Mutual Funds and Market Variables: A Critical Review of Literature

Fiza Qureshi*

Institute of Business Administration, University of Sindh,

Jamshoro, Pakistan.

*Corresponding author: fqureshi83@gmail.com

Saba Qureshi

Institute of Business Administration, University of Sindh,

Jamshoro, Pakistan.

Ali Khan Ghumro

Department of International Relations, University of Sindh,

Jamshoro, Pakistan

Abstract

The growth of mutual fund industry has shown a remarkable increase since past few years. The current study reviews the performance and role of mutual funds at both micro and macro level. The study sheds light on the mutual funds and their association with market variables and macro economy. The study discusses the great work of literature in context of fund-return, fund-volatility, funds-variables-economy and predictive ability of mutual fund flows. The study further proposes to examine these relationship in context of developing and emerging markets using PVAR and GMM models. The findings of this study will benefit investors, policy makers and academicians.

Key words: Mutual fund flows, Market returns, Macro economy.

1. Introduction

A mutual fund (MF) is an investment company in which investors pool their savings that are to be invested in a diverse portfolio of securities under the management of a group of experts. It is invested in a way that not only reduces risk but also ensures safety and stable returns of investment (Dave, 1992; Mehru, 2004). In other words, a MF takes investment decisions on behalf of investors by pooling money from many investors and investing it in stocks, bonds, short-term money-market instruments, or other securities (Reilly & Brown, 2011). The purpose of MFs is to provide diversification, liquidity and economies of scale that give a competitive advantage to mutual funds over other financial institutions. Moreover, MFs provides a convenient way for investors to invest their money, adjust their investment objective, and track their portfolio's performance. Mishra et al. (2009) state that the MF is the most appropriate investment for the general public because it offers an opportunity to invest in both diversified and professionally managed portfolios of securities with lower costs. These benefits provided by funds tend to entice investors to invest indirectly through mutual funds rather than directly in companies' securities.

The Asian Financial Crisis 1997-1998 and the Global Financial Crisis 2008-2009 shook investors' confidence and compelled them to look for more secure investment alternatives. Consequently, mutual funds – which are characterized by diversification, liquidity and economies of scale – became the focus of practitioners and academicians. In the context of an uncertain state of affairs and volatile stock markets, the benefits offered by mutual funds always entice investors to invest through mutual funds rather than investing directly in companies' securities (Dave, 1992; Mehru, 2004). The shift towards mutual funds is evident from rising investment patterns of the mutual fund industry in the developing economies after stock market crashes and financial crises. This phenomenon is more pronounced for developing countries because they have insufficient information mechanisms and less efficient market structures to facilitate investors.

Khorana, Servaes, and Tufano (2005) and Ferreira, Keswani, Miguel, and Ramos (2012) find that the MF industry is used as one of the indicators of development to determine the investors' sophistication and participation cost.in the developed countries such as the USA, UK and European countries, However, in developing markets, MFs are at an embryonic stage. Although the number of MFs in other economies is lower

compared to the US market, the growth has nonetheless shown a phenomenal increase.[1] The total number of MFs has increased by 100% from last one and half decade globally from 1998 to 2015.[2] Moreover, statistics shows that MF assets increased worldwide by 211% from 2000 to 2015 and reached up to $37.38 trillion, an all-time high, at the end of the last quarter of 2015.[3] Cao, Chang, and Wang (2008) state that MFs are the key financial institutions for investment and savings in the developed countries. The study states that MFs represent a major portion of households and investors. US households invest their main component of wealth in MFs: in 2015 they invested 44 percent of their wealth in MFs. The USA has the largest MF industry, accounting for more than 48 percent of total MF industry worldwide. Total worldwide MF assets remain at $37 trillion with the remaining share of 34 percent in Europe, 13 percent in Africa and Asia Pacific and 5 percent in other parts of the world, at the end of 2015.[4] Considering this huge phenomenal growth in developing markets, questions may arise: for instance, what is the performance of MFs in the financial markets and developing economies? What is the impact of MF investment in the financial markets? Does their investment affect stock market returns and stock market volatility? What is the impact of MF investment in the overall economy? Which fund category performs better in times of high market risk and deteriorating economic conditions? Can MFs forecast macroeconomic conditions? Our research attempts to address these questions.
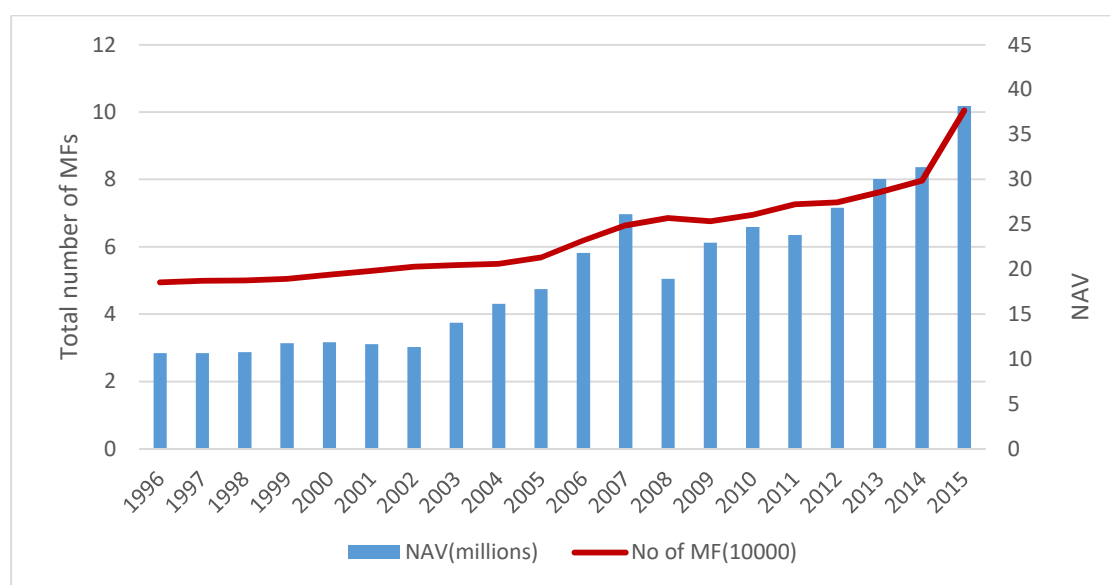

Figure 3.1.1: The total number of MFs worldwide and the worldwide growth in the total Net Asset Values (NAVs) of MFs (Millions of US dollars, year-end)

Source: Author calculations based on data collected from Investment Company Institute (ICI), Mutual Funds Worldwide Market, Statistics, 2015

---

[1] See Figure 2 for percentage differences between the US market and those of other economies in the world.
[2] See Figure 1 and Table 1 for trends and growth of MFs.
[3] Data from Investment Company Institute (ICI), Mutual Funds Worldwide Market, Statistics, 2015
[4] Data is taken from the Investment Company Institute (ICI), Mutual Funds Worldwide Market, Statistics, 2015

Journal of Poverty, Investment and Development
www.iiste.org
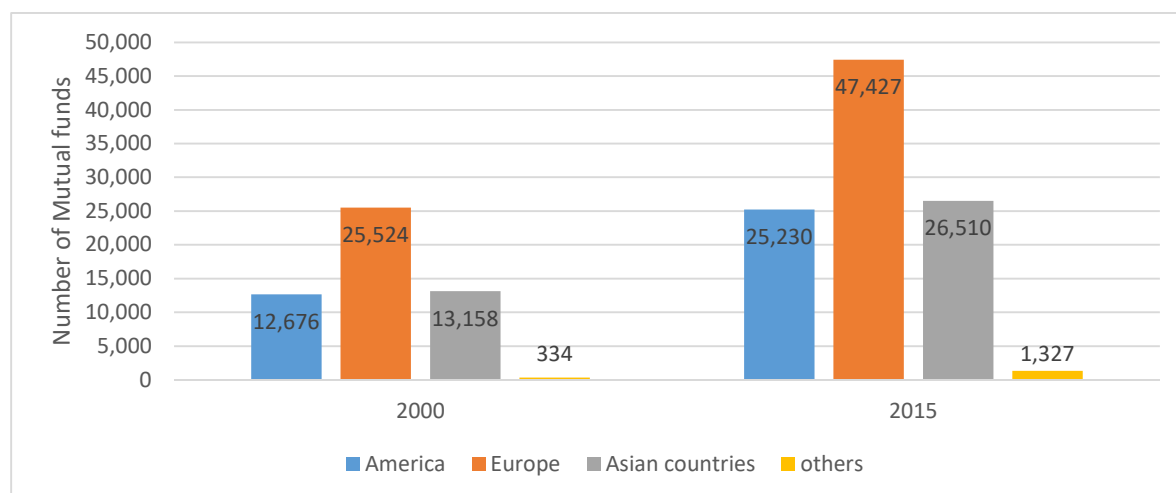ISSN 2422-846X   An International Peer-reviewed Journal
Vol.34, 2017

