# The Firm Value Effect: Evidence from Egypt

By Omar Gharaibeh

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# The Firm Value Effect: Evidence from Egypt

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*Keywords:* value effect, contrarian, three-factor model, egyptian stock market (EGX).

## I. Introduction

The empirical literature on the value effect has shown that BE/ME ratio can be used to predict future returns (Clifford S Asness, Moskowitz, & Pedersen, 2013; Chen, 2011; Dempsey, 2010; Fama & French, 1993). Studies that have examined the value effect have proved the persistence of this effect at the level of company, industry and international index level (Clifford S Asness, et al., 2013; Chen, 2011; Chou, Ho, & Ko, 2012; Dempsey, 2010; Fama & French, 1993; Gharaibeh, 2016; Lakonishok, Shleifer, & Vishny, 1994).

Although most previous empirical research studies on monthly value effect employ data either from developed stock markets or emerging stock markets, few from these previous studies have addressed the Arabic stock markets. Egypt is one of the most important Arabic stock markets. Egyptian stock market constitutes an increasing share of the Arabic stock portfolio Therefore, to the best of our knowledge; no such work has yet been done on the Egyptian stock market in any international literature. This paper mainly aims to investigate value effect in an Arabic stock market of developing country, namely Egypt.

In addition to the traditional methods used in previous studies to calculate the value effect which are long-term contrarian strategy and BE/ME ratio, this study is the first to suggest using the percentage change in the BM ratio as a third new method for identifying value. The results of this paper are easily summarized in three points. First, the current study shows the very existence of value effect in Egypt stock market. Second, among the alternative three value strategies, this paper reveals that long-term contrarian and BE/ME strategies provide the highest monthly average returns. In particular, previous two strategies produce abnormal raw returns of 2.18% and 2.01% respectively, while change BE/ME strategy generate only abnormal profits of 1.08% per month. Lastly, this paper finds that all three alternative value effects used in Egypt stock market can be explained by three factor model.

The rest of the current study is organized as follows. Section 2 reviews that literature related to the value effect, while Section 3 describes the data and outlines the portfolio construction for three alternative value strategies. Section 5 provides the main empirical results, and finally Section 6 concludes the chapter.

## II. Literature Review

Pioneering work by Fama and French (1993) which is the three-factor model has attracted the attention of many academic researchers and practitioners, as it found that the CAPM does not provide an adequate explanation of realized returns. Employing Fama and French's (1993) procedure to construct risk factors, Simlai (2009) re-investigated whether the size and book-to-market factors affect on the performance of portfolio returns. Simlai (2009) found that both size and book-to-market ratios have a key role in interpreting the variation in stock returns over the period from July 1926 to June 2007.

Lakonishok, Shleifer, and Vishny (1994)(LSV) investigated the relative performance of value strategies and showed that they outperform the market. Their finding supported the result of Fama and French (1992) that value strategies provide high returns. However, Whilst Fama and French (1992) consider the profitability of value strategies by explaining that these strategies are fundamentally riskier, Lakonishok et al. (1994) regard their profitability as being the result of stock mispricing.

Dempsey (2010) investigate the role of the BE/ME ratio in the formation of stock returns. He investigated whether the BE/ME ratio should take into account "risk-based", not a "mispricing" explanation for share prices in the Australian markets. His work was motivated by the explanation of stock return performance suggested by the Fama and French three-factor model, and applied Peterkort and Nielsen's (2005) approach to explain the relationship between the BM variable and stock return. Dempsey (2010) confirms

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2

the previous results that stock returns are strongly related to the firm's book-to-market equity ratio. Furthermore, strong evidence suggests that this relationship stems from the BE/ME ratio's absorption of the conclusion of company leverage as a risk factor. In spite of the distinctive characteristics of the Australian stock market, these previous results are substantially consistent with the U.S. results of Fama and French (1993) and Peterkort and Nielsen (2005).

Chen (2011) examined the reason why the book-to-market effect increased in small stocks and decreased in large stocks. His analysis found that firms with short life expectations have high idiosyncratic volatility. Chou, Ho, and Ko (2012) claim that the book-to-market effect in the U.S. equity market is mostly an intra-industry phenomenon. In more recent study, Asness, Moskowitz and Pedersen (2013) examine value strategy returns for global stocks, currencies, equity indices, government bonds and commodities. They provide evidence of value effect in each asset class.

Hasan, Alam, Amin, & Rahaman (2015) examine whether the size and value effects can explain the inter-firm returns in Dhaka Stock Exchange (DSE) in Bangladesh. They show strong evidence of size and value effects. Small firms along with high BE/ME firms tend to provide higher average monthly returns than big firms along with low BE/ME firms. Hasan, Alam, Amin, & Rahaman (2015) also show that cross-section of expected return in DSE can be explained by three-factor model.

Using 18 emerging stock markets during the period 1990 – 2013, Cakici, Tang, & Yan (2016) examine the presence of value effect. Egypt market is not addressed in their study; they show that the value effect is existence in 17 emerging markets except Brazil. During the global financial crisis, Cakici, Tang, & Yan (2016) point out that value premium move increasingly and positively together across-market.

Next section describes the dataset and methodology used in this study, and then this study expands upon each of these results in some detail.

