

## Original Research Article

# Testing Herding Effects on Financial Assets Pricing: the Case of the Tunisian Stock Market

**ABSTRACT (ARIAL, BOLD, 11 FONT, LEFT ALIGNED, CAPS)**

This paper highlights the contribution of behavioral finance to explain markets' anomalies since the eighteens. Particularly, we use herding behavior approach to elucidate financial assets' pricing. Our study is based on Hwang and Salmon (2004) methodology, in which we use Kaman's filter (1964) to detect herding behavior in financial market. We use a data of ten listed firms in the Tunisian Stock exchange market during the period June 2002 and May 2013. Our results seem to confirm that Tunisian stock exchange market is affected by herding anomaly and that securities return must not deviate significantly from the overall profitability of the market. This can be explained by the fact that in such situation, investors tend to ignore their own information and pass align their investment decisions according to general market.

*Keywords: Herding effects, assets pricing, herding mania, behavioral finance*

## 1. INTRODUCTION

Efficient Market Hypothesis represents one of the main pillars of modern finance. It takes its origin from the monumental works of Bachelier (1900) in his mathematical thesis called the theory of speculation. In this context, Fama (1970) has built the theoretical body of efficiency hypothesis based on the assumption of agent rationality. However, this hypothesis has been overly contested and rejected by several studies. This rejection of informational efficiency paradigm was driven by submerged critics against agent rationality assumption. Those observations were qualified as anomalies since researchers didn't find an explanation to their existence in a context of market efficiency. Hence, Shiller (1981) was a pioneer by addressing critics to market efficiency hypothesis and bringing out several market anomalies. In fact, variance bound tests noted that stock prices are largely more volatile than dividend forecasting. This excess volatility of stock prices compared to their fundamentals is one of the main proofs of agent irrationality behavior, which represents a direct violation of market efficiency hypothesis. Indeed, financial market anomalies raised researchers' interest to find explanations and to propose alternative models that explains those observations, such as behavioral approaches. This new

36 research field was justified by the fact that all finance, economics and management  
37 are human sciences.

38 Behavioral finance became an alternative to classical theory, based on both  
39 human and psychology. It is also based on investors' irrationality and their tendency to  
40 build their decisions according to beliefs, emotions and psychology rather than  
41 fundamentals. Olsen (1998) maintains that behavioral finance doesn't aim to define a  
42 rational behavior but to predict its systematic and financial implications. In another  
43 word, it is admitted that behavioral finance could provide significant explanations of  
44 market efficiency and pricing.

45 Herding is one of the main fields of behavioral finance. Herding can be  
46 defined as a situation called following the crowd which consists on leaving their private  
47 information (those who determine market efficiency and agent rationality hypothesis)  
48 to imitate others strategies (Susskind, 2005).

49 The purpose of this paper is to test herding effects on financial assets pricing  
50 in the case of the Tunisian Stock Market. Particularly, we pay attention to mimetic  
51 behavior phenomenon as a sign of market anomaly commonly known as excess  
52 volatility. In this condition, our study will be organized as follows:

53 Second section will provide a literature review of herding behavior studies.  
54 Section 3 will be dedicated to give an empirical review of the main studies carried in  
55 this field especially for the case of the Tunisian Stock Market. Model presentation and  
56 methodology justification will be developed in section4. Section 5 and 6 will expose  
57 respectively data and sample, then present results and interpretation. Finally section 7  
58 concludes.  
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## 60 **2. LITERATURE REVIEW**

### 61 **2.1 THEORITICAL LITTERATURE**

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64 Herding behavior occurs when investors decide to imitate others decisions, or when  
65 they simply observe market tendency rather than following available information or  
66 constructed expectations. Susskind (2005) defines Herding behavior as a set of individual  
67 behaviors presenting correlations. However, many investors may buy or sell the same  
68 securities, simply because they have received correlated information. They then act  
69 independently. Herding behavior appears when investor is intuitively ready to make a  
70 placement decision independently of all other investors' decisions, but he changed his  
71 position when he finds that they have left their position.