Figure 3.1.2: The total number of MFs in different regions of the world at the end of years 2000 and 2015

Source: Author calculations based on data collected from Investment Company Institute (ICI), Mutual funds Worldwide Market, Statistics, 2015

Table 3.1.1: Regional Share of Net Asset Value (%)

Years	America	Europe	Asia	Others
2000	63.5	27.8	9.6	0.14
2001	63.7	27.2	8.9	0.124
2002	59.8	30.6	9.4	0.185
2003	56.7	33.4	9.7	0.246
2004	54.4	34.9	10.4	0.334
2005	54.9	33.8	11	0.369
2006	52.6	35.8	11.3	0.358
2007	51.4	34.2	14.1	0.364
2008	55.9	32.9	10.8	0.367
2009	54.8	32.9	11.8	0.463
2010	55	31.9	12.4	0.573
2011	56.8	30.4	12.3	0.525
2012	56.4	30.7	12.4	0.541
2013	57.1	31.2	11.2	0.475
2014	57.4	30.6	11.6	0.467
2015	47.1	33.7	13.9	5

Table 1.1 shows the regional share of NAV of MF with respect to worldwide total NAV of MFs. Source: Investment Company Institute (ICI), Mutual funds Worldwide Market, Statistics, 2015

2.   Theory on Mutual Funds

The theoretical development and evaluation of MFs are derived from the modern portfolio theory called Markowitz's Mean-Variance Portfolio Theory. The theory seeks to maximize the expected return of portfolio (MFs) for a given quantity of portfolio risk by carefully selecting the ratios of different assets. MPT refers to mathematical explanation of the theory of diversification in investment. It aims at opting for a combination of financial assets that has lower risk rather than selecting individual assets. MPT attempts to decrease the total risk of portfolio return by merging various assets whose returns are perfectly negatively correlated. It also presumes that markets are efficient and investors are rational. Markowitz (1952) states that selection process of portfolio (MFs) is based on two steps. The first is the experience and observation of the performance of accessible securities in future. The second step is the appropriate belief about expected performance and choice of optimal portfolio. He discusses that the decision of investors are based on mean and variance in returns of assets (Sencicek, 2005).

Markowitz's portfolio theory was extended by Capital Asset Pricing Model (CAPM) by introducing unsystematic

and systematic risk (Sharpe, 1964; Lintner, 1965)**.** In this model, all investors hold a mix portfolio consisting of risky assets and risk-free assets (MFs) in the market. Numerous studies[1] on MF performance based on firm performance level evaluates the performance of MFs on the basis of three risk adjusted performance measures; the Treynor Index (1965), the Sharpe Ratio (1966) and Jensen's 'alpha' (1968). These performance measures were based on Capital Asset Pricing Model and Markowitz's Portfolio Theory. These measures intend to reduce the risk-reward dimensions of MFs' performance to a risk-adjusted returns. Treynor (1965) incorporated risk into a MFs' performance measure by considering the portfolio's rate of return with respect to the market rate of return. The Sharpe Ratio is defined as the ratio of a portfolio's return in excess of the risk-free rate to the portfolio's standard deviation of returns over a period of time (Sharpe, 1966). The Sharpe Ratio evaluates the ability of MFs' manager on the basis of both rates of return on performance and diversification by calculating the total risk of portfolio using standard deviation of returns. The Jensen alpha is a measure of that part on MFs' returns that are attributable to the fund manager's ability to time the market (Jensen, 1968).

Theoretical linkages of research on institutional investors is closely related to the well-developed Fisher separation theorem (Fisher, 1965) and Mutual fund theorem (Tobin, 1958). Fisher's separation theorem, which is also called as 'Separation Theorem' states that the construction of risk-free and risky asset portfolios are independent of the investor's taste and preferences. In other words, investors make investment decisions based on the net present value of expected returns rather than investor's acceptable level of risk. Separation theorem cuts across the mutual fund theorem, stating that an optimal portfolio can be developed by mixing certain amount of MFs (for instance, equity, bond, balanced and money market MFs) in appropriate ratio in portfolio where one set consists of risk-free assets and the other consists of tangency portfolio (Elton & Gruber, 1997). A tangency portfolio is defined as a portfolio that maximizes the anticipated returns minus risk free assets' returns to the standard deviation. Under this condition, MFs indicate particular benchmark selection of the portfolio of accessible assets. The area of theoretical research deals with the number of MFs that are needed to make portfolio and the nature of portfolio that includes the MFs under different assumptions of utility function and asset's characteristics [for example, Ross (1978)]. Elton and Gruber (1997) state that it is imperative to study the mutual fund theorem because it provides guidance to financial institutions such as banks and insurance companies, and financial markets (investor, market analysts, portfolio managers) regarding the types of combined funds and portfolios to be constructed. Mamaysky and Spiegel (2002) state that investors cannot trade and stay in the market at all times hence they pursue financial intermediaries to trade on their behalf.

3. **Critical Appraisal of Literature**

Financial institutions, markets and macro economy are well-known topics but still remain as perplexing relations for many to resolve. This study sheds some light on performance-based studies at micro-level on MFs. Furthermore, the study elaborates the literature related to the connection between mutual funds, market variables and market economy variables.

3.1. Empirical Studies on Performance of MFs

Several studies[2] determined the factors affecting the growth and performance of different types of MFs. A vast amount of literature has been devoted to study the determinants of MFs at the individual level (Kaul & Phillips, 2008). The studies' findings report a positive relationship between MF flows and past performance of funds. This relationship suggests that MFs chase the past performance and invest money in those securities that reported peak performance in the previous year. The statistical techniques used in these studies are mainly Sharpe, Treynor, Jensen's alpha, M Squared measures, CAPM model and four factor Carhart model.

---

[1] Sirri and Tufano (1998); Jain and Wu (2000); Edwards and Samant (2003); Lynch and Musto (2003); Artikis (2004); Shah, Hijazi, and Hamdani (2005); Boasson, Boasson, and Cheng (2006); Cashman, Deli, Nardari, and Villupuram (2006); Abdullah, Hassan, and Mohamad (2007); Arugaslan, Edwards, and Samant (2007); Lukashin and Lukashin (2009); Morri and Lee (2009); Swinkels and Rzezniczak (2009); Chen (2010); Hassan, Khan, and Ngow (2010); Khalid, Abbas, and Shah (2010); Nazir and Nawaz (2010); Rodríguez (2010); Trainor (2010); Alam (2011); Belgacem and Hellara (2011); Baghdadabad, Matnor, and Ibrahim (2012); Chang, Nelson, and Witte (2012); Jamaludin, Smith, and Gerrans (2012); Ashraf (2013); Baghdadabad (2013); Cumming, Schwienbacher, and Zhan (2015); D'Arcangelis and Rotundo (2015); Mansor, Bhatti, and Ariff (2015).

[2] For example, Sirri and Tufano (1998); Jain and Wu (2000); Edwards and Samant (2003); Lynch and Musto (2003); Artikis (2004); Shah et al. (2005); Boasson et al. (2006); Cashman et al. (2006); (2006); Abdullah et al. (2007); Arugaslan et al. (2007); Lukashin and Lukashin (2009); Morri and Lee (2009); Swinkels and Rzezniczak (2009); Chen (2010); Hassan et al. (2010); Khalid et al. (2010); Nazir and Nawaz (2010); Rodríguez (2010); Trainor (2010); Alam (2011); Belgacem and Hellara (2011); Baghdadabad et al. (2012); (Chang et al., 2012); Jamaludin et al. (2012); Ashraf (2013); Baghdadabad (2013); Cumming et al. (2015); D'Arcangelis and Rotundo (2015); Mansor et al. (2015).

