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คณะพาณิชยศาสตร์และการบัญชี จุฬาลงกรณ์มหาวิทยาลัย
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VALUE INVESTING IN STOCK EXCHANGE OF THAILAND (SET): FINANCIAL SIGNALS VS GROWTH IN EPS

Miss Sasanun Chungviwatanant

A Thesis Submitted in Partial Fulfillment of the Requirements
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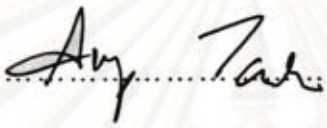
Thesis Advisor	Nattawut Jenwittayaroje, Ph.D

Accepted by the Faculty of Commerce and Accountancy, Chulalongkorn University in Partial Fulfillment of the Requirements for the Master's Degree



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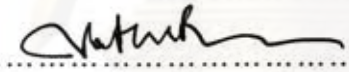

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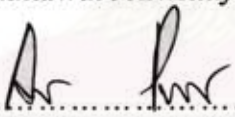

.....Examiner

(Anirut Pisedtasalasai, Ph.D.)

.....External Examiner

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การศึกษาฉบับนี้ได้มีวัตถุประสงค์เพื่อ ทดสอบความสามารถในการให้ผลตอบแทนระหว่างแผนการลงทุนแบบเน้นคุณค่ากับแผนการลงทุนในหุ้นเติบโตสูงในประเทศไทยตั้งแต่ปี พ.ศ. 2538-2550 เพื่อทดสอบว่าการลงทุนแบบเน้นคุณค่าจะให้ผลตอบแทนดีกว่า ดังเช่นการศึกษาฉบับอื่นที่ทดสอบกับตลาดหุ้นในประเทศต่างๆ หรือไม่ โดยการศึกษาครั้งนี้ใช้ความสามารถในการให้ผลตอบแทนของพอร์ตการลงทุน มาตราวัดของเจนเซ่น และอัตราส่วนแบบชาร์ป เป็นตัวบ่งชี้ประสิทธิภาพของพอร์ตการลงทุน การศึกษาฉบับนี้พบว่าการลงทุนแบบเน้นคุณค่าให้ผลตอบแทนสูงกว่าแผนการลงทุนในหุ้นเติบโตสูงในพอร์ตการลงทุนที่จัดแบบ B/M, E/P, และ C/P โดยให้ผลตอบแทนเฉลี่ยประมาณ 24% ต่อปี นอกจากนี้การศึกษานี้จะวิเคราะห์ต่อลงไปถึงสัญญาณทางการเงินว่าสามารถเป็นตัวบ่งชี้ถึงหุ้นที่มีสถาน ภาพทางการเงินที่ดีและไม่ดีออกจากกลุ่มหุ้นแบบเน้นคุณค่าได้หรือไม่ โดยหุ้นแบบเน้นคุณค่านั้นโดย มากแล้วเป็นหุ้นที่มีสภานภาพทางการเงินไม่ดี ดังนั้นหากสัญญาณบ่งชี้ทางการเงินสามารถแยกหุ้นที่มีอนาคตดีออกจากไม่ดีได้ ผู้ลงทุนจึงควรที่จะได้รับผลตอบแทนที่มากขึ้นจากการลงทุนในกลุ่มหุ้นแบบเน้นคุณค่าที่มีสถานภาพทางการเงินดี ซึ่งจากการศึกษานี้พบว่าสัญญาณทางการเงินสามารถใช้เป็นตัวบ่งชี้หุ้นที่ดีออกจากหุ้นไม่ดีในกลุ่มหุ้นแบบเน้นคุณค่าได้ โดยสามารถให้ผลตอบแทนเฉลี่ยมากกว่าการลงแบบเน้นคุณค่าอย่างเดียวประมาณ 4.3% ต่อปี และสุดท้ายการศึกษานี้ใช้แผนการลงทุนแบบผสม คือ การใช้หุ้นที่เน้นมูลค่าที่มีลักษณะของการเติบโตของอัตราการขยายตัวของกำไรสุทธิสูง จากการศึกษานี้พบว่าแผนการลงทุนผสมที่ใช้นที่เน้นมูลค่าที่มีลักษณะของการเติบโตของอัตราการขยายตัวของกำไรสุทธิสูงควบคู่กับ E/P สูง สามารถให้ผลตอบแทนสูงมากกว่าแผนการลงทุนแบบผสมอื่นๆ อย่างไรก็ตามแม้ว่าแผนการลงทุนแบบผสมที่เน้นหุ้นที่มีการเติบโตของอัตราการขยายตัวของกำไรสุทธิสูงควบคู่กับ E/P สูงนั้นจะให้ผลตอบแทนต่อปีใกล้เคียงกับแผนการลงทุนแบบเน้นมูลค่าซึ่งใช้สัญญาณทางการเงิน แต่เมื่อวิเคราะห์โดยใช้มาตราวัดของเจนเซ่น และอัตราส่วนแบบชาร์ป จะพบว่าแผนการลงทุนโดยใช้สัญญาณทางการเงินจะผลที่สูงกว่าแผนการลงทุนแบบผสม

ภาควิชา การธนาคารและการเงิน ลายมือชื่อนิสิต ศศนันท์

สาขาวิชา การเงิน ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก

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SASANUN CHUNGVIWATANANT: VALUE INVESTING IN STOCK EXCHANGE OF THAILAND (SET): FINANCIAL SIGNALS VS GROWTH IN EPS. THESIS ADVISOR: NATTAWUT JENWITTAYAROJE, Ph.D., 41 pp.

The primary objective of this paper is to examine value and growth stocks in Stock Exchange of Thailand, based on 1995 to 2007, in order to investigate the assertion that value stocks on average generate higher returns than growth stocks based on numerous considerable evidences suggested that on average value investing strategy outperforms growth investing strategy. This paper uses average returns, Jensen's alpha and Sharpe ratio as a measurement for portfolio efficiency. The result shown that value portfolio could generate higher returns than growth portfolio by approximately 24% annually on portfolio sorted by B/M, E/P, and C/P in both big and small market capitalization. Further, the portfolio returns could be enhanced by approximately 4.3% annually when applied financial signals to discriminate a value firm with strong financial prospect and a value firm with poor financial prospect in order to construct a portfolio that generate a superior return than a conventional value investing strategy. Finally, this paper examines a style investing strategy through using growth in EPS characteristic incorporated with a value stocks in order to investigate whether a dual-characteristic investing strategy of high earnings yield together with high growth in EPS (HEHG) could outperform other investment strategies. However, the result indicates that although high earnings yield with high growth in EPS could generate higher returns other style investing strategies; high earnings yield with low growth (HELG), low earnings yield with high growth (LEHG), and low earnings yield with low growth (LELG), with the difference of 11% (10%), 17% (22%), and 22% (30%), respectively, in big (small) market capitalization; but when compared HEHG with financial analysis approach it seems that HEHG strategy could not outperform financial signals strategy in term of Jensen's alpha and Sharpe ratio.

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CHAPTER I

INTRODUCTION

Background and Problems Review

This paper is aimed to examine and compare two popular investment strategies that widely use at this present; growth investing strategy, and value investing strategy, based on Stock Exchange of Thailand. Growth investing strategy (low book-to-market) strategy is driven by the professional investors who focusing on growth stocks. The investors would lead to return continuation in growth stocks so that the growth stocks with strong appreciation in the prior period will continue to outperform the value stocks with weak appreciation in the prior period. On the other hand, value investing strategy is an investment strategy that derives from the ideas on investment and speculation that *Ben Graham & David Dodd* began teaching at Columbia Business School in 1928 and subsequently developed and published in 1934, *Security Analysis*. Under this approach, stocks are classified as being cheap or expensive largely based on some valuation multiple such as earnings-to-price (E/P) or book-to market ratio (B/M).

Even it still ambiguous whether which investing strategy between value investing strategy and growth investing strategy would be more effective approach in generating superior returns to investors; however, there are many empirical evidences suggest that value stocks on average have higher returns than growth stocks. For example, *Fama and French (1992; 1995)* show that there is a strong value premium in average returns for US stocks, and assert that the value premium is associated with relative distress; on the other hand, *Lakonishok, Shleifer, and Vishny [1994]* assert those excess returns generated by value investing strategy due to mispricing effect. Moreover, *Rosenberg, Reid, and Lanstein [1984]* show that a portfolio of high book-to-market firms outperforms a portfolio of low book-to-market firms. Nevertheless, the result found that the success of the value investing strategy relies on the strong performance of a few firms while tolerating the poor performance of many deteriorating firms. Therefore, *Piotroski [2000]* suggested that the mean return earned by a high book-to-market investor can be enhanced by using financial signals to distinguish strong financial performance firms among the group of value firms, and thus, investors could benefit by separating between the eventual strong and weak financial prospect firms. In addition, *Piotroski (2000)* asserts that high book-to-market firms provide exclusive characteristics for investigating the ability of a simple fundamental analysis to differentiate firms; firstly value stocks tend to be neglected in which lightly followed by the analyst community which leading to low level of investor interests. Secondly high book-to-market firms tend to have limited access to most informal distribution channels since their disclosures might not be considered as creditability to firms due to the poor recent performance, thus financial statements represent the most reliable and accessible source of information about these firms. Finally in accordance with evidence found by *Fama and French [1992]* who assert that the average value firms are financially distressed. This distress associates with

declining and persistently low margin, profits, cash flows, and liquidity, along with rising levels financial leverage. As a result, the valuation of these firms should emphasize on accounting fundamentals such as leverage, liquidity, profitability trends, and cash flow adequacy in which this information are readily obtained through analyzing historical financial statements. In the process, this paper documents that value investing strategy outperforms growth investing strategy approximately 24% annually; moreover, a portfolio which constructed by using financial signals applied with Stock Exchange of Thailand to discriminate strong financial prospect firms could significantly generate higher returns than the return generated by conventional value investing strategy by approximately 4.3% per year.

An alternative approach from using financial signals to differentiate good financial performance and poor financial performance firms is to use growth in EPS. Several studies suggest that a growth rate is a useful variable that help predict stock returns. For example, *Harris and Marston [1994]* show that book-to-price ratio are negatively correlated with forecasts of future growth in earnings which indicates that expectation of high growth increase the stock price while decreasing its book-to-price ratio. According to *Ahmed and Nanda [2001]*, they suggested that the conventional method of classification stocks into value or growth stock tends to use univariate measure such as earnings yield or book-to-price ratio. Many finance literature generally classifies high earnings yield (E/P) or book-to-price ratio (B/P) to characterize value stocks; whereas, low earnings yield (E/P) or book-to-price ratio (B/P) to characterize growth stocks. The authors point out that using growth in EPS is more effective approach to capture growth than using a measure of E/P ratio alone. Thus, they create a strategy focusing on investing in stocks that have the dual-characteristics of a high earnings yield with high growth in EPS portfolio; as a result, they found that the dual-characteristics strategy outperforms a strategy of high E/P strategy alone. Accordingly, this paper follows *Ahmed and Nanda [2001]* methodology by using growth in EPS as an indicator to construct a portfolio that consist of high earnings yield along with high growth in EPS with the intention of investigating whether dual-characteristic portfolio could be able to generate similar returns as returns generated by strong value portfolio, and if, dual-characteristic does generate similar or higher returns than strong value portfolio, then investors could benefit from using only one variable (growth in EPS) to create a high-return portfolio. In other words, this study would indicate that incorporating only growth in EPS is sufficient for investors to construct a winner portfolio that improving returns on Stock Exchange of Thailand. As a result, this paper indicates that a dual-characteristic of high earnings yield with high growth in EPS outperforms other style investing strategy; high earnings yield with low growth (HELG), low earnings yield with high growth (LEHG), and low earnings yield with low growth (LELG), with the difference of 11% (10%), 17% (22%), and 22% (30%), respectively, in big (small) market capitalization; however, when compared HEHG with financial analysis approach it seems that HEHG strategy could not outperform financial signals strategy in term of Jensen’s alpha and Sharpe ratio.