72 Herding behavior can be cleaved into two different types. First, we find misleading  
73 Herding behavior that takes place when a hole of common objectives is shared by a group  
74 and all members of the group have the same information. In such case, every investor  
75 makes his own decision independently. However, it is possible to see many similar  
76 behaviors that can be assimilated to herding. Moreover, this behavior is based on  
77 fundamentals changes such as a sudden rise in interest rates. Second, we find intentional  
78 herding that occurs when investors imitate intentionally and voluntarily other investors'  
79 behavior. This form of Herding behavior often refers to a strategy known as positive  
80 feedback (see Choe, Kho, and Stulz (1999)). It consists on buying securities whose earnings

have exceeded market benchmark. In this case, herding seems to be an irrational behavior that oppose financial markets efficiency hypothesis.

## 2.2 EMPIRICAL LITTERATURE

It is important to consider that theoretical backgrounds concerning herding behavior have been initiated by Banerjee (1992), Bikchandani, Hirshleifer and Welch (1992). These studies have considered herding behavior in an abstract environment in which more informed agents (those detaining private information) have the opportunity to make consecutive decisions. They conclude that such agents tend to adopt the same behavior even if this decision is in contradiction with the information they hold. All they do is copying the others' actions). Lakonishok, Shleifer and Vishny (1992) have proposed a statistical measurement of Herding behavior. In fact, they have calculated a mean tendency of a group to buy (or to sell) shares at the same time compared to the situation where every investor have to negotiate individually his position. Indeed, this statistical measurement evaluates negotiation profiles correlations for a group of investors having similar portfolios. This technique has been often criticized because it is based on investors' number and ignores transaction volume effects. This lead Wermers (1999) to propose another indicator of Herding behavior that integrates not only group's common market position but also transaction volume significance. Wermers (1999) called this indicator portfolio change measurement. It is often used to study correlated negotiations in order to evaluate how assigned similar portfolios tend to go at the same direction.

Based on those different indicators, many studies have been run in order to detect Herding behavior in financial markets. Avery and Zemsky (1998), Lee (1998), Cipriani and Guarino (2008) have studied the situation where both informed and uninformed traders have to deal with unknown securities managed by market makers according to daily transaction volumes and orders. This situation makes difficult the emergence of Herding behavior.

Avery and Zemsky (1998) maintain that Herding behavior occurs not only due to uncertainty about asset's pricing but also when uncertainty characterizes model parameters or the occurrence of an informational event.

In the case of funds managers, many studies have focused on managers' conformism when dealing with securities. Results have shown that fund managers are largely hostage of herding behavior. In this context, Friends et al (1970) have found that institutional investors often imitate their successful competitors' decisions. This behavior is called: « *follow the leader* ». Lakonishok, Shleifer and Vishny (1992) have made a survey based on 341 mutual funds during the period 1985-1990. Their results concluded the existence of a Herding behavior caused by securities with low transaction volume. Werners et al. (1998) maintain that Herding behavior among funds managers is clearly perceivable relatively to past assets price increase rather than short terms decreases.

Chan et al (2000) have analyzed different operators in several international stock markets (Unites States, Hong Kong, South Korea, Taiwan, China and Japan) during the period 1963 to 1997. Authors tried to exhibit Herding behavior. Their results have shown that both American and Chinese markets are not affected by herding behavior, partial evidence was found in the Japanese market and a significant result in emerging markets especially for South Korea and Taiwan.

Demirer, Gubo and Kutan (2007) have used Christie and Huang (1995) and Chan et al (2000) methodologies in order to detect Herding behavior in international stock markets of six different regions (Africa, Asia, Western Europe, Central Europe, Latin America, and Middle East). They tested whether earnings follow CAPM's statements. They concluded that Herding behavior exists in both Asia and Middle East markets.

More recently, Cipriani and Guarino (2010) have developed a theoretical model of Herding behavior, then they have tested it for data carried from the NYSE. They have focused on traders' Herding behavior during a transaction day by focusing on an only asset during many days.

