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Investor Confidence and Mutual Fund Performance in Emerging Markets: insights from India and Pakistan

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Investor Confidence and Mutual Fund Performance in Emerging Markets: insights from India and Pakistan

Abstract

Purpose: This paper investigates the impact of investor confidence on mutual fund performance in two relatively vulnerable but leading emerging markets, India and Pakistan.

Design/methodology/approach: A pooled OLS model is used to look at two alternative measures of investor confidence and test for the relationship between investor confidence and mutual fund returns. To check the robustness of the findings, the authors also implement Two Stage Least Squares and Generalized Method of Moments techniques to control for unobserved heterogeneity, simultaneity, and dynamic endogeneity problems in the regressors.

Findings: The paper finds that the returns of mutual funds are positively associated with investor confidence and an interaction effect exists between investor confidence and persistence in performance. The paper also confirms that returns from mutual funds are associated with different fund characteristics such as fund size, turnover, expense, liquidity, performance persistence and the fund's age. These findings remain robust to alternative model specifications and measures of investor confidence.

Originality/value While the previous literature mainly focuses on mutual fund characteristics and the macroeconomic determinants of mutual fund returns, this paper demonstrates that investor confidence plays an important role in determining mutual fund performance. The authors attribute this finding to two relatively unique features of the emerging markets in our study. A lack of awareness of mutual funds as being a low-cost investment vehicle and the interplay of cultural and behavioural changes have prevented investor's savings from being channelled into investment products, away from gold or property.

Key words: Mutual fund performance, Investor confidence, India and Pakistan.

JEL classification: G110, G150, G230

1. Introduction

Mutual funds are investment vehicles that are funded by shareholders, trade in diversified holdings, and are professionally managed by asset management companies. The growth in mutual funds as important savings instruments has been robust, due to their various benefits: first, mutual funds condense the investment risk because of diversification; second, they are professionally managed by asset management companies and investors can diversify their portfolios by pooling from the investment funds. Mutual funds benefit the majority of small potential investors who may be unable to invest directly in the financial markets due to their lack of financial knowledge and investment management skill.

In developed capital markets the determinants of mutual fund performance have drawn the attention of numerous researchers in recent decades. In earlier studies, researchers repeatedly evaluated the effectiveness of mutual funds (Jensen, 1968; Bogle, 1991; Golec and Starks, 2004). In subsequent studies, the effectiveness of management was examined through the association of mutual fund returns with characteristic attributes such as fund size, fund expenses and turnover ratio (Gallagher, 2003; Hoepner, Rammal, Rezac, 2011; Ferreira, Keswani, Ramos, and Miguel, 2013; Mansor, Bhatti, and Ariff, 2015). In a range of studies where the performance of mutual funds has been evaluated, from different perspectives, mixed results have been found on the factors that determine fund performance across different financial markets (Ramasamy and Yeung, 2003; Korkeamaki and Smythe, 2004; Jank, 2012; Kopsch, Song, and Wilhelmsson 2015).

Although there is a broadly-based literature on the determinants of mutual fund performance, only a limited number of studies have been conducted to evaluate the performance determinants of mutual funds in emerging economies. Additionally, in these economies the mutual fund sector is growing rapidly, constituting a trust sector for investment and attracting growing research attention. In Malaysian markets, two papers confirm that consistent past

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2 performance, the size of funds and transaction costs are all important factors that dominate the
3
4 choice of mutual funds (Ramasamy and Yeung, 2003 and Mansor et al., 2015). In Pakistan and
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6 India, two leading emerging markets, mutual funds have recently become a popular form of
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8 investment. Studies reconfirm that previously hypothesized attributes play a role in determining
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10 fund performance (Sapar and Madava, 2003 for India; and Afza and Rauf, 2009; and Sipra,
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12 2006 for Pakistan). As of yet, however, no studies appear to have focused on the investor
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14 confidence effect, one of the factors that captures investors' prevailing attitudes towards
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16 anticipated market price development. Investor confidence arises from the accumulation of a
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18 variety of fundamental and technical factors, such as historical price, annual reports, and market
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20 condition uncertainty that includes seasonal factors and domestic and international news.
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24 **2. Market Overview and Motivation**

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27 The main focus of this paper is to examine the relationship between the performance of mutual
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29 funds and investor confidence through management effectiveness in Pakistan and India, with the
30
31 aim of enhancing our knowledge of the role played by investors and fund managers. Due to the
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33 previous mixed results on the determinants of fund performance, there are further reasons to
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35 ascertain whether the effectiveness of mutual funds are different as a result of size effect,
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37 expense, turnover, patterns of fund flows, and fund maturity. The effectiveness of management
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39 will be assessed through an examination of the association of mutual funds' returns with
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41 turnover, fund size, fund age, net cash flow and operational expenses.
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45 In India the first open-ended mutual funds were introduced under the Unit Trust of India
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47 (UTI) Act of 1964. The UTI is a public sector enterprise that works as a financial intermediary
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49 with the objective of mobilizing savings primarily through UTI funds. It is the only organization
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51 that has diversified opened-ended and closed-ended schemes under its management compared to
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53 other public investment companies in India. The growth of the industry has been relatively slow
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55 over the last few years (approximately 3.2% annually). The penetration of India's UTI is
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2 approximately 5.6% of GDP compared to other markets: approximately 77% for the USA, 40%
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4 for Brazil and 31% in South Africa.
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7 Although the penetration of mutual funds is still low in India, the market is nevertheless
8
9 highly concentrated, with 44 asset management companies (AMCs) operating in the sector
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11 (approximately 80%) and 8 of the leading players in the market (Chakrabarti., Malik, Khairnar,
12
13 and Verma 2014). In addition, certain Indian mutual fund investments are tax efficient. The
14
15 greatest advantage of the domestic equity mutual fund is that investors can enjoy a capital gains
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17 tax exemption if they remain invested for more than a year. As such, there is a large scope for
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19 the Indian market to develop in the future.
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23 Though India's savings rate has been between 30% and 35% in the last few years,
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25 investment in mutual funds has been minimal (as discussed above) compared to other channels.
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27 Given the current scenario of market volatility and uncertainty, there are challenges for the
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29 Indian mutual fund industry, where the investor perceives investments in the capital market as
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31 risky and thus hesitate to channel their savings into mutual fund products. Despite efforts from
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33 the government to improve market conditions, the mutual fund remains a 'push' rather than a
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35 'pull' product. Even if the ability to invest exists, these savings are prevented from being
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37 directed into mutual fund products because of slow capital market growth and the lack of
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39 awareness of mutual funds being a low-cost/low-risk investment vehicle, and the superior
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41 returns they can generate. In addition, an interplay of culture and behavioural changes affect the
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43 situation, which prevents savings from being streamlined into investment products or diverted
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45 from gold or property. Most Indians feel that gold and property are less risky alternatives
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47 compared to other investments in the capital markets (PricewaterhouseCoopers, 2013). This
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49 raises the question as to whether investor confidence plays any role in determining mutual fund
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51 performance in this economy.
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3 In Pakistan, mutual fund was introduced in 1962 through a public offering of the
4 National Investment Trust. This is the only open-ended mutual fund of public sector operating
5 in Pakistan until now. However, with the formation of the Investment Corporation of Pakistan
6 in 1966, a series of close-ended mutual funds were launched.
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11 Initially mutual fund sector activities were managed through the National Investment
12 Trust and the National Investment Corporation of Pakistan. However, given the nature and
13 complexity of bureaucracy in governmental organizations, the sector did not perform according
14 to expectations. Subsequently, the Government decides to wind up the Investment Corporation
15 of Pakistan and starts the privatisation of the company. The sector became attractive to investors,
16 began to grow and experienced incredible growth during the period 2001- 2014. The net value
17 of these assets rose from Rs16.89 billion to Rs 380.08 billion by June 30, 2014. By January
18 2015, there were 156 mutual funds listed on the stock exchange of Pakistan, and the majority of
19 them have been growing continuously (MUFAP, 2015).
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31 However the size of the Pakistani mutual fund industry, compared to its international
32 counterparts, is very small. Pakistan holds only \$3,159 million in mutual fund assets, while
33 India in contrast holds \$114,489 million, while the global figure was \$26,837.407 billion in
34 December 2013 (The Investment Company Institute (ICI) Factbook, 2014). These facts suggest
35 that the mutual fund industry in Pakistan has significant opportunity for growth, which adds
36 salience to a study of the determinants of fund performance.
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45 In both the Indian and Pakistan markets investors usually lack knowledge of the degree
46 of information sensitivity for factors that investors require to make the best investment
47 decisions (Kaminsky, Lyons, and Schmukler, 2004, Ramasamy and Yeung, 2003). Furthermore,
48 these studies have rarely examined whether financial advisors have a sufficiently good
49 understanding around the performance of mutual funds. The influences of emotional appeal and
50 subjectivity on risk-return estimates of mutual funds are still debatable.
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These trends provide a set of key motivations for this paper, which seeks to examine how investor behaviour affects the flow of mutual funds and their returns in both these emerging markets. We aim to contribute to the literature in several ways. It is the first study on the impact of investor confidence on the performance of mutual funds in two leading but vulnerable emerging markets, India and Pakistan. Moreover, this study is especially important for economies in which there is a lack of awareness of mutual funds (being a low-cost investment vehicle) and where the interplay of cultural and behavioural changes have prevented investor savings from being channelled into investment products from gold or property. The results should help to provide in-depth academic knowledge as well as practical guidelines for practitioners and economic planners, and finally assistance to investors by identifying the significant variables that influence fund performance so that they can make their decisions effectively.

The rest of the paper is organized as follows. Section 3 reviews the empirical literature and highlights some of its key findings. Section 4 discusses the research design and data used in the empirical analysis. The results of this study are discussed in section 5. Section 6 concludes the paper with some summarising remarks.

3. Literature Review

In the 1900s research related to mutual funds first began in the US when the influence of capital markets was realized. The existing data of mutual funds were employed to study the influence of the capital markets. Consequently, the renowned Capital Asset Pricing Model (CAPM) was formulated, followed by other portfolio-related theories such as the Security Market Line and Arbitrage Pricing Theory, Fama-French three-factor model, Carhart model, etc.

Jensen (1968) examined the ability of security price returns, finding that the estimated returns is higher than the expected returns of investors at a similar level of risk. He introduces the notion of Jensen alpha (α) and further examines the evolving Efficient Market Hypothesis

1
2 (EMH). Moreover he sought to observe the ability of the fund manager to manage the historical
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4 return performance of mutual fund market overall. In his analysis, Jensen compares the annual
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6 returns of mutual funds with the returns of the market portfolio; however, this analysis does not
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8 consider risk factors.
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11 In 1964 Sharpe introduced the Capital Asset Pricing Model (CAPM), which shows that
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13 the expected return of a portfolio will also increase when systematic returns (beta) increase in
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15 the market. Thus Jensen's (1968) results suggested that the buy-and-hold strategy of mutual
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17 funds would not be able to predict security prices. The measure performance in a linear
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19 regression model is positive when extra returns are earned and vice-versa (Jensen, 1968).
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23 The literature consistently reports that the historical performance of a mutual fund can
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25 be a significant method of discovering its future returns. In addition the literature also reports
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27 that the returns of mutual funds are associated with management effectiveness through different
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29 funds' characteristic attributes, such as fund size, expense, turnover ratio, net cash flow, funds'
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31 age, market liquidity and other economic conditions — for example, inflation, interest rate, and
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33 GDP. In the following part we discuss the most common variables of mutual fund performance
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35 in the literature.
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37 38 *Historical performance* 39

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41 It is assumed that investors can find information related to mutual funds at zero cost.
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43 Theoretically, if investors were prescient, they would select funds that subsequently generate
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45 the highest risk-adjusted returns on the basis of historical information about net performance
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47 that is reflected by the returns, risk, and fees cost. However existing studies often employ
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49 historical information to forecast future returns, which result in contradictory conclusions (for
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51 example, Brown and Goetzmann, 1995; Carhart, 1997; Sirri and Tufano, 1998; and more
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53 recently, Elton, Gruber, and Blake, 2012, Kacperczyk, Sialm, and Zheng, 2008). There is little
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55 evidence that investors purchase mutual funds based on historical performance information, but
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2 they invest disproportionately more in funds that performed well in the prior periods. This topic
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4 is still very controversial, and the existing literature states the following: (1) the historical fund
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6 return determination is noticeable in the low performing funds, i.e., regularly poor performers
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8 have a significant influence on fund returns (Khorana and Servaes, 2012; Khorana, Servaes, and
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10 Tufano, 2009; and Carhart, 1997). (2) there is mixed support for persistence among high
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12 performers, although these results are attributed to survivorship biases. Brown and Goetzmann
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14 (1995), Kahn and Rudd (1995) and Grinblatt and Titman (1992), Ibbotson and Goetzmann
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16 (1994) find evidence of repeated winners and positive performance persistence. In contrast,
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18 Bollen and Busse (2005) as with Carhart (1997), demonstrate that the positive performance
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20 persistence disappears for longer investment horizons.
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24 *Fund size*

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27 The literature reports an ambiguous relationship between mutual fund performance and
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29 fund size. Some argue that a large asset base might erode fund performance because of liquidity.
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31 Chen, Hong, Huang, and Kubik (2004) and Becker and Vaughan (2001) indicate that US mutual
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33 funds quickly exhaust the economies of scale and consequently lead to a returns decrease.
34
35 Related to these studies, Dahlquist, M., Engstrom, S., and Soderlind, P. (2000) estimate the
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37 relationship between Swedish mutual fund performance and size, finding that smaller equity
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39 funds performed better compared to those larger in size. Other studies that document a negative
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41 relationship between fund size and fund performance include Kleiman and Sahu (1988),
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43 Gorman (1991), Yan (2008), Berk and Green (2002). Kleiman and Sahu, (1988) determines that
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45 funds with the smallest quartile (size) achieved a superior performance compared to other
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47 quartiles (sizes). His study concludes that those in the smallest quartile (size) have significant,
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49 positive risk-adjusted returns, as measured by the Jensen Abnormal Performance Index with a 5%
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51 level of significance. Gorman (1991) also concludes that smaller funds had performed
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2 somewhat better than larger mutual funds. In the same vein, Yan (2008), Berk and Green (2002),
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4 Chen et al. (2004), find a significant inverse relation between fund size and fund performance.
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7 On the contrary, some contend that growth in fund size provides cost advantages
8 because brokerage commissions and research costs, as well as administrative and overhead
9 expenses, do not increase in direct proportion to fund size. Elton et al., (2012), McLeod and
10 Malhotra, (1994), and Tufano and Sevick (1997) believe that the fund size positively affects the
11 performance of the mutual fund. They argue that an increase in fund size provides cost
12 advantages (for example, brokerage commission, overhead cost, research cost and
13 administration that is not added to additional cost).
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22 *Turnover*

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25 The turnover ratio is often used in the literature as an independent variable that can
26 explain fund performance (Chen et al. 2004, Gallagher, 2003; Carhart 1997, Dahlquist et al,
27 2000, Wermers, 2000 among others). The level of turnover of mutual funds may signify an
28 energetic (reflexive) strategy of management adopted by the fund managers. According to their
29 goals, a higher turnover level may redirect an active management strategy and vice versa. The
30 above mentioned authors find diverse pieces of evidence regarding the turnover influence. Chen
31 et al. (2004), Gallagher (2003), Carhart (1997) find that the association between fund turnover
32 levels and returns is statistically negative. In contrast, Dahlquist et al. (2000) and Wermers
33 (2000) find that the relationship between fund turnover level and returns is, in fact, significantly
34 positive.
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47 *Expense*

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50 In theory mutual fund expense ratios are expected to affect mutual fund returns at a great
51 deal. The more money that is charged in fees means that less ends up in the investors' pocket.
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53 The fact that literature documents an inverse relationship between mutual fund returns and
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2 expenses is the most robust finding across mutual fund studies for example Jensen (1968),
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4 Elton, Gruber, Das, and Hlavka (1993), Carhart (1997), Livingston and O'Neal (1998), Gaspar,
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6 Massa and Matos, (2006), and Gil-Bazo and Ruiz-Verdú, (2009). Those studies confirm that
7
8 the performance of an equity fund is negatively associated with the value of expense ratios.
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10 Their findings indicate that higher-fee funds do not perform as well as lower fee funds and
11
12 investors were not rewarded for paying higher expenses with higher risk-adjusted returns.
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14 However not all conclusions confirm that expense ratios are negatively related to fund
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16 performance, for example Droms and Walker (1995) document that better performing funds
17
18 tend to have higher expense ratios.
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21 22 *Liquidity*

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24 The literature on the relationship between mutual fund performance and the fund's
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26 liquidity is ambiguous. Some suggest that mutual fund liquidity should have a positive
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28 correlation with future returns because investors can detect skilled mutual fund managers and
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30 direct their savings to them, for example, Gruber (1996) and Zheng, (1999). Both of these
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32 papers find evidence that funds that have experienced net inflows perform better than funds that
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34 have experienced outflows in the last three months. In the same vein, Ippolito (1992), Chevalier
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36 and Ellison (1997), and Sirri and Tufano (1998) suggest the presence of an asymmetric flow-
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38 performance relationship. They find that superior performance in a given time period is
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40 followed by significantly higher asset inflows in the subsequent period, while inferior
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42 performance is not followed by asset outflows. However, Dichev (2007) and Glenn and Patrick
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44 (2004) document that mutual funds with a low cash holding level can survive better and Ferreira
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46 et al. (2013) find no evidence for this relationship.
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50 51 *Age*

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53 In a variety of studies the age of the fund has been employed as a determinant to
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55 evaluate different elements of mutual funds; for example, fund returns, expenses of a mutual
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2 fund, fund flows and the size of a mutual fund (Rao, 1996; Sawicki and Finn, 2002 among
3 others). With regard to age Rao (1996) examines the relationship between the age of a fund and
4 fund expenses; he confirms that age is insignificantly associated with mutual fund expenses in
5 the US market. In a further study in the Australian market, Sawicki and Finn, (2002) confirm
6 that the age of a fund has a significant impact on the performance via the fund flows. Generally,
7 the literature suggests that a fund's age is related to the fund's performance via effects on fund
8 management effectiveness, however, the conclusion is far from unanimous. On the one hand,
9 younger mutual funds can be more alert but, on the other hand, they usually face higher costs
10 and lack experience during the start up period. Bauer, Koedijk, and Otten (2005) find that the
11 mutual fund underperformance is explained by the exposure of younger funds to higher market
12 risk while they invest in fewer securities. Ferreira et al. (2013) report a strongly positive
13 association between mutual fund performance and fund's age. Afza and Rauf (2009) report a
14 positive relationship between fund's age and fund performance in Pakistan. In contrast, Otten
15 and Bams (2002) find younger funds outperform the older funds. Peterson, Pietranico, Riepe,
16 and Xu (2001) find no association between fund's age and fund's performance.

17 *Other market conditions*

18
19 The literature suggests that mutual fund industry growth may be characterised by macro-
20 economic drivers such as GDP growth, inflation and interest rates, etc. Jank (2012) and Kopsch
21 et al. (2015) investigate the relationship between mutual fund flows and the real economy, and
22 they find that stock market returns and flows of mutual fund investors commonly react to
23 macroeconomic information. New variables are added and found to be significantly related to
24 fund flows such as the dividend-price ratio, default spread, relative T-Bill rate and consumption-
25 wealth ratio. In the same vein, Ferreira et al. (2013) report that the level of economic
26 development is of particular importance for domestic funds.

27 *Empirical studies of mutual funds in emerging markets*

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3 While a large number of studies have been conducted in developed markets, frontier and
4 emerging markets have attracted only a few scholars. One notable study by Ramasamy and
5 Yeung (2003) examines the comparative importance of the determinants that are considered by
6 financial advisors in the selection of mutual funds in Malaysia. They confirm that there are three
7 important factors — fund size, transaction cost and historical performance — that influence a
8 mutual fund's performance.
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16 Despite the increasing international interest by academics and researchers, the mutual
17 fund market in India and Pakistan has not attracted attention from academics and researchers;
18 consequently, there are very few studies in these emerging and rapidly growing markets. In the
19 last decade, the Indian mutual funds market has undergone rapid growth; however, to the best of
20 our knowledge, there are only a few studies of these markets (Afza and Rauf, 2009, Sapar and
21 Madava, 2003; Sipra, 2006).
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29 Sapar and Madava (2003) examine the overall performance of funds in India during the
30 period 1998-2002. They confirm that investors of mutual funds were satisfied as far as their
31 expectations are concerned as they received excess returns as a premium based on both
32 systematic risk and total risk return. In an unpublished study, Cheema and Shah (2006) evaluate
33 the performance of mutual funds in the Pakistan market by employing annual data. They
34 confirm that, in general, institutional investors need sufficient protection and that mutual funds
35 in particular play a significant role. Another similar investigation was undertaken by Sipra
36 (2006) to examine the performance of mutual funds in Pakistan. Using Jensen (1968) and
37 Treynor's (1965) measures, he finds that nearly half of the funds outperform the market
38 portfolio over the previous five years. However, in the case of the risk-adjusted measure by
39 Fama, only one mutual fund outperforms the market. As such, none of these studies have
40 focused on the investor confidence effects.
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Most of the studies related to the performance of mutual fund returns in Pakistan and India have concluded that effectively managed funds are able to boost returns. Hence, one of the most persistent findings from previous studies is that smaller-sized funds perform better and that the relationship between fund returns and fund expenses is negative. None of the studies focus on investors' prevailing attitudes, which may affect mutual fund performance due to their risk appetite, as that can significantly impact their actual buying and selling patterns.

Unlike investors in mature and developed markets, investors in developing markets usually do not have much information about the degree of information sensitivity of the factors that investors require to make the best investment decisions. Existing studies rarely examine whether financial advisors are considered to have deep knowledge about the performance of mutual funds (Ramasamy and Yeung, 2003). The influence of investors' emotional appeals on the risk-return estimates of a mutual fund is still debatable.

4. Data Description and Empirical Strategy

In relation to the above discussion, in this section, we here present our data source and sample description, research design, estimation method and our testable hypotheses.

We collected data for 878 open-ended mutual funds listed on Indian and Pakistan stockexchanges during the period between 2006 and 2017 (752 for India and 126 for Pakistan). We exclude closed end funds because they have low trading volume and, hence, low liquidity. Data were collected from the MUFAP, Bloomberg and DataStream database, the annual reports of mutual funds, and the KSE (Pakistan) and BSE (India) websites. The dependent variable is the mutual fund returns. Our main focus is investor confidence. The following fund characteristics are also included, i.e., fund size, operational expenses, turnover, net cash flow (NCF), and fund age. We control for mutual fund performance persistence and other market conditions using market volatilities and two macroeconomic variables, namely, money supply

M2 and Economic Growth Rate of the economy. The definitions of the variables are presented in table 1.

[Insert table 1 here]

Dependent variable:

Return of Mutual Funds (RETURN_{it}) is used as the dependent variable to measure the overall performance of mutual funds in Pakistan. This measure is calculated using the Sharpe ratio of mutual funds.

$$Return_{it} = \frac{ER_p - R_f}{\sigma_p} \quad \#(1)$$

where ER_p is the expected portfolio returns,

R_f is the risk-free rate

and σ_p is the portfolio standard deviation.

Independent variables

Investor confidence

Investors confidence is important in the investment decisions whether investors are experienced or just starting out. More confident investors rely more on intuitive judgments when forming beliefs about expected returns. They change their beliefs more strongly, and thus have more reason to trade. Importantly, these higher changes in return expectations translate into economically significant effects on trading and performance (Hoffmann and Post, 2016; Greenwood and Shleifer, 2014; and Dominitz and Manski, 2011). Investor confidence can cause the mutual funds market to go up or down, which lead to fund prices to rise or fall. The fund itself moves in response to the investors' behavior. Ultimately, the investor confidence will be translated to the fund performance

Following Greene and Hodges (2002), and Beaumont, Van Daele, Frijns, Lehnert, and Muller (2008) we use the daily average flow of mutual funds to measure the investor confidence

in this study. The daily Net Asset Values (NAVs) and Total Net Assets (TNAs) of the sample funds were collected from different sources, such as the MUFAP database, Bloomberg, DataStream Advance, annual reports of mutual funds, and the KSE (Pakistan) and BSE (India) databases over the time periods. We calculate the daily net flows of mutual funds using the following formula:

$$F_{it} = TNA_{it} - \frac{TNA_{it-1}NAV_{it}}{NAV_{it-1}} \#(2)$$

Investor confidence are then computed by dividing F_{it} by the TNA as of the beginning of day t . The TNA at the start of day t is computed by discounting the end of day t TNA by the return on day t . Therefore, investor confidence is calculated as

$$SENTI_{it} = \frac{F_{it}}{\frac{TNA_{it}}{1+r_{it}}} \#(3)$$

In fact, this equals

$$SENTI_{it} = \frac{F_{it}}{TNA_{it-1}} \#(4)$$

If consumers can collect and process mutual fund information at zero cost, and if they act in accordance with the academic findings, we might expect to find: 1) A performance-sentiment relationship among the worst-performing funds, as consumers realize the likelihood that these funds may continue to perform poorly; 2) An observable but possibly weaker performance-sentiment relationship among the best-performing funds, as consumers may believe that excellent performance may repeat.

We test the following hypothesis:

H1.a Investor confidence is positively associated with mutual funds performance

H1b The interaction between investor confidence and performance persistence score is positively associated with mutual fund performance

For the robustness test of our finding we use an alternative measure of investor confidence namely Information Tracking Efficiency (IRS_{it}), which is measured as weight average score of information ratio (IR_t) over six months (50%), three years (30%), and five years periods (20%). Information Ratio (IR_t) for each period is calculated as follows:

Information ratio over time period t (IR_t):

$$(IR_t = \frac{ER_t}{STDV(ER_t)} \#(5)$$

where:

$$ER_t = (RP_t - RB_t) \#(6)$$

where RP_t is Return on the portfolio over time period t,

RB_t is Return on a benchmark (NIFTY50 for India and KSE100 for Pakistan) over time period t, and

$STDV(ER_t)$ is standard deviation of ER_t over the same time period t.

Size of Funds (FUNDSIZE) Following the previous literature, we measure fund size by the natural logarithm of total assets of mutual funds to control the effect of the total assets of the company through effective management. As discussed earlier, some previous studies suggest that a smaller fund (size) will have a higher operating efficiency, for example, Kleiman and Sahu (1988), Gorman (1991), Yan (2008), Berk and Green (2002), Chen et al. (2004), Becker and Vaughan (2001), Dahlquist et al. (2000). By contrast, other studies such as Tufano and Sevick (1997) McLeod and Malhotra, (1994) and Elton et al., (2012) find that larger funds achieve economies of scale, which are passed on to investors as lower expenses. As such, the relationship between fund size and the returns of mutual funds is still ambiguous. In this paper we test the following hypothesis:

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3 *H2. The returns of a mutual fund are positively/negatively associated with the size of the*
4 *fund.*

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6
7 *Turnover of the Fund (TURNOVER):* As discussed above, the turnover ratio is often
8
9 used in the literature as an independent variable that can explain fund performance (Chen et al.,
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11 2004, Gallagher, 2003; Carhart 1997, Dahlquist et al, 2000, Wermers, 2000 among others).
12
13 This ratio provides information about how funds are circulated, and it enables stakeholders to
14
15 understand trading activities. In general, the aggressive strategies of buy-and-hold managers
16
17 will generate a lower turnover rate than that of managers who trade based on short-term factors.
18
19 Chen et al. (2004), Gallagher (2003), Carhart (1997) find that the association between fund
20
21 turnover levels and returns is statistically negative. In contrast, Dahlquist et al. (2000) and
22
23 Wermers (2000) find that the relationship between fund turnover level and returns is
24
25 significantly positive. Consistent with the mainstream literature, we employ fund turnover as an
26
27 independent variable in this model and expect an ambiguous relationship between the turnover
28
29 ratio and the funds' returns. We test the following hypothesis:
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31

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33 *H3. The returns of a mutual fund is negatively/positively related to the turnover ratio.*

34
35 Our *Operational Expenses (EXPENSE)* is measured by the reimbursed cost of fund
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37 operators to provide administrative services to manage assets, and it signifies the ongoing "price"
38
39 for investors. Operational expenses are composed of the following services: accounting
40
41 processing; statements and regulatory filing, among others; and the fee for reward managers
42
43 who manage the funds and fund collection fees. As discussed, the literature documents that fund
44
45 expenses are negatively associated with fund returns (Jensen, 1968; Elton, et al, 1993;
46
47 Carhart,1997; Livingston and O'Neal, 1998; Korkeamaki and Smythe, 2004, among others).
48
49 Following the main stream literature, we hypothesize a negative relationship between
50
51 operational expense and fund performance. We test the following hypothesis:
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55 *H4. The mutual fund returns are negatively associated with operational expenses.*

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Liquidity: Liquidity refers to the ease of buying and selling of financial assets. In emerging markets, mutual funds are plagued with liquidity problems. In this case, if there is an increase in the size of the funds, then the net flows will be positive, which then boosts the capital markets and vice versa should the fund size decrease (negative net flows). We use net cash flow divided by fund size to proxy for liquidity in our model. Following existing literature, i.e. Gruber (1996), Zheng (1999), Ippolito (1992), Chevalier and Ellison (1997), Sirri and Tufano (1998) v.s. Dichev (2007), Glenn and Patrick (2004) and Ferreira et al. (2013), we expect an ambiguous relationship between net cash flows and fund performance. Our hypothesis is as follows:

H5. The mutual fund returns have a positive/negative relationship with the net cash flows.

Age (AGE) is measured as the natural logarithm of fund age in years. Consistent with the literature (Bauer et al, 2005; Ferreira et al.2013, and Afza and Rauf, 2009 v.s Otten and Bams, 2002 and Peterson et al 2001), we expect an ambiguous relationship between the fund age and fund performance. We test the following hypothesis:

H6. The mutual fund return has a positive/negative relationship with the fund age

Additionally, we include a performance persistence score of the fund in our model that may have direct impact on the fund performance and indirect impact on the fund performance via its interaction to investor confidence. We use performance persistence score which is weighted average score of 6 month, 1 year, 3 years and 5 years fund returns. Market volatilities and other market condition variables such as nominal grow rate of money supply (M2) and real growth rate of GDP are also included in our analysis. The volatilities of market indexes such as NIFTY50 and KSE100 control for the market risk. Money supply M2 growth rate reflects the increases the market liquidity, while the real GDP growth rate reflects the change in the level of economic activity, ultimately leading to increases in the prices of equity, and hence, they are expected to be positively related to fund performance.

1
2
3 Table 2 summarizes the hypothesis of the study and our predicted sign of the impact of
4 each hypothesized variable on the fund performance.
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6
7 [Insert table 2 here]
8

9 **Empirical strategy**

10
11 Our dependent variable is the funds' returns. Our main independent variable is investor
12 confidence, and the other hypothesized variables include the fund characteristics such as asset
13 value, expense ratio, turnover rate, cash flow ratio, the ages of the funds, and fund performance
14 persistence, while market condition variables include market volatilities, growth rate of money
15 supply (M2), and real Economic Growth Rate (GDP growth).
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18
19 We first start with a pooled OLS regression to examine the association between investor
20 confidence and other hypothesized variables and the performance of mutual funds in both
21 markets. However, because our analysis may suffer from bias due to unobserved cross-sectional
22 heterogeneity and the possible endogeneity of the regressors, we perform the Durbin-Wu
23 Hausman test for possible endogeneity problem of variables. Our test reject the null hypothesis
24 that variables are exogenous hence, indicates that our model most likely suffers from
25 endogeneity causing biased coefficient estimates. For this reason, in the second stage, we use
26 the two stage least squares (2SLS) regression and the Generalized Method of Movement (GMM)
27 analysis suggested by Arellano and Bond (1991) and Blundell and Bond (1998) to control for
28 the unobserved heterogeneity and the possible endogeneity of the regressors. 2SLS requires us
29 to identify and justify the use of strictly exogenous instrumental variables while GMM does not.
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31 In addition, GMM allows for heteroskedasticity and autocorrelation within the funds therefore
32 might be more efficient and consistent.
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50 To examine the impact of investor confidence on fund performance separately, we first
51 run the model in Equation (7) without investor confidence and then add the variable and its
52 interaction to performance persistence score in model in Equation (8). Our further analysis
53 include the alternative measure of investor confidence in all of our econometric model,
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including Pooled OLS, 2SLS, and GMM estimations. Our Instrumental Variables for the last two econometric models include one to two period lags of fundsize, investor confidence, and interaction between investor confidence and persistence score. As discussed above, our model in Equation (7) has the following characteristics:

$$\begin{aligned} RETURN_{it} = & \beta_0 + \beta_1 \ln FUNDSIZE_{it} + \beta_2 EXPENSE_{it} + \beta_3 TURNOVER_{it} + \beta_4 NCF_{it} + \\ & \beta_5 \ln AGE_{it} + \beta_6 PERSISTENCE_{it} + \beta_7 VOLATILITY_{it} + \beta_8 MSGrowth_t \\ & + \beta_9 GDPGrowth_t + \varepsilon_{it} \end{aligned} \quad (7)$$

where i and t represent the fund and the time period, respectively. $RETURN_{it}$ is the fund quarterly Sharpe ratio. Fund size ($FUNDSIZE$) is measured as the natural logarithm of total net assets. The turnover ratio ($TURNOVER$) reflects the total trading activity undertaken by the fund during the period and is measured as $NETSALE * 100 / FUNDSIZE$. Net cash flows (NCF) are calculated as the net cash flows of the individual mutual fund divided by fund size. Expense ratio ($EXPENSE$) is calculated by the total of the fund management fee, distribution fee and other expenses as a percentage of the fund average net assets. Age (AGE) is measured by the natural logarithm of the number of years that the fund has been operating. Performance persistence ($PERSISTENCE$) is weighted average score of 6 month, 1 year, 3 years and 5 years fund returns. Market volatility $VOLATILITY_{it}$ is the standard deviation of market returns. MS growth is the growth rate of money supply M2 and $GDPgrowth$ is the real growth rate of gross domestic product within the economy.

In our model in Equation (8), investor confidence (SENTI) and the interaction between performance persistence score and investor confidence are added as an independent variables in the system. Investor confidence is calculated as follows:

$$SENTI_{it} = \frac{F_{it}}{TNA_{it-1}} \quad (4)$$

where

$$F_{it} = TNA_{it} - \frac{TNA_{it-1} NAV_{it}}{NAV_{it-1}} \quad (2)$$

where NAVs and TNAs are the daily net asset value and total value of assets of the fund.

$$\begin{aligned}
 RETURN_{it} = & \beta_0 + \beta_1 SENTI_{it} + \beta_2 SENTI_{it} PERSISTENCE_{it} + \beta_3 \ln FUNDSIZE_{it} + \\
 & + \beta_4 EXPENSE_{it} + \beta_5 TURNOVER_{it} + \beta_6 NCF_{it} + \beta_7 \ln AGE_{it} + \beta_8 PERSISTENCE_{it} + \\
 & \beta_9 VOLATILITY_{it} + \beta_{10} MSGrowth_t + \beta_{11} GDPGrowth_t + \varepsilon_{it} \quad (8)
 \end{aligned}$$

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5. