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ISLAMIC FINANCE AND HERDING BEHAVIOR
THEORY: A SECTORAL ANALYSIS FOR GULF
ISLAMIC STOCK MARKET

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ISLAMIC FINANCE AND HERDING BEHAVIOR THEORY: A SECTORAL ANALYSIS FOR GULF ISLAMIC STOCK MARKET

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Abstract

This study examines herding behavior in four sectors of the Gulf Islamic stock markets. Based on the methodology of Chiang and Zheng (2010) and using daily prices for the GCC Islamic sectors from September 2013 to October 2018, results showed evidence of herding among investors in banking, insurance, hotels, restaurants, and foods sectors for the GCC Islamic stock market during the falling period when we consider a quantile regression analysis. In addition, we found that conventional return dispersions have a dominant influence on the Islamic GCC stock market during both falling and rising market periods in all sectors. We also found evidence of herd around the conventional sectors during down market period only in banking, hotel, restaurant, and food sectors. There is evidence of herd around the conventional sector during up market period for insurance and industrial sectors.

Keywords: Islamic stock market, GARCH model, Quantile regression, herding behavior, GCC countries, sectoral analysis.

JEL Classifications: G11, G12, G15.

1. Introduction

Stock market anomalies and inefficiencies for major markets, especially developed and emergent, have questioned the importance of standard finance theory and given rise to the development of modern behavioral finance theory (Kahneman and Tversky, 1979). However, the rejection of the basics of the conventional finance theory, such as heterogeneity of investors, asymmetric information, and irrationality of investors, is explained by the psychology of investors, which is different among individuals. This modern theory gives rise to the development of behavioral biases on financial practitioners like anchoring, availability, herding, mental accounting, optimism, overconfidence, and representativeness. This analysis focuses on herding behavior bias. In other ways, this paper examines sectoral-specific herding behavior in the Islamic GCC stock market for the period September 2013–October 2018. Previous researches³ showed that, like in developed and emerging markets, evidence of herding behavior was confirmed for the Islamic GCC stock market, but this bias differs among GCC countries. Do these differences exist among sectors for these countries? Our objective is to determine which sectors herd in the Islamic GCC stock market.

Mimicry or herding behavior is often observed during periods of crisis and rapid growth and then this phenomenon damages both investors and stock markets. In its simple form, herding is defined as the result of buying and selling same stocks in the same period. It is based on the fact that less informed investors take copy from others because they believe that other investors are more informed and have better access to information than them. Some investors make this decision of following others because of the complexity or the lack of understanding of the characteristics of the market. Complexities of markets differ from one sector to another, and sectors do not have the same characteristics. However, herding can be detected in certain sectors but not in another sector.

Also, researchers insist on the fact that investors choose to follow others in the market or herd when volatility and unpredictability is high. Herding has a severe effect on the stock markets and can occur particularly during extreme periods (crisis or high growth). Investors tend to mimic the actions of others, especially during periods when volatility and uncertainty in the market are high. According to Banerjee (1992), herding behavior is defined as: "...doing what everyone else is doing, even when one's private information suggests doing something else." While Hwang and Salmon (2004) defined herding as, "...imitating observed decisions of other investors or movements on the financial market rather than following own beliefs and information." Cote and Sanders (1997) defined this bias as, "...individuals [who] alter their private beliefs to correspond more closely with the publicly expressed opinions of others."

³ See Medhioub and Chaffai (2018), "Islamic finance and herding behavior: an application to Gulf Islamic stock markets", *Review of Behavioral Finance*, Vol. 10 Issue: 2, pp.192-206.

In the Gulf region, Islamic stock markets have registered prominent growth due to the religious beliefs of investors and the high level of economic developments in the region. Most studies interested to the comparison between Islamic and conventional stock markets suggested similarities among markets. Given that herding behavior was detected for major developed and emerging markets for conventional stocks, this has also been proven for the GCC Islamic stock markets (Chaffai and Medhioub, 2018). Contrary to the conventional markets, the studies showed that sectors are oriented in the Islamic stock markets, and they are dominated by the financial sector, especially the banking sector which represents more than 30% of Islamic activities. Specifically, this study tests the phenomenon of herding in the GCC Islamic stock market by carrying out previous issues from the previous studies in a sectoral manner.