### 3. MODEL PRESENTATION

In this paper, we adopt the methodology of Hwang and Salmon (2004). They use cross-sectional dispersion of the systematic risk coefficient called beta that the authors call "beta herding" measurement. This technique allows us to separate changes caused by fundamentals from those due to Herding behavior. It also offers the possibility to detect herding comparatively to other factors. The main idea of this test is to prove that investors are used to ignore their own convictions in order to follow market's tendency even though they have to go in contradiction with their own predictions.

Hwang and Salmon (2004) focused on Herding behavior in logic of market performance according to many factors such as size, growth, value for a sample of securities belonging to S&P 500 index and a sample of securities belonging to KOSPI for Korean stock market.

The classical definition of Herding behavior maintains that investors imitate one another by buying and selling the same securities at the same time. However, in our study, we consider that herding behavior occurs when investors try to follow global market performance. Henceforth, investors tend to build their strategies on the basis of global market performance, macroeconomic factors and competitors' management.

Indeed, Herding behavior is synonymous of a bad asset valuation since we have to make irrational decisions basing on biased opinions and beliefs. As a consequence, herding behavior makes more difficult assets pricing and earning anticipation.

In order to detect Herding behavior impact in the earning-risk relationship, Hwang and Salmon (2004) examine the CAPM in a context of Herding behavior. In fact, when investors follow global market tendency to make their decision on buying or selling assets, market Betas ( $\beta_{imt}$ ) tend to deviate from their equilibrium values. In another word, cross-sectional dispersions of the  $\beta_{imt}$  become lower compared to equilibrium situation. Hence, Herding behavior in comparison to market portfolio can be defined as a decrease of the estimated market beta ( $\beta_{imt}$ ). Consequently, a fast and significant decrease of the estimated market beta variance indicates a systematic risk gathering and aggregation around the value of one, which means a more and more alignment in assets pricing around market performance. In this situation, we can say that herding behavior occurs....?

In an equilibrium situation the CAPM is presented as follows:

$$E_t(r_{it}) = \beta_{imt} E_t(r_{mt}) \quad (1)$$

Where,

$r_{it}$  and  $r_{mt}$  represent respectively excess return of asset « i » and the market at the time « t » ;  
 $\beta_{imt}$  is a measure of systematic risk ;

$E_t(r_{mt})$ , is a conditional probability at the time « t »

In the case of the CAPM specification, we have to estimate  $\beta_{imt}$  in order to calculate the value of an asset « i ». However, when investors' beliefs follow global market performance beyond equilibrium situation, investors tend to confuse individual assets earning to the market one. As a consequence, we find a new biased market beta.

In such case, a Herding behavior can be highlighted in the corresponding market. Since this kind of behavior takes place especially in the context of crisis, it is expected that beta dispersion have to decrease significantly during these periods.

However, although conventional CAPM supposes that  $\beta_{imt}$  are constant, several empirical studies have shown that betas are not constant [Harvey (1989), Ferson and Harvey (1991,1993) and Ferson and Korajczyk (1995)]. Changes in betas are mainly explained by industry mutations or debt level increase. Those changes are infrequent and could not occur in short time horizon. This leads Hwang and Salmon (2004) to conclude that betas changes are caused by behavioral anomalies rather than fundamentals variations. They maintain that a significant change in betas among the time reflects a change in the level of investors' mood. Therefore, Herding behavior among market portfolio does not preserve CAPM equilibrium. Consequently,  $\beta$  and  $E_t(r_{it})$  will become biased.

For the equilibrium situation, Hwang and Salmon (2004) assume that the following relationship can be accepted in the context of Herding behavior among market performance:

$$\frac{E_t^b(r_{it})}{E_t(r_{mt})} = \beta_{imt}^b = \beta_{imt} - h_{mt}(\beta_{imt} - 1) \quad (2)$$

Where,

$h_{mt}$  is a parameter detecting Herding behavior occurrence in the market. It changes over time. When  $h_{mt} \leq 1$ , Herding behavior will be conditioned by market fundamentals.  $h_{mt}=0$ , in this case,  $\beta_{imt}^b = \beta_{imt}$ , herding behavior does not exist and CAPM's equilibrium will be maintained. Finally,  $h_{mt}=1$ , we have  $\beta_{imt}^b=1$ , this means that asset's expected excess return will equal that of market portfolio. In another word,  $h_{mt}=1$  means an absolute case of Herding behavior around the global market performance. Hence, all assets are following the same tendency with the same magnitude than market portfolio. In general, when  $0 < h_{mt} < 1$ , Herding behavior exists, but his magnitude depends on  $h_{mt}$  value.