Similar studies by Gruber (1996), Sirri and Tufano (1998), and Lynch and Musto (2003) discover significant association between flows and performance of firm, and conclude that investors invest money in high-performing funds excessively but fail to safeguard themselves from poor performing funds. Contradictorily, Cashman, Deli, Nardari, and Villupuram (2012) present evidence that proves investors not only increasing their investments to well performing funds but also equally monitoring poor performing funds by reducing inflows. Moreover, it is identified that MFs achieve an asymmetric volume of inflows due to strong performance achievements advertised by funds. However, authenticity of advertisement is questionable (Huhmann & Bhattacharyya, 2005).

 In contrast to earlier studies, Edwards and Samant (2003) find that investors are least convinced when the average return of funds rises as they take the degree of risk into consideration. Relatively, a similar study is conducted at cross-country level by Khorana et al. (2005) to determine the reason of MFs growth around the world. With the sample of 56 countries, it is found that the fund industry has flourished in the developed countries having proper laws, rules and regulations of investor's rights, stringent bank secrecy laws and favorable tax system.

Edelen (1999) states that the performance of MFs is generally measured in two levels; one at systematic level to assess the market timing ability and the other at individual level to determine the individual component of returns. However, keeping the amount of work in previous studies in view, there are limited amount of studies to assess the behavior and performance of MFs at macro level. The main focus of past studies have been on the determinants of growth and performance of MFs either at a domestic or international level. However, limited studies have been conducted to identify the determinants of MF flows at a macro level, the relationship of MFs with macroeconomic variables, and the impact and interaction of both MF and financial market from a macroeconomic perspective.

3.2. MFs and Financial Market Returns

A large number of studies is devoted to research on the determinants of risk-adjusted performance of MFs at the micro firm/sector level (Sirri & Tufano, 1998). However, limited studies are conducted on the determinant of MF flows at macro level in order to assess the role of MFs in the real economy and financial markets. The fundamental difference between micro and macro analysis lies in the micro-analysis which helps to evaluate funds' performance in terms of competitors and industry averages. Typically, investors divert their money from one fund to another based on micro-analysis. However, the focus in macro analysis is on the aggregate flows where inflows and outflows among competing funds are cancelled out.

Warther (1995) is the pioneer in studying the equity fund flows and market returns at the aggregate macro level. Using the monthly data, he finds positive concurrent relationship between flows and market returns, supporting the popular view that fund flows and market returns are correlated. Warther (1995) explains the relations of MF flows and market returns in three theories which are 'price-pressure theory/ investor sentiment theory (PP)', 'feedback trading/herding theory (FT)' and 'information response/revelation theory (IR)'. Ben-Rephael, Kandel, and Wohl (2011) also mention these theories in explaining the relationship of MF flows and market returns.

Empirically, two main questions are asked in the literature related to flow-return relationship. The first is whether fund managers allocate funds on the basis of current market performance and the second is whether the fund flow influences security prices concurrently. Answers to these questions lie in the following three main explanations. Firstly, flows may put a transitory pressure on security prices; affecting prices positively. Thus, flows may represent investors' emotions and attitudes (investor sentiment/PP theory). Secondly, fund flow reacts to changes in market returns with strong relationship between flow of funds and the market returns of previous day (FT theory). Thirdly, if fund managers are equipped with information, flows will reflect this new information by bringing about permanent changes in prices, resulting in positive correlation between flows and prices (IR theory).

The study by Warther (1995) contributes to the documentation of the relationship of aggregate market returns and fund flows but fails to draw a conclusive evidence and thorough explanation of the phenomena. The literature on dynamic linkage between mutual fund flows and market return is inconclusive. The existing literature explain that investment by funds are mostly driven by investors' sentiments more than the real fundamentals of economy (Harris & Gurel, 1986; Edelen, 1999; Kaul & Phillips, 2008; Ben-Rephael et al., 2011). Other studies[1] explain that investors make their investment decision based on recent performance. Potter (1996) conduct the study on lead and lag association between fund flows and market returns for classes of equity funds. The study finds that aggressive growth of fund flows is forecasted by stock market returns. However, the same cannot applied in the case of income fund flows. Recently, Watson and Wickramanayake (2012) find positive relationship between aggregate fund flows and market returns. They concluded that fund flows react to

---

[1] Such as Davidson and Dutia (1989); Hendricks, Patel, and Zeckhauser (1993); Warther (1995); Edwards and Zhang (1998), Goetzmann, Massa, and Rouwenhorst (2000); Patro (2006); Oh and Parwada (2007)

changes in market returns of previous day. On the contrary, another research find strong evidence to prove that MF flows are correlated to macro-economy fundamentals (Jank, 2012; Kopsch, Song, Wilhelmsson, & Johnson, 2015). Furthermore, some studies find causal relationship between MF flows and market returns (Aydogan, Vardar, & Tunç, 2014). For example, Fortune (1998) and Alexakis, Niarchos, Patra, and Poshakwale (2005) identify mixed causal relationship between mutual fund flows and market returns. The study concludes that some mutual fund flows pose an impact on future market returns, while other fund flows are affected by past market returns. Furthermore, Mosebach and Najand (1999), and Cha and Kim (2007) find positive relationship between mutual fund flows and market returns. Whereas, Braverman, Kandel, and Wohl (2005) concluded that flow-return relationship is negative. Alexakis, Dasilas, and Grose (2013) find mixed bi-directional causality between mutual fund flow and stock market return. Overall, it is evident that the researches related to determination of relationship between MF flows and market returns have been mostly mixed and inconclusive.

3.2.1. Price Pressure Theory

Studies on the PP theory assert that the MF flows bring price pressure (PP) to the stock market, thereby affecting the stock market returns. The effect of PP is seen in situations where MF acts as a proxy of investor sentiment. The effect is transitory and is induced by uninformed investors in which higher demand triggers up the prices temporarily and deviates them from their fundamental price value. In this scenario, investors being pessimists or optimists is not related to information (Jank, 2012).

The pioneer study on PP theory is conducted by Harris and Gurel (1986). The study confirms the temporary PP phenomena between fund flows and market returns. However, it is observed that half of the price changes are reversed within 10 days of trading session. Moreover, the study suggests that the major increase in demand of shares influence the prices of shares irrespective of presence or absence of information in the market. It is observed that MFs not only chase market returns but also influence security prices and shift prices from fundamentals values temporarily. Edelen (1999) finds that MFs are pressurized by their investor's flows and thereby perform poorly in term of market timings. They invest in the market immediately after the investor's flow in the funds and thus bring PP in the market. Indro (2004) conducts study on the relationship between net aggregate equity fund flow and investor sentiment. The study concludes that net aggregate equity fund flow is influenced by bullish behavior of individual investors in both the previous and current period. In addition, the study concludes that the investment of equity funds is also influenced by economic fundamentals.

A similar study is conducted by Ben-Rephael et al. (2011) who investigated the PP theory on MF equity aggregate flows. The study states that under PP theory, the lagged inflows and outflows should foretell negative and positive returns, respectively. This is due to the fact that the PP effect is temporary and will be reversed subsequently in over time. Initially, it is observed that huge inflows of the funds will push the prices of securities up and vice versa. However, the trend is reversed, implying a negative relationship between lagged fund flows and future returns. Ben-Rephael et al. (2011) test on whether or not investors are informed or owing to the fact that the PP is temporary. They find that the investors of MFs are uninformed and they are mostly retail investors. The investments in MFs are in turn, being invested financial market trading due to the fact that funds are required to invest and hold securities, primarily in the security market. The uninformed investors influence the market prices and drive away the market from the fundamental prices. Practically, this effect is reversed (as opposite to the price effect by information permanently) after some time mostly because the effect is temporary in nature. The study finds that nearly 85 percent of the simultaneous relation is reverted a within period of 4 months. Thus, this leads to the inverse relation between lagged positive flows and negative market returns, and vice versa.

 In addition, Ben-Rephael et al. (2011) have also shown that MFs seem to be bad market timer in case of PP effect. It is due to the fact that MFs are driven by investors and react according to investor flows. The PP effect occurs due to investor flows in MF that forces the MF to sell "low" and buy "high". The study's findings are consistent with Edelen (1999) who also find that due to pressure developed by investor's flows in MFs, it is proven that fund possesses poor timing ability. Overall, findings from the study by Ben-Rephael et al. (2011) support the PP theory which was rejected earlier by Warther (1995) and Franklin Fant (1999).