Due to their religious beliefs, Muslim investors will not be easy to trade in stock markets and therefore some behavioral biases are confirmed (Callen and Fang 2015; Goel and Srivastava 2016, etc). Is this the case for herding behavior in the GCC Islamic stock market and is it different from one sector to another? Also, given that the financial system in GCC countries is characterized by the operation of both Islamic and conventional stocks, we treat the influence of herding in the conventional compartment and his influence on the Islamic compartment to verify whether Muslim investors follow decisions taken in conventional markets or not.

The major contributions of this paper are as follows. First, since most studies examined whether herding behaviors differ among periods of expansion and crisis, we tried to explore the effects of extreme periods in the Islamic GCC stock market on herding by using the quantile regression analysis. When we consider a quantile regression analysis, results confirm that herding is present in banking, insurance, hotels, restaurants, and foods sectors only during down market periods for the Islamic GCC stock market. Second, since introducing the GCC conventional herding behavior, the empirical findings suggest the influence of this factor on Islamic herding stock market in the region. We found that conventional return dispersions have a dominant influence on the Islamic GCC stock market during both falling and rising market periods in all sectors. Third, results showed evidence of herd around the conventional sectors during down market periods only in the banking, hotels, restaurants, and foods sectors. There is evidence of herd around conventional sectors during both falling and rising periods in the insurance and industrial sectors.

The remainder of the paper is organized as follows. The second section presents an overview of Islamic GCC stock market. The third section provides a review of the literature on herding behavior. Section 4 presents the methodology and data sources employed in this research. The empirical results and their interpretations are presented in this section. Our conclusion is in section five.

2. Characteristics of Islamic GCC market and herding behavior for Muslim countries

Since recent crises in 2007–2008, Islamic finance has been given great attention, has witnessed a solid growth, and Islamic stock markets have gained a large interest from Muslim investors seeking for stocks and investments compliant with Shariah. However, due to the confidence and support accorded by governments to Islamic markets, Muslim investors participate positively to the rapid growth of Islamic finance due to their strong demand for Shariah-compliant products. They believe that the Islamic market offers investments that are ethical (prohibition of products non-compliant with Shariah and prohibition of speculative activities) and stable (less risky than the conventional market). Therefore, Islamic investments are considered socially more responsible than conventional investments.

In major Muslim countries, the stock market consists of both types of market: Islamic and conventional. Moreover, the Islamic market is considered as an important complement to the conventional, which offers a wide range of Shariah-compliant financial products and services. In August 18, 2010, the Dow Jones Islamic Market GCC index was launched. This index represents a part of the Dow Jones Islamic market index and is employed to measure the stock performance of GCC companies that are compliant with Sharia. This market, supported by GCC governments, provides a benchmark for Muslim investors who believe in the application of the Shariah principles and seek ethical investments.

Over the last few years, the Dow Jones Islamic Market GCC index has performed strongly and has been very volatile. Compared to its conventional counterpart in the region, the Dow Jones Islamic Market GCC index released a better performance, especially during extreme periods. In August 2012, the Dow Jones Islamic Market GCC index gained 2.30 percent while the conventional index released a growth of only 1.45 percent in the same period. Other studies showed that there is no considerable difference between the GCC Islamic and the conventional GCC index (Miniaoui, Syani and Chaibi, 2015). They found also that there are differences on the impact of financial crisis among GCC countries and sectors.

