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Behavioral biases on institutional investors: a literature review

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Abstract

Purpose – The purpose of this paper is to evaluate published institutional investor research focused on home bias, disposition effect, and herding behavior in recognized journals and to ascertain some substantial gaps with regard to them.

Design/methodology/approach – Recently published studies between 2005 and 2014, which intend to examine behavioral biases on institutional investors, have been reviewed through juxtaposing them under the three fundamental titles and figuring them according to the explanation why these biases occurs.

Findings – The research examining home bias has identified the presence of this effect on institutional investors and explained it with information or culture. Yet, the existence of disposition effect has not been found in the extant research. These studies have estimated disposition effect through overconfidence and experience. Also, extant studies have provided evidence of herding behavior, attributing this behavior to pursuing same published information and protecting their reputation and career.

Originality/value – Currently, no study, which reviews and evaluates the empirical research body on behavioral biases displayed institutional investors, exists. To the authors' knowledge, this is the first paper which highlights the empirical evidence on these bias and summarizes the explanations in these studies for these biases exhibited by institutional investors. This could contribute to the researchers focusing on behavioral biases on institutional investors by providing them with a meaningful figuralization regarding their evidence and explanation.

Keywords Institutional investors, Herding behaviour, Disposition effect, Behavioural biases, Home bias

Paper type Literature review

Introduction

Subrahmanyam (2007) states that traditional finance can explain why inidividual investors trade, how they choose their portfolio and which aspect they pay attention to except for risk, return, etc. Behavioral finance tries to understand the reasons of a behavior instead of understanding how they should behave in specific occurrences.

In literature, individual investors, retail investors or noise traders are explained as the opposite of instutional investors and it was predicted their activities cannot influence the market (Zhu, 2010). On the other hand Çelik and Isaksson (2013) state that there is no such definition as "institutional investors" but can rather be defined as "not physical persons."

In financial markets, institutional investors' portfolio size weighs more than that of individual investors'. In spite of this predominance, less effort has been devoted to examine institutional investors' bias and investment behavior when compared to those studies concentrated on individual investors. One common explanation is that institutional investors are accepted as smart money while individual investors as noise traders (Schmeling, 2007).

There are at least three counter-arguments to the notion that irrational traders would cease to be influential in the long run (Subrahmanyam, 2007). First DeLong *et al.* (1991),

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states that irrational agents can take more risk during their overconfidence and it leads to earn greater than expected in the long term. Second Kyle (1997) argues that if agents are risk-neutral, oversecure invests can bring greater than irrational investors' invests. Finally, Hirshleifer *et al.* (2006) argues that when stock prices are influenced by institutional investors, irrational agents can bring on more than rational ones.

Generally, it is seen that individual and institutional investors display divergences in both size and also characteristics and that they get opposite positions in the financial markets (Schmeling, 2007). Besides, institutional and individual investors differ in their risk perceptions, time horizon and profit goals (George *et al.*, 2005).

It was reflected that institutional investors were less subject to behavioral bias (Chou and Wang, 2011) while Lai *et al.* (2013) stated that investment capability was hard to define and that there existed no generally accepted criteria for identifying how capable an investor was. Fisher and Statman (2002) propounded that institutional investors, just like individual investors, were subject to behavioral biases and these biases had equal influences on both investor groups. Moreover, Otchere and Chan (2003) articulated that institutional investors might behave implausibly. Also, irrational investors have also been deemed as noise traders. Noise traders trade more and gain no profit due to their inaccurate beliefs (Lin *et al.*, 2009). However it is thought that institutional investors behave rationally due to the fact that they exert more effort and time on their investment decisions (Keim and Madhavan, 1995) and that they learn faster than their individual peers and have more knowledge, therefore make more qualified investment decisions (Chang and Wei, 2011). Recent studies have contradicted with these arguments (e.g. Luo and Li, 2008). Especially, Dichtl and Drobetz (2011) showed that investment strategies followed by institutional investors were not rational but normal.

Grinblatt and Keloharju (2000) emphasized that institutional investors responded to the same information and exhibited irrational behaviors such as momentum strategy and herding behavior as that they did not interpret from each other's trading behavior.

Since it is generally accepted that institutional investors are different from individual investors in some manner (i.e. size and sophistication), many studies have argued how these investor groups could be differentiated and if they had an influence on market functioning. Schmeling's (2007) study encapsulating the USA, Germany and Japan, showed that investor sentiment displayed divergence among this two groups. Accordingly, institutional investor sentiment could generally predict stock returns accurately whereas individual investor sentiment constitutes an impediment for accurate prediction. In a study (Verma and Soydemir, 2006 cited in Fernandes *et al.*, 2013) examining individual and institutional investors' sentiment regarding foreign markets, it was found that institutional and individual investor sentiment have comprised of both rational and also irrational components. Schmeling (2007) expressed that institutional and individual investor sentiment had impact on buying and selling decision of stock: institutional investor sentiment helps in accurately predicting returns while individual investor sentiment (e.g. noisy trade and optimism) shifts stock prices upward.