## III. DATA AND METHODOLOGY

### a) Data

This paper considers monthly stock returns, firm size (ME), and the firm book-to-market ratio (BE/ME) for 104 Egyptian firms of all firms listed in the Egyptian Exchange (EGX) for the period of January 1997 to May 2014. At present, a total 104 firms of different sectors are listed in EGX till May 2014. Monthly stock price data are downloaded from Data Stream. The current study use Egyptian Treasury bill rate (monthly average) as the proxy for risk free rate and collected from Jordan central Bank. MSCI index is used as the proxy for market portfolio and data are collected from Data Stream. Following Fama and French (1992), Egyptian firm's BM

ratio for June of year $t$ is the book value of equity for the last fiscal year end in $t$-1 divided by the market value of equity as of December of $t$-1. A firm's annual BM ratio for June of year $t$ is the average of the BM ratios of the firms. In the BM monthly portfolio sorts that follow, this annual firm BM ratio is used for the following 12 months. Table 1 details descriptive statistics over the period January 1997 through May 2014 for the Egyptian firms, demonstrating average monthly returns, standard deviation, Skewness and Kurtosis for each firm. Table 1 shows big difference in the mean and standard deviation of average returns. The South Valley Cement has the biggest monthly average (over 4% per month). In contrast, the Maridive & Oil Services has the lowest average at -104. The Egyptian firms have an average monthly return of 1.34% and an average standard deviation of 15.63%.

### b) Portfolio Construction

This paper applies three alternative measures to determine value for each firm: the long-term return reversal by employing contrarian strategies, the firm's BM ratio, its 60-month past return, and the percentage change in its BE/ME ratio over the last 24, 36, 48 or 60 months. Using percentage change over the last 24, 36, 48, and 60 months allows testing the sensitivity of this new method to measure value to the same formation period. As a result this paper investigates three alternative value strategies: the long-term contrarian strategy, the BE/ME strategy and the change BE/ME strategy. The construction methodology for these strategies is presented in the next sections.

The portfolios for the three value strategies are formed as follows. At the beginning of each month $t$, the 104 firms are sorted based on their past BE/ME ratios (for the value strategy), on their 60-month past returns (for the contrarian strategy), and on the percentage changes in their BE/ME ratios over the past $J$ months for $J$ = 24, 36, 48 or 60months (for the change strategies). The high BE/ME, long-term winner and high change equal-weighted portfolios (denoted HV, LW and HC, respectively) contain the 25% of firms with the highest values for their respective sorting variables in the same way, the low BE/ME, long-term loser and low change portfolios (LV, LL and LC, respectively) contain the 25% of firms with the lowest values for their respective sorting variables.

The zero cost BE/ME strategy (HV-LV) is based on buying the high BE/ME portfolio and selling the low BE/ME portfolio. The zero cost long-term contrarian strategy (LL-LW) is longs the long-term loser portfolio and shorts the long-term winner portfolio. The zero cost change strategy (HC-LC) is buying the high change portfolio and selling the low change portfolio. Portfolios are held for $K$-month holding periods, while $K$ = 1, 3, 6, 9 and 12 months.

For the long-term contrarian strategy, the current study keeps a 12-month gap between the end of the 60-month formation period and the beginning of the K-month holding period compatible with previous studies such as Fama and French (1996), Figelman (2007), Grinblatt and Moskowitz (2004) and Malin and Bornholt (2013). The reason for employing this process is that Fama and French (1996) show that omitting the first 12-month after the end of the formation period enhances the performance of long-term contrarian strategy because it avoids any long-term reversals being compensated by the short-term continuation of returns.

This process is compatible with DeBondt and Thaler's (1985) finding that the first 12-month of the holding period did not earn significant contrarian profits. For all other strategies in this paper, the current study adopts the common practice used in momentum studies of omitting 1-month between the end of the formation period and the beginning of the holding period. Whereas a gap of zero or 1-month makes no significant difference to the outcomes, a small gap makes achievement of trading strategies easier in the real world. In addition it avoids any concerns about microstructure biases.

*Table 1 :* Descriptive Statistics

Table 1 reports the descriptive statistics for 104 firm returns from January 1997 until April 2014, obtained from Datastream. The first column is the name of the firm. This is followed by the average monthly returns, the standard deviation of monthly returns, book-to-market ratios and finally the "Skew" is the skewness, and the "Kurt" is the kurtosis for each firm.