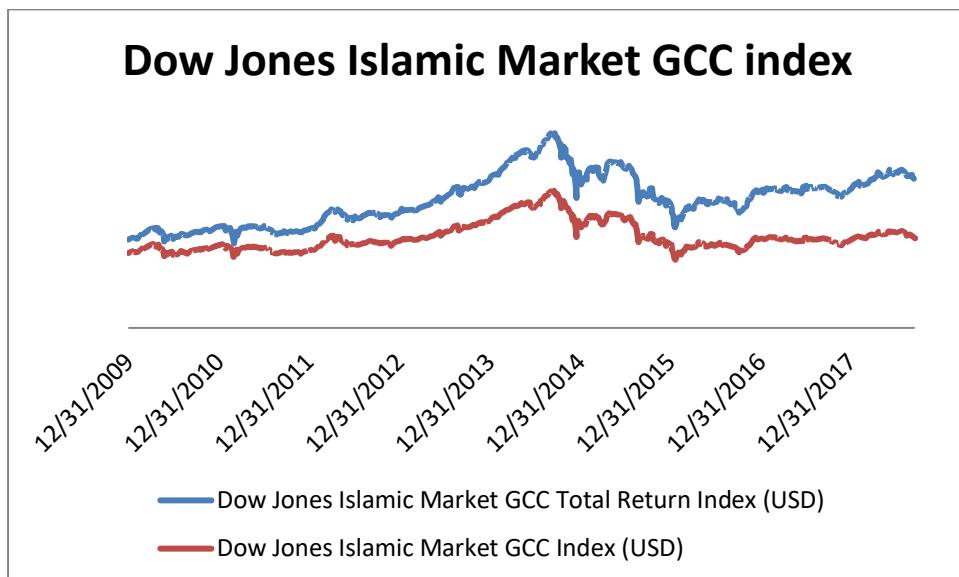
Filtering criteria and screening procedures adopted to dismiss companies that are non-compliant with Shariah encourage Muslim investors to invest in Islamic markets that are less risky than conventional markets and do not lead to huge losses in case of crisis or extreme periods.

These filtering procedures result from the concentration in some sectors. For the Dow Jones Islamic GCC stock index financial sector, is the more important one with a weighting exceeding 1/3 of the index followed by the sector of basic materials and telecommunications. Health care, utilities, and oil and gas represent the weakest sectors for this market. On the other hand, for the conventional indexes, we observe that industrial sector, consumer goods and services sector, and the financial sector are

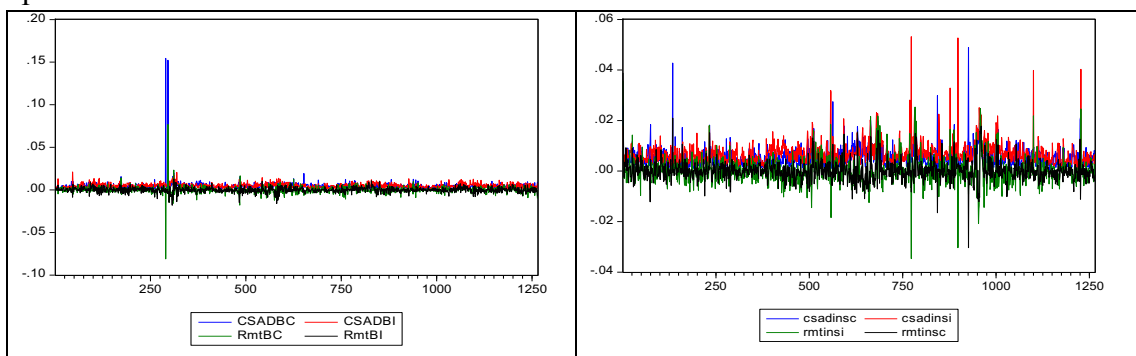
the most important sectors. For this region, the financial sector is dominated by the banking sector where Islamic banks are considered to be the prominent source of financial intermediation in the region. The Islamic GCC banking sector represents 38.2 percent of global Islamic banking assets in 2014. Due to the differences in sector orientations between conventional and Islamic markets, we observe a difference between both markets in risk-adjusted performance. Results showed higher risk-adjusted performance for Islamic markets compared to its conventional counterpart and the existence of differences in performance at a sector level (Charles and Darné, 2015).