In addition to their sentiment, institutional investors also exhibit some biases which prevent them to act rationally. Within this scope, it provided evidence for status quo bias (Freiburg and Grichnik, 2013), anchoring effect (Liao *et al.*, 2013; Freiburg and Grichnik, 2013), endowment effect (Furche and Johnstone, 2006), ambiguity aversion (Bantwal and Kunreuther, 2000) and overconfidence bias (Shiller, 2000; Sun *et al.*, 2013).

Additionally, it has been established that institutional investors' trading behavior accommodated various anomalies. Thus, some studies revealed the large company

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anomaly (Froot and Teo, 2008), weekend effect (Venezia and Shapira, 2007) and book-to-market value anomaly (Hur *et al.*, 2010).

In the light of these findings, it seems impossible to assert that institutional investors completely behave rationally. Thus, the aim of this study is to appraise the studies focusing on home bias, disposition effect and herding behavior, all of which are relatively among the most emphasized topics in institutional investor context and establishes some substantial gaps.

This paper is considered as a novel study in the manner that there exists, to the best of our knowledge, no study which aims to review prior research regarding implausible behaviors of institutional investors. The study may contribute to extant literature by manifesting which kind of data these studies exploited in order to query these biases, with which drives they correlated, how these biases can be explained by the risk classification of behavioral finance and hence by accentuating existent considerable gaps in this research area. These gaps, with the main lines, can be listed as the lack of qualitative factors explaining these biased behaviors, compared to largely quantitative factors identified by the extant research, the necessity of a consensus on the relation between these biases and risk tolerance level by Pompian (2008).

Concordantly, it can be said that home bias has been the most emphasized phenomenon of the extant research in discussing institutional investor behavior. These studies have identified home bias effect and explained this effect with two channels: information and culture. In explaining home bias effect, studies tapping into information approach have stressed the stimulation of optimism bias while those studies relating home bias to culture have mentioned uncertainty avoidance dimension of culture. Interestingly, optimism necessitates higher risk tolerance whereas uncertainty avoidance make lower-to-moderate risk tolerance essential. Consequently, uncertainty avoidance matches with passive investor prototype while optimism coincides with the active investor prototype. When considered from this perspective, it can be seen that extant research has revealed the impact of home bias but has not provided explicit and coherent findings regarding the justification of this impact.

As for disposition effect, the second bias discussed in this paper, prior research has not drawn a conclusion about the existence of this effect. All in all, investment funds which in the USA prefer realizing loss instead of earning, yet disposition effect claims that realizing earning would be easier than realizing loss. Cici (2012) reveals that disposition effect's appearance is reduced by learning and states that academic studies can influence market. When funders are experienced and there is a team who manages the portfolio, selling what wins can be preferred over what is losing. These studies have sought out this effect while relating it to overconfidence and experience. Actually, returns gained from momentum strategies lie behind both overconfidence and also experience. Many researches about momentum strategies emphasizes that investors tend to buy which was gained in the past. Elton *et al.* (2010) states in previous studies that using a three-month data set mutual funds were buying winners and selling losers according to the momentum strategy. With employing a one-month data set mutual funds appeared to take past-winners with momentum strategy as well as buying past losers with the contrarians strategy.

Therefore, past returns raise overconfidence and increase experience. Institutional investors' power of influencing prices (or they think so-illusion of control) hinder them from selling winning assets sooner. This is the main suggested reason why their investing behavior have not displayed disposition effect. These findings show consistency with risk tolerance classification of Pompian (2008).

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Lastly, herding behavior has been discussed in this paper. In herding behavioral literature, it is approached with three fundamental questions (Andreu *et al.*, 2015): does institutional herding behavior exist, if it does, why do institutions has herding behavior and does it makes prizes unstable? The research encompassing a great deal of countries in different periods of time has revealed that institutional investors exhibited herding behavior. The most fundamental reason for this behavior is that all these investors follow the same published information and carry out similar analyses. It was seen that they deliberately exhibited this behavior due to the likelihood of losing their reputation or career when they stand out in loss experiencing periods.

Overall, it is seen that studies emphasizing behavioral biases which disable institutional investors to behave plausibly have enhanced our knowledge on overwhelmingly quantitative factors explaining these biases since these studies have mainly utilized prior data. Therefore, insights into qualitative or unobservable factors which would predict investor behavior better should have been provided. Moreover, in terms of risk tolerance level, these studies do not seem to have argued the behavioral biases consistent with the literature. Especially, extant research on behavioral biases on institutional investors need a consensus on the association between behavioral biases and risk tolerance level.