| Firm Names | Average | SD | BE/ME | Skew | Kurt |
|---|---|---|---|---|---|
| South Valley Cement | 4.53 | 26.24 | 1.27 | 3.90 | 27.58 |
| Six of Oct.Dev.& Inv. | 2.99 | 26.32 | 0.87 | 3.33 | 16.46 |
| Egyptian Kuwaiti Holding | 2.99 | 23.75 | 0.56 | 6.46 | 60.98 |
| Egyptians Housing Dev. | 2.94 | 24.30 | 0.98 | 3.51 | 16.83 |
| Egyptians Abroad Invs. | 2.88 | 25.19 | 1.10 | 2.21 | 7.38 |
| Samad Misr -Egyfert | 2.86 | 18.25 | 0.73 | 1.19 | 2.65 |
| Faisal Islamic Bank Of Egypt Egp | 2.86 | 17.50 | 1.67 | 4.30 | 28.94 |
| Giza General Contracting | 2.72 | 22.50 | 0.62 | 1.56 | 5.26 |
| Global Telecom | 2.71 | 18.63 | 0.68 | 2.14 | 10.30 |
| United Arab Shipping | 2.69 | 25.60 | -0.85 | 1.93 | 6.21 |
| El Ezz Porcelain (Gemma) | 2.66 | 18.33 | 1.21 | 1.11 | 1.77 |
| Orascom Construction Ind | 2.62 | 11.87 | 0.38 | 0.00 | 1.01 |
| Arab Ceramic | 2.60 | 15.65 | 0.46 | 1.26 | 2.89 |
| Misr Beni Suef Cement | 2.55 | 11.41 | 0.57 | 1.00 | 3.00 |
| United Housing & Dev. | 2.44 | 16.58 | 0.27 | 1.16 | 3.70 |
| Ezz Steel | 2.41 | 18.91 | 0.69 | 0.84 | 1.51 |
| Cairo Poultry | 2.37 | 14.87 | 0.88 | 0.96 | 3.89 |
| Heliopolis Housing | 2.26 | 18.00 | 0.13 | 1.93 | 8.05 |
| Misr Duty Free Shops | 2.15 | 24.04 | 0.63 | 6.18 | 60.43 |
| Acrow Misr | 2.13 | 18.47 | 1.06 | 2.98 | 19.36 |
| Piraeus Bank Egypt Dead - 19/03/10 | 2.13 | 19.82 | 0.78 | 2.65 | 11.43 |
| Alexandria Cement | 2.08 | 18.03 | 0.60 | 1.56 | 4.92 |
| Helwan Cement Dead - 02/02/10 | 2.07 | 14.39 | 0.55 | 3.08 | 15.38 |
| Egyptian Gulf Bank | 2.04 | 16.11 | 0.68 | 2.75 | 31.47 |
| Qatar National Bank Alahly | 2.03 | 13.83 | 0.59 | -0.12 | 9.81 |
| Egyp.Co.for Mobl.Svs. (Mobinil) | 2.02 | 15.25 | 0.21 | 1.88 | 7.31 |
| Medinet Nasr Housing | 1.98 | 17.31 | 0.26 | 1.37 | 5.73 |
| Egyptian Electric Cable | 1.89 | 28.26 | 3.34 | 8.64 | 103.10 |
| Coml.Intl.Bank (Egypt) | 1.86 | 11.25 | 0.57 | 0.74 | 1.71 |
| Kafr El-Zait Pesticides | 1.82 | 16.87 | 0.80 | 1.57 | 4.91 |
| Orascom Hotels And Dev. | 1.82 | 19.50 | 0.53 | 2.06 | 8.43 |
| Sinai Cement | 1.80 | 11.34 | 0.77 | 0.79 | 1.43 |
| Nozha Intl.Hospital | 1.78 | 14.94 | 0.68 | 1.81 | 11.46 |
| Misr Cement (Qena) | 1.72 | 8.86 | 0.34 | 2.18 | 9.33 |
| Vodafone Egypt Telecom | 1.71 | 15.08 | 0.25 | 2.73 | 28.29 |
| Egyptian Finl.& Indl. | 1.67 | 14.71 | 1.23 | 1.29 | 4.31 |
| Development & Engr. | 1.66 | 21.29 | 1.09 | 2.81 | 15.06 |
| Orascom Hotel Holdings (Ohh) | 1.62 | 19.02 | 1.36 | 2.25 | 13.40 |
| Olympic Gp.Finl.Invs. Dead - 27/01/13 | 1.62 | 15.28 | 1.06 | 1.47 | 5.81 |
| El Ahli Inv.& Dev. | 1.62 | 20.67 | 0.78 | 2.32 | 11.05 |
| Housing & Dev.Bank | 1.56 | 16.88 | 1.48 | 1.88 | 8.48 |
| El Ezz Aldk.Steel Alexa. | 1.51 | 13.55 | 0.76 | 1.46 | 7.49 |

