



Emerging Markets: Evaluating Graham's Stock Selection Criteria on Portfolio Return in Saudi Arabia Stock Market

Nadisah Zakaria^{1*}, Fariza Hashim²

¹Prince Sultan University, Riyadh, Kingdom of Saudi Arabia, ²Prince Sultan University, Riyadh, Kingdom of Saudi Arabia.

*Email: nzakaria@psu.edu.sa

ABSTRACT

Graham's stock selection criteria enable investors to be more cautious in selecting their portfolios in order to generate abnormal return. Graham's model was widely examined in various developed market where the stock markets and companies are more mature and economy of the countries are more stable. However, the selection criteria model was not commonly examined in emerging countries despite of their rapid economic growth and diversified sectors in the stocks trading. Hence, this study attempts to investigate the relevance of Graham's stock selection criteria on the portfolio returns of the Saudi Arabia stock market. Saudi Arabia represents the fastest growing market in the Middle East primarily Arabian Gulf Cooperation Council region thus testing the market is justified. The study found that despite of being young and immature stock market, Saudi stock market was able to offer abnormal return to the investors and Graham's model of stock selection is indeed valuable to investors.

Keywords: Net Current Asset Value, Benjamin Graham, Value Investing

JEL Classification: G14

1. INTRODUCTION

Emerging markets have received greater attention over the last three decades as they provide immense investment opportunities in both the financial and real sectors. Countries in the Arabian Gulf Cooperation Council (AGCC) have become the latest and fastest emerging markets in the Middle East. The decision by the AGCC to accomplish a common currency in 2010 has accelerated the integration among the member countries. Within 5 years, the AGCC market capitalization had grown to US\$ 112 billion at the end of 2000. The combined stock markets of the AGCC region are now larger than the Hong Kong stock exchange and nearly one third the size of the London stock exchange (Rao, 2008), These governments are striving to integrate into the emerging system of global governance and are keen to adapt their policies to the best international practices (Hanelt and Matthias, 2002), Saudi Arabia's market's capitalization is the largest in the AGCC emerging markets, the United Arab Emirates (UAE) market is the second largest, Qatar has the highest growth within the last 3 years, followed by the Oman, Kuwait and Bahrain markets.

Graham and Dodd (1934) highlighted several key principles in analyzing companies' fundamentals and established a concept of value investing and security analysis. The notion of value investing refers to investing in stocks trading below their true value or intrinsic value (Graham, 1976; 2003). The difference between the stock's intrinsic value and the market value (MV) is called a margin of safety. The essence of value investing is that any investment should be worth considerably more than an investor has to pay for it. This means that investors look for shares with prices that are unjustifiably lower than their intrinsic value. Graham and Dodd (1934) refer to the margin of safety as any shares that are worth considerably more than they cost by at least 50% or more, indicating low risk thus resulting in a higher return of investment. Various studies have been conducted related to value investing; some studies examined different ratios as valuation measures, other studies examined the performance of value stocks over growth stocks and the existence of value premium. Continuing studies were conducted on examining different ratios to determine whether they generate value premium (Basu, 1977; Banz, 1981; Fama and French, 1992, 1998; Chan et al., 1991; Capaul et al., 1993; Lakonishok et al., 1994; Arshanapalli et al., 1998; Dimson

et al., 2003; Bird and Gerlach, 2003; Chan and Lakonishok, 2004; Hejazi and Oskouei, 2007; Kyriazis and Diacogiannis, 2007; Abhyankar et al., 2008; Ahmed, 1997; Arajärvi, 2009; Patari and Leivo, 1986; Larkin, 2011; and Athanassakos, G. (2008).

However, studies on stock selection criteria are quite limited. There were studies on Graham's stock selection criteria conducted by Oppenheimer and Schlarbaum (1981); Oppenheimer (1984); Vu (1988); Lauterbach and Vu (1993); Bildensee et al. (1993); Klerck and Maritz (1997); Vanstone et al. (2004); Xiao and Arnold (2008); Quah (2008); Balik and Mehran (2008); Chee, Sloan and Uysal (2013) and Singh and Kaur (2014). Almost all the studies above, except Singh and Kaur (2014), were conducted in developed countries or markets such as the US, the UK and other European capital markets, which are more mature and stable economically. Studies on emerging markets are limited, thus not much is understood about Graham's stock selection criteria and how it affects the portfolio return primarily in the emerging countries, where the capital market is still young and immature. Based on this premise, this study aims to enhance the literature on value investing strategies by examining the relevance of Graham's stock selection criteria on portfolio returns in Saudi Arabia.