In the succeeding sections, we thoroughly review the extant research on home bias, disposition effect and herding behavior, respectively, first, by communicating academic conversation on these biased behaviors and then by manifesting some notable gaps.

Methodology

Research is based on the review of literature. Access to the database used for research was made under Thomson Reuters Web of Science. The database provides access to the most important and the most effective journals for scientists and research. Today Web of Science™ Core Collection covers over 12,000 top tier international and regional journals in every area of the natural sciences, social sciences, arts and humanities. Many factors are taken into account when evaluating journals for coverage in Web of Science Core Collection, ranging from the qualitative to the quantitative. The Thomson Reuters editors who perform journal evaluations have educational backgrounds relevant to their areas of responsibility. Because they monitor virtually every new scholarly journal published, they are also experts in the literature of their fields (wokinfo.com/publisher_relations/journals/#submit).

In order to find the articles of interest, Web of Science website was used with the search options of institutional traders and institutional investor. The search has been accomplished with the use of "or" function. As an addition the use of "and" function has been utilized with the commands "behavioral finance" and "behavioral bias." In this search the database was used with the "or" command. In order to focus on the right articles of interest "refine results" and "English results only" and "articles" as document types and "business economics" was used as search criteria. There were 55 hits with this search. There were 25 articles that focused on home bias, disposition effect and herding behavior. Moving from these results, the articles used in this review are based on three behaviors that constitute 50 percent. In the 25 articles that were chosen, 14 of them were evaluated under home bias, six articles were evaluated under disposition effect and seven articles were evaluated under herding behavior (only one of the 25 papers was used to evaluate all three behaviors as it was the only one focusing on all the three parameters). Data from the evaluation were listed and analyzed in Excel.

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Home bias

Home bias is recognized as a tendency of investors to greatly choose the instruments of their home country or locality without any justification and it has been enormously sought out in behavioral finance literature. Similarly, home bias can be seen as one of the most studied bias regarding behavioral biases of institutional investors.

There have been three strands of literature arguing home biases of institutional investors: the studies relating home bias to knowledge, those linking it to culture and the others. Those studies proposing the relation of home bias to culture have a common feature in that they have employed more data regarding both market and also country participants. Yet, each of these studies has approached merely to one dimension of culture. Thus, common language, cultural familiarity and social, psychological, cultural factors have come into prominence.

While relating home bias to knowledge, this strand of literature has discussed information asymmetry and the non-uniform characteristics of information. To the exclusion of the USA and Japan, all these studies have employed the European countries data set.

Other than culture and knowledge drivers, some research has included political impression, corporate governance, social environment and advisory facilities into the models in addition to home bias. And these studies have exploited the USA, German, Australia and Japan data set. Table I shows a brief of home bias studies being discussed here.

There exists a few studies which have correlated home bias with culture. These studies have showed similarity in that they used large investors data set belonging various markets and countries. Anderson *et al.* (2011) examined more than 60 markets while Beracha *et al.* (2014) studied 38 different markets. On the other hand, Fedenia *et al.* (2013) utilized a data set of institutional investors in the USA who have come from 35 different countries.

Beracha *et al.* (2014) regarded home bias as cultural closeness. They detected a strong and significant association between cultural closeness and home bias. Institutional investors tended to trade more (less) in countries which are culturally closer (distant). Fedenia *et al.* (2013) associated cultural familiarity with language. Accordingly, their study encapsulating foreign institutional investors in the USA found that those investors coming from English-speaking countries exhibited a weaker home

References	Data	Country	Reason
Anderson *et al.* (2011)	II. Data (2006)	+60	Culture
Fedenia *et al.* (2013)	II. Data (2000-2009)	USA	
Beracha *et al.* (2014)	II. Data (1999-2010)	38	
Suh (2005)	II. Data (1989-1999)	USA, France, Japan, Germany	Knowledge
Lütje and Menkhoff (2007)	I. Data (2003)	Germany	
Oehler *et al.* (2008)	II. Data (2000-2003)	Germany	
Giofré (2013)	II. Data (2001-2004)	France, Italy, Spain, Sweden	
Hamberg *et al.* (2013)	II. Data (2001-2007)	Sweden	
Fong *et al.* (2008)	II. Data (1997-2001)	Australia	Other
Parwada (2008)	II. Data (1988-2003)	USA	
Ke *et al.* (2010)	II. Data (2001-2002)	USA	
Menkhoff *et al.* (2010)	I. Data (2004)	Germany	
Mishra and Ratti (2011)	II. Data (2001-2006)	China	
Hochberg and Rauh (2013)	II. Data (1980-2009)	USA	