Motivation and Research Hypotheses

Motivation 1:

Fama and French (1998) assert that value stocks have higher returns than growth stocks in market around the world. The difference between the average returns on global portfolio of high and low book-to-market stocks is substantial, and value stocks outperform growth stocks in 12 of 13 major markets. In addition, *Chan, Hamao, and Lakonishok (1992)* also document a strong value premium in Japan, as well as, *Capaul, Rowley, and Sharpe (1993)* who show that the value premium is pervasive in international stock returns. In recent study, *Yen, Sun, and Yan (2004)* document the paper about value and growth stocks based on Singapore stock market. However, none of researches have been conducted in Stock Exchange of Thailand which considering as the emerging market with a high growth potential; therefore, it would benefit to investors if we could examine and identify the effective and profitable investing strategy that appropriate for Stock Exchange of Thailand.

Motivation 2:

Though considerable research demonstrated that a portfolio of high book-to-market firms outperforms a portfolio of low book-to-market firms, a large number of papers argue that on average those high book-to-market firms are financially distressed. As in *Fama and French [1992]*, they assert that book-to-market (B/M) ratio is characterized as a variable to capture financial distress, and thus the excess returns represent a fair compensation for risk. On a fundamental analysis perspective, value stocks are inherently more favorable to financial statement analysis than growth stocks. The valuation of value stocks should focus on recent changes in firm fundamentals, such as financial leverage, liquidity, profitability and cash flow adequacy, in which this information tend to be publicly available and readily accomplished through analyzing historical financial statements. In contrast, growth stocks valuations are typically based on long-term forecast of sales which most investors rely heavily on non-financial information. Therefore, using financial statement analysis to identify strong value companies should be the most practical approach in order to construct high-return investment strategy.

Motivation 3:

Not only financial signals that could help identify a strong value portfolio but also *Ahmed and Nanda [2001]* assert that an investing strategy that focus on dual characteristic stocks of high earnings yield and high growth in EPS outperform the entire market resulting in superior returns than traditional value portfolio. Therefore, it is beneficial for investors to select and create a winner portfolio by focusing on only growth characteristic; moreover, these would indicate that only growth in EPS adequately conveys necessary information for investors to create a high return portfolio that outperform the market.

From the three motivations to develop the ideas to identify the effective and profitable investing strategy for Stock Exchange of Thailand as presented above, it leads to the hypotheses as follows:

Hypothesis 1:

On average value investing strategy outperform growth investing strategy; therefore, using value investing strategy in Stock Exchange of Thailand should generate higher returns than growth investing strategy

Hypothesis 2:

Financial signals when applied with value stocks in Stock Market of Thailand should discriminate between firms with strong prospects and those with weak prospects in order to create a strong value portfolio which generate higher returns than value investing strategy alone

Hypothesis 3:

A dual-characteristic (high earnings yield with high growth in EPS) portfolio should generate higher returns than strong value investing strategy as it captures growth characteristic, growth in EPS, on value stocks

Scope of the Study

This paper firstly compares investing strategy for Stock Exchange of Thailand by investigating two common investment strategies that extensively use at this present; growth investing strategy, and value investing strategy, by investigating the performance of each strategy with respect to each market conditions.

To broaden the concept of incorporating financial statement analysis with high book-to-market stocks to differentiate between winners and losers in Stock Exchange of Thailand, this paper follows *Piotroski (2000)* approach by using F_SCORE derived from a combination of traditional financial signals such as profitability, leverage, liquidity, and operation efficiency. A strategy of high F_SCORE firms should significantly generate excess returns to investors on Stock Exchange of Thailand. In addition to financial signals, this paper constructs a dual-characteristic portfolio of high earnings yield with high growth in EPS in order to examine whether using only one variable, growth in EPS, could lead to similar or superior returns than using the entire financial information.

Contribution of the study

There are many empirical evidences suggest that the value investing strategy outperform in market around the world (*Fama and French [1992, 1996]*; *Lakonishok, Shleifer, and Vishny [1994]*); however, there is no evidence whether value investing strategy outperform in Stock Exchange of Thailand. Consequently, this study could benefit to the investors who interested in investing in Stock Exchange of Thailand as now Stock Exchange of Thailand is considered as one of the important emerging market in Southeast Asia. Moreover, this study not only provides superior returns on value investing strategy to investors but also supports the theoretical evidence about value versus growth on international market by *Fama and French* that, on average, value investing strategy outperform markets around the world.

In addition, numerous papers have shown that returns could be enhanced by using value investing strategy; however, many researchers argue that the premium is due to the fact that value firms tend to face with higher risks. Therefore, *Piotroski (2000)* provides strong evidence on the positive financial signals effects that help improve returns, and hence implying the effectiveness of a simple accounting-based fundamental analysis in US market. However, there is no definite explanation on the positive financial-signal effects for developing countries especially in Thailand. Moreover, if the sophisticated investors realize that they could benefit through analyzing financial information to create a superior return portfolio, hence, this could motivate the investors to realize the importance of Good Governance as Stock Exchange of Thailand (SET) and Security Exchange Commission (SEC) have been trying to promote.

The next section of this paper reviews the prior literature on value and growth investing strategy, high book-to-market investment strategy, prior fundamental analysis research, financial signals used to differentiate good and bad financial prospects of value firms, and growth in EPS. Section 3 presents the research design and methodology employed in the paper, while Section 4 reports the results from analysis strategy. Section 5 is the conclusion of the study.

CHAPTER II

LITERRATURE REVIEW

In this section, this paper presents summarized results from relevant papers. There are five sections classified as follows; (1) Value VS Growth Investing Strategy, (2) High Book-to-Market Investment Strategy, (3) Prior Fundamental Analysis Research, (4) Financial Performance Signals, and (5) Growth in EPS

1. Value VS Growth Investing Strategy

Generally there are two popular investing strategies that broadly use at this present; growth investing strategy, and value investing strategy. The growth investing strategy normally associated with stocks with relatively low book-to-market (B/M) ratio, low earnings yield (E/P), and low cashflow-to-price (C/P). Growth investing strategy has been a popular portfolio strategy, especially during times of strong economic growth. *Babson [1951]* claims that investing in well-managed companies in industries experiencing above-average growth lead to superior portfolio performance. However in more recent years, the value investing strategy has received increased attention as it enhances the returns to investors, so called “value premium”. The value investing strategy was introduced by *Benjamin Graham* in the 1930s and subsequently by *Warren Buffet*, and also *Dreman [1982]*. *Basu [1977]* is first documents for positive risk-adjusted returns associate with high earnings-to-price stocks. Subsequently, *Fama and French [1992, 1995]*, and *Lakonishok, Shleifer, and Vishny [1994]* study about excess returns generated by stocks with high book-to-market and with high cashflow-to-price.

Although there is no explicit evidence suggests whether value or growth investing strategy would be more effective investing strategy, numerous studies show that value investing strategy, on average, outperforms the markets. *Fama and French (1998)* assert that value stocks have higher returns than growth stocks in markets around the world such as US, UK, France, Italy, Japan, Hong Kong, and Singapore. The result found that for 1975-1995, the difference between the averages returns on global portfolios of high and low book-to-market stocks is 7.60% per year, and value stocks outperform growth stocks in 12 of 13 major markets. In addition, *Fama and French [1992, 1996]* and *Lakonishok, Shleifer, and Vishny [1994]* find that, for US stock, high book-to-market (B/M), earnings-to-price (E/P), or cashflow-to-price (C/P) stocks have higher average returns than low book-to-market (B/M), earnings-to-price (E/P), or cashflow-to-price (C/P) stocks. In more recent paper, *Yen, Sun, and Yan (2004)* assert that regardless of how value and growth portfolios are formed based on P/B, P/E, or P/C, value stocks always produce higher returns than growth stocks in Singapore, especially in the first 2 years after the portfolio formation.

2. Value Investment Strategy

Since there is several studies show that value investing strategy seems to be more effective than growth strategy because it generates excess return to investors, thus now this paper focuses on value investing performance attribution. Prior researches, such as *Rosenberg, Reid, and Lanstein [1984]*, *Fama and French [1992]* and *Lakonishok, Shliefer, and Vishny [1994]*, demonstrate that a portfolio of high book-to-market firms outperforms a portfolio of low book-to-market firms. An excess return generated from value investing strategy has been attributed to risk compensation and mispricing. *Fama and French [1992]* assert that book-to-market is characterized as a variable capturing financial distress, and thus the subsequent returns represent a fair compensation for risk. This assertion is supported by *Chen and Zhang [1998]* who find the consistently low return on equity associated with high book-to-market firms. A second explanation for the observed return difference between high and low book-to-market firms is market mispricing. *Lakonishok, Shliefer, and Vishny [1994]* claim that high book-to-market firms represent neglected stocks where poor prior performance has led to the formation of "too pessimistic" expectations about future performance. The pessimism tends to liberate in the future period as the evidence from positive earning surprises at subsequent quarterly earning announcements (*La Porta et al. [1997]*).

3. Prior Fundamental Analysis Research

One approach to separate winners from losers is through the identification of a firm's intrinsic value. *Frankel and Lee [1998]* assert the strategy that requires investors to purchase stocks which current prices seem to be lagging fundamental values. In other words, investors are required to discover the undervalued firms. Undervaluation could be identified by using analyst's earning forecasts which derived from an accounting-based valuation model such as residual income model, and the strategy is successfully provide significant positive returns over a three-year investment horizon. However; because of stocks being neglected, those stocks are not likely to have readily available forecast data. In compliance with *Hayes [1998]*, and *McNichols and O'Brien [1997]*, financial analysts are less likely to follow poor-performing, low-volume, or small firms. Moreover, managers of distressed firms could face credibility issues when trying to communicate and convey looking-forward information to investors (*Koch [1999]* and *Miller and Piotroski [1999]*). Therefore, a forecast-based approach presented by *Frankel and Lee [1998]*, is subjected to limitation for differentiating value stocks. As a result, financial information analysis should be applicable for identifying the undervalued high book-to-market firms due to the limitation of forecast-based approach.

In addition, several research papers show that investing strategy based on various signals of financial performance could be considerably benefits to investors. Under these approaches, investors seek to identify "abnormal" returns by focusing on the market's inability to reflect particular financial signals. Examples of these strategies include, post-earning-announcement-drift introduced by *Bernard and*

Thomas [1989; 1990] and *Foster, Olsen, and Shevlin [1984], Sloan [1996]* who asserts that earnings generated by accruals is a bad signal for firm's future performance, seasoned equity offerings documented by *Ikenberry, Lakonishok, and Vermaelen [1995]*), and *Michaely, Thaler, and Womack [1995]* who found that firms initiating dividends post positive excess returns for up to three years following the announcement.

A sophisticated investment approach tends to use multiple pieces of information underlying in the firm's financial statements. According to *Ou and Penman [1989]*, they shows that a selection through financial ratio created from historical financial statements can accurately predict future change in earnings. However, this model is not likely successful due to its limitations; using complex methodologies, and requiring a huge amount of historical information to make the necessary predictions. Therefore, *Lev and Thiagarajan [1993]* introduce a model based on twelve-financial signals claimed to be useful for analysis financial information. The model aims to overcome the calculation costs and avoid overfitting the data. They find that these fundamental signals are correlated with contemporaneous returns after controlling for current earnings innovations, firm size, and macro-economic conditions. In addition, *Abarbanell and Bushee [1997]* assert that an investment strategy based on these 12 fundamental signals yields significant abnormal returns.