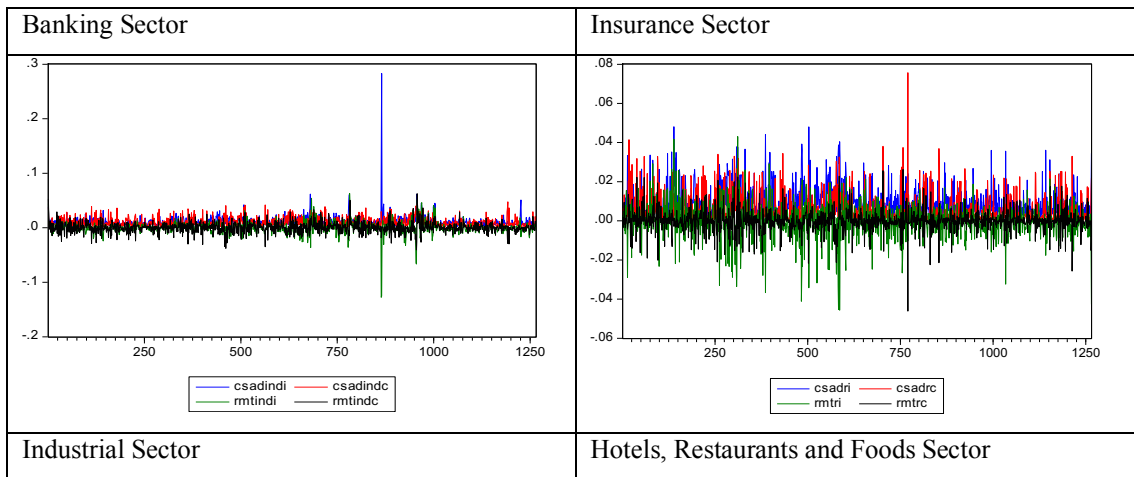
Table 1: Index properties

Lunch date	August 18, 2009	Number of constituents	114
Financials	38.2%	Saudi Arabia	66
Basic Materials	27.1%	Kuwait	18
Telecommunications	10%	Qatar	11
Industrials	8.8%	United Arab Emirates	8
Consumer Services	6.6%	Oman	8
Others	9.3%	Bahrain	3



Looking at the previous graph, GCC’s Islamic stock market is interesting and resembles emerging and developed markets. Muslims participate largely in its development, and GCC governments encourage and help it in order to release the best performances.





From these graphs, we remark that financial Islamic sectors (banking and insurance) are more volatile than other sectors compliant with Sharia such as industrial, hotels, and restaurant sectors. This can be explained by the fact that the more important Islamic sectors are banking and insurance and the competition for these sectors with the conventional ones is very important. The banking sector accounts for more than 80 percent of the total assets of the Global Islamic financial stocks and dominates the Islamic financial sector. Also, in a dual system such as in GCC region, the problem of interest represents the core center of the differences between both systems. Takaful, the Shariah compliant counterpart of conventional insurance, is very similar to the mutual insurance and is based on the concept of risk sharing and solidarity. This Islamic sector contributes to the stability of the Islamic financial system. Otherwise, for sectors other than banking and insurance, it is not hard for investors to make differences between prohibited products (alcohol, pork, gambling, etc.) and products compliant with Shariah. One of the most important difficulties for investors is to know whether the financial products (banking and insurance sectors) are free of interest and gharar or not.