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## 4. DATA AND SAMPLE

In this study, we use stock returns of ten companies included in the Tunisian stock market index (BVMT-index). The list of companies is presented as follows: ATL (leasing), ATTIJARI BANK (banking), BH (banking), ELECTRO STAR (electronic industry), SOTUTEL (Cabling and networking), BIAT (banking), TUNISAIR (airline service), STB (banking), UIB (banking) and la BT (banking). Tunisian stock market includes 59 companies, while BVMT index is composed by 34 firms. In order to get a continuous and significant data, we've retained companies with most available data and quotations. All data were extracted from Tunisian stock exchange market.

Individual returns are calculated as follows:

$$R_{it} = (P_t - P_{t-1}) / P_{t-1} \quad (3)$$

Where,  $P_t$  is the closing price of the asset  $i$  at time  $t$ .

Market return is calculated as the average of individual returns:

$$R_{mt} = \sum_{i=1}^N \frac{R_{it}}{N} \quad (4)$$

$N$  is the number of companies composing the sample.

Data cover the period lying between the 3<sup>rd</sup> of June 2002 to the 31<sup>st</sup> of Mai 2013, which represents a period of 11 years daily frequency (5 days week). Then we get 27170 observations for the 10 companies of the sample.

In the following, our attention will focus on herding behavior towards market benchmark. In this condition, our approach based on Hwang and Salmon (2004) one, will be subdivided into two steps. In a first step, we estimate market beta for all assets composing our sample. Then, beta values will be used to calculate cross-sectional standard deviations of estimated betas.

In a second step, we run Herding behavior measurement toward market benchmark. In fact herding behavior toward market performance will be captured by  $h_{mt}$ . However, we must remind that both  $h_{mt}$  and  $\beta_{imt}$  are two unobservable values that we try to estimate.

As for the first step, we use market model to estimate  $\hat{\beta}_{imt}^b$  using Ordinary Least Square specification (OLS). We consider daily data to estimate monthly values of  $\hat{\beta}_{imt}^b$ .

Market model is presented as follows:

$$R_{itd} = \alpha_{it}^b + \beta_{imt}^b R_{mtd} + \varepsilon_{itd} \quad (5)$$

$dt$  indexation means that data are daily during month  $t$ .

Market excess return is the average return of the 10 considered assets of the sample. It also means the built market benchmark according to the considered sample of our study.

For each month and during all the period, we estimate market model for the 10 studied assets in order to get market beta. So, we run market model 1310 times (131 regressions for each asset) in order to get 131 monthly values of market beta. Once estimated, we have to calculate the cross-sectional standard deviation for each value of beta. This statistic is calculated as follows:

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$$Std(\hat{\beta}_{imt}^b) = \sqrt{\frac{\sum_{i=1}^N (\hat{\beta}_{imt}^b - \bar{\hat{\beta}}_{imt}^b)^2}{N_t}} \quad (6)$$

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Where,  $\bar{\hat{\beta}}_{imt}^b = \frac{1}{N_t} \sum_{i=1}^N (\hat{\beta}_{imt}^b)$  and  $N_t$  is the number of considered assets for month  $t$ .