4. Financial Performance Signals

According to *Fama and French [1995]* and *Chen and Zhang [1998]*, they claim that the average high book-to-market firm is financial distressed. Therefore, *Piotroski [2000]* develop F-SCORE model based on nine-fundamental financial signals to screen good prospect firms out of bad prospect firms. The evidence found that using financial signals to discriminate strong and weak financial prospect firms could substantially generate superior returns. Consequently, this paper will follow *Piotroski [2000]* approach by choosing eight fundamental signals; ROA, CFO, ΔROA, ACCRUAL, ΔLEVER, ΔLIQUID, ΔMARGIN and ΔTURN, to measure three areas of the firm financial performance: profitability, financial leverage/liquidity, and operating efficiency, in order to create a superior-return portfolio that effective for Stock Exchange of Thailand. Moreover, the most important reason for incorporating the financial statement signals is that financial variables reflecting changes in these economic conditions which should be useful in predicting future firm performance.

Under F_SCORE approach, each firm's signal is classified as either "good" or "bad" depending on signal demonstrated for future price and profitability. An indicator variable for the signal is equal to one if the signal considered as good, whereas, zero represents as bad. After that, the composite score will be measured as the sum of eight binary signals which is designed to measure the overall quality, or strength of the firm's financial position. In addition, *Wimoldhammawatana [2003]* created portfolios of high BM firms by using six financial performance signals which combined as the firm's aggregate scores, F_SCORE. The portfolio is created by using the data from the Stock Exchange of Thailand (SET), and the result found that the

mean return earned by a high book-to-market investor can be increased by 40.61 percent annually through the selection of financially strong high BM firms. However, there are some limitations in the paper leading to the problem of inconsistency of the empirical results.

5. Growth in EPS

Several papers show that historical or forecasted growth rates could help predict future stock returns. *Harris and Marston [1994]* show that book-to-price (B/P) ratios are negatively correlated with forecasts of future growth in earnings indicating that expectation of high growth increase the price of the stock, which in turn lowers its B/P ratio. *Lakonishok, Shleifer, and Vishny [1994]* believe that investor expectations are based on extrapolation of recent past performance leading to mispricing. *De Bondt and Thaler [1987]* suggest that investors overreact to recent stock market events, while *Dreman and Berry [1995]* support this assertion by claiming that analysts overreact to recent events, subsequently disappointments in EPS which adversely affect the market price of growth stocks more than value stocks. *Bauman and Miller [1997]* examine four-year EPS growth rates and find a negative correlation between earnings surprise and past growth rates, and suggest that the EPS of higher growth stock is overestimated to a greater extent than that of owner growth stocks.

Scott, Stumpp and Xu [1999] use a theoretical framework to show that earnings yield alone do not capture all the growth characteristics of stocks. In the traditional dividend growth model, the stock prices of value firms tend to rely more on the normalized earnings; while the growth opportunities will have a larger influence on price for growth firms. *Kahneman and Tvesky [1979]* and *De Bondt and Thaler [1985]*, they assert that cognitive biases can distort the estimates of both normalized earnings and earnings growth; therefore, to overcome the problem, they suggest that valuation measures like earnings yield (E/P) may be appropriated for characterizing value stocks but less meaning for growth stocks. Furthermore, because investors respond slowly to new information, growth investors should construct a growth portfolio through seeking for stocks with good news. In contrast, they suggest that value investors should emphasize stocks with low past earnings growth rates, and low future expected EPS growth rates. In more recent study, *Ahmed and Nanda (2001)* show that incorporating growth in EPS together with earnings yield (E/P) could generate superior returns that outperform entire market, especially investing strategy that focusing on high earnings yield alone.

The previous literature have provided sufficient hint to explore the role of growth rates in style investing. The studies will follow *Ahmed and Nanda (2001)* by incorporating growth in earnings per share to characterize growth stock use either analyst forecast or historical growth rates.

CHAPTER III

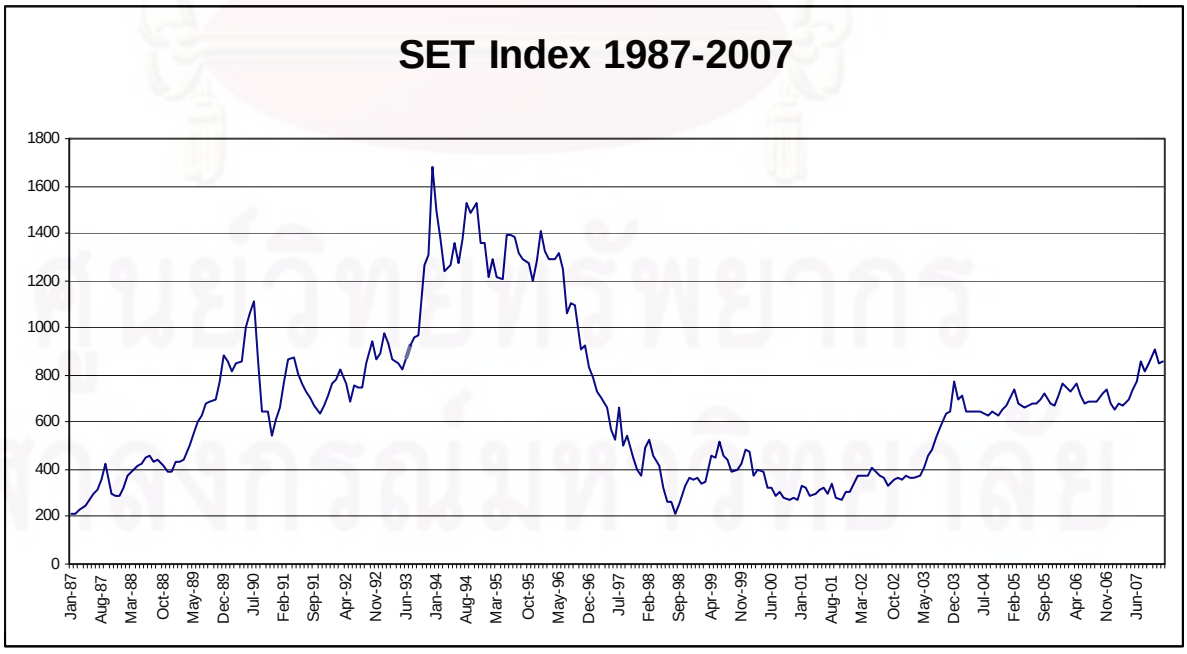
RESEARCH DESIGN

Sample Selection

The sample period covered in this study is from 1985 to 2007. All accounting and stock return data for Thai listed companies are obtained from Stock Exchange of Thailand (SET) and Thomson Datastream. For each year, stocks are divided into two groups based on its market capitalization, subsequently stocks in each market capitalization group are formed into three pairs of (six) value and growth portfolio based on book-to-market (B/M), earnings-to-price (E/P), and cashflow-to-price (C/P) ratios, respectively, and evaluate their post-formation stock return performance using the Jensen's alpha and Sharpe ratio.

Market Classifications

According to *Warren Buffet*, he asserts that although on average value stocks outperformed growth stocks, value stocks do not always outperform growth stock. Through 1963 to 2006, value stocks outperformed growth stock 70% of the time and growth stocks outperform value stocks accounted for the remaining 30%. Therefore, to explore the growth and value investing strategy in Stock Exchange of Thailand, I shall separate out the entire time length into period based on market conditions.



From the above figure,

1. Year 1987-1996 Pre-Asian Financial Crisis
2. Year 1997-2000 1997 Asian Financial Crisis
3. Year 2001-2007 Post-Asian Financial Crisis

There were many circumstances that affected the stock market which impacted to the stock index and price leading to trends and variations. Therefore, I separate the time length through out the entire period based on market conditions in order to examine the performance of strategy between value investing strategy and growth investing strategy in each market conditions.

a) *1987-1996*

Back to 1987, there was the incident of Black Monday which stock markets around the world collapsed leading to dramatically declining in stock value in a very short period. The crash began in Hong Kong and expanded through Europe and United States which resulted in declining in significant margin of many stock markets around the world. Stock Exchange of Thailand also affected from this circumstance, index went down to the bottom at 284.94 point at the end of that year. However, due to the fact that the foreign investors sold out stocks and seeking for new reliable market, especially emerging markets such as Stock Exchange of Thailand. With this reason, Stock Exchange of Thailand has developed into one of the most interesting markets; as a result, the index surprisingly reversed back and enormously climbed to 1,100 points. In year 1990, there was the Persian Gulf War crisis that caused an impact on the stock index to decline down more than 500 points. The war was over in year 1991 and the stock price in Thai stock market was getting better and gradually recovered. However in May 1992, there was a domestic violent political confliction between the government and citizens which causing the stock price to fall again. However, due to the fact that the situation was a domestic violent which arise as the disagreement on political issue; therefore, both foreign investors and individual investors still consistently invested in Stock Market of Thailand because they believe that Thailand's economy illustrated many substantial signals for potential economic growth. These led the stock index climbing up to the highest point of the financial history of Thailand at 1763.78 points with the around THB 40 billion per one trading day. Financial analysis predicted that the stock index would definitely increase and probably reach 2,000 points in the next years.

b) *1997-2000*

After stock market booms, Stock Exchange of Thailand entered into a long session. The index began to continually declining due to the fact that Thailand's economy was not thriving as investors thought. Foreign investors became more conscious and continuously sold the cheap stocks. The market had been steadily declining until 1997 when there was an economic crisis that had a sizable impact to the stock market. More than fifty financial institutions in Thailand collapsed because

of the economic crisis[1] known as "Tom Yum Kung Disease". Therefore, the government was requesting assistances from the International Monetary Fund (IMF) and the international community, particularly from Southeast Asian nations and Japan. Nevertheless, the index of SET went down to the bottom of the financial history of Thailand stock market.

In 1998, the stock market index and trading volume continuously decreased at progressively rate during the first three quarters of the year, reflecting poor profitability of listed companies, particularly commercial banks. In addition, foreign investors became more cautious to invest in emerging markets since the financial crisis could spread from Asia to other regional markets. Therefore, the government had been trying resolve the financial institution problems in several ways such as intervening in institutions, supporting the recapitalization for business expansion, standardizing loan classification and provision according to international practice, alleviating problems of non-performing loans, and expediting debt restructuring. These attempts were aimed to enhance the ability of financial institutions to extend credits which is important foundation for economic recovery in the future. In 1999**,** the market had been incessantly improving on the economic performance. With the expansion on productivity, it improved the export capacity and thus retrieval in the domestic demand which resulting from the government simulation plan. In year 2000, the market had total market value at 2,100 billion THB and the stock index a gradually climbing up to 300 points. Thailand's economy was repeatedly recovering from the financial crisis affects, and needed to redeem confidentiality from investors.

c) *2001-2007*

In year 2003[2], there were expansions on private sector regarding to spending and exporting. This was aimed to induce large capital inflows into Stock Exchange of Thailand, and subsequently leading to a shift in investment from bonds to stocks in which resulted in improvement of Thailand's economic performance. Following year, Stock Exchange of Thailand still steadily remained in rising state on foreign investments. In 2006, Thailand's economic growth expanded at accelerated rate which slightly increased from the previous year. There are main reasons contributing to the significant economic boom in 2006; dramatically expansion on export activities, and the increasing on domestic demand, which was also resulting from the expansion plan in 2005. Deceleration throughout the year was due to several reasons; sharply increasing in oil price on the first three quarters, confliction in Southern part of Thailand, continually and extensively severe floods, and political uncertainty. However, like a coin has two sides, this deceleration attributed to improving export performance because there was a slowdown in imports due to the decreasing in domestic demand, and considerable expansion in tourism industry. In 2007, there was an increasing in the Stock Exchange of Thailand in the telecommunication group; therefore, it lowering Foreign Direct Investment (FDI) from the 2006. Capital rising

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1 Sutthi Sookying, 126TH INTERNATIONAL SENIOR SEMINAR PARTICIPANTS' PAPERS, 171-178

2 Thailand's Economic and Monetary Condition in Year 2004, 1.1.2

through equity securities had declined sharply in mid-2007 since firms postponed the investment activities due to the economy weakened and the political uncertainty. This slowdown was reflected by the decrease in the number of Initial Public Offerings (IPO) in the Stock Exchange of Thailand.