3. Herding Behavior: Literature review

Studies on herd behavior in GCC stock markets are recent. All of them have focused on the overall market and a non-sectoral analysis has been conducted. Generally, studies found the evidence of herding by using different methodologies and different time periods. For example, Gabbori (2018) studied the impact of religious events (like Ramadan, Ashoura, Eid-El-Fitr, Eid-El-Idha, etc.) on herd behavior in Saudi Arabia's stock market for the period between October 2005–February 2016. She found that there is evidence of herding around religious events during crisis periods only. Based on monthly data for GCC Islamic stock markets, Medhioub and Chaffai (2018) concluded the evidence of herding behavior during down market periods in the case of Qatar and Saudi Arabia. They also found that Kuwaiti and Emirates Islamic stock markets herd with the local conventional stock markets. By using daily stock data for the period between 2010–2016 for GCC Islamic stock markets, Chaffai and Medhioub (2018) suggested the presence of herding behavior in Islamic GCC stock markets

during upward market periods. However, they mentioned no evidence of herding behavior during stress market periods. Youssef and Mokni (2018) examined the effect of herding behavior on dependence structure between GCC stock markets. Based on weekly data for the period 2003–2017, they concluded the presence of herding behavior in most of the GCC markets except for Bahraini and Kuwaiti markets. They showed that the effect of this behavior on the dependence structure is statistically significant and positive. Ulussever and Demirer (2017) examined the evidence of herding behavior in the GCC stock markets for the period 2003–2013. They distinguished the evidence of herding in all the GCC markets except for the Omani and Qatari markets. Moreover, the authors suggest that herding behavior among investors is more prominent during periods of market stress, possibly due to loss aversion by traders. Gavriilidis et al. (2016) made a comparison between Ramadan and non-Ramadan days on herding for seven Islamic countries (Bangladesh, Egypt, Indonesia, Malaysia, Morocco, Pakistan, and Turkey). They found that religious social moods and habits in the period of Ramadan lead to higher herding in most of the countries.

In the same way, Yousaf et al. (2018) studied the impact of Ramadan and financial crises on the herding behavior of the Pakistani stock market. Daily and yearly analyses were conducted. For the daily analysis, they showed an absence of herding behavior during down and up market periods as well as during high and low volatility in the market. Based on yearly stock data, they showed that herding behavior was detected during the period 2005–2007 while it was not detected during the rest of the period.

We relate our study to the study of Medhioub and Chaffai (2018) in which they used the cross-sectional absolute deviation of returns (CSAD) to estimate herding behavior in the Islamic GCC stock market. We include the impact of the conventional cross-sectional absolute deviation of returns and the stock market returns of the GCC market. In a second way, in order to track the behavior of the Islamic GCC stock index under downward and upward market conditions, we divide the sample period into two sub periods by employing the Markov switching approach. Quantile regression analysis was conducted to estimate herding behavior under these two periods. CSAD represents the degree of non-linearity between dispersion and market return, which can be increasing or decreasing during certain periods where investors follow aggregate market behavior. Chang et al. (2000) argued that CSAD can be used to measure herding, as during downward market periods we can remark an increasing association between the dispersion and the market return if investors follow the aggregate market that can lead then to the evidence of non-linearly between dispersion and market returns. Authors in the domain have agreed that CSAD can be calculated using the following formula:

$$CSAD_t = \frac{1}{N} \sum_{i=1}^N |R_{it} - R_{mt}|$$

Where:

CSAD: represents the cross-sectional absolute deviation of returns

R_{it} : represents the company i stock's return at period t

R_{mt} : represents the market return at period t

N : represents the number of stocks at time t

To test evidence of herding, a nonlinear relationship between individual returns and portfolio return was considered by the following regression:

$$CSAD_t = \beta_0 + \beta_1 R_{mt} + \beta_2 |R_{mt}| + \beta_3 R_{mt}^2 + \varepsilon_t \quad (1)$$