Table I.
Home bias

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bias effect. As an explanation for this relatively weak effect, authors suggested familiarity and cultural traits. In other words, institutional investors tended to invest more into the markets where they are more familiar with its language and cultural values. In addition to a common language, criteria such as geographical distance, religion, trade volume also have an importance on weakening the home bias effect. Anderson *et al.* (2011) looked into culture from Hofstede's perspective (i.e. social psychology approach) and argued home bias in this context. Accordingly, that is not solely targeted market culture which has impact on investments. Similar to findings concerning language of Fedenia *et al.* (2013), Anderson *et al.* (2011) suggested that the cultural closeness between institutional investors' own culture and the targeted culture led the targeted one to be preferred. In more masculine countries, home bias effect on institutional investors has got weaker while overconfidence bias has risen. It was also seen that a relationship between uncertainty avoidance dimension of culture and home bias effect in the manner that home bias effect increased on uncertainty avoidant (institutional) investors.

Another explanation for home bias effect on institutional investors have been made via information. Giofré (2013) sought out home bias on both individual and institutional investors in four European countries. However being weaker on institutional investors compared to individual ones, home bias effect existed in the portfolio diversification in the context of CAPM. The reasons for this bias on these investors have been suggested as differences in firms' transparency and disclosure level among countries and knowledge acquisition costs concerning foreign firms. These differences require investors to devote more caution, time and cost to the appraisal of firms. Additionally, non-uniform information disclosure makes the analysis phase more complicated. These differences and difficulties drive institutional investors, however sophisticated and experienced, to prefer the more local and familiar markets. Similarly, Suh (2005) investigated home bias pattern on global financial institutions and provided evidence that home market assets have been more preferred to the others and that there has been a preponderance of home market assets in international portfolios. Thus, it was concluded that information asymmetry and optimism toward the home market performance predicted these home-biased preferences.

International Financial Reporting Standards (IFRS) have been useful for acquiring both firm transparency and also uniformness of information disclosure. In this manner, institutional investors can obtain an opportunity easily to make out and interpret financial reports which have been prepared in a more familiar and apprehensible way. Herein, Hamberg *et al.* (2013) examined whether compulsory IFRS applications had impact on home bias effect on EU and non-EU (institutional and individual) foreign investors in Sweden. It was observed that foreign ownerships from that countries, specifically EU, which adopted IFRS applications have increased. It was also found that home bias effect after the arrival of compulsory IFRS adoption has reduced. Particularly, more sophisticated investors have moved away from home bias due to the information becoming more uniform.

Oehler *et al.* (2008) looked into home bias in the context of German mutual fund portfolio selection. It was found that German mutual funds distinctly displayed home-biased portfolio pattern. Especially, home bias has strongly revealed itself in the biggest mutual fund in Germany. Yet, diverging from other home bias research, Oehler *et al.* (2008) prescribed that home bias on institutional investors originated not from their own preferences but home-biased individual investors buying their mutual funds. As manifested in other research, transaction costs and information asymmetry

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have been put forward as reasons for individual investors exhibiting home bias. However, Oehler *et al.* (2008) expressed that they provided no sufficient evidence of home bias virtually seen among mutual fund managers.

Concerning to the subject of home bias, Lütje and Menkhoff (2007) carried out one of limited number of survey studies through institutional investors. They revealed that although the absence of any restrictions by customers or legal bodies, mutual fund managers tended to prefer home assets. As in other home bias studies, they related this bias to having informational advantage. Institutional investors are more likely confide in their owned information regarding home assets. Besides, it was suggested that home bias on these investors stimulated other biases such as disposition effect, risk averseness and optimism.

There exists some research linking home bias to various factors other than information and culture. Yet, these studies seem to have remained as individual ones in their field. Ke *et al.* (2010) approached home bias from a different perspective. In previous literature home bias is described as the inclination of investing in local companies as opposed to the expected behavior of investing in international portfolios. However Ke *et al.* (2010) states home bias as the inclination of corporate investors' to give foreign investors' portfolios more space over the investors from their home countries. Even though various researchers approached the term differently, there is a similarity in the predictions of home bias effect's existence. Researchers agree that information and familiarity had important roles on these home-biased preferences.