CHAPTER IV

METHODOLOGY

Value VS Growth investing strategy

H_1: Value investing strategy outperforms growth investing strategy in Stock Exchange of Thailand

Portfolio Formation

There are many studies documented that there is a significant relationship between the size of a company and its stock returns; for example, *Banz (1981)* finds that smaller firms provide higher risk-adjusted returns than larger companies using NYSE stocks, in compliance with *Bauman (1998)* who studied on international markets and found that smaller companies produce significantly higher returns than larger companies. Since value firms are likely to be smaller in size, thus the value premium might be resulted from the size effect. In order to eliminate the size effect and focusing on performance of value and growth investing strategy, this paper employed a similar methodology which is adopted in *Basu (1983)* and *Yen, Sun, and Yan (2004).*

Excluding financial industry, non-performing and funds; as well as negative earnings for E/P and C/P based, sample companies are first sorted and separated into two size quartiles based on their market capitalization at fiscal year ends in calendar year t-1. Although different companies have different fiscal year end, but *Lakonishok, Shleifer, and Vishny [1994]* assert that with short timing differences should not significantly distort the results. In addition, *Fama and French [1992]* show that mixing firms with different fiscal year ends does not create substantial deviation in final results.

Companies in each size portfolio are then ranked according to their valuation ratios; book-to-market (B/M), earnings-to-price (E/P), and cashflow-to-price (C/P). This paper employed these three variables as determinants of value and growth stocks. Book value of equity is defined as the book value of a company's total assets less the book value of all liabilities. It represents the accountant's valuation of the company's net worth. Book value has an advantage over earnings as it is more stable over time. Earnings are measured as profit before extraordinary items as these items are non-recurring and should not affect long-term security valuation. Cashflow is defined as earnings plus depreciation.

The top (bottom) 30% of the companies with the highest (lowest) book-to-market (B/M) in each size quartiles are selected to form a size-adjusted value (growth) portfolio. The same procedure is performed on earnings-to-price (E/P), and cashflow-to-price (C/P). Altogether, there are three pairs of (six) value and growth portfolio that formed every year from 1987 to 2007 in each size quartiles. Equal weight is assigned to each stock within the portfolio.

Risk-Reward Measures

Portfolio performance should be evaluated both in terms of risk and return. Two main traditional performance measures are employed in this study; Jensen's alpha, and the Sharpe ratio. For each portfolio, we compute the average return for each year after the portfolio formation. For B/M based, the data will cover from 1995 to 2007, whereas, the data will cover from 2000 to 2007 for E/P and C/P. Since portfolios are formed each year from 1995 to 2007 (2000 to 2007), there are total of 13 portfolio for B/M based, and 8 portfolio for E/P as well as C/P based, for each market capitalize quintile. Jensen's alpha is derived by running the following CAPM based regression.

$$R_{pt} - R_{ft} = \alpha_p + \beta_p (R_{mt} - R_{ft}) + \varepsilon_p$$

where R_{pt} is the value or growth portfolio return in month t,

R_{ft} is risk-free rate in month t (the average deposit rate),

R_{mt} is market return in month t (equally weight market return)

α_p is estimated intercept (Jensen's alpha), and

β_p is estimated slope

The Sharpe ratio is derived by dividing the excess portfolio return by the corresponding monthly return's standard deviation, $(R_{pt} - R_{ft})/\sigma_p$

Using Financial Signals to discriminate strong and weak prospect firms

H_2: The portfolio returns could be enhanced by using financial signals to discriminate between firms with strong prospects and those with weak prospects

Subsequently, this paper investigates whether financial signals could help discriminate winners from losers among value firms in order to construct a strong financial prospect value portfolio. I followed F_SCORE methodology that introduced by *Piotroski (2000)* to measure three areas of the firms financial positions; profitability, leverage and liquidity, and operating efficiency.

a) Financial Performance Signals: Profitability

Current profitability and cashflow convey information concerning the firm's ability to generate funds internally through operating activities. Similarly, positive earnings represent an improvement in the firm's ability to generate positive future cashflows. Therefore, I used four variables to measure these performance; ROA, CFO, ΔROA, and ACCRUAL. ROA and CFO are defined as net income before extraordinary items and cash flow from operating, respectively, divided by beginning-of-the-year total assets. If the firm's ROA (CFO) is positive, the indicator variable F_ROA (F_CFO) is assigned as one, zero otherwise. ΔROA represents the current year's ROA less the prior year's ROA, and if ΔROA > 0, the indicator variable F_ΔROA equals one, zero otherwise. According to *Sloan (1996),* he shows that earnings driven by positive accrual are a bad signal about future profitability and returns. As a consequence, ACCRUAL refers as the current year's net income before extraordinary items less cash flow from operations, divided by beginning-of-the-year total assets. The indicator variable F_ACCRUAL equals one if CFO > ROA, zero otherwise.

b) Financial Performance Signals: Leverage, and Liquidity

Both change in leverage and change in liquidity are financial signals which designed to measure changes in capital structure and the firm's ability to meet future debt obligations. Mostly high BM firms are financially distressed; therefore, an increase in leverage should lead to a declining in liquidity. ΔLEVER represents changes in the firm's long-term debt levels which measured by the historical change in the ratio of total long-term debt to average total assets. An increase in financial leverage should be considered as a negative signal for the firm future prospects. As a result, the indicator variable F_ΔLEVER as equal to one if the firm's leverage ratio fell. ΔLIQUID represents the historical change in the firm's current ratio between the current and prior year, which defined as the current ration as the ratio of current assets to current liabilities at fiscal year-end. An improvement in liquidity should be implied as a good signal about the firm's ability to meet current debt obligations. The indicator variable F_ΔLIQUID equals one if the firm's liquidity improved, zero otherwise.

c) Financial Performance Signals: Operating Efficiency

ΔMARGIN represents the firm's current gross margin ratio less the prior year's gross margin ratio. An improvement in margins should be considered as an improvement in factor costs, a reduction in inventory costs, or a rise in the product price. Therefore, the indicator variable F_ΔMARGIN equals one if ΔMARGIN is positive, zero otherwise. In addition, ΔTURN is defined as the firm's current year asset turnover ratio less the prior year's asset turnover ratio. Improving in assets turnover should be implied as a higher productivity generated by firm's assets which should be resulted from more efficient operations or an increase in sales. The indicator variable F_ΔTURN equals one if ΔTURN is positive, zero otherwise.

d) Composite Score

Finally, F_SCORE is described as the sum of the individual binary signals, or;

$$\begin{aligned} F\_SCORE = {} & F\_ROA + F\_\Delta ROA + F\_CFO + F\_ACCRUAL \\ & + F\_\Delta MARGIN + F\_\Delta TURN + F\_\Delta LEVER \\ & + F\_\Delta LIQUID \end{aligned}$$

F_SCORE can range form a low of 0 to a high of 8, where a low F_SCORE represents a firm with few good signals with F_SCORE of 0 to 3 (the firms with the weak fundamental prospects); in contrast, high F_SCORE represents a firm with good signals with F_SCORE of 5 to 8 (the firms with the good fundamental prospects). The investment strategy that employed on this study is based on selecting firms with high F_SCORE signals which should lead to superior returns.

Dual-Characteristic Portfolio

H_3: The portfolio of high E/P with high growth in EPS could generate higher returns than strong value investing strategy

In spite of the investigation on financial signals, this paper incorporates the effect of growth in EPS on stock returns; therefore, this paper replicated the methodology applied in *Ahmed and Nanda (2001)* by constructing a style portfolio that base on all firms in Stock Exchange of Thailand together with some financial information from Thomsons Datastream. This paper uses annually stock returns as well as E/P and growth in EPS, g. Following *Fama and French [1995]*, we construct portfolios by independently ranking firms based on their earnings yield (E/P) and growth in EPS (g). We first divide stocks into two groups based on market capitalization, then in each size-adjusted group, stocks are divided into 5 groups based on g, as well as based on their earnings yield; as a result, there will be a total of 25 portfolios.

To obtain the greatest separation between style portfolios, we exclude portfolios that are in the middle E/P and g quintiles. Using the remaining 16 portfolios, we create the following style classes; high earnings yield with high growth in EPS (HEHG), high earnings yield with low growth in EPS (HELG), low earnings yield with high growth in EPS (LEHG), and low earnings yield with high growth in EPS (LELG). Thus, the LELG portfolio includes firms in the two lowest earnings yield (E/P) and two lowest growth in EPS (g) quintiles, whereas, the HEHG portfolio consists of firms at the intersection of the two highest earnings yield and the two highest growth quintiles. Finally, I examine whether a dual-characteristic portfolio which consists of two highest earnings yield and growth quintiles could generate a similar or higher returns than using strong value portfolio.

CHAPTER V

EMPIRICAL RESULTS

Value and Growth Performance

Table 1 reports the summary statistics on post-formation portfolio performance for value and growth stocks. For stocks sorted by B/M, the average return of value portfolio is significantly higher than growth portfolio in both big and small market capitalization with the difference of 28% and 29% per year. The difference in Jensen's alpha and Sharpe ratio of value portfolio in big (small) market capitalization are also higher than growth portfolio by 0.29 (0.27) and 2.03 (2.52), respectively, at 1% significant level. This result is in compliance with the evidence found by *Fama and French (1998)* and *Yen, Sun, and Yan (2004)* that on average value stocks outperform growth stocks.

For portfolio sorted by E/P, the average return from value portfolio is significantly higher than for growth stocks in both big and small market capitalization by 17% and 25%. Similarly to B/M sorted portfolio, value portfolio not only generates higher returns than growth portfolio but also ranked superior in terms of Jensen's alpha and Sharpe ratio in both big (small) market capitalization with a difference of 0.24 (0.24) and 3.12 (2.95) respectively. For C/P based portfolio, value and growth performance show a similar pattern as E/P based portfolio. Consistent with evidence found by *Yen, Sun, and Yan (2004)* that depreciation does not significantly alter stock rankings and portfolio return. In addition, a portfolio sorted by E/P and C/P could generate a higher return than a portfolio sorted by B/M in both value and growth portfolio. As shown in Table 1, an average portfolio return on value portfolio sorted by E/P and C/P in big (small) market capitalization are 27% (32%) and 30% (26%), whereas a value portfolio sorted by B/M generates an average portfolio return of 13% (11%). The shift in average return also persists in growth portfolio in which an average portfolio return on growth portfolio sorted by E/P and C/P in big (small) are 10% (7%) and 4% (6%), whereas a growth portfolio sorted by B/M generates an average portfolio return of -15% (-18%). The shift in returns between portfolio sorted by E/P and C/P, and B/M might due to the fact that we exclude negative earnings in E/P and C/P based which lead to the shift in the return on both value and growth stocks because negative earnings are mostly a low or negative stock returns.