According to regression (1), a statistically negative estimated coefficient β_3 indicates the presence of herding in the market. As many studies showed the evidence of asymmetry between stock return dispersion during up market and declining market periods (Chiang and Zheng, 2010; Huang, Lin, and Yang, 2015, etc), we introduce in model (1) a dummy variable D_t , which equals 1 if the market return is negative and zero otherwise, to detect differences in herding between up and down market periods. The equations to use are the following:

$$CSAD_t = \beta_0 + \beta_1 D_t R_{mt} + \beta_2 D_t R_{mt}^2 + \varepsilon_t \quad \text{for down market period (2-1)}$$

$$CSAD_t = \beta_0 + \beta_1 (1 - D_t) R_{mt} + \beta_2 (1 - D_t) R_{mt}^2 + \varepsilon_t \quad \text{for up market period (2-2)}$$

The GCC market is characterized by the coexistence of both systems: conventional and Islamic. This can lead to the transmission of shocks from one system to another, and this can affect herding. For this reason, we introduce respectively in equations (2-1) and (2-2) the impact of the CSAD and the squared market return of the conventional system. Therefore, equations (3), (4-1) and (4-2) are defined as:

$$CSAD_t = \beta_0 + \beta_1 R_{mt} + \beta_2 |R_{mt}| + \beta_3 R_{mt}^2 + \beta_4 CSAD_{conv,t} + \beta_5 R_{conv,mt}^2 + \varepsilon_t \quad (3)$$

$$CSAD_t = \beta_0 + \beta_1 D_t R_{mt} + \beta_2 D_t R_{mt}^2 + \beta_3 CSAD_{conv,t} + \beta_4 D_t R_{conv,mt}^2 + \varepsilon_t \quad (4-1)$$

$$CSAD_t = \beta_0 + \beta_1 (1 - D_t) R_{mt} + \beta_2 (1 - D_t) R_{mt}^2 + \beta_3 CSAD_{conv,t} + \beta_4 (1 - D_t) R_{conv,mt}^2 + \varepsilon_t$$

(4-2)

For equation (3), we can say that a statistically negative coefficient β_2 indicates a market-wide herd behavior coming from the Islamic stock market return, while a significant negative coefficient β_4 implies that the Islamic stock market herd around the conventional one. In the same way, a statistically positive coefficient β_3 indicates a significant impact of conventional market return on the Islamic stock market returns. So, various types of herding behavior will be examined in the Islamic GCC stock market during the period 2013–2018 in the next section.

4. Empirical results

4.1. Data description

This analysis is devoted to the Islamic GCC stock market. We considered the daily market prices of Dow Jones Islamic GCC stock market. The conventional Dow Jones GCC market is also considered to test the influence of the conventional market on the herding of the Islamic market. The stock prices were considered for the periods that cover September 15, 2013 to October 14, 2018. Descriptive statistics of the stock returns and for the CSAD series for both Islamic and conventional markets are reported in Table 2. This table showed that the Islamic market index appeared to be less risky than the conventional market, but also that emerging Islamic indexes appear to show the highest return in mean. Regarding the properties of the series, we also remark significant asymmetry, a negative skewed distribution and a leptokurtic excess for all-time series data. Also, based on the Jarque-Bera test, the normality hypothesis is rejected for all series. Finally, the ADF test rejects the unit root hypothesis for all series while we identified the presence of an ARCH effect in CSAD time series for banking sector.

Table 2: Descriptive statistics

Statistics	Industrial		Banking		Insurance		Hotels, Restaurants and Foods	
	CSAD	Rmt	CSAD	Rmt	CSAD	Rmt	CSAD	Rmt
Mean	.0451	.00074	.00601	.000059	.0361	.000156	.0361	.000159
Median	.0443	-.00024	.00535	.000117	.0361	-.000146	.0361	-.000146
Std. Dev	.0125	.0111	.00337	.00390	.00453	.0051	.00453	.005118
Min	.0125	-.1275	.00269	-.0733	.0167	-.0346	.0167	-.0346
Max	.28335	.06307	.0784	.0732	.0718	.0358	.0718	.0358
Skewness	1.662	1.0011	1.302	-.107	.296	.743	.296	.7417
Kurtosis	9.861	10.4258	5.656	5.904	9.218	10.525	9.181	10.477
Jarque-Bera	1816.53	1831.73	1040.61	637.934	2057.09	3101.92	2015	3039
ADF	-30.504	-8.515	-19.726	-35.339	-24.821	-26.005	-24.705	-25.891

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

4.2. Estimation and interpretation

After the presentation of descriptive statistics, we now present the results of estimation for selected sectors. Table 3 presents the results.

