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Islamic Finance and Anchoring Heuristic Bias: An Analysis to Gulf Islamic Stock Markets

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Abstract:

The aim of this work is to study the anchoring heuristic. The Extraneous factors plays' an important role in investment decisions and choices of stock's firm. Based on first impressions and news in the market, even in world markets, investors and analysts have to make prediction to estimate the future probability of a firm and then take decisions. These decisions encountered by high uncertainty can be right or wrong and the anchoring bias can occur. In other way, initial perceptions affect future decisions. This study explores the importance of the 52-week high price in the Islamic GCC stock market returns. We study the anchoring bias of Muslim investors and the important role of the 52-week high price strategy in predicting future returns in the Islamic GCC stock market returns based on new information. For doing this, we have collected data for the period July 2016-July 2019 of Islamic GCC companies listed on all sectors of Islamic GCC stock market. Using linear regression models empirical results show that 52-week high price indicator can be considered as a good anchor which used for the prediction of future returns based on new information.

Keywords:

Behavioral finance, GCC Islamic stock market, anchoring bias, 52-week high price, Muslim investors.

JEL Classification: G02; G14; G15

1- Introduction

Inefficiency in the stock markets and deviations from the right decision explained by behavioral heuristic and cognitive biases of investors, give rise to the development of the literature on behavioral finance that assumes that investors are irrational in their decision-making and thus contribute to the loss of confidence in the assumption of market efficiency for investors. Investors making deviations from efficiency attempt to correct their decisions by taking new decisions based on their predictions. To forecast future equity returns, we need information on stock performance in previous periods. However, extraneous factors play an important role in investment decisions and choice of the stocks. Based on first impressions and the latest market news, investors and analysts need to make predictions to estimate the future probability of a company, to make decisions, even at the level of global markets. These decisions encountered by high uncertainty can be right or wrong and the anchoring bias can occur. In other way, initial perceptions affect future decisions.

The 52-week high price plays an important role in predicting future stock prices. In fact, many works (George and Hwang (2004) for example), showed that the notion of the 52-week high stock price can be considered as the more suitable indicator for prediction. In their study, they suggested that traders should use the 52-week high stock price as an anchor when they hope to allocate the addition of the new good or bad information to predict the new stock value. They argue that a stock whose price is a to near its 52-week high is a stock for which good (bad) news has recently arrived, and that this may be precisely the time when traders' under reaction to good (bad) news is at its peak (though).

Hence, nearness to the 52-week high is positively associated with expected returns in the cross- section. On the other hand, Peng and Xiong (2006) show that limited investor attention leads to category-learning behavior, i.e., investors tend to process more market-wide information than firm-specific information. Because the Dow index is arguably the most widely available information about the market, investors are likely to use the Dow index as a benchmark when evaluating new market-wide information.

Using this indicator by investors can under or overestimates the future value of the stock price. Investors should use the 52-week high price statistic as an anchor when they make prediction of stock price and when they have new information. By

considering the 52-week high stock price as an indicator and reference point of starting and when we try to evaluate the impact of a good or a bad information on the new future price, the most of times we obtain a deviation of the stock price to its 52-week high price and therefore a future correctness to the price must be done. In other way, investors use the 52-week high price indicator as an anchor when introducing a new information and evaluating the new price.

Anchoring is related with adjustments of investors in the market from which they base their ideas and decision making on initial information and after that they make changes over time to this initial point. These changes are essentially driven by this starting point. Therefore, anchoring describes the cases in which investors choose a starting information to fix a specific target, known as anchor, and subsequently they try to adjust this starting information to choose an acceptable value that can be reached over time. These adjustments are inadequate and still too close to the original anchor, which can make a problem when the anchor is very different from the true answer. When the initial information, the anchor, deviates from the true value, anchoring and adjustments shown to produce erroneous results.