Moreover, it seems that the returns generated from portfolio based on B/M, E/P, and C/P in small market capitalization do not always outperform the return in big market capitalization. In contrast, *Yen, Sun, and Yan (2004)* find that smaller firms provide higher risk-adjusted returns than larger companies. This might due to the fact that, as of 31 December 2007, Stock Exchange of Thailand had 523 listed companies with a combined market capitalization of $197 billion compare to Singapore Exchange which had 762 listed companies with a combined market capitalization of $539 billion indicates that Stock Exchange of Thailand considered as a relatively small size stock market; therefore, the evidence regarding market capitalization effect

found by *Yen, Sun, and Yan (2004)* is not observable for Stock Exchange of Thailand. In addition, big market capitalized firms tend to be more stable than those with small market capitalization, thus since Stock Exchange of Thailand tends to be small market some investors might prefer to invest in big market capitalized firms leading to the fluctuated returns generating from portfolio in both big and small market capitalization.

Overall, we find that value stocks outperformed growth stocks based on all three classification ratio; B/M, E/P, and C/P with regardless of size (market capitalization). This is consistent with previous findings, especially, the findings on the value premium for Singapore as found by *Fama and French (1998)*. Therefore, based on the result of this study, we accepted Hypothesis 1 and conclude that on average value investing strategy outperform growth investing strategy; therefore, using value investing strategy in Stock Exchange of Thailand generates higher returns than growth investing strategy.

Table 1: Summary Statistics of Value VS Growth Stocks

Table 1 exhibits summary statistic of data, difference in returns, difference in Jensen's alpha, and difference in Sharpe ratio as shown in Panel A, B, C, and D. Each Panel contains two groups of data, big and small market capitalization, together with 3 pairs of value and growth portfolio sorted by 3 determinants; B/M, E/P, and C/P. Value and growth portfolio based on B/M, E/P, and C/P ratios are formed each year from 1995 to 2007 (for B/M), and 2000 to 2007 (for E/P and C/P) using listed companies on SET excluding financial industry, non-performing and funds; as well as negative earnings for E/P and C/P based. Value portfolio consists of stocks on the top 30%, whereas growth portfolio consists of stocks in 30% bottom in each B/M, E/P, and C/P. Return index (RI) is used as a measure to calculate return in each year. Return is calculated by [RI(t+1) – RI(t)] / RI(t), whereas Portfolio Beta, Standard Deviation, and Jensen's alpha are derived from regression analysis by using CAPM; $R_{pt} - R_{ft} = \alpha_p + \beta_p(R_{mt} - R_{ft}) + \varepsilon_p$, using average deposit returns as R_{ft}. Sharpe ratio is calculated by $(R_{pt} - R_{ft}) / \sigma_p$.

	Big Cap						**Small Cap**					
Panel A: Summary Statistics												
	BM		*EP*		*CP*		*BM*		*EP*		*CP*	
	Value	*Growth*	*Value*	*Growth*	*Value*	*Growth*	*Value*	*Growth*	*Value*	*Growth*	*Value*	*Growth*
Average Portfolio Return	0.13	-0.15	0.27	0.10	0.30	0.04	0.11	-0.18	0.32	0.07	0.26	0.06
Beta	1.20*	0.71*	1.23*	1.02*	1.21*	1.11*	1.19*	0.83*	1.11*	0.95*	1.06*	0.86*
S.D.	0.17	0.13	0.06	0.07	0.12	0.08	0.10	0.12	0.09	0.08	0.06	0.07
Jensen's Alpha	0.11**	-0.18*	0.14**	-0.10**	0.16**	-0.12*	0.09*	-0.14*	0.17**	-0.10**	0.18**	-0.09**
Sharpe ratio	0.51	-1.52	3.43	1.12	2.37	0.21	0.68	-1.84	3.49	0.54	3.97	0.49
Number of Observations	521	521	302	302	294	294	521	521	302	302	294	294
Panel B: Difference in Returns												
Value - Growth		0.28*		0.17*		0.26*		0.29*		0.25*		0.20*
Panel C: Difference in Jensen's Alpha												
Value - Growth		0.29*		0.24*		0.28*		0.23*		0.27*		0.27*
Panel D: Difference in Sharpe												
Value - Growth		2.03*		2.31*		2.16*		2.52*		2.95*		3.48*

* represents 10% significant level ** represents 5% significant level *** represents 1% significant level

Descriptive Evidence on Value Firms

Table 2 provides descriptive statistic about the financial characteristics of value firms. The result shows that the average firm in the highest B/M, E/P, and C/P quintile of a big (small) capitalization-firm has a mean B/M, E/P, and C/P ratio of 1.49 (2.48), 0.18 (0.22), and 0.27 (0.42), respectively, with the market capitalization of 6,493,500 (429,661), 20,835,951 (787,159), and 22,657,271 (659,038) million baht. Consistent with the evidence found by *Fama and French (1995)*, the portfolio of value firms consists of poor performing firms, thus the average ROA realization on B/M, E/P, and C/P tend to be slightly low shown as 0.0448 (0.0133), 0.1100 (0.0849), and 0.0893 (0.0602) respectively. In addition, the average firm shows declines in ROA and gross margin over the last year in big (small) market capitalization on all B/M, E/P, and C/P based. Finally, the value firms show an increase in leverage and a decrease in liquidity over the prior year in which consistent with evidence found by *Piotroski (2000)*.

Table 2: Financial and Return Characteristics of Value Firm - High B/M, E/P, and C/P

Table 2 exhibits mean, median, standard deviation, and proportion with positive signal reported on two market capitalization size which based on three determinants; B/M, E/P, and C/P. Data is collected from DataStream focusing on corporate listed during 1995 to 2007 for portfolio sorted by B/M and 2000 to 2007 for portfolio sorted by E/P and C/P, excluding financial industry, non-performing and funds as well as negative earning firms for E/P and C/P based. Delisted companies have been collected to eliminate survivorship. Each variable is defined as follows;

Big cap

Variable	*MEAN*	*MEDIAN*	*SD*	*PROPORTION WITH POSITIVE SIGNAL*	*MEAN*	*MEDIAN*	*SD*	*PROPORTION WITH POSITIVE SIGNAL*	*MEAN*	*MEDIAN*	*SD*	*PROPORTION WITH POSITIVE SIGNAL*
	B/M				*E/P*				*C/P*			
MVE	12,373,046	3,863,005	32,119,068	N/A	20,835,951	5,127,459	62,988,707	N/A	22,657,271	5,127,459	82,223,859	N/A
ASSET	35,974	8,166	95,070	N/A	47,853	9,430	141,963	N/A	38,509	8,917	108,808	N/A
BM, EP, CP	1.49	1.28	0.78	N/A	0.18	0.16	0.08	N/A	0.27	0.23	0.14	N/A
ROA	0.0448	0.0435	0.0635	0.879	0.1100	0.0979	0.0691	0.997	0.0893	0.0726	0.0623	1.000
CHANGE ROA	-0.0006	0.0000	0.0571	0.474	0.0212	0.0093	0.0685	0.636	0.0195	0.0085	0.0613	0.626
CHANGE MARGIN	-0.0038	-0.0003	0.1671	0.418	-0.0009	0.0000	0.0925	0.434	-0.0025	-0.0003	0.0850	0.463
CFO	0.0647	0.0654	0.0923	0.827	0.1135	0.1152	0.1197	0.887	0.1194	0.1077	0.1030	0.939
CHANGE LEVERAGE	0.0345	0.0000	2.0719	0.455	0.1311	0.0250	1.0205	0.523	0.1046	0.0450	0.8407	0.554
CHANGE LIQUID	-0.0065	0.0000	0.0932	0.685	-0.0248	-0.0108	0.0889	0.765	-0.0188	-0.0129	0.0873	0.748
CHANGE TURN	0.0135	0.0063	0.1232	0.539	0.0082	0.0117	0.3003	0.570	0.0324	0.0262	0.2597	0.636
ACCRUAL	-0.0200	-0.0278	0.0910	0.641	-0.0035	-0.0184	0.0958	0.589	-0.0302	-0.0371	0.0847	0.701

Table 2: Financial and Return Characteristics of Value Firm - High B/M, E/P, and C/P (Continue)

Small cap

Variable	*MEAN*	*MEDIAN*	*SD*	*PROPORTION WITH POSITIVE SIGNAL*	*MEAN*	*MEDIAN*	*SD*	*PROPORTION WITH POSITIVE SIGNAL*	*MEAN*	*MEDIAN*	*SD*	*PROPORTION WITH POSITIVE SIGNAL*
	B/M				*E/P*				*C/P*			
MVE	429,661	312,000	375,483	N/A	787,159	662,100	560,613	N/A	659,038	462,800	556,902	N/A
ASSET	1,892	1,251	2,064	N/A	2,001	1,558	1,584	N/A	2,031	1,546	1,729	N/A
BM, EP, CP	2.48	2.17	1.14	N/A	0.22	0.19	0.11	N/A	0.42	0.35	0.22	N/A
ROA	0.0133	0.0216	0.0745	0.724	0.0849	0.0773	0.0490	0.993	0.0602	0.0535	0.0441	0.986
CHANGE ROA	-0.0003	-0.0016	0.0712	0.453	0.0377	0.0195	0.1283	0.672	0.0208	0.0084	0.0799	0.599
CHANGE MARGIN	-0.0067	-0.0005	0.0911	0.438	-0.0033	0.0005	0.0806	0.503	-0.0065	-0.0016	0.0660	0.456
CFO	0.0629	0.0589	0.0849	0.820	0.0913	0.0929	0.1067	0.887	0.0946	0.0987	0.0951	0.915
CHANGE LEVERAGE	0.1627	0.0500	2.2457	0.553	0.1738	0.0650	1.3732	0.579	0.1180	0.0700	0.5025	0.605
CHANGE LIQUID	-0.0024	0.0000	0.0880	0.726	-0.0179	-0.0023	0.0815	0.785	-0.0183	-0.0056	0.0816	0.759
CHANGE TURN	0.0054	0.0076	0.1939	0.536	0.0371	0.0217	0.2501	0.583	0.0635	0.0455	0.2178	0.619
ACCRUAL	-0.0496	-0.0446	0.0998	0.745	-0.0065	-0.0222	0.1063	0.616	-0.0344	-0.0505	0.0986	0.748

MVE = market value of equity at the end of fiscal year t. Reported in million Baht.

Asset = total assets reported at the end of fiscal year t. Reported in million Baht.

BM, EP, CP = book-to-market, earnings-to-price, cashflow-to-price at the end of fiscal year t.

ROA = net income before extraordinary items for the prior fiscal year scaled by MVE.

CHANGE ROA = change in annual ROA which calculated by ROA prior year less ROA current year.

CHANGE MARGIN = gross margin (net sales less cost of good sold scaled by net sales) of prior year less current year gross margin.

CFO = cashflow from operations scales by total assets.

CHANGE IN LEVERAGE = change in the firm's debt-to-asset ratio between prior year and current year. Debt-to-asset ratio defined as the firm's total long-term debt scaled by total assets.

CHANGE TURN = change in the firm's asset turnover ratio between prior year and current year. The asset turnover ratio is defined as net sales scaled by total assets.

ACCRUAL = net income before extraordinary items less cashflow from operations, scaled by total assets.