Table 3: Regression of CSAD_t

CSAD Islamic	Down period		Up period	
	Model (2-1)	Model (4-1)	Model (2-2)	Model (4-2)
Panel A: Banking Sector				
Constant	.00577***	.00266***	.00439***	.00405***
Rmt Islam	-.146***	-.592***	.971***	.938***
Rmt ² Islam	.114***	.533***	.578	1.011
CSAD Conv		.219***		.0372*
Rmt2 Conv		-.771**		.775**
ARCH(q)	2.525 [.087]	2.076 [.126]	.339 [.671]	.208 [.811]
R ²	.737	.749	.874	.876
Panel B: Insurance Sector				
Constant	.0387***	.0293***	.0339***	.0017***
Rmt Islam	-1.535***	-1.481***	-1.302***	-1.171***
Rmt ² Islam	.410***	.525***	.0456	.0501
CSAD Conv		.226***	-----	.444***
Rmt2 Conv		-.163***	-----	-.271***
ARCH(q)	1.66 [.183]	1.44 [.235]	-.0348 [.145]	
R ²	.537	.589	.633	.718
Panel C: Industrial Sector				
Constant	.0444***	.0247***	.0445***	.0302***
Rmt Islam	-.912***	-.915***	-.941***	-.842***
Rmt ² Islam	.287***	.381	.109***	.119***
CSAD Conv		.361***		.268***
Rmt2 Conv		-.326**		-.351***
ARCH(q)	12.59*** [.000]	11.85 [.000]	3.988** [.019]	3.088 [.0463]
R ²	.562	.597	.266	.338
Panel D: Hotels, Restaurants and Foods				
Constant	.0359***	.0358***	.0345***	.0358***
Rmt Islam	-.982***	-.985***	-.956***	-.928***
Rmt ² Islam	1.134***	.943***	.226***	.191***
CSAD Conv		.0013***		.319***
Rmt2 Conv		-.838***		-.00252
ARCH(q)	2.272** [.0462]	4.395** [.0127]		.112 [.851]
R ²	.683	.752	.498	.501

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

According to the estimates of the Islamic banking sector in the GCC countries, which is presented in Table 3, panel A, results show some differences between down and up market periods. We find that there is no herding behavior for both periods as the estimate of β_2 for all models is positive. This indicates that during the time period under investigation, investors in all sectors for this market do not follow the performance of the market and take into account the individual characteristics of the stocks. Results obtained from models (4-1) and (4-2) are interesting and present the difference between both periods. We find a positive and highly statistically significant β_3 for both periods for all sectors which imply that the conventional sector return dispersions have a dominant influence on the Islamic sector during down and up market periods.

We find a negative and statistically significant β_4 at a significance level of 5% during down markets for all sectors. This coefficient is positive and negative but not significant during up market periods respectively for banking and hotels, restaurants

and food sectors. The estimate of β_4 is negative and statistically significant for insurance and industrial sectors during rising periods. We conclude then that the Islamic sectors herd around the conventional banking sector in the GCC market during periods of stress only, but it herds around the conventional insurance and industrial sectors during both falling and rising periods.

Results confirm the existence of asymmetries between both periods in the Islamic banking sector in the region. The same concept is obtained for the hotels, restaurants, and foods sector. We essentially conclude the evidence of asymmetry between down and up market periods and that, like in the Islamic banking sector, hotels, restaurants, and foods companies compliant with Shariah herd around the conventional sector in the GCC market only during periods of stress.