Ben-Rephael et al. (2011) find that the contemporaneous correlation between flows and relation is mainly due to the unexpected component of flow. The result is consistent with Warther (1995)'s findings. However, Ben-Rephael et al. (2011) also report some evidences of positive relation between market returns and subsequent fund flows, thereby providing evidence of feedback trading effect. Thus, findings from the study seem to be mixed and inconclusive.

Researchers such as Warther (1995), Franklin Fant (1999), Rakowski and Wang (2009), Jank (2012) did not find sufficient evidences in support of PP theory. Rakowski and Wang (2009) concluded that past flows have a positive impact on future returns with an information effect as compared to the PP effect driving this link. Jank (2012) and Kopsch et al. (2015) reject the PP theory in their studies and subsequently find support for IR theory although the effect of IR and PP theories is the same as both theories forecast a positive association between

simultaneous returns and flows. The IR theory forecasts no relation between lagged flows and returns because information is swiftly incorporated by prices. Whereas, the PP theory expects a negative linkage between lagged flows and returns because prices reduce once the pressure is diminished. The major distinction between both theories is that under the IR theory, fund flows are determined by price fundamentals whereas under the PP theory, fund flows are unaffected from fundamentals.

3.2.2. Feedback Trading Theory

Studies on feedback trading/herding (FT) theory state that MFs respond to the past market performance through inflows and outflows under feedback effect in the market. The theory asserts that market returns affect the MF flows. The investors buy and sell securities with rise and fall in security price. In other words, funds chase the past performance of market and invest in high performing securities. Ben-Rephael et al. (2011) state that under FT theory, investors chase the previous-day market returns positively with increase in flows and vice versa. The FT theory envisages positive association between lagged returns and current flows. For instance, Warther (1995), Papadamou and Siriopoulos (2002) and Patro (2006) explain that investors make their investment decision based on recent performance. However, fund investors fail to safeguard themselves from poor performance (Sirri & Tufano, 1998; Lynch & Musto, 2003).

 Potter and Schneeweis (1998) state that security market returns predict flows into growth funds and aggressive growth funds. Fant (1999) examine the flow-return association by segregating components of flows like new sales, redemptions, exchanges-in and exchanges-out. The study supported feedback trading theory between returns and exchanges-in and-out. Edwards and Zhang (1998), Cha and Kim (2005), Cha and Kim (2007) and Oh and Parwada (2007) find the supporting evidence related to the theory and concluded that there is a strong relationship between fund flows and the market returns of previous day. Studies in support of FT theory further provided evidences of positive FT theory (also known as momentum behavior) and negative FT theory (also known as contrarian behavior) of MF flows with market returns. Goetzmann et al. (2000) conduct a study on the behavioral factors based on momentum and contrarian MF flows by examining investment and trading behavior of investors. They conclude that flows move positively with the market returns. Cha and Lee (2001) stated that the stock market performance has direct influence on the equity fund flows. However, Edelen and Warner (2001) and Boasson et al. (2006) find that the MF may buy/sell at the information of good/bad news but some informed funds may take the other way around (contrarian behavior). This behavior is further explained by Oh and Parwada (2007) who categorize the MF flows into purchases flows, sales flows and net trading flows. The study finds the stock market returns force MF flows to react positively in terms of purchases and sales, hence, confirming the notion of positive FT theory (momentum behavior). However, in terms of net trading flows, there exist a negative relationship between the stock market returns and MF flows suggesting the contrarian behavior of MF investors (negative feedback trader). In contrast to earlier studies, Rakowski and Wang (2009) find that MFs may exhibit contrarian behavior (may go against market) rather than momentum behavior (mutually may follow the market) in the market. Jank (2012) and Kopsch et al. (2015) reject FT theory upon finding that flows and market returns are contemporaneously correlated due to macroeconomic information.

Overall, it is observed that the studies contradict with each other. Studies could not identify the true effect of FT theory and relation of MFs with market returns. Although the studies have done their best to determine the relationship and identify the impact of feedback effect in the financial market, the lack of consistency still prevails in the findings.

3.2.3. Information Response Theory

The studies on information response (IR) theory state that neither the market variables affect the fund flows to react nor do the fund flows causing pressure in the market variables. However, there is a third variable known as macro-economic variable that causes both stock market variables and fund flows to react simultaneously to new information. Ben-Rephael et al. (2011) explain that under IR theory, positive/negative information in the financial market results in positive/negative security returns and inflows/outflows by MFs.

Remolona, Kleiman, and Gruenstein Bocain (1997) examine the association between fund flows and market performance using four macroeconomic variables: capacity utilization, domestic employment, the consumer price index and the Federal Reserve's target federal funds rate. The study findings suggest that market returns are highly correlated with aggregate mutual fund flows. Boyer and Zheng (2004) and Cha and Kim (2010) determine the link between mutual fund flows and stock market returns. They find positive link between aggregate mutual fund flows and stock market returns at the macro level. Moreover, Jank (2012) examines IR theory on US equity fund and stock market returns and finds results in favor of IR theory. The study rejects the PP and FT theory, and provides strong evidence indicating that MF flows are correlated to macro-economy fundamentals. Moreover, the study finds high correlation among high-risk funds flows, market returns and macroeconomic variables. It is identified that the high-risk funds are highly affected by macroeconomic information which supports the IR theory. Jank (2012) identified the interaction of third variable as macroeconomic variable affecting both fund

flows and market returns simultaneously. In that case, both market and MFs react together to the new macroeconomic information and this new information is reflected in both market price and fund flows. Similar study in support of IR theory is conducted by Kopsch et al. (2015) who find that there is a co-movement existing between fund flows and stock market returns. The study results also validate the findings of Warther (1995) who find correlation of market returns with unexpected flows. In addition, the results also affirmed Jank (2012) findings indicating that predictable variables can forecast the variations in MF flows better than the market returns.

Ben-Rephael et al. (2011) compare differences between the three theories (PT, FT and IR theories). They explain that IR and FT theory entail no association between future returns and lagged flows. The empirical findings of both theories are very much related. In case of PP and IR theory, the major distinction between both theories is; under the IR theory, fund flows are determined by fundamentals whereas under PP theory, fund flows are distinct from fundamentals. However, both theories forecast a positive association between simultaneous returns and flows. The IR theory forecast no relation between lagged flows and returns because information will be swiftly incorporated by prices while the PP theory expects a negative linkage between lagged flows and returns because prices will repeal once the pressure vanishes.

The initial study by Warther (1995) emphasizes on the documentation of the association of aggregate market returns and fund flows rather than drawing the conclusive evidence and thorough explanation of the phenomena. Thus, the study's contribution lies in identification and documentation of three theories to explain the relation of fund flow and market returns. The findings of the study support neither the PP theory nor the FT theory. Warther (1995) concludes that although the MF flows have impact on the rise and fall of security prices, this impact may be due to a combined response of flows and market returns to information, or flows chasing lagged market returns. Thus, the findings are indecisive and unconvincing as the study fails to test the theories empirically. In addition, there are also contradictory findings in the previous studies related to MF flows and market returns. For example, Edelen (1999) document negative relation between market returns and equity fund flows whereas the study by Goetzmann et al. (2000) identify that the aggregate demand of MF investors for stocks are positively correlated with concurrent security price and the changes in the prices. Overall, it is evident that the research related to determine the relationship between MF flows and market returns under these theories (PP, FT, IR theory) have been inconclusive.

3.3. MF and Financial Market Volatility

Earlier studies document two conduits of relationship of market volatility and fund flows. The first being that fund flows follow the markets' past performance. The fund managers envisage future returns based on past performance and often follow positive feedback strategy by buying from up-market and selling in-down market. Other fund managers may take it the other way round (may follow contrarian/negative feedback strategies) which may reduce the market volatility by increasing their investment. This implies that the increase in market volatility reduces the fund flows, and reduced market volatility increases the fund flows in the financial market (Cao et al., 2008). Since different strategies opted by MFs may be offsetting, the overall effect of flows on stock market return fluctuations is an important empirical question which is examined in this study. The second is that, studies in noise traders/investors sentiments are the main causes that drag away market from its fundamental values (Black, 1986; Lee, Shleifer, & Thaler, 1991). This is true considering MF flows are used as proxy for investors' sentiments. Hence, positive or negative flows will affect the market returns and volatility (Cao et al., 2008).