Returns to a Fundamental Analysis Strategy

Table 3 presents the returns to the fundamental investment strategy. Panel B reports a difference in returns on financial signals strategy and a complete value portfolio, a difference in returns of high F_SCORE (a score of 7 and 8) and a complete value portfolio, as well as a difference in return on high F_SCORE and low F_SCORE portfolio. Panel C and D reports a difference in Jensen's alpha and Sharpe ratio on financial signals strategy and a complete value portfolio, high F_SCORE (a score of 7 and 8) and a complete value portfolio, as well as high F_SCORE and low F_SCORE portfolio. As shown in Panel A, most of the firms are clustered around F_SCORE 4 to 6 regardless of how portfolio is sorted based on B/M, E/P, or C/P. This indicates that a majority of firms have a conflicting performance signals. In addition, as the F_SCORE rises from 0 to 8 the returns generated also increase respectively, especially for those in small market capitalization.

For a value portfolio sorted by B/M, 314 firms are classified as high F_SCORE firms (score of 5 to 8), while 100 firms are classified as low F_SCORE firms (score of 0 to 3). For E/P (C/P) sorted, 222 (234) firms are classified as high F_SCORE firms, and 32 (19) firms are classified as low F_SCORE firms. This study equally assigns 0 to 3 as low F_SCORE and 5 to 8 as high F_SCORE in order to observe whether the result from financial signals still persists even the data is not extremely different, and if the result does, the financial signals investing strategy would even more convincible effective in generating a superior return. Panel B show that the portfolio of high F_SCORE firms significantly generate higher return than the complete value portfolio in big (small) market capitalization on all B/M, E/P, and C/P based with the difference of 9% (5%), 2% (4%), 2% (4%). However, the difference in returns only significant for portfolio sorted by B/M but not for E/P and C/P. This might due to a reason that a number of firms in high F_SCORE and low F_SCORE portfolio is highly difference resulting in an insignificant result even the difference in returns is quite different. Therefore, in order to pursue our hypothesis to construct a portfolio that generates superior returns by using financial signals, we additionally construct a high F_SCORE portfolio that consists of F_SCORE of 7 and 8. As a result, a high F_SCORE (score of 7 and 8) could significantly outperform a complete value portfolio in big (small) market capitalization no matter how portfolios are sorted based on B/M, E/P, and C/P. The result is consistent with evidence documented by *Piotroski (2000)* that high F_SCORE outperform a complete value portfolio based on B/M.

Another comparison is the return difference between high F_SCORE and low F_SCORE portfolio. As shown in panel B, for portfolio sorted by B/M, the high F_SCORE portfolio outperforms low F_SCORE portfolio in big (small) market capitalization with a difference of 15% (14%) in which also statistically significant at the 5% significant level. For E/P and C/P sorted, the high F_SCORE portfolio outperforms the low F_SCORE portfolio in big (small) market capitalization with a difference of 12% (26%) and 11% (29%) respectively. The result indicates that the extreme difference in high F_SCORE and low F_SCORE portfolio could be observed on a small market capitalization portfolio sorted by E/P and C/P. This might due to

the reason that all negative earnings firms have been eliminated on E/P and C/P leading to the shift in returns especially on high F_SCORE portfolio.

Panel C and D show that high F_SCORE portfolio is better than complete value portfolio and low F_SCORE portfolio in both Jensen's alpha and Sharpe ratio in both big and small market capitalization on all B/M, E/P, and C/P sorted.

Therefore, as a result is consistently with the objective of this study, thus we accepted hypothesis 2 which asserted that financial signals when applied with high book-to-market stock in Stock Market of Thailand could discriminate between firms with strong prospects and those with weak prospects in order to create a strong value portfolio which generate higher returns than value investing strategy alone.

Table 3: Return on Fundamental Analysis Strategy

This table presents returns to a fundamental investing strategy based on purchasing value stocks with strong fundamental signals. F_SCORE is equal to the sum of eight individual binary signals, or F_SCORE = F_ROA + F_ΔROA + F_CFO + F_ACCRUAL + F_ΔMARGIN + F_ΔTURN + F_ΔLEVER + F_ΔLIQUID, where each binary signal equals one (zero) if the underlying realization is a good (bad) signal about future firm performance. A F_SCORE equal to zero (eight) means the firm possesses the least (most) favorable set of financial signals. The low F_SCORE portfolio consists of firms with an aggregate score of 0 to 3; the high F_SCORE portfolio consists of firms with a score of 5 to 8.

Big cap

Panel A: Returns on F_SCORE

	B/M							*E/P*							*C/P*						
	MEAN	*10%*	*25%*	*MEDIAN*	*75%*	*90%*	*n*	*MEAN*	*10%*	*25%*	*MEDIAN*	*75%*	*90%*	*n*	*MEAN*	*10%*	*25%*	*MEDIAN*	*75%*	*90%*	*n*
ALL FIRM (Value Portfolio)	0.132	-0.38	-0.13	0.09	0.36	0.66	521	0.272	-0.17	-0.01	0.18	0.44	0.72	302	0.300	-0.08	0.08	0.25	0.46	0.71	294
F_SCORE																					
0				N/A				0.70	0.70	0.70	0.70	0.70	0.70	1				N/A			
1	-0.17	-0.31	-0.28	-0.21	-0.07	0.01	7	0.26	0.26	0.26	0.26	0.26	0.26	1	0.42	0.42	0.42	0.42	0.42	0.42	1
2	-0.04	-0.63	-0.34	-0.10	0.16	0.47	37	0.05	-0.22	-0.16	-0.01	0.19	0.36	15	0.18	-0.04	0.10	0.10	0.17	0.48	5
3	-0.02	-0.61	-0.21	0.02	0.22	0.51	56	0.15	-0.24	0.05	0.13	0.34	0.53	15	0.19	-0.02	0.06	0.17	0.25	0.50	13
4	0.02	-0.43	-0.19	-0.01	0.21	0.55	107	0.20	-0.17	-0.08	0.16	0.41	0.60	48	0.21	-0.10	0.08	0.17	0.33	0.61	41
5	0.18	-0.22	-0.10	0.09	0.40	0.69	110	0.24	-0.17	0.01	0.16	0.41	0.71	67	0.26	-0.12	0.03	0.17	0.41	0.65	64
6	0.19	-0.31	-0.08	0.13	0.45	0.73	117	0.22	-0.17	-0.01	0.12	0.43	0.77	79	0.28	-0.08	0.04	0.22	0.46	0.71	84
7	0.28	-0.19	0.06	0.27	0.43	0.71	62	0.39	-0.07	0.17	0.31	0.61	0.95	54	0.39	0.10	0.21	0.32	0.59	0.73	60
8	0.43	0.04	0.12	0.35	0.66	0.87	25	0.28	-0.13	0.06	0.28	0.57	0.66	22	0.32	-0.01	0.11	0.28	0.58	0.69	26
Low Score (0-3)	0.076	-0.58	-0.29	-0.03	0.15	0.49	100	0.173	-0.23	-0.12	0.10	0.28	0.54	32	0.212	-0.05	0.07	0.17	0.33	0.54	19
High Score (5-8)	0.224	-0.24	-0.05	0.19	0.45	0.72	314	0.295	-0.15	0.01	0.21	0.47	0.77	222	0.317	-0.07	0.08	0.27	0.49	0.71	234

Panel B: Difference in Return

High F_SCORE - ALL (Value)	0.09*	0.02	0.02
High F_SCORE7,8 - ALL (Value)	0.19*	0.09**	0.08**
High F_SCORE - Low F_SCORE	0.15*	0.13**	0.11**

Panel C: Difference in Jensen's Alpha

High F_SCORE - ALL (Value)	0.09*	0.03	0.02
High F_SCORE7,8 - ALL (Value)	0.19*	0.11**	0.08**
High F_SCORE - Low F_SCORE	0.26*	0.15**	0.11**

Panel D: Difference in Sharpe

High F_SCORE - ALL (Value)	0.69*	0.70**	0.66**
High F_SCORE7,8 - ALL (Value)	1.34*	2.27**	1.86**
High F_SCORE - Low F_SCORE	1.57*	1.78*	1.47*

Table 3: Return on Fundamental Analysis Strategy (Continue)

Small cap

Panel A: Returns on F_SCORE

	B/M							*E/P*							*C/P*							
	MEAN	*10%*	*25%*	*MEDIAN*	*75%*	*90%*	*n*	*MEAN*	*10%*	*25%*	*MEDIAN*	*75%*	*90%*	*n*	*MEAN*	*10%*	*25%*	*MEDIAN*	*75%*	*90%*	*n*
ALL FIRM (Value Portolio)	0.115	-0.34	-0.15	0.05	0.32	0.69	521	0.324	-0.13	0.00	0.16	0.48	0.89	302	0.263	-0.15	-0.04	0.13	0.41	0.80	294
F_SCORE																					
0	0.01	0.01	0.01	0.01	0.01	0.01	1				N/A							N/A			
1	-0.16	-0.42	-0.30	-0.17	-0.05	0.05	12	0.09	0.02	0.05	0.09	0.14	0.16	2	0.00	0.00	0.00	0.00	0.00	0.00	1
2	-0.04	-0.41	-0.26	-0.09	0.16	0.46	26	0.18	-0.01	0.12	0.16	0.29	0.36	7	0.01	-0.20	-0.17	-0.07	0.11	0.31	4
3	-0.01	-0.48	-0.22	-0.04	0.21	0.40	61	0.05	-0.32	-0.04	0.07	0.18	0.40	28	0.00	-0.32	-0.19	-0.01	0.11	0.40	18
4	0.01	-0.47	-0.25	-0.01	0.25	0.54	95	0.12	-0.27	-0.13	0.07	0.29	0.70	41	0.13	-0.18	-0.12	0.08	0.25	0.62	42
5	0.12	-0.38	-0.15	0.04	0.36	0.70	116	0.20	-0.10	-0.02	0.11	0.39	0.70	49	0.12	-0.22	-0.10	0.03	0.26	0.62	60
6	0.24	-0.19	-0.05	0.15	0.47	0.84	104	0.34	-0.04	0.00	0.25	0.57	1.01	74	0.29	-0.09	0.00	0.19	0.49	0.88	74
7	0.17	-0.21	-0.03	0.10	0.34	0.57	78	0.40	-0.06	0.03	0.20	0.64	1.15	64	0.31	-0.06	0.03	0.18	0.50	0.81	63
8	0.41	-0.04	0.11	0.27	0.75	0.85	28	0.52	-0.10	0.07	0.46	0.80	1.11	37	0.43	-0.07	0.13	0.40	0.68	1.03	32
Low Score (0-3)	0.031	-0.43	-0.28	-0.07	0.17	0.41	100	0.113	-0.31	-0.02	0.10	0.20	0.40	37	0.091	-0.31	-0.18	-0.01	0.10	0.43	23
High Score (5-8)	0.167	-0.25	-0.09	0.12	0.41	0.77	326	0.369	-0.09	0.00	0.24	0.60	1.01	224	0.301	-0.13	0.00	0.17	0.46	0.85	229

Panel B: Difference in Return

High F_SCORE - ALL (Value)	0.05*	0.04	0.04
High F_SCORE7,8 - ALL (Value)	0.12*	0.15*	0.12*
High F_SCORE - Low F_SCORE	0.14*	0.26*	0.21*

Panel C: Difference in Jensen's Alpha

High F_SCORE - ALL (Value)	0.08*	0.07	0.04
High F_SCORE7,8 - ALL (Value)	0.12*	0.15*	0.12*
High F_SCORE - Low F_SCORE	0.23*	0.28*	0.27*