4.3. Quantile regression analysis

Quantile regression analysis is applied to take into account the extreme values characterizing financial series. As herding behavior can be detected in the tails of the market return distribution, we employ in our analysis the quantile regression method. For doing this, we follow the methodology developed by Chiang Li and Tan (2010). Looking for the results presented in tables 4-1 and 4-2, we can show a difference between sectors and periods. First, according to table 4-1 relative to the up market period, the results show the absence of herding behavior in all sectors as all estimated coefficients of the variable Rmt^2 for the Islamic sector are not statistically significant during rising periods. As well, we obtain a negative and statistically significant β_4 during up market for all sectors, except hotels, restaurants and foods sectors, indicating then that the Islamic Banking, insurance and industrial sectors herd around the conventional banking sector in the GCC market during periods of rising. This coefficient β_4 is significant only for the insurance sector during down market periods. During down market periods (Table 4-2), there is an evidence of herding for all studied sectors in this research except the industrial sector. In fact, we obtain a negative and statistically significant β_2 for all sectors.

Table 4-1: Quantile Regression results under Up Market periods

CSAD	Banking ($\tau = .90$)	Insurance ($\tau = .90$)	Hotels, Restaurants and Foods ($\tau = .95$)	Industrial ($\tau = .95$)
Constant	.00432***	.0554***	.00878***	.0132***
Rmt Islam	.741***	.803**	1.343***	.945***
Rmt ² Islam	.818***	.253***	-.203	-.623
CSAD Conv	.397***	.708***	.0408	.232**
Rmt2 Conv	-.909***	-.359**	-.0851	-.456***
Pseudo R ²	.452	.490	.534	.322

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

Table 4-2: Quantile Regression results under Down Market periods

CSAD	Banking ($\tau = .90$)	Insurance ($\tau = .90$)	Hotels, Restaurants and Foods ($\tau = .95$)	Industrial ($\tau = .95$)
Constant	.00161***	.0613***	.0848***	.0134***
Rmt Islam	.925**	.267	1.593***	.431*
Rmt ² Islam	-.165***	-.584***	-.173**	.135***
CSAD Conv	.0293	.468***	.0444	.337*
Rmt2 Conv	-.0236	-.286***	-.0855	-.0606
Pseudo R ²	.512	.348	.508	.476

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

5. Conclusion

In this paper, our focus is devoted to the study of herd behavior in the Islamic GCC stock market. A sectoral analysis was considered, and we have chosen the sectors of banking insurance, industrial and hotels, restaurants, and foods. As we said, market-wide herding arises when investors ignore individual characteristics of stocks and follow the decision of other investors in the market. We used the approach of Chiang and Zheng (2010) and Christie and Huang (1995) to detect herding in the market. This approach is based on the assumption that herd behavior in the market is consistent with a non-linear relationship between dispersions (CSAD) and the corresponding market return, which means then that the dispersions decrease or least increase at a slower rate than of the market return. By considering a sectoral analysis for the Islamic GCC stock market, we can notice a slight difference among sectors analyzed in this paper. There is evidence of herding among investors in banking, insurance and hotels, restaurants, and foods sectors for the GCC Islamic stock market during the falling period when we consider a quantile regression analysis. While this concept is not present for all sectors during rising periods, we are interested in the concept of asymmetry between up and down market periods. Our results confirm the evidence of asymmetric concepts between both periods for some sectors. In fact, we found that there is evidence of asymmetry in the herding of conventional sectors on Islamic ones and that there is evidence of herd around the conventional sectors in down market periods for all sectors, except the hotels, restaurants, and foods sectors. We obtain evidence of herd around the conventional sector during up market periods for insurance and industrial sectors.

Suggestions for further research include the study of interdependence between Islamic sectors in the GCC market to examine the influence of some sectors on other sectors in this market. This can give an explanation of why herd behavior is found in some sectors but not for other sectors. Furthermore, more sophisticated data and time periods for more sectors can conduct an additional test of herding in the region and can lead to important results that are different from the previous results.

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