Pioneer theoretical work[1] states that sophisticated institutional investors respond rationally to the stock market volatility and are less likely to be affected. They are called 'smart investors' who counterbalance individual irrational investment and reduce market noises (Friedman, 1953; Fama, 1965; Grier & Albin, 1973; Reilly, 1977; Reilly & Wachowicz Jr, 1979; Cao et al., 2008). Goetzmann and Massa (1999) and Zheng (1999) find that institutional investor flows are concurrently associated with stock market variables as compared to retail investors flows. It is argued that prudent behavior of institutional investors should result in market stability due to the highly-accessible information that helps in controlling price deviation from the fundamentals. (Brown, Harlow, & Starks, 1996; Sias, 1996; Dennis & Strickland, 2002; Bohl, Brzeszczyński, & Wilfling, 2009). Friedman (1953) states that rational investors stabilize the prices of securities. Fama (1965) also confirms that institutional investors can alleviate large deviations in asset prices. Moreover, the well-informed MF investors often correctly time the market (Cao et al., 2008). However, certain studies provide contradictory evidences. For instance, institutional investors may find riskier and volatile securities more attractive as they are likely to outperform the average market securities[2]. Sias (1996) suggests that institutional investors exhibit momentum

---

[1] For example, Aggarwal and Rao (1990); Daigler and Wiley (1999); Kaniel, Saar, and Titman (2008), Sias (1996).

[2] See for example Falkenstein (1996); Gompers and Metrick (2001); Gabaix, Gopikrishnan, Plerou, and Stanley (2006), Klemkosky (1977);

behavior with the market and increase their trading in times of high market volatility. This is also true for MFs which, as institutional investors, may engage in positive feedback trading and herding that may accelerate price movements and increase volatility[1]. Previous studies (Brown et al., 1996; Sias, 1996; Dennis & Strickland, 2002) find positive association between MFs and market volatility. However, others find inverse relationship between the institutional trading and market volatility (Grier & Albin, 1973; Reilly, 1977; Reilly & Wachowicz Jr, 1979). A study by Busse (1999) assesses whether funds manager time the financial market volatility. Busse (1999) concludes that MFs do influence and capture the market volatility. This work is extended by Cao et al. (2008) who determined the link between aggregate MF flows and return volatility in market and find negative association between flows and previous day volatility. They conclude that positive flows are associated with lower market volatility and negative flows are linked with high market volatility. Furthermore, fluctuations in flows negatively influence the market volatility i.e, inflows forecast decreased market volatility and outflows forecast increased market volatility.

Thomas, Spataro, and Mathew (2014) investigate empirical relationship between investment of pension funds in stock and stock market volatility in OECD market. They find negative relationship between pension funds and stock market volatility. The negative relationship is due to highly-accessible information available to pension funds being large institutional investors. This information helps in controlling prices deviation from the fundamentals. Whereas, another study conducted by Gökçen and Yalçın (2015) on pension funds find that active funds perform poorly in market as compared to passive funds. Overall, there are limited studies on flow-volatility link and the findings of these studies have been inconclusive and ambiguous. One can recognize the difficulty to infer clear cut conclusion in the prevailing theoretical and empirical debate as studies yield ambiguous results and findings that have been inconclusive and contradictory. Furthermore, there are existing evidence[2] on the relationship among stock market returns, market volume and volatility, but the literature on MF flows and market volatility has received scant attention despite the importance of MFs in stock trading. In addition, researchers' interest in micro-analysis of MFs and market volatility has been on the rise over the last two decades[3]. However, literature on macro analysis of this relationship remain embryonic and scarce[4]. Furthermore, the studies are conducted mostly in the context of developed countries such as USA, Norway, China, Korea, Japan, Egypt [Wermers (1999), Gjerde and Saettem (1999), Demirer and Kutan (2006), Barber and Odean (2008), Rubin and Smith (2009), Zhou and Peng (2007), Li and Wang (2010), Choe, Kho, and Stulz (1999), Karolyi (2002), Azzam (2010) and Park (2015)]. There is hardly any literature on MF flows and market volatility from the perspective of developing markets. Moreover, this study seeks to identify the relationship of other types of MFs (for example; bond MFs, balanced funds, money market funds) in the context of market volatility, which is non-existent to the best of the researcher's knowledge.

3.4. MFs and Macroeconomic Information

Despite having extensive literature that focuses on the relationship of financial market and macro economy, studies investigating the relationship between financial market investors (e.g., MFs) and macro economy are scarce, less comprehensive and mixed. Some of the existing literatures explain that investment by funds are mostly driven by investors' sentiments more than the real fundaments of economy (Kaul & Phillips, 2008). Oh and Parwada (2007) state that the determination of MFs being either fundamentals or non-fundamentals remain controversial. In other words, whether flows contain information reflecting the real economy activity or not is still being debated on. However, in contrast to the earlier findings, Kaul and Phillips (2008) conduct a study to determine the variations in MF flows, specifically in terms of economic conditions. The study's findings suggest that development in economic conditions are likely to affect the investors to reshuffle their investments and move away the funds from fixed income-type funds to equity-based funds and vice versa. Ferson and Schadt (1996) conduct study on fund manager performance and influence of economic situations on fund performance. The study suggests that the determination of fund manager performance should consider the macroeconomic conditioning. A similar study on timing ability of MF managers is conducted by Kacperczyk, Van Nieuwerburgh, and Veldkamp (2013) who find that manager have ability of generating higher risk-adjusted returns using both

---

De Long, Shleifer, Summers, and Waldmann (1990); Falkenstein (1996); Nofsinger and Sias (1999); Gompers and Metrick (2001); Sias (2004); Gabaix et al. (2006).

[1] See for example Klemkosky (1977); De Long et al. (1990); Nofsinger and Sias (1999); Sias (2004); Bohl et al. (2009).

[2] Studies such as French, Schwert, and Stambaugh (1987); Baillie and DeGennaro (1990); Poon and Taylor (1992); Duffee (1995); De Santis (1997); Adrian and Rosenberg (2008); Azevedo, Karim, Gregoriou, and Rhodes (2014), Shahzad, Duong, Kalev, and Singh (2014), Koulakiotis, Babalos, and Papasyriopoulos (2015).

[3] For instance Grier and Albin (1973); Reilly (1977); Reilly and Wachowicz Jr (1979); Cohen, Gompers, and Vuolteenaho (2002)

[4] Few studies exists on pension funds and market volatility on macro-level, for example Studies by,Davis and Hu (2004) ,Thomas et al. (2014).

private and public information. Researchers conduct test on how manager use skills over different period of business cycles. Kacperczyk et al. (2013) have tested market efficiency and time-varying ability of fund manager by channeling fund manager's performance into stock picking and market timing skills during recessionary and expansionary economic times. They find that MFs managers mold the skills based on different period of business cycles and formulate prudent investment strategies to time the market by investing more in defensive industries during recession and holding more cash during bad economic times.

Bali, Brown, and Caglayan (2014) conduct a study on the influence of macroeconomic risk on hedge funds and argue that individual hedge funds are highly exposed to macroeconomic shocks and earn higher returns than other form of funds. This finding is consistent with ICAPM of Merton (1973), which proposes that such exposure to macro-economy should be compensated with higher returns. Bali et al. (2014) concluded that macroeconomic risk is a stronger determinant to cross-sectional deviation of hedge fund returns as compared to standard financial risks. Moreover, the study identify that the prices of risky financial securities such as stock, bond and their derivatives are highly influenced by macroeconomic fundamentals such as inflation, interest rates, unemployment and economic growth.

In another context of research, it is observed that limited studies have been devoted on addressing the question pertaining to the predictability of MF flows. This includes, for example, whether MF flows have any impact on the determination of economic variable and whether fund flows contain any information for future economic conditions. Jank (2012) identifies that equity MF flows forecast future economic conditions, consistent with the IR theory. Ferson and Kim (2012) find that lagged flows have predictability for future economic conditions indicating that fund flows not only follow the past market performance but also forecast the future conditions of variables representing economic conditions.