Tversky and Kahneman (1974) are the pioneers who studied the anchoring bias. After that many works were interested to the concept of anchoring heuristics and examined the effect of anchoring in price estimation, credit market, foreign institutional investment and different types of financial markets. Studies were applied to different countries, markets and fields (Park (2010), Li and YU (2012), Duclos (2015), etc). In this paper, our main goal is to analyze anchoring bias in the GCC Islamic stock market. Our objective is to contribute to the discussion on the anchoring bias in the Islamic GCC stock market. For doing this we use the methodology applied by Shin and Park (2018)

We use a sample of Islamic listed GCC securities market between 2015 and mid-2019. We expect to find as results that the nearness of current price to the 52-week high is positively related to the spread size of both Islamic and conventional listed securities market and that anchoring effect of stock's 52-week high prices is mitigated by Muslim investors. We expect that Muslim investors do not prefer to revise their beliefs where surprises reach the price is near to its 52-week high in both Islamic and conventional GCC stock markets.

An outline of the remainder of the paper is as follows. Section 2 presents a brief literature on anchoring heuristics. Section 3 is devoted to the details of the empirical

results where we present the methodology and the data followed by the results and their interpretation. Finally, Section 5 concludes the paper.

2- Literature review: What about anchoring

The succession of the financial crises and the various anomalies observed in the financial markets, have contributed to the emergence of behavioral finance. It's a new vision of markets that is interested in finding an explanation for the different anomalies on the markets. Behavioral finance has distinguished behavioral biases and heuristics. In this work we are interested in the study of the heuristic of mental anchoring. Anchoring or focalism is a cognitive bias where an individual depends too heavily on an initial piece of information offered when making decision. Anchoring occurs when, during decision making an individual depends on an initial piece of information to make subsequent judgments.

The anchoring effect is described as the heuristics implemented when making judgments under uncertainty (Tversky and Kahneman, 1974). Amid choice making, anchoring happens when people utilize an introductory bit of data to make resulting judgments. When a stay is situated, different judgments are made by conforming far from that anchor, and there is an inclination toward deciphering other data around the anchor. In numerical prediction, when a relevant value is available, people make estimates by starting from an initial value that is adjusted to yield the final answer. In either case, adjustments are typically insufficient (Rekik and Boujelbene, 2013). Frequently, financial specialist's utilization to offer significance to mentally decided "anchors" and factually irregular facts which is unnecessary as this inclination drives irrational investment decisions. Information in number may not reflect real force of its nature and inherent value.

The results of prior research (Kahneman and Tversky (1974)) suggest that individuals use cognitively tractable decision strategies, known as heuristics, to cope with complex and uncertain situations. These heuristics reduce complex inference tasks to relatively simple cognitive operations. Although these "mental short-cuts" help individuals in dealing with complex and uncertain situations, they may also lead to systematically skewed outcomes. The anchoring effect is one of the most studied cognitive biases that lead individuals to make sub-optimal decisions.

In their study, Kahneman and Tvesky (1974) explore the idea that individuals frequently form estimates by starting with an easily available reference value and then

adjusting from this value. Although this approach may not be problematic per se, research has shown that individuals typically fail to properly adjust their final estimates away from the salient but overemphasized starting point (the “anchor”).

More recently, Qu, Zhou, and Luo (2008) provide physiological evidence of the anchoring process based on event-related potential techniques (i.e., techniques that measure the brain responses stimulated by a thought or a perception). Research has shown that anchoring influences various types of decisions in many different contexts. These include judicial sentencing decisions (Englich and Mussweiler, (2001)), personal injury verdicts (Chapman and Bornstein (1996)), estimation of the likelihood of diseases (Brewer, Chapman, Schwartz, and Bergus (2007)), job performance evaluation (Latham, Budworth, Yanar, and Whyte (2008)), judges’ rankings in competitions (Ginsburgh and van Ours (2003)), and real estate acquisitions (Northcraft and Neale (1987)).

Previous research has also suggested that it is particularly difficult to correct anchoring bias. Consistent with this view, Northcraft and Neale (1987) conclude that “(1) experts are susceptible to decision bias, even in the confines of their ‘home’ decision setting, and (2) experts are less likely than amateurs to admit to (or perhaps understand) their use of heuristics in producing biased judgments.” Plous (1989) shows that task familiarity is not sufficient to avoid anchoring bias and that the effects of anchoring bias are not significantly influenced by the ease with which respondents can imagine the outcome (outcome availability), by asking the respondents to list the most likely path to the outcome (path availability), or by casting the problem in terms of avoidance (rather than occurrence).