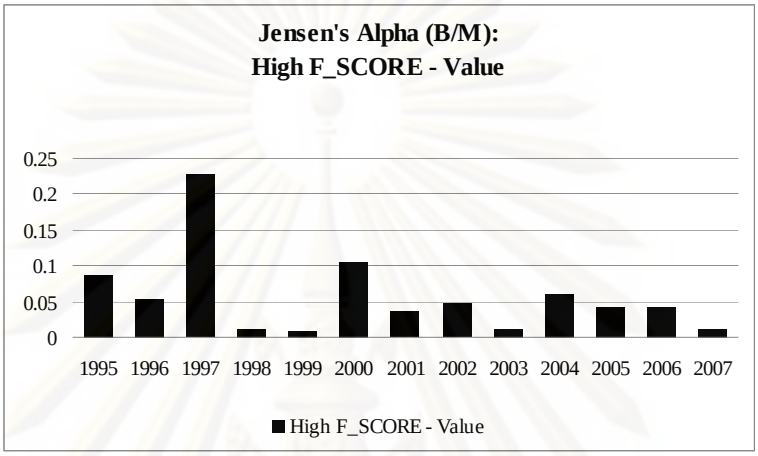
Panel D: Difference in Sharpe

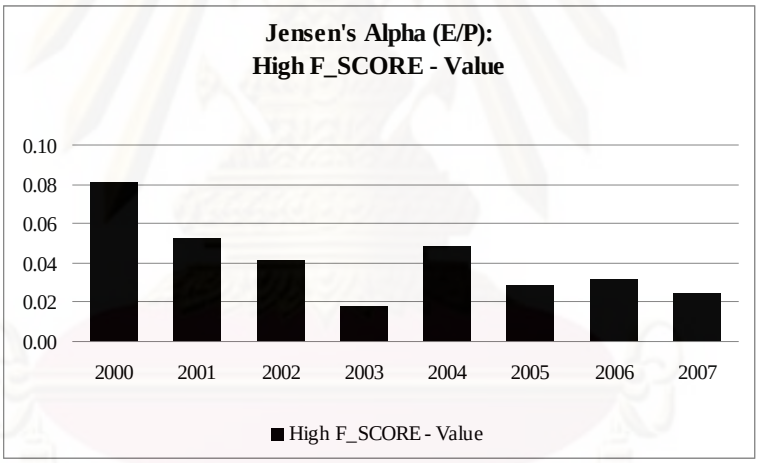
High F_SCORE - ALL (Value)	0.49*	0.52**	0.42**
High F_SCORE7,8 - ALL (Value)	0.82**	0.72**	0.78**
High F_SCORE - Low F_SCORE	1.65*	2.45*	2.36*

* represents 10% significant level ** represents 5% significant level *** represents 1% significant level

Figure 1: Difference in High F_SCORE Jensen's alpha VS Completed Value Jensen's alpha

Figure 1 shows a difference in Jensen's alpha based on high F_SCORE investing strategy versus a complete value portfolio from a portfolio sorted by B/M, E/P, and C/P. The result shows that high F_SCORE portfolio generates higher return than complete value portfolio on every year no matter how portfolio is constructed based on B/M, E/P, or C/P.





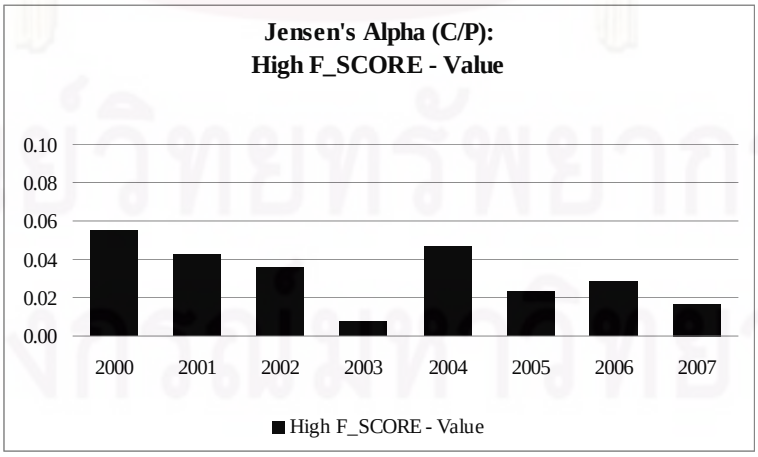
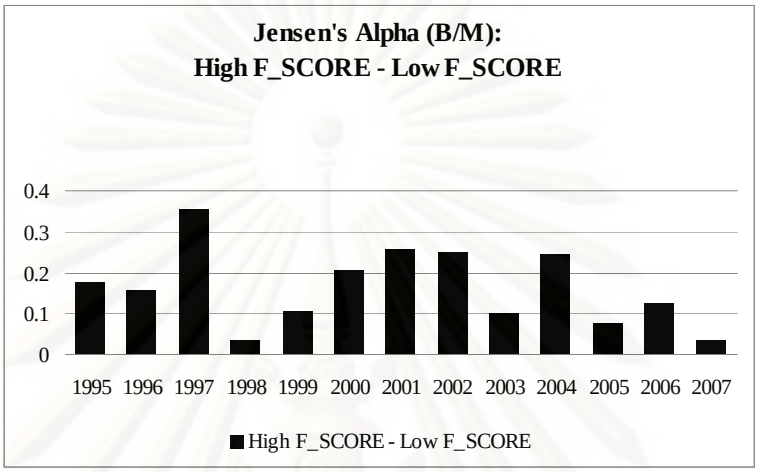
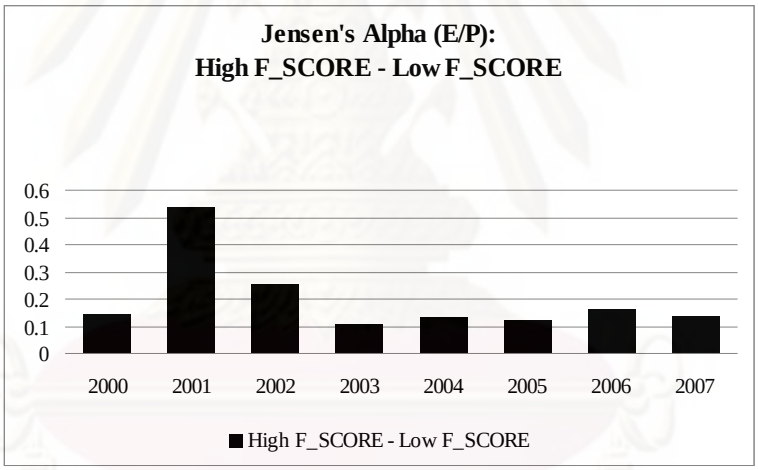
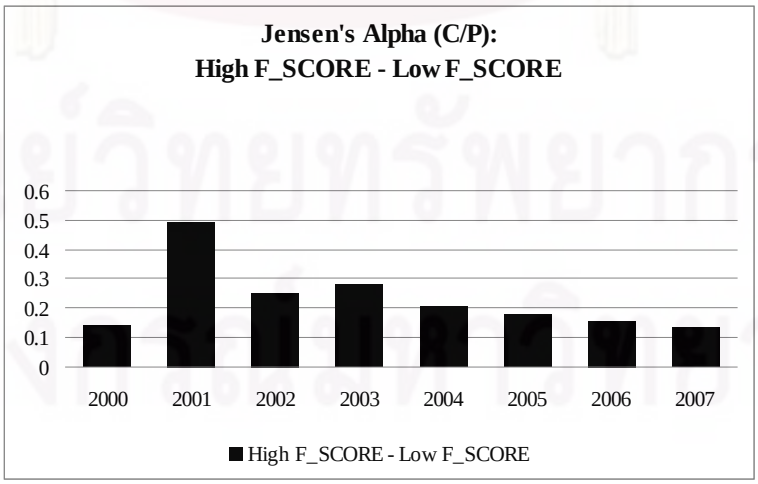


Figure 2: Difference in High F_SCORE Jensen's alpha VS Low F_SCORE Jensen's alpha

Figure 2 presents a difference in Jensen's alpha based on high F_SCORE portfolio versus low F_SCORE portfolio from a portfolio sorted by B/M, E/P, and C/P. The result shows that, every year, high F_SCORE generates higher returns than low F_SCORE for all B/M, E/P, and C/P based.







Returns on Dual-Characteristic Investing Strategy

Table 4 presents the summary characteristics of the 25 portfolios classified by score of 1 to 5 on both E/P and EPS. As shown in Panel A, average E/P, in both big and small market capitalization, the earning yield increases as we go down the rows with row 5 representing the highest value portfolio. In Panel B, the growth rate in EPS, g, increases as we go across the column with column 5 representing the highest growth portfolio. Panel C shows that portfolio which lie at the intersection of the two highest E/P quintiles and the two highest growth quintiles outperform other portfolios in both big and small market capitalization.

Table 4: Summary Characteristics of E/P, g, and Annual Return

Table 4 reports the summary characteristics of 25 portfolios classified by value and growth (earnings yield and growth in EPS) criteria. Data is collected from DataStream using corporate listed during 2000 to 2007, excluding financial industry, non-performing and funds as well as negative earning firms. Delisted companies have been collected to eliminate survivorship. Earnings are measured as profit before extraordinary items, while Growth in EPS is calculated by using [EPS(t) – EPS(t-1)] / EPS(t-1).

Big Cap						
Panel A: Average E/P						
	Lowest g				*Highest g*	*Mean*
Lowest E/P	0.03	0.04	0.05	0.05	0.05	0.05
	0.07	0.07	0.07	0.07	0.07	0.07
	0.10	0.10	0.10	0.10	0.10	0.10
	0.13	0.14	0.13	0.13	0.14	0.13
Highest E/P	0.22	0.21	0.20	0.21	0.23	0.21
Mean	0.11	0.11	0.11	0.11	0.12	
Panel B: Average g						
	Lowest g				*Highest g*	*Mean*
Lowest E/P	0.13	0.61	1.16	3.08	10.63	3.12
	0.24	0.59	1.39	2.73	14.72	3.93
	0.21	0.66	1.39	3.17	13.09	3.70
	0.23	0.61	1.23	3.01	14.22	3.86
Highest E/P	0.19	0.61	1.33	3.20	12.40	3.55
Mean	0.20	0.61	1.30	3.04	13.01	
Panel C: Average Annual Return						
	Lowest g				*Highest g*	*Mean*
Lowest E/P	0.04	0.17	0.14	0.07	0.27	0.14
	0.18	0.11	0.16	0.19	0.26	0.18
	0.21	0.19	0.19	0.19	0.28	0.21
	0.15	0.24	0.20	0.23	0.30	0.23
Highest E/P	0.25	0.26	0.28	0.30	0.34	0.28
Mean	0.17	0.19	0.20	0.20	0.29	

Table 4: Summary Characteristics of E/P, g, and Annual Return (Continue)

Small Cap						
Panel A: Average E/P						
	Lowest g				*Highest g*	*Mean*
Lowest E/P	0.03	0.04	0.04	0.05	0.05	0.04
	0.08	0.09	0.08	0.08	0.09	0.09
	0.11	0.13	0.12	0.12	0.12	0.12
	0.16	0.14	0.15	0.16	0.16	0.15
Highest E/P	0.25	0.27	0.25	0.23	0.24	0.25
Mean	0.13	0.13	0.13	0.13	0.13	
Panel B: Average g						
	Lowest g				*Highest g*	*Mean*
Lowest E/P	0.08	0.36	0.84	1.58	3.08	1.19
	0.13	0.36	0.80	1.89	5.57	1.75
	0.13	0.33	0.83	1.91	6.03	1.85
	0.17	0.33	0.81	2.07	7.56	2.19
Highest E/P	0.16	0.34	0.78	2.13	7.68	2.22
Mean	0.14	0.35	0.81	1.92	5.98	
Panel C: Average Annual Return						
	Lowest g				*Highest g*	*Mean*
Lowest E/P	0.01	0.12	0.09	0.03	0.12	0.07
	0.03	0.10	0.14	0.10	0.16	0.11
	0.13	0.20	0.16	0.16	0.23	0.18
	0.30	0.23	0.30	0.37	0.25	0.29
Highest E/P	0.29	0.31	0.33	0.34	0.41	0.33
Mean	0.15	0.19	0.20	0.20	0.24	