Finally, limited studies are available to study the relationship of various types of MFs with macroeconomic variables except the studies by Kaul and Phillips (2008) and Ferson and Kim (2012). Kaul and Phillips (2008) identify the variations in MF flows that occurs due to variation in economic conditions. Ferson and Kim (2012) find that lagged flows have predictability for future economic conditions indicating that fund flows not only follow the past market performance but also forecast the future conditions of variables representing economic conditions. Ferson and Kim (2012) identify that the factor structure of MFs is common for bond equity and money market MFs that have impact on both financial market and macroeconomic variables. Jank (2012) discover that equity fund flows forecast future economic conditions and are forward-looking. Bali et al. (2014) find that the prices of risky financial securities such as stock, bond and their derivatives are highly influenced by macroeconomic fundamentals such as inflation, interest rates, unemployment and economic growth.

Overall, studies at cross-country level are scarce and only Ferreira et al. (2012) and Khorana et al. (2005) have conducted studies to determine the role of MFs in different economies. Although the MF has expanded around the globe, academic studies have been scarce and narrow in geographical context. Majority of the researches were conducted in developed economies and restricted by data based on a single country (Khorana et al., 2005; Cao et al., 2008; Ferreira et al., 2012; Jank, 2012; Bali et al., 2014). However there are scarce studies made in the context of developing markets.

4.   Conclusions and Possible Direction for Future Research

This paper attempts to review the role and performance of mutual funds at micro and macro level. The review indicates that despite the importance of MFs in the economy, there are only a limited number of studies on the relationship between MFs and macroeconomic variables. Secondly, there have been mixed results relating to MF flows, market returns and macroeconomic variables. The findings of these studies are explained by different theories in previous studies. However, the findings are inconsistent and contradictory. Moreover, the empirical studies focus on the relationship between MF flows and stock market returns, but they do not appear to have addressed and tested the stock market volatility along with stock market returns and MF flows. In addition, limited work has been done on addressing the questions regarding the predictive ability of MF flows. Finally, despite the important role played by MFs in the economy, such studies do not appear to have been done for developing economies.

The future study may take into account the different categories of MFs along with stock market returns and macro-economic variables, which have not been considered by previous studies. Second, studying different MF flows with respect to both stock market return and risk (volatility) will be another contribution to existing knowledge. Moreover, the future study may contribute towards determining the predictive ability of different major MF classes. Furthermore, the findings of the previous studies have been limited to data based on a single country, mostly a developed country. Future studies can use cross country data of developing economies to determine the role of mutual funds in the developing financial markets. Estimation methods such as PVAR and GMM can be used and the study can be conducted over the period from 2000 to 2015. It is because major growth of MFs is witnessed in this time period particularly in developing economies.

References

Abdullah, F., Hassan, T., & Mohamad, S. (2007). Investigation of performance of malaysian islamic unit trust funds: Comparison with conventional unit trust funds. *Managerial Finance, 33*(2), 142-153.

Adrian, T., & Rosenberg, J. (2008). Stock returns and volatility: Pricing the short-run and long-run components of market risk. *The Journal of Finance, 63*(6), 2997-3030.

Aggarwal, R., & Rao, R. P. (1990). Institutional ownership and distribution of equity returns. *The Financial Review, 25*(2), 211.

Alam, H. M. R., Mamoona; Farooq, Saba; Akram, Muhammad. (2011). Mutual funds growth and prospects in pakistan. *Interdisciplinary Journal of Contemporary Research In Business*, 189-209.

Alexakis, C., Dasilas, A., & Grose, C. (2013). Asymmetric dynamic relations between stock prices and mutual fund units in japan. An application of hidden cointegration technique. *International Review of Financial Analysis, 28*, 1-8.

Alexakis, C., Niarchos, N., Patra, T., & Poshakwale, S. (2005). The dynamics between stock returns and mutual fund flows: Empirical evidence from the greek market. *International Review of Financial Analysis, 14*(5), 559-569.

Artikis, G. P. (2004). Risk analysis: A case study of the greek bond mutual funds. *Managerial Finance, 30*(10), 14-25.

Arugaslan, O., Edwards, E., & Samant, A. (2007). Risk-adjusted performance of international mutual funds. *Managerial Finance, 34*(1), 5-22.

Ashraf, D. (2013). Performance evaluation of islamic mutual funds relative to conventional funds: Empirical evidence from saudi arabia. *International Journal of Islamic and Middle Eastern Finance and Management, 6*(2), 105-121.

Aydogan, B., Vardar, G., & Tunç, G. (2014). The interaction of mutual fund flows and stock returns: Evidence from the turkish capital market/yatirim fonlari ile hisse senedi piyasasinin etkilesimi: Türk sermaye piyasasindan bulgular. *Ege Akademik Bakis, 14*(2), 163.

Azevedo, A., Karim, M., Gregoriou, A., & Rhodes, M. (2014). Stock price and volume effects associated with changes in the composition of the ftse bursa malaysian klci. *Journal of International Financial Markets, Institutions and Money, 28*, 20-35.

Azzam, I. (2010). The impact of institutional ownership and dividend policy on stock returns and volatility: Evidence from egypt. *International Journal of Business, 15*(4), 443.

Baghdadabad, M. R. T. (2013). A replacement method in evaluating the performance of international mutual funds. *International Journal of Emerging Markets, 8*(2), 144-169.

Baghdadabad, M. R. T., Matnor, F., & Ibrahim, I. (2012). Optimized drawdown risk in evaluating the performance of malaysian mutual funds. *Journal of Islamic Accounting and Business Research, 3*(2), 138-162.

Baillie, R. T., & DeGennaro, R. P. (1990). Stock returns and volatility. *Journal of Financial and Quantitative Analysis, 25*(02), 203-214.

Bali, T. G., Brown, S. J., & Caglayan, M. O. (2014). Macroeconomic risk and hedge fund returns. *Journal of Financial Economics, 114(1)*, 1-19.

Barber, B. M., & Odean, T. (2008). All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors. *Review of Financial Studies, 21*(2), 785-818.

Belgacem, S. B., & Hellara, S. (2011). Predicting tunisian mutual fund performance using dynamic panel data model. *Journal of Risk Finance, The, 12*(3), 208-225.

Ben-Rephael, A., Kandel, S., & Wohl, A. (2011). The price pressure of aggregate mutual fund flows. *Journal of Financial and Quantitative Analysis, 46*(02), 585-603.

Black, F. (1986). Noise. *The Journal of Finance, 41*(3), 529-543.

Boasson, E., Boasson, V., & Cheng, J. (2006). Investment principles and strategies of faith-based funds. *Managerial Finance, 32*, 837-845.

Bohl, M. T., Brzeszczyński, J., & Wilfling, B. (2009). Institutional investors and stock returns volatility: Empirical evidence from a natural experiment. *Journal of Financial Stability, 5*(2), 170-182.

Boyer, B., & Zheng, L. (2004). Who moves the market? A study of stock prices and sector cashflows. *Unpublished working paper, Brigham Young University and University of Michigan*.

Braverman, O., Kandel, S., & Wohl, A. (2005). *The (bad?) timing of mutual fund investors*. CEPR Discussion Papers. Centre for Economic Policy Research.

Brown, K. C., Harlow, W. V., & Starks, L. T. (1996). Of tournaments and temptations: An analysis of managerial incentives in the mutual fund industry. *Journal of Finance*, 85-110.

Busse, J. A. (1999). Volatility timing in mutual funds: Evidence from daily returns. *Review of Financial Studies, 12*(5), 1009-1041.

Cao, C., Chang, E. C., & Wang, Y. (2008). An empirical analysis of the dynamic relationship between mutual fund flow and market return volatility. *Journal of Banking & Finance, 32*(10), 2111-2123.

Cashman, G. D., Deli, D. N., Nardari, F., & Villupuram, S. (2012). Investors do respond to poor mutual fund performance: Evidence from inflows and outflows. *Financial Review, 47*(4), 719-739.

Cashman, G. D., Deli, D. N., Nardari, F., & Villupuram, S. V. (2006). *On monthly mutual fund flows.* Paper presented at the FMA Annual Meeting, Orlando, FL.

Cha, H.-J., & Kim, J. (2010). Stock returns and aggregate mutual fund flows: A system approach. *Applied Financial Economics, 20*(19), 1493-1498.

Cha, H.-J., & Lee, B.-S. (2001). The market demand curve for common stocks: Evidence from equity mutual fund flows. *Journal of Financial and Quantitative Analysis, 36*(2), 195-220.