Though Saudi Arabia is one of the fastest growing economies in the Middle East, little is known about the market, which was perceived to be dominated by only the oil and gas sector. In spite of progressively diversifying its economy and moving towards the capital market, not much is known about the performance of the Saudi Arabia Stock Market. In examining the value of investment in Saudi Arabia and utilizing Graham's criteria, the investigative questions are: First, do the stocks listed in emerging countries fulfill Graham's primary selection criteria even though they are younger companies?; second, do the stocks listed in emerging countries fulfill Graham's secondary selection criteria despite being immature?; third, if they fulfill Graham's criteria, would they generate abnormal returns to the investors? In general, the study will shed light on whether Graham's criteria contribute towards increasing the value of investment in emerging markets. This study employs the time series data spanning from 2000 to 2011 on the stocks listed on the Saudi Arabia stock exchange known as Tadawul.

This paper is organized in six sections; section two provides the background to the Saudi Arabia stock market and its development. Section three discusses Graham's stock selection criteria and literature relevant to the topic, section four describes the research methodology and data analysis, section five presents the empirical findings and discussion, and finally section six concludes the paper.

2. SAUDI ARABIA STOCK MARKET

On 19th March 2007, the Council of Ministers approved the formation of the Saudi stock exchange (Tadawul). This was in accordance with Article 20 of the Capital Market Law establishing Tadawul as a joint stock company. Tadawul is the sole entity authorized in Saudi Arabia to act as securities exchange and the securities depository centre (Tadawul.com). Its main roles

are; listing and trading in securities, deposit, transfer, clearing, settlement, and registry of ownership of securities traded on the exchange. The legal status, duties, and responsibilities of the Exchange and Depository Center are explicitly defined in the Capital Market Law of 2003. The Exchange is also the official source of all market information. Tadawul's capital is Saudi Riyal 1.2 billion divided into 120,000,000 shares of equal value (Saudi Riyal 10), all of which are cash shares subscribed by the Public Investment Fund. Tadawul is an affiliate member of the International Organization of Securities Commissions, the World Federation of the exchange of exchanges, and the Arab Federation of Exchanges (Tadawul.com).

The government has strived to attract foreign investment to the Kingdom in recent years. Saudi Arabia is ranked 49th in the world out of 189 nations in the World Bank's 2015 ease of doing business report. Its favorable business environment and reputation for stability have made it the largest destination for foreign direct investment in the region. Saudi Arabia received a total of \$9.3 billion of foreign direct investment in 2013 (World Bank, 2013). In June 2015, Saudi Arabia's stock exchange experienced a major change when it started to open to foreign participation, an occasion that had been keenly projected in the region. This was the final stage of market reform, which evolved from a single-product market to an increasingly diverse investment platform. Combined with a push of regulatory changes to the process, modifications to the organizational structure of the exchange, and its relationship with the regulator, the future looks more promising for Tadawul to extend its market participants. One of the most striking features of the Saudi stock exchange is that its listed companies reflect the range of economic activity taking place in the country more comprehensively than its regional peers. Equities are divided into 15 sectors: Banks and financial services; petrochemical industries; cement; retail; energy and utilities; agriculture and food industries; telecoms and IT; insurance; multi-investment; industrial investment; building and construction; real estate development; transport; media and publishing; and hotel and tourism. Though the Saudi stock exchange is relatively novel in its development, it is evolving from its initial function as a single-product equities market to offer a wider array of financial instruments.