Through the data encompassing a notable time period, Hochberg and Rauh (2013) examined institutional investors' portfolio allocation and selection of private equities. They sought out the effect of home-state biased selections on these in-state portfolios' performance, as being a little-argued phenomenon. Accordingly, it was found that institutional investors displayed home-state bias which is defined as the inclination of investors to invest in their own state, suggesting weak administrative skills, inaccurate management and political pressure on investment in the state as explanations for that bias. The study of Fong *et al.* (2008) can be said to become another study emphasizing on the relation of fund manager's location to the investment selection and to the investment performance. They investigated home bias on institutional investors in Melbourne and Sydney and provided evidence of a weak home bias effect. As the main reasons for the absence of this effect which has been typically manifested on the extant literature, authors proposed that these two cities have similar characteristics and that much trade have been exercised between them. From the investors' perspective, these caused Melbourne and Sydney to be perceived as similar locations by hindering home bias effect.

The only study arguing home bias on institutional investors in Asia has been conducted in China. Mishra and Ratti (2011) revealed that corporate governance activities decreased home bias effect on foreign institutional investors. Especially, the costs of information acquisition and auditing for foreign institutional investors in China proved importance of corporate governance and caused to an increase in investment volume.

Succeeding Lütje and Menkhoff (2007) conducted the second survey study on German investors. First, investors have been divided into three groups as individual investors, institutional investors and investment advisors. This study concentrating on home bias as well as other behavioral finance biases revealed that institutional investors displayed home bias but did not argue over the reasons for that effect.

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Parwada (2008) approached home bias from a quite interesting and separate point of view. Rather than examining the tendency of selecting home market instruments for their portfolios, this study investigated home bias displayed by individuals who owned their fund management firm (i.e. entrepreneurial fund managers). Most entrepreneur fund managers (over 75 percent) domiciled inside within a radius of 25 kilometers of their previous employers' locations. Additionally, for the years following this start-up period, home bias effect has also lasted. As main reasons for this effect, the perpetuation of their present professional, social and family environment, the removal costs and the advisory possibilities from institutional investors have been proposed in the study.

Figure 1 visualizes and summarizes the evaluation of home bias studies which has been discussed above by emphasizing on the drivers of home bias on institutional investors.

There exist some considerable gaps in the extant literature on home bias. More specifically, according to risk tolerance level classification of Pompian (2008), uncertainty aversion relate to passive investor prototype while optimism correlates with active investor type. When considered from this point of view, it was seen that prior research have not conceptually contributed to the thorough coherence of generally accepted axioms.

Disposition effect

Disposition effect is defined as the tendency of selling assets which are already increasing in value sooner and of holding those whose prices are decreasing. From the institutional investor view, disposition effect such as home bias, although to a lesser extent, has been one of the most emphasized behavioral biases. Extant research has provided evidence of home bias effect while disposition effect has not been concluded in these studies.

Table II presents a summary of past research arguing disposition effect on institutional investors.

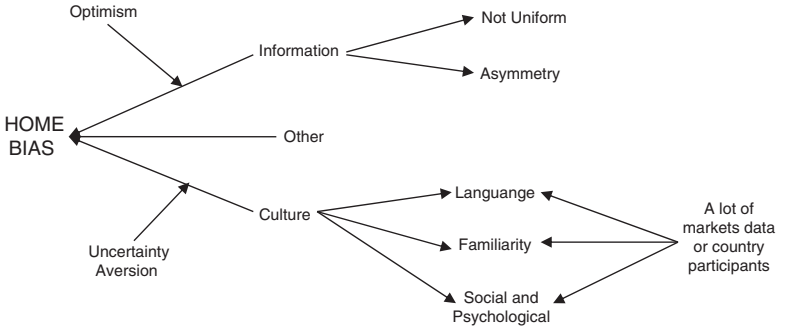


Figure 1.
Home bias

References	Data	Country	Reason
Barber *et al.* (2007)	II. Data (1995-1999)	Taiwan	Overconfidence
Sun *et al.* (2013)	II. Data (1998-2008)	Taiwan	Overconfidence
Choe and Eom (2009)	II. Data (2003-2005)	Korea	Experience
Menkhoff *et al.* (2010)	I. Data (2004)	Germany	Experience
Chou and Wang (2011)	II. Data (2001-2006)	Taiwan	Experience
Talpsepp (2011)	II. Data (2004-2008)	Estonia	Experience

Table II.
Disposition effect

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Studies arguing disposition effect have predominantly been conducted through Asian countries. Compared to home bias studies, it was observed that there has been little research arguing disposition effect and that these studies have utilized a narrower data set. Overall approach from these relatively limited studies has been that disposition effect would not appear on institutional investors due to their experiences and overconfidenced behaviors. Only one study (Menkhoff *et al.*, 2010) discussed both home bias and disposition effect. Note that merely this study employed the survey method for data collection. Exhibiting consistency with each other, previous research findings regarding disposition effect have provided no evidence of its occurrence.