In addition, anchoring has been shown to influence intuitive numerical estimations (Wilson, Houston, Etling, and Brekke (1996)), probability estimates (Plous (1989)), estimations of sample means and standard deviations (Lovie (1985)) and estimates of confidence intervals (Block and Harper (1991)), sales predictions (Hogarth (1980)), Bayesian updating tasks (Lopes (1981)), utility assessments (Johnson and Schkade (1989)), risk assessments (Lichtenstein, Slovic, Fischhoff, Layman, and Combs (1978)), preferences of gambles (Lichtenstein and Slovic (1971)), perception of deception and information leakage (Zuckerman, Koetsner, Colella, and Alton (1984)), negotiation outcomes (Ritov (1996)), and choices between product categories (Davis, Hoch and Ragsdale (1986)).

Plous (1989) also mentions that anchoring bias exists even after correcting for various social demand biases (i.e., the existence of expert opinion running against the initial anchor). Wright and Anderson (1989) consider the effect of situation familiarity on anchoring. They conclude (p. 68) that, “The anchoring effect is so dominant that increasing situational familiarity did not result in decreased anchoring.” They find that monetary incentives can reduce anchoring, but the effect is only marginal in its statistical significance.

George and Hwang (2004) propose that investors are reluctant to bid the price high enough when a stock price is at or near its highest historical value. Consistent with this intuition, they find that a stock price near its 52-week high has predictive power for future stock returns. Campbell and Sharpe (2009) show that professional forecasters anchor their predictions of macroeconomic data such as the consumer price index or non-farm payroll employment on previous values, which leads to systematic and sizeable forecast errors. Baker, Pan, and Wurgler (2009) suggest that anchoring bias also affects corporate acquisitions.

Hirshleifer (2001) considers anchoring to be an “important part of psychology based dynamic asset pricing theory in its infancy” (p. 1535). Shiller (1999) argues that anchoring appears to be an important concept for financial markets. This argument has been supported quite strongly by recent empirical research on financial markets. Anchoring has been found to matter for credit spreads that banks charge to firms (Douglas et al (2015), it matters in determining the price of target firms in mergers and acquisitions (Baker et al (2012), and it also affects the earnings forecasts made by analysts in the stock markets (Cen et al (2013)). Furthermore, Siddiqi (2015) shows that anchoring provides a unified explanation for a number of key puzzles in options market.

Abdul Hamid Habbe (2017) showed that under reaction happens because of anchoring-adjustment heuristic bias. Consequently, when the previous and CEs have low (high) persistence earnings trend, they underestimated (overestimated) to the future earnings or made error in earnings estimation and underpriced (overpriced) to the securities accordingly or mispriced. It can also be concluded that the error of earnings estimation and stock mispricing is a consequence of the usage of representativeness or anchoring-adjustment heuristic, and indicates that psychological perspective can explain post earnings announcement drift in the capital market.

The effect of anchoring bias on market participants and investors has not been extensively investigated previously. For the Islamic markets the anchoring bias has not been the focus of previous studies. The earlier studies on the impact of behavioral biases in Islamic markets mainly analyzed the overconfidence bias, for example, Mohammad hossein Ranjbar et al (2014) for Tehran market and Saadaoui. M and Albaity; M (2019) for the financial market of the United Arab Emirates. To our knowledge the anchoring bias has not been the subject of much study in the muslim countries and more specifically for the GCC Markets. This investigation will help to raise the awareness of Muslim investors on the influence of behavioral factors on their investment decision and in particular the anchoring bias.

3- Empirical method

3-1 Data and descriptive statistics

In this analysis we are interested to the study of anchoring bias in the Islamic GCC stock market. We considered the daily market prices Islamic GCC stock market companies. The stock prices were considered for the periods that cover July 3, 2016 to July 2, 2019. From this basic data we construct series used in this paper. First of all, we determine the 52-week high statistic for all companies. This variable is constructed by using the following formula:

$$52 - Week\ high = \frac{Current\ price}{52 - week\ high\ price}$$

As we can see from this formula, the higher value of this variable is closer to the high price for a period of 52 weeks with a maximum value equals 1. This variable can be used as an anchor in order to value the potential impact of new information to the stocks. The stock returns are calculated on the basis of logarithmic differences of stock prices over time. After that, 52-week high winner and loser indicator variables are constructed. The construction of these variables will be explained next section. We add to these variables the volume of transactions of stocks.