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Since  $\beta_{imt}^b$  cross-sectional mean  $\beta_{imt}^b$  (or  $\beta_{imt}$ ) is always equal to 1, we get :

$$\begin{aligned} Std(\beta_{imt}^b) &= \sqrt{E((\beta_{imt}^b - h_{mt}(\beta_{imt}^b - 1) - 1)^2)} \\ &= E((\beta_{imt}^b - 1)^2) (1 - h_{mt}) \\ &= Std(\beta_{imt}) (1 - h_{mt}) \end{aligned} \quad (7)$$

where  $E(.)$  et  $Std(.)$  respectively represent the cross-sectional expected value and standard deviation. The first part of the equation represents betas' standard deviation, while the second one is relative to the direct function of Herding parameters. As Hwang and Salmon (2004), we suppose that  $Std(\beta_{imt})$  does not exhibit any systematic movement and that  $Std(\beta_{imt}^b)$  changes can be attributed, at a short run time, to changes in  $h_{mt}$ .

257 In order to extract  $h_{mt}$  de  $Std(\beta^b_{imt})$ , we have to run a logarithm transformation to the  
258 previous equation (7):

$$259 \log [Std(\beta^b_{imt})] = \log [Std(\beta_{imt})] + \log (1 - h_{mt}) \quad (8)$$

260 With:

$$261 \log [Std(\beta_{imt})] = \mu_m + v_{mt} \quad (9)$$

262 Where,

$$263 \mu_m = E [\log [Std(\beta_{imt})]]$$

$$264 v_{mt} \sim iid (0, \sigma^2_{mv})$$

265 and,

$$266 H_{mt} = \log (1 - h_{mt})$$

267 In this condition,  $H_{mt}$  varies overtime and has a dynamic process. Hwang and Salmon  
268 (2004) suppose that  $H_{mt}$  AR(1), then they get the following model :

$$269 \log [Std(\beta^b_{imt})] = \mu_m + H_{mt} + v_{mt} \quad (10)$$

$$271 H_{mt} = \phi_m H_{mt-1} + \eta_{mt}$$

272 Where  $\eta_{mt}$  is iid  $(0, \sigma^2_{m\eta})$ .

273 The authors get a state-place model that can be estimated with Kalman filter  
274 methodology. The authors emphasize that the whole interest of this specification is to study  
275 the latent variable movements ( $H_{mt}$ ) despite the important significance of both  $\mu_m$  and  $v_{mt}$ .  
276 Indeed, when  $\sigma^2_{m\eta} = 0$ , equation (10) becomes :

$$277 \log [Std(\beta^b_{imt})] = \mu_m + v_{mt} \quad (11)$$

278 This means that there is no herding in this case ( $H_{mt} = 0$ ). However, a significant value  
279 of  $\sigma^2_{m\eta}$  means that herding exists. Furthermore, a significant value of  $\phi$  supports this  
280 observation. Hwang and Salmon (2004) assume that the herding process  $H_{mt}$  should be  
281 stationary in order to avoid an explosive process of herding towards market portfolio.  
282 Authors require that  $|\phi| \leq 1$ .

283 In order to measure herding extent, we use Kalman filter to estimate parameters of  
284 equation 10. In a first step, this filter enables us to separate observed variables (called  
285 signal) from latent ones (called internal state). Kalman filter can be presented as an iterative  
286 algorithm that aims to estimate unobservable (latent) variables. The program code can be  
287 written as follows:

$$288 @signal \logracine = c(1) + HTT + [var = \exp(c(2))] \quad (12)$$

$$289 @state HTT = c(3) * HTT(-1) + [var = \exp(c(4))] \quad (13)$$

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291 The first equation is called the predictive step. It produces estimates of the current  
292 state variables, along with their uncertainties. In E-views program, we note this first step as  
293 HTT or SV1, while the second is called state equation. In E-views algorithm, the first  
294 command indicates that dependent variable is observed while second one clarifies that  
295 independent variables are not and must be simulated.

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## 298 5. RESULTS AND INTERPRETATIONS

299 For the case of the Tunisian stock market, results of herding space-state model are  
300 recapitulated in table 1. We note that the model filters out 131 observations (131 months).  
301 Estimated results was reached after 11 iterations with a maximum likelihood of -86,72.

302 Coefficient c(1) corresponds to  $\mu$  of equation (10). This coefficient is significant at a  
303 significance level of 5%.