Table 5 shows the summary statistics of style investing strategy; high-earnings yield and high-growth (HEHG), high-earnings yield and low-growth (HELG), low-earnings yield and high-growth (LEHG), and low-earnings yield and low-growth (LELG). Consistent with the evidence found by *Ahmed and Nanda (2001)*, HEHG which consist of two highest E/P and g outperforms other style portfolio; HELG, LEHG, and LELG, on big (small) market capitalization with a difference of 11% (9%), 17% (22%), and 22% (29%) respectively. In addition, HEHG not only generates higher returns but is also ranked as a superior portfolio than HELG, LEHG, and LELG in term of Jensen's alpha in big (small) market capitalization with the difference of 0.01 (0.06), 0.02 (0.14), and 0.05 (0.27), along with a difference in Sharpe ratio of 0.56 (0.83), 0.79 (3.19) and 2.03 (3.23). The result is consistent with evidence found by *Ahmed and Nanda (2001).*

Table 5: Summary Statistics of Style Investing Strategy (HEHG, HELG, LEHG, and LELG)

Dual-characteristic portfolios of earnings yield and growth in EPS are formed each year from 2000 to 2007. There are four style class portfolio; high-earnings yield and high-growth (HEHG), high-earnings yield and low-growth (HELG), low-earnings yield and high-growth (LEHG), and low-earnings yield and low-growth (LELG). Return index is used as a measurement to calculate return in each year. Average portfolio returns, portfolio beta, standard deviation, Jensen's Alpha, and Sharpe ratio are reported.

Big Cap				
Panel A: Summary Statistics				
	HEHG	*HELG*	*LEHG*	*LELG*
Average Portfolio Return	0.31	0.20	0.14	0.09
Beta	1.29*	1.02*	1.11*	1.01*
S.D.	0.09	0.09	0.08	0.06
Jensen's Alpha	0.15**	0.11**	0.07***	0.03**
Sharpe ratio	2.85	2.29	2.06	0.83
Number of Observations	229	103	87	224
Panel B: Difference in Returns				
HEHG - HELG; HEHG - LEHG; HEHG - LELG		0.11**	0.17*	0.22*
Panel C: Difference in Jensen's Alpha				
HEHG - HELG; HEHG - LEHG; HEHG - LELG		0.04**	0.08**	0.12*
Panel D: Difference in Sharpe				
HEHG - HELG; HEHG - LEHG; HEHG - LELG		0.56**	0.79**	2.03*

Small Cap				
Panel A: Summary Statistics				
	HEHG	*HELG*	*LEHG*	*LELG*
Average Portfolio Return	0.34	0.24	0.12	0.04
Beta	1.01*	1.07*	1.13*	1.10*
S.D.	0.10	0.11	0.11	0.08
Jensen's Alpha	0.20**	0.16**	0.08**	0.01*
Sharpe ratio	3.32	2.49	0.13	0.09
Number of Observations	229	87	67	244
Panel B: Difference in returns				
HEHG - HELG; HEHG - LEHG; HEHG - LELG		0.10**	0.22*	0.30*
Panel C: Difference in Jensen's Alpha				
HEHG - HELG; HEHG - LEHG; HEHG - LELG		0.04*	0.12*	0.19*
Panel D: Difference in Sharpe				
HEHG - HELG; HEHG - LEHG; HEHG - LELG		0.83**	3.19*	3.23*

* represents 10% significant level
** represents 5% significant level
*** represents 1% significant level

Returns on Fundamental Strategy VS High Earnings Yield and High Growth in EPS (HEHG)

Table 6 presents the summary statistics of high F_SCORE investing strategy versus HEHG investing strategy. It seems that neither high F_SCORE nor HEHG strategy could generate a superior return than another. In term of risks, high F_SCORE and HEHG strategy did not show any different level of risk as measure by β and σ; however, high F_SCORE investing strategy is better than HEHG strategy in term of Jensen's alpha and Sharpe ratio on big (small) market capitalization with a difference of 0.14 (0.14) and 1.27 (0.71) respectively. This might due to the fact while that F_SCORE strategy uses multiple financial signals in order to separate winner from loser among value firms, whereas HEHG strategy uses only one variable, growth in EPS (g), to identify winner and loser. Therefore, growth in EPS in HEHG investing strategy represents the profitability in which could be compensated by change in ROA or change in CFO in order to measure the firm's profitability on financial signals strategy. Therefore, based on the result of this study, we rejected hypothesis 3 which asserted that dual-characteristic (high E/P and high growth) portfolio could generate higher returns than strong value investing strategy as it captures growth characteristic, growth in EPS, on value stocks.

Table 6: Summary Statistics of High F_SCORE VS High Earnings Yield and High Growth Investing Strategy

This table presents the returns generated from High F_SCORE portfolio and Dual-characteristic portfolios of high-earnings yield and high-growth in EPS (HEHG) from 2000 to 2007. Return index is used as a measurement to calculate return in each year. Average portfolio returns, portfolio beta, standard deviation, Jensen's Alpha, and Sharpe ratio are reported.

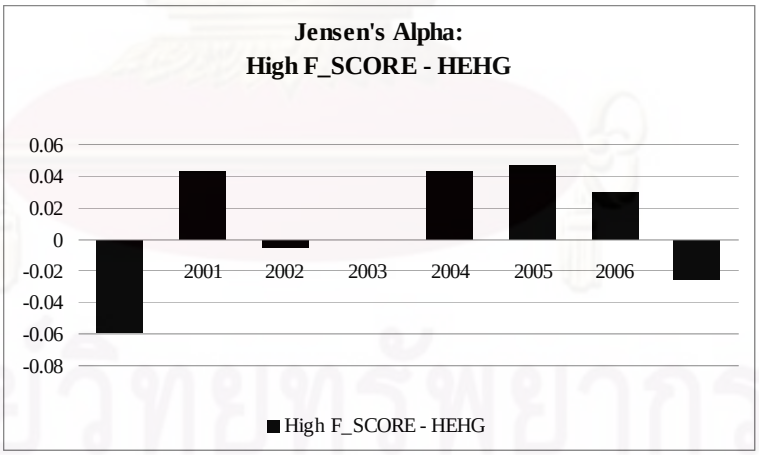
Big Cap		
Panel A: Summary Statistics		
	High F_SCORE (E/P)	*HEHG*
Average Portfolio Return	0.30	0.31
Beta	1.26*	1.29*
S.D.	0.06	0.09
Jensen's Alpha	0.17**	0.15**
Sharpe ratio	4.13	2.85
Number of Observations	222	229
Panel B: Difference in Returns		
High F_SCORE (E/P) - HEHG		-0.01**
Panel C: Difference in Jensen's Alpha		
High F_SCORE (E/P) - HEHG		0.02**
Panel D: Difference in Sharpe		
High F_SCORE (E/P) - HEHG		1.28**

Small Cap		
Panel A: *Summary Statistics*		
	High F_SCORE (E/P)	*HEHG*
Average Portfolio Return	0.37	0.34
Beta	1.09*	1.01*
S.D.	0.11	0.10
Jensen's Alpha	0.24**	0.20**
Sharpe ratio	4.02	3.32
Number of Observations	224	229
Panel B: Difference in Returns		
High F_SCORE (E/P) - HEHG		0.03**
Panel C: Difference in Jensen's Alpha		
High F_SCORE (E/P) - HEHG		0.04**
Panel D: Difference in Sharpe		
High F_SCORE (E/P) - HEHG		0.71*

* represents 10% significant level
** represents 5% significant level
*** represents 1% significant level

Figure 3: Difference in High F_SCORE Jensen's alpha VS High Earnings Yield with High Growth in EPS Jensen's alpha

Figure 3 presents a difference in Jensen's alpha on high F_SCORE and HEHG portfolio. The result shows that the strategy's effectiveness is uncertain based on yearly basis; however, on average high F_SCORE Jensen's alpha outperform HEHG Jensen's alpha.



CHAPTER VI

CONCLUSION

As the result shown in this study, first no matter whether value and growth portfolios are formed based on B/M, E/P, or C/P, value stocks always generate higher returns than growth stocks in Stock Exchange of Thailand with an approximated difference of 24%, especially in E/P and C/P where the value portfolio could generate a substantially higher return due to the elimination in negative earnings firms. Second, this study further investigates the strategy that could help discriminate winner out of winner (value stocks) by using financial signals. The results convincingly demonstrate that investors can use relevant historical information to eliminate firms with poor future prospects from a value portfolio leading to an approximated 4.3% above returns on conventional value portfolio. Third, this paper examines an alternative approach for investors to enhance returns by using style investing strategy (earnings yield and growth in EPS). The result indicates that although high earnings yield with high growth in EPS could generate higher returns other style investing strategies; high earnings yield with low growth (HELG), low earnings yield with high growth (LEHG), and low earnings yield with low growth (LELG), with the difference of 11% (10%), 17% (22%), and 22% (30%), respectively, in big (small) market capitalization; but when compared HEHG with financial analysis approach it seems that HEHG strategy could not outperform financial signals strategy in term of Jensen's alpha and Sharpe ratio.

Therefore, the result form this study could be a good evidence to support an international value versus growth investing strategy in developing countries as well as help identify that investors could benefit from firm's financial information in order to discriminate a firm with a strong financial prospect from firm with a poor financial prospect among value firms which lead to superior returns for any sophisticated investors who cautiously use a widely published information.

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APPENDIX

APPENDIX

VARIABLES SUMMARY

Summary of Financial Performance Signals used to discriminate strong financial prospect firms and weak financial prospect firms among value firms

Variable	Description	Measurement
ROA	Net income before extraordinary items scaled by beginning of the year total assets	F_ROA = 1 when ROA is positive
CFO	Cashflow from operations	F_CFO = 1 when CFO is positive
ΔROA	Current year's ROA less the prior year's ROA	F_ΔROA = 1 when ΔROA > 0
ACCRUAL	The current year's net income before extraordinary items scaled by beginning-of-the-year total assets less cash flow from operations	F_ACCRUAL = 1 when CFO > ROA (ACCRUAL is negative)
ΔLEVER	The historical change in the ratio of total long-term debt to average total assets	F_ΔLEVER = 1 when ΔLEVER < 0 (A decrease in financial leverage)
ΔLIQUID	The historical change in the firm's current ratio between the current and prior year (where the current ratio is defined as the ratio of current assets to current liabilities at fiscal year-end)	F_ΔLIQUID = 1 when ΔLIQUID > 0 (An improvement in liquidity)
ΔMARGIN	The firm's current gross margin ratio (gross margin scaled by total sales) less the prior year's gross margin ratio	F_ΔMARGIN = 1 when ΔMARGIN > 0 (An improvement in margin)
ΔTURN	The firm's current year assets turnover ratio (total sales scaled by beginning-of-the-year total assets) less the prior's year assets turnover ratio	F_ΔTURN = 1 when ΔTURN > 0 (An improvement in asset turnover)

BIOGRAPHY

Miss Sasanun Chungviwatanant graduated from Faculty of Commerce and Accountancy, Chulalongkorn University majoring in Accounting in 2007. In the same year, she entered to Full-Time program in Master of Science in Finance (MS Finance) at Faculty of Commerce and Accountancy, Chulalongkorn University. She graduated in academic year 2009.