Graham and Dodd (1934), who are known as the fathers of value investing, contended that shares that passed a set of criteria for selecting undervalued shares were worth investment as they would produce above average market returns. Basu (1977) confirmed the existence of "value effect" when he discovered that shares with low price-to-earnings ratio (P/E) produced, on average, a higher return than shares with a high P/E. Following this, various studies were conducted to validate that value shares low P/E ratio or low price-to-book ratio (P/B) tend to have higher average returns than growth shares (high P/E) and high P/B ratio in the US and global markets (Oppenheimer, 1986; Chan et al., 1991; Fama and French, 1992; 1993; 1998; Lakonishok et al., 1994; Chan and Lakonishok, 2004). These studies also agreed that value shares outperform growth shares despite the market volatility, economic conditions and speculations. Interestingly, value shares still generated superior returns to investors without having higher risk.

Athanassakos (2011) recently studied value of investment by examining the value investors and their investments in shares with low P/E and low P/B ratios. Consistent with earlier studies, he also confirmed that value investors do add value whereby selecting undervalued shares with a margin of safety generates significantly positive abnormal returns relative to the naïve approach of simply selecting shares with low P/E and low P/B ratios.

Many empirical studies documenting the superiority of value strategy became apparent following the market declines of 1929 and the late 1960s and even became abundant after the periods of notable global financial crisis. Oppenheimer (1986) clarifies that Graham used the net current asset value (NCAV) over the MV extensively in the operations of the Graham–Newman Corporation, where shares were selected on the basis of the rule that they earned, on average, about 20% per year over a 30-year period to 1956. He tested the returns of the NCAV/MC portfolios with the returns on the NYSE–AMEX value weighted index from 1971 through 1983 and found that NCAV securities had higher mean returns than the market benchmarks. Over the 13-year period, the Graham NCAV/MC portfolios on average outperformed the NYSE–AMEX index by 1.46% per month (about 19% per year) after adjusting for risk. When he compared this with the small-firm index, these portfolios also generated a significantly positive abnormal return of 0.67% per month (8% per year), indicating that the NCAV/MV portfolios are, on average, about as risky as those of small firms. Studies outside the US also indicate similar results: Investing in the NCAV/MC portfolios on average produces positive and significant abnormal returns relative to the market benchmarks (Bildersee et al., 1993; Chan et al., 1991; Xiao and Arnold, 2008).

Various recent studies that confirm NCAV/MV produced abnormal returns were also found. Xiao and Arnold (2008) found evidence that buying stocks in companies with a per share NCAV greater than 1.5 times the current price listed on the London stock exchange has produced returns (up to +19.7%) superior to those of the market. They also found that the profitability of the NCAV/MV strategy in the UK could not be explained using the capital asset pricing model or the Fama and French three-factor model, Chang (2012) examines Graham's shares selection criteria in the Malaysian share market for the period 2000–2009 and found that most of the screening criteria generated higher returns than the market index, in the order of between 4.23% and 81.18% during the period of study. Sareewiwatthana (2011), who conducted a similar study on value investing in Thailand using Graham's share selection criteria over the period of 5 years from 1996 to 2010, concluded that the value portfolios outperformed the markets by up to +65% over the test period.

3. METHODOLOGY

As of 31st December 2011, a total of 160 companies were listed on Tadawul with a market capitalization of USD385.3 million. Interestingly, the Saudi Arabian share market is the largest in the region, accounting for about 50% of the six AGCC markets: Bahrain, Kuwait, Oman, Qatar, and UAE. Indeed, more than 80% of all shares trading in terms of value take place in Saudi Arabia. The examining period for this study is from January 2000 until

December 2014. This is due to the fact that prior to the year 2000, company data is not yet available in the Saudi Arabia stock exchange. In calculating the NCAV of the companies listed, all data regarding the companies' current assets, current liabilities, long-term debt, and preferred stock were downloaded from balance sheet entries on Datastream (Xiao and Arnold, 2008). Companies that are listed as financial sectors are excluded from this analysis. Returns for each company including dividends were adjusted for changes in stock split, rights issues and share repurchases were obtained from Thompson Reuters Datastream, one of the major and authoritative financial information providers. Selection was conducted by using the criterion that is based on the concept of maximizing the reward-to-risk ratio of the stocks selected (Oppenheimer, 1984). In order to qualify for inclusion in a portfolio, a stock would need to meet at least one reward criterion and one risk criterion. In conducting the selection of stocks from the Saudi Arabia stock exchange, NCAV/MV portfolios have to be constructed. These processes involve two phases; the first is to select the companies listed based on primary criteria, then the second stage is to select them based on secondary criteria as established by Graham. In complying with the primary criteria of Graham's approach, companies with per share NCAV greater than 1.5 times the current asset share price were identified. Investors should select NCAV/MV shares with a margin of safety: At a price no more than two thirds of the company's NCAV.