Cha, H., & Kim, J. (2005). *Short and long run dynamic relations between security returns and mutual fund flows: A system approach*. Department of Finance, College of Business, University of St. Thomas, St. Paul.

Cha, H., & Kim, J. (2007). *Stock prices and equity mutual fund flows: A macro approach*. Department of Economics, Oklahoma State University, Stillwater, Okla.

Chang, C. E., Nelson, W. A., & Witte, H. D. (2012). Do green mutual funds perform well? *Management Research Review, 35*(8), 693-708.

Chen, J.-H. (2010). Gender difference and job replacement for mutual fund. *Quality & Quantity, 44*(4), 661-671.

Choe, H., Kho, B.-C., & Stulz, R. M. (1999). Do foreign investors destabilize stock markets? The korean experience in 1997. *Journal of Financial Economics, 54*(2), 227-264.

Cohen, R. B., Gompers, P. A., & Vuolteenaho, T. (2002). Who underreacts to cash-flow news? Evidence from trading between individuals and institutions. *Journal of Financial Economics, 66*(2), 409-462.

Cumming, D., Schwienbacher, A., & Zhan, F. (2015). The scope of international mutual fund outsourcing: Fees, performance and risks. *Journal of International Financial Markets, Institutions and Money, 38*, 185-199.

D'Arcangelis, A. M., & Rotundo, G. (2015). Mutual funds relationships and performance analysis. *Quality & Quantity, 49*(4), 1573-1584.

Daigler, R. T., & Wiley, M. K. (1999). The impact of trader type on the futures volatility-volume relation. *The Journal of Finance, 54*(6), 2297-2316.

Dave, S. (1992). Mutual funds: Growth and development. *The Journal of the Indian Institute of Bankers, 63*(1), 13-15.

Davidson, W. N., & Dutia, D. (1989). A note on the behavior of security returns: A test of stock market overreaction and efficiency. *Journal of Financial Research, 12*(3), 245-252.

Davis, E. P., & Hu, Y. W. (2004). Is there a link between pension-fund assets and economic growth?-a cross-country study. Retrieved from http://bura.brunel.ac.uk/handle/2438/978

De Long, J. B., Shleifer, A., Summers, L. H., & Waldmann, R. J. (1990). Noise trader risk in financial markets. *Journal of Political Economy*, 703-738.

De Santis, G. (1997). Stock returns and volatility in emerging financial markets. *Journal of international money and finance, 16*(4), 561-579.

Demirer, R., & Kutan, A. M. (2006). Does herding behavior exist in chinese stock markets? *Journal of International Financial Markets, Institutions and Money, 16*(2), 123-142.

Dennis, P. J., & Strickland, D. (2002). Who blinks in volatile markets, individuals or institutions? *The Journal of Finance, 57*(5), 1923-1949.

Duffee, G. R. (1995). Stock returns and volatility a firm-level analysis. *Journal of Financial Economics, 37*(3), 399-420.

Edelen, R. M. (1999). Investor flows and the assessed performance of open-end mutual funds. *Journal of Financial Economics, 53*(3), 439-466.

Edelen, R. M., & Warner, J. B. (2001). Aggregate price effects of institutional trading: A study of mutual fund flow and market returns. *Journal of Financial Economics, 59*(2), 195-220.

Edwards, E., & Samant, A. (2003). Investing with a conscience: An evaluation of the risk-adjusted performance of socially responsible mutual funds. *American Journal of Business, 18*(1), 51-60.

Edwards, F. R., & Zhang, X. (1998). Mutual funds and stock and bond market stability *Stock market policy since the 1987 crash* (pp. 75-100): Springer.

Elton, E. J., & Gruber, M. J. (1997). Modern portfolio theory, 1950 to date. *Journal of Banking & Finance, 21*(11), 1743-1759.

Falkenstein, E. G. (1996). Preferences for stock characteristics as revealed by mutual fund portfolio holdings. *The Journal of Finance*, 111-135.

Fama, E. F. (1965). The behavior of stock-market prices. *Journal of Business*, 34-105.

Ferreira, M. A., Keswani, A., Miguel, A. F., & Ramos, S. B. (2012). The flow-performance relationship around the world. *Journal of Banking & Finance, 36*(6), 1759-1780.

Ferson, W. E., & Kim, M. S. (2012). The factor structure of mutual fund flows. *International Journal of Portfolio Analysis and Management, 1*(2), 112-143.

Ferson, W. E., & Schadt, R. W. (1996). Measuring fund strategy and performance in changing economic conditions. *The Journal of Finance, 51*(2), 425-461.

Fisher, I. (1965). The theory of interest. Retrieved from http://www.unc.edu/~salemi/Econ006/Irving_Fisher_Chaper_1.pdf

Fortune, P. (1998). Mutual funds, part ii: Fund flows and security returns. *New England Economic Review*, 3-22.

Franklin Fant, L. (1999). Investment behavior of mutual fund shareholders: The evidence from aggregate fund flows. *Journal of Financial Markets, 2*(4), 391-402.

French, K. R., Schwert, G. W., & Stambaugh, R. F. (1987). Expected stock returns and volatility. *Journal of Financial Economics, 19*(1), 3-29.

Friedman, M. (1953). The case for flexible exchange rates. Retrieved from http://0055d26.netsolhost.com/friedman/pdfs/other_academia/MP.09.09.1982.pdf

Gabaix, X., Gopikrishnan, P., Plerou, V., & Stanley, H. E. (2006). Institutional investors and stock market volatility. *The Quarterly Journal of Economics, 121(2)*, 461-504.

Gjerde, Ø., & Saettem, F. (1999). Causal relations among stock returns and macroeconomic variables in a small, open economy. *Journal of International Financial Markets, Institutions and Money, 9*(1), 61-74.

Goetzmann, W. N., & Massa, M. (1999). *Index funds and stock market growth*. Retrieved from http://www.nber.org/papers/w7033

Goetzmann, W. N., Massa, M., & Rouwenhorst, K. G. (2000). *Behavioral factors in mutual fund flows*: INSEAD.

Gökçen, U., & Yalçın, A. (2015). The case against active pension funds: Evidence from the turkish private pension system. *Emerging Markets Review, 23*, 46-67.

Gompers, P. A., & Metrick, A. (2001). Institutional investors and equity prices. *The Quarterly Journal of Economics, 116(1)*, 229-259.

Grier, P. C., & Albin, P. S. (1973). Nonrandom price changes in association with trading in large blocks. *Journal of Business*, 425-433.

Gruber, M. J. (1996). Another puzzle: The growth in actively managed mutual funds. *The Journal of Finance, 51*(3), 783-810.

Harris, L., & Gurel, E. (1986). Price and volume effects associated with changes in the s&p 500 list: New evidence for the existence of price pressures. *The Journal of Finance, 41*(4), 815-829.

Hassan, M. K., Khan, A. N. F., & Ngow, T. (2010). Is faith-based investing rewarding? The case for malaysian islamic unit trust funds. *Journal of Islamic Accounting and Business Research, 1*(2), 148-171.

Hendricks, D., Patel, J., & Zeckhauser, R. (1993). Hot hands in mutual funds: Short-run persistence of relative performance, 1974–1988. *The Journal of Finance, 48*(1), 93-130.

Huhmann, B. A., & Bhattacharyya, N. (2005). Does mutual fund advertising provide necessary investment information? *International Journal of Bank Marketing, 23*(4), 296-316.

Indro, D. C. (2004). Does mutual fund flow reflect investor sentiment? *The Journal of Behavioral Finance, 5*(2), 105-115.

Jain, P. C., & Wu, J. S. (2000). Truth in mutual fund advertising: Evidence on future performance and fund flows. *The Journal of Finance, 55*(2), 937-958.

Jamaludin, N., Smith, M., & Gerrans, P. (2012). Mutual fund selection criteria: Evidence from malaysia. *Asian Review of Accounting, 20*(2), 140-151.

Jank, S. (2012). Mutual fund flows, expected returns, and the real economy. *Journal of Banking & Finance, 36*(11), 3060-3070.

Jensen, M. C. (1968). The performance of mutual funds in the period 1945–1964. *The Journal of Finance, 23*(2), 389-416.