By classifying investors in Taiwan Stock Exchange, Barber *et al.* (2007) examined the disposition effect. Thus, this effect has been seen among individual investors while it has not appeared among local and foreign institutional investors. As a possible explanations for this, investor groups' power of influencing asset pricing and trade volume have been proposed by the authors. This power raises institutional investors' overconfidence while weakening the disposition effect. If institutional investors influence prices or believe that they can, then they would continue to hold assets whose prices are increasing. Likewise, they would sell out those assets whose prices are decreasing as soon as possible. Since it is unusual that individual investors have this kind of power and belief, they would display disposition effect.

Similarly, Sun *et al.* (2013) aimed to explain disposition effect with momentum behavior and overconfidence. When both individual and institutional investor behavior in up and down markets were examined, it was seen that the increase of institutional investor momentum returns in particularly up markets raised overconfidence and that the increased overconfidence weakened disposition effect. In down markets, institutional investors employed contrarian strategy and this strategy similarly increased returns and overconfidence therefore reducing disposition effect. Barber *et al.* (2007) and Sun *et al.* (2013) investigated disposition effect in the same market for different periods of time and they both concluded that the absence of disposition effect was related to overconfidence.

Some research other than these mentioned studies has explored disposition effect but provided no evidence of its presence. But these studies have explained its absence with the argument that institutional investors were both experienced and sophisticated. It is rather interesting that these studies, albeit limited in number, have been conducted through a larger number of markets when compared to home bias research.

Choe and Eom (2009) investigated disposition effect in future markets and found a weak evidence, which led to be the sole study on disposition effect. Compared to individual investors', this relatively weak effect has been explained by becoming sophisticated and experienced in trading activity. In addition, it was found that disposition effect is inversely related to investment performance.

Similar to Barber *et al.* (2007) and Sun *et al.* (2013), Chou and Wang (2011) investigated disposition effect in Taiwan Stock Exchange and associated it with overconfident investment behavior. Yet, showing a divergence in explaining it, they suggested that overconfident investor behavior has been constituted from past long-term investment performance rather than the power of influencing asset prices or the adoption of momentum strategy. Besides, this study concluded that institutional investors have not been subject to disposition effect due to their professional trainings and experiences together with overconfidence bias.

Talpsepp (2011) explored disposition effect in Estonia, which could be deemed as a notably small market. First, they divided investors into two groups (i.e. domestic and

foreign investors). Then, they distinguished them as individual vs institutional in each of the two investor classes. It was seen that almost all foreign investors consisted of institutional investors. Unlike domestic investors, it was observed that foreign (institutional) investors have followed momentum strategy and adopted quite the opposite of disposition effect. In other words, they have showed a tendency of holding winning stocks and selling losing stocks. Consistent with findings in the extant literature, this behavior pattern has been explained by higher loss aversion and by higher institutional investor sophistication and experience.

Menkhoff *et al.* (2010) provided no evidence of disposition effect in their survey study conducted through German institutional investors. Yet, unlike Talpsepp (2011), they showed that risk aversion and wealth were not revealed as crucial explanations of improved investment behavior. Conversely, they found that investment experience resulted in the improvement of investment behavior.

Figure 2 shows the logical connections of disposition effect suggested by extant research.

Based on a thorough literature review, it generally seems that disposition effect on institutional investors has not been strongly provided by evidence. Prior research has stated that overconfidence bias and experience motivated this effect. Research performed by Cici (2012), gives us an important perspective about the differences in findings. Cici (2012), states that when mutual funds need to find cash and in cases where mutual funds are managed by a team, it is observed that they tend to sell winners instead of losers. However, in other situations they sell losers. Studies show that overconfidence and overexperience led to disposition effect.

Actually, overconfident behavior becomes apparent while investment experience increases. Momentum strategy pursued by institutional investors can be thought to direct both overconfident behavior and experience. There exists a body of research arguing that momentum strategy generates more returns in up markets. Aforementioned higher returns lead investors to exhibit overconfident behavior. At the same time, past experiences motivate institutional investors to show the same behavior when they are confronted with a similar condition, hence duplicating their existing experiences. As predictors of disposition effect, these two reasons seem to be related to each other although extant literature asserted that the underlying channels for this two reasons show differences. Overconfidence usually increases the investors' power of influencing prices (or illusion of control) and an increase in loss aversion and uncertainty aversion has an effect of increasing experience. These findings have showed consistency with risk tolerance classification by Pompian (2008). Illusion of control such as overconfidence necessitates higher risk tolerance while loss aversion and uncertainty aversion require low or low-to-medium risk tolerance level. Also, experience causes risk tolerance levels to reduce.