Following Xiao and Arnold (2008), the study created an annual portfolio share in the month of July. Companies are required to have data for NCAV in December of $t-1$. This enabled the researcher to observe at least one return in the post-formation period. Only shares with the NCAV/MV higher than 1.5 are included in the portfolios. The buy-and-hold portfolios are constructed for 1, 2 and 3 years, with the first formation in July 2000 and the last formation in July 2011. Based on the selection of primary criteria, we found certain numbers of companies that fulfilled the NCAV criteria per each year as summarized in Table 1.

Those companies that fulfilled the primary criteria were further investigated to ensure they satisfy the secondary criteria, which are summarized in Table 2. It is important for the companies to comply with the two levels of criteria to enable them to be further analyzed.

Table 1: Numbers of companies in the NCAV/MV portfolio in each year

Year	Number of companies (Tadawul)
2000	23
2001	21
2002	20
2003	18
2004	17
2005	16
2006	15
2007	8
2008	6
2009	5
2010	5
2011	4

Source: Bloomberg, 2015. NCAV: Net current asset value, MV: Market value

Table 2: Secondary criteria for sample selection

Criteria	Explanation
Satisfactory earnings	Growth of earnings for the chosen companies should be at least at a 5% annual compound rate (Singh and Kaur, 2014) Companies should have positive earnings per share from continuing operations for the past 10 years of no more than 15 (Sareewiwatthana, 2011; Chang, 2012)
Financial strength	Companies should have price to P/B ratio below 1 (Sareewiwatthana, 2011; Chang, 2011) We will look for companies where the value of total liabilities is no more than half (50%) of the net current assets value. Holding these companies in the NCAV/MV portfolios is less likely to fail than those that are not (Graham and Dodd, 1934)
Current ratio	Current assets of the companies should be at least double the current liabilities to ensure that they have sizeable working capital (Graham and Dodd, 1934)
Additional filter	We exclude shares in the financial sectors as their financial statements are not directly comparable to other industries (Xiao and Arnold, 2008)

P/B: Price-to-book ratio, NCAV: Net current asset value, MV: Market value

In analyzing the return, we focused on abnormal return, which is defined in this context as the difference between the actual return and the expected return of individual stocks in the portfolios. Despite Lyon et al. (1999, p. 198) reminding us regarding the use of buy-and-hold abnormal returns (BHAR), extensive literature supports the use of the BHAR method as it copes better with the effect of compounding than does cumulative abnormal return (CAR) (Ritter, 1991; Barber and Lyon, 1997), Fama (1998) also argued that compounding short-term returns to obtain long-term BHAR better captures long-term investor experience. In fact, using merely the average abnormal returns used in the CAR approach does not accurately measure returns to investors over the long-run period. In modern event studies, the most commonly accepted methodology is the BHAR approach. Therefore, this research adopts this method to evaluate the share return performance of NCAV portfolios over the long-run period. Ritter (1991) asserts that in minimizing the problem related to measuring portfolios, benchmarking those portfolios is vital. Therefore, we employ two market indices: Equal-weight index (EWI) and value weight index (VWI).

Notably, EWI gives the same weight or importance to each share listed on the Saudi Arabia stock exchange. Similarly, using this approach, the smallest companies are also given equal weight to that of the largest companies. VWI refers to each share listed on the Saudi Arabia stock exchange that are weighted according to the total MV of their outstanding shares. In other words, the weights of individual shares are proportionate to their market capitalization. This enables us to examine the sensitivity of the results to the choice of the market (Xiao and Arnold, 2008), The 3-year holding period return is examined by computing the compounded monthly buy-and-hold return (BHR) for NCAV companies, for time t as follows:

$$BHR_{jT} = \left[\prod_{t=1}^T (1+r_{jt}) \right] - 1 \quad (1)$$

Where r_{jt} is the monthly actual return on security of j in event period of t . T is designated as the number of months in event period t . This measures the total return from a buy-and-hold strategy where a share is purchased at the closing market price and held until 12, 24 and 36 months following the NCAV/MV portfolios formation.