| | | | | | |
|---|---|---|---|---|---|
| Eastern Tobacco | 1.51 | 11.11 | 0.63 | 1.60 | 7.13 |
| Elswedy Electric | 1.41 | 12.93 | 0.63 | 0.18 | 1.55 |
| National Dev.Bank | 1.38 | 17.43 | 0.56 | 1.89 | 7.96 |
| Alexandria Flour Mills | 1.32 | 19.60 | 0.79 | 2.66 | 13.14 |
| Arab Cotton Ginning | 1.29 | 20.37 | 1.61 | 0.65 | 4.65 |
| El Watany Bank Of Egypt | 1.25 | 13.98 | 0.85 | 1.55 | 5.61 |
| Bisco Misr | 1.22 | 9.48 | 0.43 | 1.72 | 8.85 |
| Alexandria Spng.& Wvg. | 1.21 | 16.77 | 1.78 | 0.48 | 3.28 |
| South Cairo & Giza Mls.& Bkrs. | 1.21 | 18.35 | 1.03 | 2.28 | 9.17 |
| Extracted Oils Derivatre | 1.20 | 17.56 | 0.87 | 2.26 | 11.93 |
| Middle Egypt Flour Mills | 1.19 | 17.04 | 1.10 | 2.16 | 7.61 |
| Abou Kir Fertilizers | 1.16 | 10.75 | 0.33 | 2.17 | 16.09 |
| National Cement | 1.12 | 17.44 | 0.35 | 2.10 | 8.78 |
| Egyptian Intl.Pharms. (Epico) | 1.11 | 7.91 | 0.85 | 1.03 | 4.84 |
| Credit Agricole Egypt | 1.10 | 18.33 | 0.58 | 3.03 | 24.63 |
| Upper Egypt Flour Mills | 1.09 | 14.92 | 0.84 | 2.39 | 10.91 |
| Ajwa For Food Inds. | 1.09 | 23.40 | 0.68 | 5.50 | 46.60 |
| Egypt Aluminium | 1.09 | 14.01 | 1.21 | 1.37 | 4.15 |
| Oriental Weavers | 1.06 | 10.43 | 1.07 | 0.47 | 1.05 |
| Export Dev.Bk.Of Egypt | 1.02 | 17.40 | 1.37 | 2.98 | 29.69 |
| Pyramisa Hotels | 1.02 | 11.91 | 1.63 | 1.48 | 6.21 |
| Mena Tourism & Rlst.Inv. | 1.01 | 18.39 | 0.85 | 1.34 | 3.87 |
| Ameriyah Cement Dead - 22/06/10 | 0.97 | 11.36 | 0.47 | 1.81 | 7.73 |
| El Nasr Clothes & Text. (Kabo) | 0.92 | 16.55 | 1.83 | 1.01 | 3.54 |
| Ntrl.Gas & Mng.Project (Egypt Gas) | 0.92 | 13.93 | 1.17 | 3.08 | 21.74 |
| Cairo Pharmaceuticals | 0.90 | 11.42 | 1.11 | 3.41 | 30.51 |
| Misr Chemical Industries | 0.90 | 15.63 | 0.97 | 1.16 | 3.69 |
| Namaa For Dev.&.Reit.Co. Dead - | 0.88 | 19.59 | 1.08 | 1.43 | 8.12 |
| Suez Cement | 0.83 | 10.37 | 0.78 | 1.14 | 3.35 |
| Ahli United Bank Egypt Dead - | 0.82 | 10.27 | 0.53 | 2.52 | 21.14 |
| Nile Cotton Ginning | 0.78 | 19.49 | 0.99 | 2.26 | 19.09 |
| Delta Insurance | 0.78 | 12.34 | 0.93 | 1.30 | 5.23 |
| Egyptian Strch.& Glucose | 0.77 | 16.74 | 0.82 | 0.85 | 7.07 |
| East Delta Flour Mills | 0.75 | 12.92 | 0.94 | 1.84 | 8.99 |
| Egypt American Bank Dead - 30/08/07 | 0.74 | 10.26 | 0.57 | 1.40 | 6.55 |
| Blom Bank Egypt Dead - 16/10/10 | 0.74 | 15.97 | 1.10 | 0.23 | 10.24 |
| Alexandria For Pharmacy | 0.73 | 10.71 | 0.96 | 1.46 | 13.75 |
| Mid.& Ws.Delt.Flr.Mls. | 0.61 | 12.40 | 0.75 | 1.44 | 6.22 |
| General Silos & Storage | 0.60 | 16.84 | 0.96 | 3.70 | 25.92 |
| Nile Pharmaceuticals | 0.60 | 11.26 | 0.88 | 1.61 | 7.01 |
| Torah Cement | 0.58 | 10.55 | 0.51 | 0.71 | 2.88 |
| Misr For Hotels (Hilton) | 0.55 | 13.35 | 1.74 | 1.58 | 5.62 |
| Palm Hills Devs.Sae | 0.54 | 19.00 | 1.15 | 0.39 | 1.06 |
| Raya Hldg.For Tech.& Comms. | 0.54 | 14.50 | 1.27 | 0.56 | 2.58 |
| Delta Industries (Ideal) Dead - | 0.54 | 15.63 | 0.87 | 0.33 | 7.97 |
| Paint & Chmid.(Pachin) | 0.52 | 10.31 | 0.79 | 0.63 | 2.74 |
| Misr Oil | 0.48 | 13.37 | 0.80 | 1.14 | 5.38 |
| Sidi Kerir Petrochem. | 0.47 | 9.92 | 0.32 | 0.20 | 0.77 |
| Amreyah Pharms.Inds Dead - | 0.45 | 10.19 | 0.78 | 5.53 | 58.23 |
| Memphis Pharmaceuticals | 0.41 | 11.89 | 0.78 | 1.65 | 10.75 |
| North Cairo Mills | 0.41 | 15.95 | 0.81 | 2.65 | 15.22 |
| Talaat Moustafa Group | 0.39 | 13.81 | 2.30 | 0.30 | 0.83 |
| Misr Intl.Bank (Mibank) Dead - | 0.38 | 10.82 | 0.95 | 2.62 | 10.38 |
| Delta Sugar | 0.30 | 13.04 | 0.46 | -0.17 | 17.41 |
| Telecom Egypt | 0.22 | 8.63 | 0.99 | 0.46 | -0.03 |
| Misr Conditioning (Miraco) | 0.18 | 14.67 | 0.51 | -0.76 | 13.79 |
| Alexandria Mrl.Oils | 0.16 | 8.86 | 0.46 | -0.04 | 0.15 |
| Suez Canal Bank | 0.15 | 13.41 | 1.51 | 1.46 | 10.51 |
| Egyptian Media Prdn.City | -0.24 | 16.14 | 1.72 | 0.80 | 1.60 |
| Naeem Holding | -0.37 | 14.77 | 2.22 | 0.77 | 2.58 |
| Al Arafa Inv.& Cnsl. | -0.85 | 8.78 | 1.31 | 0.03 | -0.22 |
| Maridive & Oil Services | -1.04 | 12.04 | 0.43 | -0.40 | 0.42 |
| **Average** | **1.43** | **15.63** | | | |

## IV. Results

This section analyses the findings of the various value strategies. The section includes a discussion of raw and risk-adjusted results. this section reports the average monthly holding period returns for the long, short and long-short portfolios of the long-term contrarian strategy in Table 2, the BE/ME strategy in Table 3 and the pure change BE/ME strategy in Table 4 when applied to the sample of 104 Egypt firms. Columns 3 through 7 in each Table list the equal-weighted average monthly returns in percentages for the K-month holding periods (K = 1, 3, 6, 9 and 12 months).

### a) Value strategies' results

Except for the J = 24 case over K =1, the long-term contrarian results in Table 2 show that the strategy

profits (LL-LW) are statistically significant over all K-month holding periods if J =24, 36, 48, or 60 months. Table 2 demonstrates significant long-term contrarian LL-LW profits. For example, for the 60-month (five-year) formation period case with a 6-month holding period (K = 6) case, the difference between the average monthly returns of the LL portfolio and the LW portfolio is large 2.18% per month and it is statistically significant (t-stat 2.84). In summary, there are large and significant long-term contrarian profits generated for long formation periods of 24, 36, 48 and 60 months.

*Table 2 :* Profitability of Long-Term Contrarian at Egypt Firms

Table 2 provides the average monthly holding period returns in percentages of the selling, buying, and selling minus buying portfolios of the long-term reversal strategy for 104 Egypt firms. Portfolios are constructed as follows: At the beginning of each month t, the 104 firms are sorted derived from their past J-month formation period returns for J = 24, 36, 48, and 60 months. The long-run loser equal-weighted portfolio (LL) comprises of the 25 % of portfolios with the lowest returns, and the long-term winner equal weighted portfolio (LW) comprises of the 25 % of portfolios with the largest returns. The strategy LL-LW buying the long-run loser portfolio and sells the long-run winner portfolio to be held for K = 1, 3, 6, 9, or 12 months. The t-statistics depends on the Newey and West (1987) adjustment for autocorrelation up to lag 11.

| | | Holding Period Returns | | | | |
|---|---|---|---|---|---|---|
| J | Portfolio | K=1 | K=3 | K=6 | K=9 | K=12 |
| 24 | LW | 0.88 | 0.89 | 0.87 | 0.82 | 0.91 |
| | | (1.58) | (1.62) | (1.55) | (1.45) | (1.59) |
| | LL | 2.06 | 2.10 | 2.06 | 2.61 | 2.57 |
| | | (2.74) | (2.78) | (2.73) | (3.94) | (3.84) |
| | LL-LW | 1.18 | 1.21 | 1.19 | 1.79 | 1.66 |
| | | (1.94) | (2.01) | (2.05) | (3.98) | (3.76) |
| 36 | LW | 1.07 | 1.08 | 1.03 | 1.02 | 1.06 |
| | | (1.86) | (1.88) | (1.75) | (1.72) | (1.76) |
| | LL | 2.77 | 2.48 | 2.41 | 2.43 | 2.39 |
| | | (3.93) | (3.6) | (3.52) | (3.52) | (3.43) |
| | LL-LW | 1.70 | 1.39 | 1.39 | 1.40 | 1.33 |
| | | (3.17) | (2.79) | (2.88) | (2.97) | (2.87) |
| 48 | LW | 1.23 | 1.33 | 1.28 | 1.23 | 1.16 |
| | | (1.89) | (2.04) | (1.96) | (1.88) | (1.72) |
| | LL | 2.56 | 2.66 | 2.58 | 2.72 | 2.79 |
| | | (3.42) | (3.49) | (3.37) | (3.49) | (3.46) |
| | LL-LW | 1.33 | 1.33 | 1.30 | 1.49 | 1.63 |
| | | (2.44) | (2.47) | (2.49) | (2.85) | (3) |
| 60 | LW | 0.52 | 0.67 | 0.68 | 0.66 | 0.72 |
| | | (0.56) | (0.72) | (0.72) | (0.69) | (0.73) |
| | LL | 2.82 | 2.99 | 2.86 | 2.86 | 2.86 |
| | | (3.15) | (3.37) | (3.32) | (3.25) | (3.22) |
| | LL-LW | 2.31 | 2.31 | 2.18 | 2.19 | 2.14 |
| | | (2.78) | (2.85) | (2.84) | (2.83) | (2.56) |

The BE/ME strategy results in Table 3 show clearly that the strategy profits (HV-LV) are statistically

significant over all K-month holding. For example, for the 6-month holding period (K=6) case, the difference

6

between the average monthly returns of the HV portfolio and the LV portfolio is large 2.01% per month (t-stat 4.35), which is statistically significant. In general, the holding period returns in Table 3 give strong evidence of BE/ME effect at the Egypt firm level.

Table 4 shows that the pure change strategy produces statistical significant and sometimes weakly significant profits for all K holding periods when the percentage change in the BM ratio is measured over 24, 36, 48 or 60 months. For example, when the percentage change in the BM ratio is calculated over the past 60 months, the high change portfolio (HC) provides an average return of 2.36% per month while the low change portfolio (LC) produces an average return of only 1.29% per month with a six-month holding period. The difference of 1.08% per month between HC and LC is weakly significant (t-stat 1.65), and is economically large. On the other hand, measuring the percentage change in BE/ME ratios over 24, 36 or 48 months generates statistical significant profits and consistent results, with only the six-month holding period providing statistical significant profits (1.62%, 1.16% and 1.23%) per month  (t-stat 2.89, 2.02 and 1.97), respectively.

*Table 3 :* Profitability of BE/ME at Egypt Firms

Table 3 provides the average monthly holding period returns in percentages of the buying, selling, and buying-selling portfolios for the BE/ME strategy applies to 104 Egypt firms. At the beginning of each month t from November 1994 to April 2014, the 104 firms are ranked based on their BE/ME, and are assigned to one of four portfolios. The high BE/ME equal-weighted portfolios (HV) comprises of the 25% of firms with the highest values, while the low BE/ME comprises of the 25% of firms with the lowest values. HV-LV refers to the buying the fourth portfolio and selling first portfolio. All reported returns are equally weighted. The strategy LL-LW longs the long-term loser portfolio and shorts the long-term winner portfolio to be held for K = 1, 3, 6, 9, or 12 months. The t-statistics are based on the Newey and West (1987) adjustment for autocorrelation up to lag 11.

| Portfolio | Holding Period Returns | | | | |
|---|---|---|---|---|---|
|  | K=1 | K=3 | K=6 | K=9 | K=12 |
| HV | 2.42 | 2.45 | 2.25 | 2.26 | 2.52 |
|  | (3.48) | (3.65) | (3.36) | (3.3) | (3.7) |
| LV | 0.08 | 0.06 | 0.24 | 0.35 | 0.57 |
|  | (0.12) | (0.09) | (0.39) | (0.56) | (0.92) |
| HV-LV | 2.50 | 2.40 | 2.01 | 1.91 | 1.95 |
|  | (4.94) | (5.07) | (4.35) | (4.17) | (4.28) |

In short, the results in Table 2, 3 and 4 suggest that the three alternative measures of value provide high levels of profitability. In Table 1 and 2, strategy profits for the long-term contrarian and BE/ME strategies are significant and very similar for all holding periods. For example, the long-term contrarian strategy earns a significant 2.18% per month (t-stat 2.84) and the BE/ME strategy earns 2.01% per month (t-stat 4.35) with six-month holding periods (K=6). For change BE/ME strategy, although Table 4 shows that the change value strategy provides weakly significant for the same period, it is still economically large. The change value generates monthly returns 1.08% per month (t-stat 1.65).

The post-formation behaviors of the value strategies' profits are also illustrated in Figure 1. Figure 1 depicts the post-formation cumulative returns of the long-term contrarian strategy (LL-LW) with J = 60, the BE/ME strategy (HV-LV), and the change BE/ME strategy (HC-LC) with J = 60 for the 60 months following the end of the formation period.

*Table 4 :* Profitability of Change BE/ME at Egypt Firms

This table reports the average monthly holding period returns in percentages of the long, short, and long-short portfolios for change strategy applied to 104 Firms. Portfolios are constructed as follows: At the beginning of each month t, the 104 industries are ranked based on their percentage changes in their BM ratios over the past J months for J =24, 36, 48 and 132 months. The high change portfolios HC contains the 25% of firms with the largest change values, while the low change BM portfolio LC contains the 25% of firms with the lowest change values. The change BM strategy (HC‐LC) portfolios are held for K = 1, 3, 6, 9 or 12 months.

| J | Portfolio | Holding Period Returns | | | | |
|---|---|---|---|---|---|---|
|  |  | K=1 | K=3 | K=6 | K=9 | K=12 |
| 24 | HC | 2.84 | 3.02 | 2.74 | 2.76 | 2.71 |
|  |  | (3.69) | (3.98) | (3.69) | (3.77) | (3.66) |
|  | LC | 0.90 | 1.10 | 1.31 | 1.41 | 1.38 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | (1.38) | (1.7) | (2.03) | (2.15) | (2.1) |
| | HC-LC | 2.06 | 1.87 | 1.62 | 1.40 | 1.49 |
| | | (3.25) | (3.14) | (2.89) | (2.7) | (2.96) |
| 36 | HC | 2.57 | 2.53 | 2.48 | 2.33 | 2.25 |
| | | (3.44) | (3.46) | (3.39) | (3.18) | (3.07) |
| | LC | 1.10 | 0.97 | 1.32 | 1.30 | 1.13 |
| | | (1.49) | (1.31) | (1.86) | (1.86) | (1.61) |
| | HC-LC | 1.47 | 1.57 | 1.16 | 1.03 | 1.12 |
| | | (2.42) | (2.59) | (2.02) | (1.78) | (1.98) |
| 48 | HC | 2.41 | 2.58 | 2.42 | 2.41 | 2.42 |
| | | (3.16) | (3.45) | (3.25) | (3.2) | (3.18) |
| | LC | 1.23 | 1.16 | 1.18 | 1.10 | 1.30 |
| | | (1.63) | (1.54) | (1.56) | (1.48) | (1.74) |
| | HC-LC | 1.18 | 1.41 | 1.23 | 1.32 | 1.12 |
| | | (1.74) | (2.18) | (1.97) | (2.22) | (1.9) |
| 60 | HC | 2.35 | 2.34 | 2.36 | 2.57 | 2.74 |
| | | (2.77) | (2.9) | (2.91) | (3.16) | (3.29) |
| | LC | 1.11 | 1.09 | 1.29 | 1.49 | 1.36 |
| | | (1.51) | (1.44) | (1.72) | (1.93) | (1.77) |
| | HC-LC | 1.24 | 1.26 | 1.08 | 1.08 | 1.38 |
| | | (1.82) | (1.83) | (1.65) | (1.67) | (2.15) |

Given the Figure 1, while the value strategies graph suggests a slowing in the cumulative returns towards the end of the 60 months we note that all alternative three value strategies generate positive cumulative returns. Long-term contrarian strategy provides the highest cumulative returns, then comes the BE/ME strategy. The change BE/ME strategy comes in the last strategy among alternative value strategies.
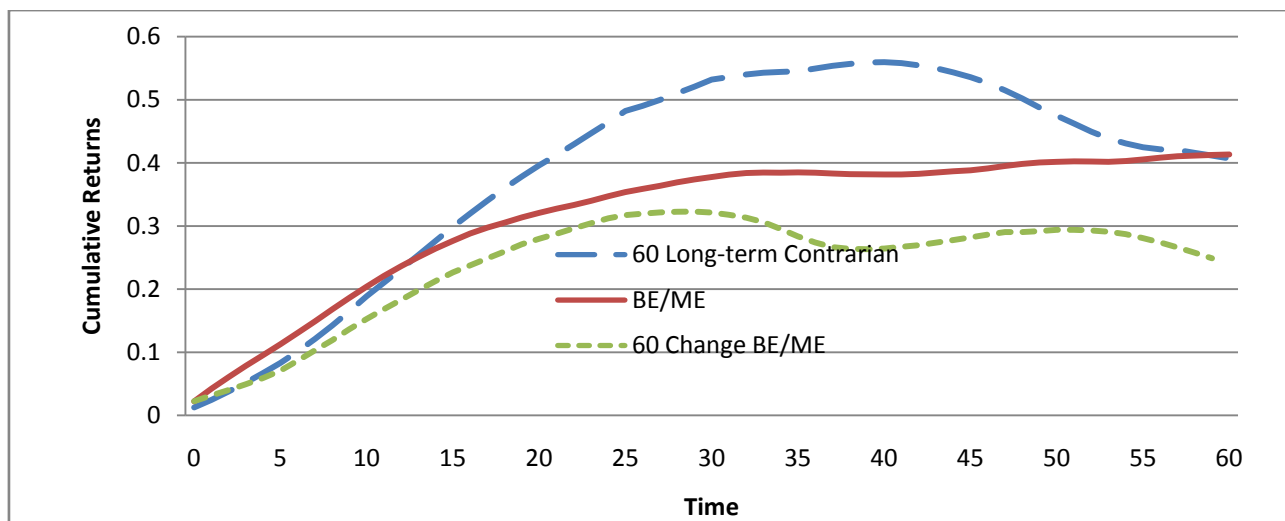


*Figure 1 :* Cumulative Return of Value Strategies

This graph presents the cumulative returns of the long-term return reversal portfolio LL-LW (with $J = 60$ months), BE/ME strategy HV-LV and change BE/ME (with $J = 60$ months) using non-overlapping portfolio ($K = 1$) for the 60 months after the end of the formation period.

### b) Risk adjustments

To find whether the profits of these strategies could be considered a reward for bearing risk, the profits of the long-term contrarian, BE/ME and change value strategies are risk-adjusted employing the Fama-French three-factor model. The three-factor regression model comprises of the market factor, a small minus big factor, and a value minus growth factor:

$$R_{pt} - R_{ft} = \alpha_p + \beta_p(R_{mt} - R_{ft}) + s_p SMB_t + h_p HML_t + \varepsilon_{pt}, \quad (1)$$

Where the dependent variable $R_{pt} - R_{ft}$ is the monthly excess return of the strategy portfolio $p$, $R_{pt}$ is the monthly return of portfolio $p$ at time $t$, and $R_{ft}$ represents the monthly risk-free rate at time $t$, represented by the one-month Egyptian T-Bill return. The independent variables or factors are as follows:

$R_{mt} - R_{ft}$ is the Egyptian MSCI index's monthly excess market return for month $t$, while $SMB_t$ and $HML_t$ are the monthly size and book-to-market factors at time $t$, respectively.

The monthly return values for the three factors and one-month T-Bill risk-free rate covering the full sample period from January 1997 to May 2014 are downloaded from Data stream. The three-factor model covers the period from the period January 1997 to May 2014. The coefficients $\beta_p$, $s_p$ and $h_p$ are the regression loadings corresponding to the factors of the models, while the intercept $\alpha_p$ (or simply alpha) indicates to the risk-adjusted abnormal returns of the portfolios over the evaluation period. If alpha is statistically significant, then this is evidence of abnormal profits. The $t$-values corresponding to the regression coefficients are corrected for heteroskedasticity using White's (1980) test.

Table 5 reports the estimated regression coefficients of the three-factor model and the corresponding White-corrected $t$-statistics for the long, short and long-short portfolios for the long-term contrarian ($J = 60$), the BE/ME and the change value ($J = 60$) strategies with six-month holding periods ($K = 6$) in Panels A, B and C, respectively. Column 2 of Table 5 reports the monthly alphas of the three-factor model, while the last column lists the adjusted R².

The alpha of the long-term contrarian long-short LL – LW portfolio in Panel A, B and C is small (0.013%, -0.09 and -0.04 per month) and insignificant ($t$-stat 0.29, -1.30 and -0.76), respectively.

In summary, the three alternative value results in Panels A, B and C of Table 5 reveal that there is value return in Egyptian firm returns that can be explained by the Fama-French three-factor model.. The insignificant long-term contrarian strategy's alpha is consistent with Fama and French's (1996) finding that the three-factor model can explain the reversal of long-term returns of individual U.S. stocks reported by DeBondt and Thaler (1985).

*Table 5 :* Risk-Adjusted inter-firm value Profits

This table presents the three-factor regression results for the contrarian, BE/ME and change BE/ME portfolios in Panel A, B and C respectively. These portfolios are described in Tables 2 and 3. The three-factor regression model is as follows:

$$R_{pt} - R_{ft} = \alpha_p + \beta_p(R_m - R_{ft}) + {}_{sp}SMB_t + {}_{hp}HML_t + \varepsilon_{pt}$$

where $R_{pt} - R_{ft}$ is the portfolio's excess return, $R_{mt} - R_{ft}$ is the excess return on the market, and $SMB_t$ and $HML_t$ are the size and book-to-market factors. The t-statistics presented in parentheses are corrected for heteroskedasticity using White's (1980) test.

| | Three-Factor Model | | | | |
| --- | --- | --- | --- | --- | --- |
| | α | β | s | h | Adj R2 |
| Panel A: | | | | | |
| contrarian | 0.013 | 0.041 | -0.380 | -0.093 | 28% |
| | (0.29) | (0.08) | (-5.39) | (-0.86) | |
| Panel B: | | | | | |
| BEME | -0.090 | 0.011 | -0.017 | 1 | 100% |
| | (-1.3) | (1.36) | (-5.99) | (4.12) | |
| Panel C: | | | | | |
| CHBEME | -0.040 | 0.452 | -0.205 | 0.632 | 12.8% |
| | (-0.76) | (0.77) | (-2.34) | (4.77) | |

## V.  Conclusion

Arabic stock markets are clearly a significant part of the world portfolio today and therefore are important to the average investor. Finance literature has discovered important facts about value effect in US, as well as in the developed equity markets.  Value effect is a lot less explored for emerging markets, especially Arabic market.

The current study provides results to fill this gap by considering stock returns in Egyptian stock market. Using sample period from January 1997 to April 2014,

this paper has shown two main contributions: First, the result of this study provides strong evidence of value effect by using three alternative value strategies: long-term contrarian, BE/ME and change BE/ME strategies. More specific, the long-term contrarian and BE/ME value strategies provide abnormal returns more than 2% per month, while the change BE/ME value strategy generate abnormal returns more than 1% per month. Second, this paper constructs 4 portfolios based on each value strategy for Egypt stock market, and uses these portfolios as the returns in the three-factor model. This paper also finds that the size and value premium in addition to market risk premium have very strong power to explain cross-section of expected return in the Egyptian Exchange.

The participants of the stock market, e.g. investors and fund managers may be utilized using previous findings. The investors from developing countries like Egypt can achieve abnormal returns by using three alternative value measures. In addition, practitioners manage their portfolios and assess their assets more accurately through applying three-factor model. For future research, it would be attractive to examine whether volatility effect can shed some light on the Egypt value returns. None of the previous studies investigate the relationship between value returns with volatility effect in Egypt stock market.

## References Références Referencias

1. Asness, C. S. (1997). The interaction of value and momentum strategies. Financial Analysts Journal, 29-36.
2. Asness, C. S., Moskowitz, T. J., & Pedersen, L. H. (2013). Value and momentum everywhere. The Journal of Finance, 68(3), 929-985.
3. Cakici, N., Tang, Y., & Yan, A. (2016). Do the Size, Value, and Momentum Factors Drive Stock Returns in Emerging Markets? Value, and Momentum Factors Drive Stock Returns in Emerging Markets.
4. Chen, H. J. (2011). Firm life expectancy and the heterogeneity of the book-to-market effect. Journal of Financial Economics, 100(2), 402-423.
5. Chou, P. H., Ho, P. H., & Ko, K. C. (2012). Do industries matter in explaining stock returns and asset-pricing anomalies? Journal of Banking & Finance, 36(2), 355-370.
6. DeBondt, W. F. M., & Thaler, R. (1985). Does the stock market overreact? Journal of Finance, 40(3), 793-805.
7. Dempsey, M. (2010). The book-to-market equity ratio as a proxy for risk: evidence from Australian markets. Australian Journal of Management, 35(1), 7-21.
8. Fama, E. F., & French, K. R. (1992). The cross-section of expected stock returns. Journal of Finance, 427-465.
9. Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. Journal of Financial Economics, 33(1), 3-56.
10. Fama, E. F., & French, K. R. (1996). Multifactor explanations of asset pricing anomalies. The Journal of Finance, 51(1), 55-84.
11. Figelman, I. (2007). Stock return momentum and reversal. The Journal of Portfolio Management, 34(1), 51-67.
12. Gharaibeh, O. K. (2016). The Inter-Firm Value Effect in the Qatar Stock Market: 2005-2014. International Journal of Business and Management, 11(1).
13. Grinblatt, M., & Moskowitz, T. (2004). Predicting stock price movements from past returns: The role of consistency and tax-loss selling. Financial Economics 71(3), 514-579.
14. Hasan, M. B., Alam, M. N., Amin, M. R., & Rahaman, M. A. (2015). The Size and Value Effect to Explain Cross-Section of Expected Stock Returns in Dhaka Stock Exchange. International Journal of Economics and Finance, 7(1), 14.
15. Lakonishok, J., Shleifer, A., & Vishny, R. W. (1994). Contrarian investment, extrapolation, and risk. The Journal of Finance, 49(5), 1541-1578.
16. Malin, M., & Bornholt, G. (2013). Long-term return reversal: Evidence from international market indices. Journal of International Financial Markets, Institutions and Money, 25, 1-17.
17. Newey, W. K. a., & West, K. D. (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. Econometrica: Journal of the Econometric Society, 703-708.
18. Peterkort, R. F., & Nielsen, J. F. (2005). Is the book-to-market ratio a measure of risk? Journal of Financial Research, 28(4), 487-502.
19. Simlai, P. (2009). Stock returns, size, and book-to-market equity. Studies in Economics and Finance, 26(3), 198-212.
20. White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. Econometrica: Journal of the Econometric Society, 48, 817-838.

9