304 Coefficient c(2), refers to the logarithm of the variance of  $\log [\text{Std}(\beta_{imt})]$  relative to  
305 equation (9). At a same time, it represents the error term of equation (10). In fact, the  
306 estimated variance of the error term  $v_{mt}$  is written in an exponential form during space-state  
307 modeling, in order to avoid negative values. Hence, estimated value of  $\sigma_{mv}^2 = e^{-1.858459} = 0,156$ . As a consequence,  $\sigma_{mv} = 0,39497$ .  
308

309 Coefficient c(4) represents the logarithm of the error term variance in the « state  
310 equation » ( $\log(\sigma_{m\eta}^2)$ ). So we can write:  $\sigma_{m\eta}^2 = \exp(-3.177272) = 0,0417$ . Then  $\sigma_{m\eta} = 0,2042$ .  
311 This estimated value of the standard deviation of  $\eta_{mt}$  is statistically and significantly different  
312 from zero at 5% significance level. It indicates that herding exists towards market's  
313 benchmark for the case of the Tunisian stock market for all considered assets of our sample.  
314 In fact,  $H_{mt}$  of equation (10) is statistically and significantly different from zero.

315 This result is approved by the significant value of c(3) that corresponds to the term  $\varphi_m$  of  
316 equation (10).  $\varphi_m$  is equal to 0,7068. It is lower than one. This means that  $H_{mt}$  is stationary  
317 and then that herding towards market performance is strongly significant in the Tunisian  
318 stock market during the considered period for all studied assets.

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**Table 1. Herding Space-State Model for Tunisian Stock Market Benchmark**

|             | Coefficient  | Std.Error | Z.Statistic | Prob   |
|-------------|--------------|-----------|-------------|--------|
| <b>C(1)</b> | -0.136867**  | 0.069695  | -1.963797   | 0.0496 |
| <b>C(2)</b> | -1.858459*** | 0.288502  | -6.441760   | 0.0000 |
| <b>C(3)</b> | 0.706896***  | 0.226042  | 3.127275    | 0.0018 |
| <b>C(4)</b> | -3.177272*** | 1.119482  | -2.838162   | 0.0045 |

322 \*, \*\*, \*\*\* significant at 10, 5 and 1% level respectively.

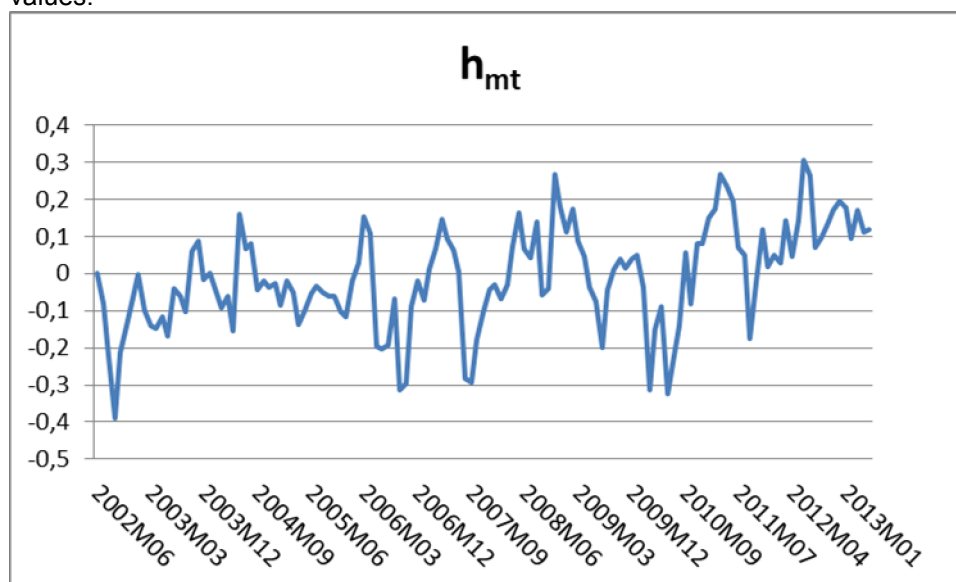
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324 Moreover, figure 1 shows herding statistic measure evolution ( $h_{mt} = 1 - \exp(-H_{mt})$ ) in the  
325 Tunisian Stock Market during the period laying between June 2002 and May 2013. This  
326 value of  $h_{mt}$  is calculated on the base of market model beta. Herding statistic shows that  
327 herding varies overtime and that many changes have occurred during the considered period.  
328 At many times,  $h_{mt}$  was positive, while for many others, it was very low and even negative.  
329 We can also note that for all the period,  $h_{mt}$  did never reach the value of 1 which means that  
330 we did never meet an extreme case of herding towards market benchmark during the period  
331 of our study.

