-end investment fund discounts,
- earnings surprise,
- initial public offerings (IPOs),
- predictability of returns based on prior information.

closed-end investment fund discounts = shares of such funds usually trade a few percentage points below NAV per share; potential explanations: management fee, management performance expectation, no full control over the timing of gains or loss realization

earnings surprise = the adjustment to positive and negative earnings surprises is not always efficient (quick)

initial public offerings (IPOs) = abnormal returns earned on IPOs

predictability of returns based on prior information = equity returns are correlated with past information, e.g. about interest rates, but it is almost impossible to earn abnormal returns even if you know about this correlation

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BEHAVIORAL FINANCE

Behavioral finance is a field of finance which studies the role of psychology in financial decision making. It focuses on the so-called behavioral biases that impact investor's decisions.

Asymmetrical risk aversion

Risk aversion is asymmetrical, which means that – for a given amount of risk – investors are more afraid of a potential loss than satisfied with a potential profit.

Investors' overconfidence

Investors' overconfidence = investors place too much trust in their own analyses →
→ investors misinterpret the information → securities are mispriced

Herding

When investors pay more attention to others' opinions about investing and not to their own analysis, they may overreact or underreact to information.

Information cascades

It is about how information cascades >> goes from a group of investors (those that react first) to another group of investors. When new information appears (especially if it is difficult to interpret), the most knowledgeable investors make investment decisions first and then other groups of investors make their move. This also may lead to overreaction in the market.

Representativeness

Investors assess new information based on their past experience with similar information.

Mental accounting

Separate mental accounts for gains and losses.

Conservatism

Slow reaction to new information and sticking to previous opinions.

Narrow framing

Investors often forget about the big picture and assess new info without taking the wider context into account.

HERE KNOWLEDGE RETENTION HAPPENS | WRITE: notes, examples, formulas, definitions, relations, etc.

Summarizing key concepts:

☐ Informationally efficient vs Inefficient markets

My summary:

☐ Factors affecting market efficiency

My summary:

☐ Forms of market efficiency: weak, semi-strong, strong

My summary:

☐ Fundamental analysis

My summary:

☐ Technical analysis

My summary:

☐ Time-series anomalies

My summary:

☐ Cross-sectional anomalies

My summary:

☐ Other anomalies

My summary:

☐ Behavioral finance

My summary:

Keeping myself accountable:

TABLE 1 | STUDY

When you sit down to study, you may want to **try the Pomodoro Technique** to handle your study sessions: study for 25 minutes, then take a 5-minute break. Repeat this 25+5 study-break sequence all throughout your daily study session.

✓ Tick off as you proceed.

POMODORO TIMETABLE: study-break sequences (25' + 5')													
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TABLE 2 | REVIEW

Never ever neglect revision! Though it's not the most popular thing among CFA candidates, regular revision is what makes the difference. If you want to pass your exam, **schedule & do your review sessions.**

REVIEW TIMETABLE: When did I review this Reading?													
date		date		date		date		date		date		date	
date		date		date		date		date		date		date	