The BHR, BHR_{mT} for the market benchmarks, represented by the EWI and VWI for the Saudi Arabia stock exchange (Tadawul) are:

$$BHR_{mT} = \left[\prod_{t=1}^T (1+r_{mt}) \right] - 1 \quad (2)$$

r_{mt} is the corresponding monthly index level of SAS-EWI and SAS-VWI in event period t . Note that SAS-EWI denotes the Saudi Arabia all shares equal weight index and SAS-VWI represents the Saudi Arabia all shares value weight index. The market-adjusted BHAR for each security or company in the NCAV portfolio in event period t are computed as:

$$BHR_{jt} = \left[\prod_{t=1}^T (1+r_{jt}) \right] - 1 - BHR_{mT} = \left[\prod_{t=1}^T (1+r_{mt}) \right] - 1 \quad (3)$$

Where $BHAR_{jt}$ is the buy-and-hold abnormal return of security of j in event period of t . This measures the market-adjusted BHAR earned by investors over the 12, 24, 36 months following the NCAV/MV portfolio formation. The test-statistic for the market-adjusted monthly BHAR, $BHAR_{(t_1, t_2)}$ during the clustering period from t_1 to period t_2 is calculated as:

$$t = \frac{\overline{BHAR}_{(t_1, t_2)}}{\sigma(NHAR_t) / \sqrt{T}} \quad (4)$$

Where $\overline{BHAR}_{(t_1, t_2)}$ is the market-adjusted monthly average buy-and-hold abnormal return from period t_1 to period t_2 ; and $\sigma(BHAR_t)$ is the standard deviation of market-adjusted monthly buy-and-hold abnormal return in event period of t and T is the total number of companies in the NCAV portfolios in the sample.

4. EMPIRICAL RESULTS

After completing the two stages of examining the Saudi Arabia stock portfolios based on the Graham stock selection criteria, the study further analyzed those stocks to calculate the effects on the BHAR. The results of the analysis are summarized in Table 3, which shows the monthly percentage of market-adjusted BHAR for the full sample of NCAV/MV portfolios for the Saudi Arabia stock exchange (Tadawul) in the 3-year period against the equal-weighted index (EWI) and value-weighted index market (VWI) benchmarks.

Table 3: Average market-adjusted buy-and-hold returns for NCAV/MV portfolios

Panel A: Average market-adjusted buy-and-hold test period returns in the Saudi Arabia stock exchange (Tadawul)						
Market Indices	SAS-EWI			SAS-VWI		
	Months after portfolio formation					
	12	24	36	12	24	36
Market adjusted–ABHARs	20.17%	46.70%	83.47%	8.62%	27.69%	49.02%
T-stat	2.90**	4.87**	6.10**	1.34	3.28**	3.31**

Shares are allocated to NCAV portfolios if their NCAV/MV ratios are higher than 1.5 at the beginning of July 2000 and all subsequent to July 2011. Market-adjusted buy-and-hold abnormal returns for shares within a portfolio are calculated for periods of 1, 2 and 3 years post-formation. Panel A indicates the market-adjusted ABHARs for all the Saudi Arabian companies against the SAS-EWI and SAS-VWI benchmarks. ABHAR: Average buy-and-hold abnormal returns, SAS-EWI: The Kingdom of Saudi Arabia all shares-equal weight index. SAS-VWI: The Saudi Arabia all shares-value weight index, NCAV: Net current asset value, MV: Market value. Asterisks indicate statistical significance at the 1% (**), respectively using a 2-tailed test

Panel A shows the results of average market-adjusted BHAR on the Saudi Arabia stock exchange (Tadawul) in a period of 12, 24 and 36 months. The stock portfolios analyzed are those that comply with Graham's primary and secondary stock selection criteria. The results were analyzed separately based on the two indices; EWI and VWI. The results of the t-test for the stock portfolios from the EWI index against BHAR was 2.9 ($P = 0.01$) and BHAR was 20.17% for the 1-year period; 4.87 ($P = 0.01$) and BHAR was 46.7% for the 2-year period; and 6.1 ($P = 0.01$) and BHAR was 83.47% for the 3-year period. These results indicate that the longer the investors hold the portfolios, the higher the abnormal return. Nevertheless, the results of stock portfolios from VWI demonstrated a slightly different scenario. The t-test result for the stock portfolios from the VWI against BHAR was 1.34 (not significant at $P = 0.1$) and BHAR was 8.62% for the 1-year period; 3.28 ($P = 0.01$) and BHAR was 27.69% for the 2-year period; and 3.31 ($P = 0.01$) and BHAR was 49.02% for the 3-year period. These results indicated that investors gained abnormal returns only after a year of investment, which signifies that the abnormal return was secured but requires a longer period of holding the portfolios.

The findings above illustrate that the NCAV/MV portfolios that were measured against the market benchmark of SAS-EWI significantly performed exceeding the expectation on average by +83.47% in the 3-year holding period. Correspondingly, when the NCAV/MV portfolios were measured against the market benchmark of SAS-VWI, they also demonstrated a positive and significant market-adjusted BHAR of +49.02% over the 3-year period, though the percentage of return was marginally lower. This situation indicated that smaller companies outperformed the larger companies on the Saudi Arabia Stock Market during the period of study.

5. CONCLUSION

Benjamin Graham, the father of value investing, is associated with selecting stocks on the basis of valuation method of NCAV over the MV. He highlighted several most important principles in analyzing company's fundamentals and established a concept of value investing and security analysis. The notion of value investing is attributed to investing in stocks trading below their true or intrinsic value. The difference between the stock's intrinsic value and the MV is called a margin of safety. Studies on Graham's stock selection criteria remain largely inadequate in emerging markets. Despite the fact that studies were conducted on this issue, most of them were conducted in advanced markets such as those of

the US, the UK, and other European capital markets, which are more mature and economically established. Consequently, an understanding of the stock market reaction from emerging markets on Graham's stock selection criteria remains unknown, since this market is younger and less mature compared to the advanced market. AGCC was selected as a control variable due to the fact that its market capitalization has swiftly grown and is the largest in the AGCC region. Hence, this study sought to fill this gap.

This study attempted to provide insights into value of investment of stock portfolios listed in Saudi Arabia using Graham's selection criteria. It examined the stocks' compliance towards Graham's primary and secondary selection criteria as well as analyzing the potential of BHAR. In increasing the accuracy of measuring the portfolios, two indices were applied, namely the EWI and the VWI. This study employed the time series data across a 10-year period from 2000 to 2011. The study found that out of 160 companies selected from the Saudi Arabia stock exchange, 23 companies fulfilled the primary criteria in 2000, though this number steadily decreased to 4 companies in 2011. These companies were further selected for the secondary criteria before analysis on BHAR was calculated. The findings of the study showed that there was a consistently significant positive market-adjusted BHR over the 3 years for the market benchmarked by the EWI. Investors could gain their abnormal return even in their 1st year of investment up to 20% and aggregated up to 83% over the 33-year period. However, when the portfolios were benchmarked by VWI, the BHAR was not achieved in the 1st year of investment. The abnormal return was only earned in the 2nd- and 3rd-year period of investment. This indicates that smaller companies managed to perform better than larger companies in this younger stock market. The finding of this study is consistent with the previous studies, thus confirming that utilizing Graham's stock selection criteria remains valuable in serving investors to enhance their value of investment in emerging countries even though the companies are younger and operating in a market that is rapidly developing and less mature.

The study recommends the investors to screen the stocks traded on the Saudi Arabia stock exchange (Tadawul) using the Benjamin Graham's selection criteria in order to generate abnormal returns over the long-run period of investment. Notably, this method provides benefits fund to both fund managers and hedge fund managers. Fund managers can consider Benjamin Graham's selection criteria to create equity based mutual fund portfolios; while hedge fund managers can also use this approach as one of the tools for risk management.

This study is limited to Saudi Arabia stock market, giving its market capitalization is the largest in the AGCC emerging markets. A similar study can be conducted in other AGCC markets such as UAE, Qatar, Oman, Kuwait and Bahrain to provide a comprehensive understanding about notion of Benjamin Graham's stock selection and its applications.

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