Kacperczyk, M., Van Nieuwerburgh, S., & Veldkamp, L. (2013). Time-varying fund manager skill. *The Journal of Finance, 69(4)*, 1455-1484.

Kaniel, R., Saar, G., & Titman, S. (2008). Individual investor trading and stock returns. *The Journal of Finance, 63*(1), 273-310.

Karolyi, G. A. (2002). Did the asian financial crisis scare foreign investors out of japan? *Pacific-Basin Finance Journal, 10*(4), 411-442.

Kaul, A., & Phillips, B. (2008). *Economic conditions, flight to quality and mutual fund flows*. Unpublished Manuscript, University of Alberta. Retrieved from https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=1258122

Khalid, S., Abbas, M., & Shah, D. (2010). Performance evaluation of close-ended mutual funds by investment objectives in pakistan's economy. *Iinterdisciplinary J. Contemp. Res. Bus*, 193-213.

Khorana, A., Servaes, H., & Tufano, P. (2005). Explaining the size of the mutual fund industry around the world. *Journal of Financial Economics, 78*(1), 145-185.

Klemkosky, R. C. (1977). The impact and efficiency of institutional net trading imbalances. *The Journal of Finance, 32*(1), 79-86.

Kopsch, F., Song, H.-S., Wilhelmsson, M., & Johnson, D. (2015). Determinants of mutual fund flows. *Managerial Finance, 41*(1).

Koulakiotis, A., Babalos, V., & Papasyriopoulos, N. (2015). Financial crisis, liquidity and dynamic linkages between large and small stocks: Evidence from the athens stock exchange. *Journal of International Financial Markets, Institutions and Money*.

Lee, C., Shleifer, A., & Thaler, R. H. (1991). Investor sentiment and the closed-end fund puzzle. *The Journal of Finance, 46*(1), 75-109.

Li, W., & Wang, S. S. (2010). Daily institutional trades and stock price volatility in a retail investor dominated emerging market. *Journal of Financial Markets, 13*(4), 448-474.

Lintner, J. (1965). The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *The review of economics and statistics*, 13-37.

Lukashin, Y., & Lukashin, I. (2009). The development of mutual fund market in russia. *Management Research News, 32*(2), 132-144.

Lynch, A. W., & Musto, D. K. (2003). How investors interpret past fund returns. *The Journal of Finance, 58*(5), 2033-2058.

Mamaysky, H., & Spiegel, M. (2002). *A theory of mutual funds: Optimal fund objectives and industry organization*. Yale School of Management working paper.

Mansor, F., Bhatti, M., & Ariff, M. (2015). New evidence on the impact of fees on mutual fund performance of two types of funds. *Journal of International Financial Markets, Institutions and Money, 35*, 102-115.

Markowitz, H. (1952). Portfolio selection. *The Journal of Finance, 7*(1), 77-91.

Mehru, K. (2004). Problems of mutual funds in india. *Finance India, 18*, 220-224.

Merton, R. C. (1973). An intertemporal capital asset pricing model. *Econometrica: Journal of the Econometric Society*, 867-887.

Morri, G., & Lee, S. L. (2009). The performance of italian real estate mutual funds. *Journal of European Real Estate Research, 2*(2), 170-185.

Mosebach, M., & Najand, M. (1999). Are the structural changes in mutual funds investing driving the us stock market to its current levels? *Journal of Financial Research, 22*(3), 317-329.

Nazir, M. S., & Nawaz, M. M. (2010). The determinants of mutual fund growth in pakistan. *International Research Journal of Finance and Economics, 54*(2010), 75-84.

Nofsinger, J. R., & Sias, R. W. (1999). Herding and feedback trading by institutional and individual investors. *The Journal of Finance, 54*(6), 2263-2295.

Oh, N. Y., & Parwada, J. T. (2007). Relations between mutual fund flows and stock market returns in korea. *Journal of International Financial Markets, Institutions and Money, 17*(2), 140-151.

Papadamou, S., & Siriopoulos, C. (2002). The determinants of the flow of mutual funds of managed portfolios: The case of greece. *Working paper, University of Macedonia.*

Park, H. (2015). Emerging market hedge funds in the united states. *Emerging Markets Review, 22*, 25-42.

Patro, D. K. (2006). International mutual fund flows. *Rutgers University working paper.* Retrieved from https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=936410

Poon, S.-H., & Taylor, S. J. (1992). Stock returns and volatility: An empirical study of the uk stock market. *Journal of Banking & Finance, 16*(1), 37-59.

Potter, M. (1996). The dynamic relationship between security returns and mutual fund flows. *University of Massachusetts-Amherst Ph. D. Dissertation chapter, mimeo, October.*

Potter, M., & Schneeweis, T. (1998). *The relationship between aggregate mutual fund flows and security returns.* working paper. Babson College, Wellesley, Massachusetts.

Rakowski, D., & Wang, X. (2009). The dynamics of short-term mutual fund flows and returns: A time-series and cross-sectional investigation. *Journal of Banking & Finance, 33*(11), 2102-2109.

Reilly, F., & Brown, K. (2011). *Investment analysis and portfolio management*: Cengage Learning.

Reilly, F. K. (1977). Institutions on trial: Not guilty! *The Journal of Portfolio Management, 3*(2), 5-10.

Reilly, F. K., & Wachowicz Jr, J. M. (1979). How institutional trading reduces market volatility. *The Journal of Portfolio Management, 5*(2), 11-17.

Remolona, E. M., Kleiman, P., & Gruenstein Bocain, D. (1997). Market returns and mutual fund flows. *Economic Policy Review, 3*(2).

Rodríguez, J. (2010). The performance of socially responsible mutual funds: A volatility-match approach. *Review of Accounting and Finance, 9*(2), 180-188.

Ross, S. A. (1978). Mutual fund separation in financial theory—the separating distributions. *Journal of Economic Theory, 17*(2), 254-286.

Rubin, A., & Smith, D. R. (2009). Institutional ownership, volatility and dividends. *Journal of Banking & Finance, 33*(4), 627-639.

Sencicek, M. (2005). *Evaluating performance of institutional mutual funds using kernel density estimation.* The City University of New York.

Shah, S. A., Hijazi, S. T., & Hamdani, N. H. (2005). Performance evaluation of mutual funds in pakistan. *The Pakistan Development Review*, 863-876.

Shahzad, H., Duong, H. N., Kalev, P. S., & Singh, H. (2014). Trading volume, realized volatility and jumps in the australian stock market. *Journal of International Financial Markets, Institutions and Money, 31*, 414-430.

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance, 19*(3), 425-442.

Sharpe, W. F. (1966). Mutual fund performance. *The Journal of business, 39*(1), 119-138.

Sias, R. W. (1996). Volatility and the institutional investor. *Financial Analysts Journal, 52*(2), 13-20.

Sias, R. W. (2004). Institutional herding. *Review of Financial Studies, 17*(1), 165-206.

Sirri, E. R., & Tufano, P. (1998). Costly search and mutual fund flows. *The Journal of Finance, 53*(5), 1589-1622.

Swinkels, L., & Rzezniczak, P. (2009). Performance evaluation of polish mutual fund managers. *International Journal of Emerging Markets, 4*(1), 26-42.

Thomas, A., Spataro, L., & Mathew, N. (2014). Pension funds and stock market volatility: An empirical analysis of oecd countries. *Journal of Financial Stability, 11*, 92-103.

Tobin, J. (1958). Liquidity preference as behavior towards risk. *The review of economic studies*, 65-86.

Trainor, W. J. (2010). Performance measurement of high yield bond mutual funds. *Management Research Review, 33*(6), 609-616.

Warther, V. A. (1995). Aggregate mutual fund flows and security returns. *Journal of Financial Economics, 39*(2), 209-235.

Watson, J., & Wickramanayake, J. (2012). The relationship between aggregate managed fund flows and share market returns in australia. *Journal of International Financial Markets, Institutions and Money, 22*(3), 451-472.

Wermers, R. (1999). Mutual fund herding and the impact on stock prices. *The Journal of Finance, 54*(2), 581-622.

Zheng, L. (1999). Is money smart? A study of mutual fund investors' fund selection ability. *The Journal of Finance, 54*(3), 901-933.

Zhou, X.-l., & Peng, D. (2007). The empirical evidences for institutional investors' influence on the return variability of china's stock markets [j]. *Systems Engineering, 12*, 012.