3-2 Estimation results and interpretation

For the empirical analysis we consider the methodology employed by George and Hwang (2004). Following this approach, proxies are included to analyze anchoring and take in account loser and winner Islamic stocks. The dummy variables $GHWi,t-j$,

$GHL_{i,t-j}$, $RPW_{i,t-j}$ and $RPL_{i,t-j}$ are included in the model. According to the methodology of George and Hwang (2004) and Fama and Macbeth (1973) cross-sectional regression for firm stocks. We apply the following model:

$$R_{i,t} = \beta_{0ij} + \beta_{1ij}R_{i,t-1} + \beta_{2ij}\ln(\text{Vol}_{i,t-1}) + \beta_{3ij}GHW_{i,t-j} + \beta_{4ij}GHL_{i,t-j} + \beta_{5ij}RPW_{i,t-j} + \beta_{6ij}RPL_{i,t-j} + \varepsilon_{i,t} \quad (1)$$

Where,

$R_{i,t}$: is the stock I's return in month t.

$\text{Vol}_{i,t-1}$: is the volume of stock i in month t-1.

$GHW_{i,t-j}$ ($GHL_{i,t-j}$): is the 52-week high winner (loser) indicator variable, which takes the value 1 if the stock i in the top (bottom) 30% on month t-j for $j = 2, \dots, 7$ and 0 otherwise.

$RPW_{i,t-j}$ ($RPL_{i,t-j}$): is the reference price winner (loser) indicator variable, which takes the value 1 if the stock's i embedded capital gain is in the top (bottom) 30% on the formation month t-j for $j = 2, \dots, 7$ over the past 24 months and 0 otherwise.

After estimating equation 1 for $j = 2, \dots, 7$ we present an average estimate of six estimates. Table 1 presents these estimations and it reports the average monthly logarithmic returns.

Table1: Model estimation relative to the 52-week high and the reference price strategies

	j = 2	j = 3	j = 4	j = 5	j = 6	j = 7	Average
Constant	4.87***	5.881***	3.284***	4.689***	5.509***	2.591**	4.471***
R_{t-1}	0.0219	-0.0194	-0.0762	-0.0607	-0.0064	-0.156**	-0.0494
$\text{Log}(\text{Volume}_{t-1})$	-0.407***	-0.463***	-0.236***	-0.359***	-0.476***	-0.219**	-0.36***
GHW_{t-j}	-0.0679	-0.461***	-0.0913	0.564***	0.626***	0.0904	0.112**
GHL_{t-j}	0.212***	-0.159**	-0.201**	-0.0591	0.584***	0.368***	0.124***
RPW_{t-j}	0.384***	-0.00569	-0.192***	-0.256***	0.216***	0.321***	0.0778
RPL_{t-j}	0.686***	0.798***	0.0586	-0.814***	-0.0989	0.421***	0.175***
R-squared	0.179	0.236	0.077	0.258	0.291	0.229	0.211
Wald Statistic							

*, **, and *** denote the null hypothesis is rejected at one percent, five percent and ten percent level statistical, respectively.

Looking to the estimations we can notice that the coefficient estimate relative to the constant, β_{0ij} , and which can be interpreted as the return to a neutral portfolio and it is statistically significant. Also, according to the results of table 1, we can notice that the coefficient estimates for the variables GH winner and GH loser portfolios are in overall significant implying then that GH winner and loser portfolios account for the momentum returns. The coefficient estimates represent the return in excess and in decline of β_{0ij} respectively. As well same interpretation can be concluded for RP winner and loser portfolios where we can account for the momentum returns.

Therefore, the GH and RP strategies can be considered as profitable in the GCC Islamic stock market, as their monthly profits are significant and we accept the evidence of the existence of price momentum effect in this market. These results support those found by George and Hwang (2004) for which the 52-week high indicator can be considered as a good predictor for the future stock returns and investors can consider this statistic as an anchor for evaluating the impact of new information.

In order to improve the importance of the 52-week high price indicator in predicting stock returns for both winners and losers in the Islamic GCC stock market we add to the previous model the variable WH-52 as the high price for a period of 52 weeks with a maximum value equals one. To examine whether the interaction effects exist among the WH-52 and GH winner and loser strategies, we estimate the following equation:

$$R_{i,t} = \beta_{0ij} + \beta_{1ij}R_{i,t-1} + \beta_{2ij}\ln(\text{Vol}_{i,t-1}) + \beta_{3ij}\text{GHW}_{i,t-j} + \beta_{4ij}\text{GHL}_{i,t-j} + \beta_{5ij}\text{RPW}_{i,t-j} + \beta_{6ij}\text{RPL}_{i,t-j} + \beta_{7ij}\text{WH52}_{i,t-j} * \text{GHW}_{i,t-j} + \beta_{8ij}\text{WH52}_{i,t-j} * \text{GHL}_{i,t-j} + \varepsilon_{i,t} \quad (2)$$

The coefficients on the interaction between WH52 and GH winners and losers (β_{7ij} and β_{8ij}) captures the incremental effects of the 52-week high price. The following table (table 2), represents the regression results of equation (2) for $j = 2, \dots, 7$.

Table2: Model estimation relative to the 52-week high and the reference price strategies

	j = 2	j = 3	j = 4	j = 5	j = 6	j = 7	Average
Constant	4.52***	6.686***	3.319***	4.11***	6.765***	3.499**	4.816***
R_{t-1}	-0.0716	0.128***	-0.072	-0.099**	-0.017	-0.352***	-0.0806*
$\ln(\text{Volume}_{t-1})$	-0.374***	-0.534***	-0.238***	-0.307***	-0.582***	0.296***	-0.338***
GHW_{t-j}	-0.899***	0.715***	-0.0871	-0.502***	0.113	1.094***	0.0723*
GHL_{t-j}	0.281***	-0.511	0.019	0.201	1.024***	-0.471***	0.0905*
RPW_{t-j}	0.413***	-0.0878	-0.192***	-0.208***	0.237***	0.346***	0.0847
RPL_{t-j}	0.451***	0.109***	0.0291	-0.114***	-0.0863	0.292***	0.113**
$\text{WH52} * \text{GHW}_{t-j}$	0.974***	0.837***	0.0889	0.703***	-0.0578	1.237***	0.63***
$\text{WH52} * \text{GHL}_{t-j}$	-0.299***	0.441	-0.0239	-0.228	-1.011***	-0.552***	-0.278***
R-squared	0.289	0.309	0.077	0.335	0.349	0.232	0.265

As results obtained from equation (1), we conclude in equation (2) that estimates of the variable WH-52 can be a good indicator for predicting future returns. The estimated coefficients of $\text{WH52} * \text{GHW}$ and $\text{WH52} * \text{GHL}$ are statistically significant implying then the persistence of momentum profits behind the 52-week high strategy

following sentiment of winner and loser investors. Therefore, we can conclude that the average monthly returns on the differences between WH52×GHW and WH52×GHL are statistically significant. The results show that, the momentum return on the 52-week high strategy is based on the recent 52-week high price, signifying the evidence of interaction effect between the anchoring and momentum biases. The empirical results indicate that both interaction terms for winners and losers in the Islamic GCC market are significant. According to the controlling interaction effects, the WH52×GHW strategy displays significantly positive momentum returns while the WH52×GHL strategy displays significantly negative momentum returns. This opposite finding between winners and losers suggests that GH winners and losers both contribute to the profitability of the strategy.

Conclusion

Islamic stock markets were declared best performing than conventional stocks in the GCC region but it is still considered as a small market similar to the conventional one. It is a volatile market characterized by down and up periods and dependent to the conventional market. In this paper we are studying the anchoring bias of investors by using the 52-week high momentum as an anchor reference in the Islamic GCC stock market. For doing this we have constructed proxies attributable to the GH and RP strategies. The results indicates the same way as is in developed or emerging markets, according to the point of view of George and Hwang (2004), the coefficient estimates relative to GH and RP loser and winner stocks can justify the momentum returns. Then, the 52-week high can be considered as a good anchor which used for the prediction of future returns based on new information. Also, by considering interactions between 52-week high price and GH strategies to study the controlling interaction effects, we concluded an opposite estimated coefficient between winners and losers suggesting then that GH winners and losers both contribute to the prediction of future returns based on new information.

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