332 The most important value of  $h_{mt}$  was 0,30. It was reached during the month of June  
333 2012. The least value was -0,39 during the month of September 2002. Moreover, figure 1  
334 emphasizes on different cycles of herding and reversed herding towards market benchmark.

335 However, a last question should be asked n relation with the impact of herding on  
336 market activities. In fact, herding and reverse herding are two mechanisms that act  
337 synergistically. In a one hand, reverse herding is synonymous of mean reversion of  $\beta_{imt}$  into

338 long run equilibrium values. While herding occurrence is confirmed, reverse herding must  
 339 take place gradually in order to make a systematic adjustment based on under and over  
 340 valuation towards CAPM's equilibrium because at long term, prices tend to reach equilibrium  
 341 values.



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 344 **Fig. 1. Herding towards Tunisian market Benchmark**  
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346 Furthermore, figure 1 shows that herding behavior is often concomitant with a  
 347 decrease of individual return dispersion around market benchmark. Hence, herding requires  
 348 that individual returns must not significantly differ from global market return. In such context,  
 349 investors are used to ignore their own information and to align their decisions with general  
 350 market consensus. Consequently, we could consider herding occurrence as a decreasing  
 351 factor of individual assets pricing dispersion around the market's mean value representing  
 352 market benchmark.

## 353 354 **6. CONCLUSION**

355 Excess volatility has caused a dramatic damage to market efficiency theory. In fact,  
 356 this problem has been more serious than other anomalies such as January effect, holydays  
 357 effect or day of the week effect. Excess volatility occurs when prices tend to change  
 358 independently of fundamentals. It has been often guided by sunspot, fads and investors'  
 359 spirit. Therefore, stock markets' anomalies have opened a firing window against classical  
 360 finance and offered opportunities to alternative explanations of stock market performance.  
 361 Further, this new paradigm based on behavioral finance does not believe in investors'  
 362 rationality as a central proposition. It, however, assumes that market anomalies find their  
 363 origins in heuristic simplification, excess of confidence, emotions, self-control and herding.  
 364 These behavioral biases prevent investors from assets' fundamental values calculation.  
 365 Thus, persistent gaps between observed prices and fundamental values take place.

366 We can say that behavioral finance contribution is to provide the explanation of  
 367 observed financial market anomalies. It relies on alternative research fields such as  
 368 psychology in order to explain financial market anomalies.

In the present paper, we tried to explain market exposure to herding especially when investors tend to imitate others' decisions relying on a golden rule that it is better to be wrong together than to be right all alone. In fact, herding has been considered by several researchers as the main explanation of observed excess volatility. Our results confirm that Tunisian stock market is affected by a herding behavior. The gap we've found between observed values and fundamental ones gives an explanation of excess volatility existence. This result confirms the study of Abaoub and Taamalli (2007) based on all listed companies in the Tunisian stock market during the period 2000-2005. However, it doesn't match the result of Naoui and Khaled (2010) that studied the case of 20 listed companies in the Tunisian stock market and didn't find a herding behavior during the period 2006-2008.

Finally we have to maintain that Tunisian Stock market remains one of the smallest financial centers in the word with a daily transaction volume of about 5 millions of Tunisian Dinars (about 2,7 millions of Euros) and a weak liquidity ratio. However, this market is dominated by institutional and collateral investors who guide opinion and influence price making. Indeed, smaller investors tend continuously to build their transactions according to available information about collateral investors.

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