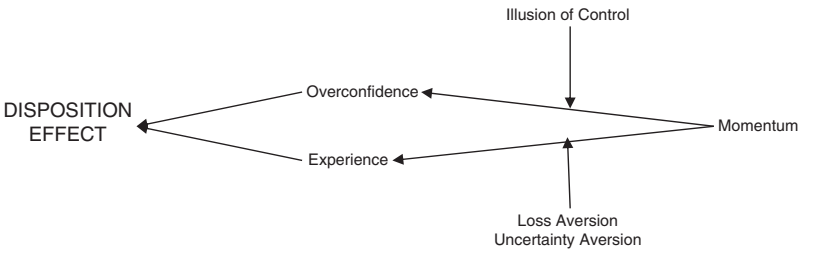


Figure 2.
Disposition effect

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Herding behavior

There exists a great body of research investigating whether institutional investors display herding behavior which can be recognized as the tendency of investors to behave similar by pursuing each others' behaviors. According to the general view, this bias exits on institutional investor. This biased behavior is predominantly said to be based on information while some research proposes other reasons to explain it.

Table III presents a brief of studies emphasized on herding behavior.

Even though relatively limited, previous studies on herding effect have encapsulated the data set of quite a number of countries. All studies have referred to the existence of herding behavior. Although information was seen as the main reason, risk aversion, fear of losing reputation and certain demographics can be seen as the factors that have facilitated herding behavior.

Aiming to explore herding behavior, Suto and Toshino (2005) conducted a survey study on institutional investors in Japan. They have asserted that all institutional investors did not have the same characteristics. Many research has approached all institutional investors as a whole while only a few studies have tried to classify these investors into some groups such as retirement fund managers, mutual fund managers, investment and pension fund managers, domestic vs foreign investors, etc. Although they have stressed that retirement fund managers and mutual fund managers had differences in some manner, Suto and Toshino (2005) stated that, in general, all institutional investors exhibited herding behavior. Utilizing the same published information, protecting their reputation and showing risk aversion behavior have been propounded as the underlying reasons for displaying this behavior. In fact, herding and risk aversion behavior correlate with each other. The institutional investors that have lost when their peers have won may confront the threat of losing their reputation and career. However, in a situation where everybody is losing this can be justified. That is why investors display herding behavior by avoiding risk.

Holmes *et al.* (2013) detected herding behavior on institutional investors in Portugal. Like other studies, they suggested reputational drives in explaining herding which is intentional but they also mentioned the effect of informational cascades. Although having their own private signs, agents in the market may pursue other agents' acts by paying no attention to their own signs since they think that it is more useful to behave like others. A typical reason for herding behavior is "informational cascades" which is described as following the others' behaviors even though their personal information cues point to a different behavior.

Gavriilidis *et al.* (2013) stated that herding behavior of institutional investors in Spain was intentional and that this behavior resulted from informational and career-related reasons. This finding has showed consistency with Suto and Toshino (2005) and with other herding studies.

Table III.
Herding effect

References	Data	Country	Reason
Holmes *et al.* (2013)	II. Data (1998-2005)	Portugal	Information
Suto and Toshino (2005)	I. Data (2003)	Japan	Information
Voronkova and Bohl (2005)	II. Data (1999-2002)	Poland	Information
Menkhoff *et al.* (2010)	I. Data (2004)	Germany	Experience
Chang *et al.* (2012)	II. Data (2006-2008)	Taiwan	Information
Gavriilidis *et al.* (2013)	II. Data (1995-2008)	Spain	Information
Hsieh (2013)	II. Data (2002-2003)	Taiwan	Information

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Chang *et al.* (2012) examined herding in two forms which are rational and irrational. They stated that irrational herding behavior which is observed generally on individual investors depended not on information but on lack of confidence. Conversely, rational herding behavior was observed in institutional investors. As the main reason for this behavior, they suggested that all institutional investors in Taiwan like their peers exploited the similar information. Using the same information and information processing lead them to arrive at similar decisions. These similar behaviors displayed by all institutional investors are perceived as herding behavior.

Based on intraday data, Hsieh (2013) investigated herding on individual and institutional investors in Taiwan Stock Exchange. It was observed that institutional herding behavior has overcome the individual herding behavior. Especially with the uncertainty conditions in markets, it was seen that buying behavior of institutional investors intensively displayed herding. Yet, individual investors lost money due to herding behavior while institutional investors generated returns. This overlaps with the finding of Chang *et al.* (2012) that institutional investors exhibited rational herding behavior, whereas individual investors displayed irrational herding. Similar to other research findings, Hsieh (2013) asserted that institutional investors displayed information-driven herding behavior.

Figure 3 summarizes the studies by displaying the motives of herding behavior proposed by the prior research.

Wylie (2005) states that herding behavior of corporate investors is much more predominant in the sector level compared to the share level. Andreu *et al.* (2015) similarly points that the strategic allocation level is seen much more compared to the individual security level in UK personal pension plans. Wylie (2005) shows that herding behavior on stock levels is seen much more predominantly in biggest and smallest stocks.

Pursuing the same published information can be seen as the major driver of herding behavior observed in institutional investors. It was identified that there are two kinds of attitudes which resulted in herding behavior: reputational concerns and risk avoidance. Every individual wants to sustain his or her career and reputation which has been acquired in many years. This career or reputation certainly happens when managed funds generate returns. It would be particularly desirable to win when others are underperforming or losing their returns. Together with avoiding risk, these reputational concerns direct investors to utilize the same published information and behave in a similar pattern. Furthermore as the investors' experience increase, they get the chance to observe the losers and what have lost which motivates them to continue herding behavior.

Discussion

Behavioral finances fundamentally study irrational behaviors among investors, as expressed by Subrahmanyam (2007). There is sizeable literature on individual investors who are thought to make irrational decisions with the effect of various

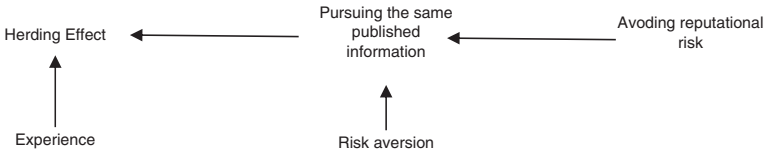


Figure 3.
Herding

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financial behavioral tendencies. On the contrary there is poor literary evidence on corporate investors who are thought to make rational decisions.

On the contrary to this mainstream view, some recent research articulated that institutional investors did not always make rational decisions and were subject to several behavioral biases. Extant research aimed to examine institutional investors by dividing these investors into groups or by approaching them as a whole as the definition of institutional investor refer to all financial intermediaries such as to mutual funds, banks, insurance companies, etc. Additionally, there is some strand of research dividing institutional investors further as domestic and foreign.

No matter how they classified institutional investors, these studies have found strong evidence that institutional investors displayed several behavioral bias. Home bias has been the most frequently observed bias in these studies. Even though it has not been provided with strong evidence, disposition effect succeeds to home bias in the extant literature. Besides, herding behavior is another phenomenon of interest which has been focused on and deemed as an irrational behavior in institutional investors.

Another common feature of these behavioral bias studies is that they have been carried out mainly through prior data. There are significantly less studies that has been conducted on specific countries. As to countries in where the data have been collected, it is rather interesting that the studies conducted in Taiwan, the USA, Germany and China overwhelmingly form the body of research on institutional investors while there is some research that is targeted to more than one country.

Research identifying home bias has explained this effect with information and culture. The studies proposing information channel have also found that these investors had been highly optimistic. Those suggesting culture in explaining home bias have also mentioned that uncertainty aversion had influence on the culturally closed preferences. As an interesting point, risk tolerance classification enounced that uncertainty aversion necessitates low-to-medium risk tolerance level while optimism requires high tolerance level. Additionally, uncertainty aversion coincide with passive investor prototype while optimism pertains to the active investor type. When viewed from this aspect, it can be said that the explanations of these empirical studies on home bias do not conceptually integrate with the generally accepted axioms.

Yet, empirical studies have not produced an evidence of disposition effect. Studies have mostly discussed this effect in the context of overconfidence and experience. Indeed, these two factors associate with each other since it is known that overconfidence levels rise as experience increases. Moreover, overconfidence is raised by illusion of control whereas experience increases with loss aversion and uncertainty aversion. Besides, overconfidence and illusion of control necessitates a higher risk tolerance yet loss aversion and uncertainty aversion match with low-to-medium risk tolerance.

On the contrary to the disposition effect, there has been a significant number of studies conducted on herding behavior and evidence of this behavior. It has been suggested that the main drivers of this behavior are pursuing the same published information and avoiding reputational risk.

Generally, risk aversion can be seen as the typical drive factor of this behavior. Even though studies on related corporate investors who act irrationally are done in different periods and with data from different countries, they were approached inconsistently in terms of risk tolerance levels. Depending predominantly on prior data, these studies have provided insight into the quantitative factors directing to the

aforementioned biased behaviors. A limited number of survey studies have also reported results in a limited number of countries. Unfortunately, these survey studies have fallen short of variables that were suggested to explain these behaviors. Particularly, it can be seen that extant literature had no concurrence on which biases caused irrational behavior and the range of risk tolerance level these biased behaviors had. Within this framework, it could be suggested that future research would be substantial to explain these gaps.

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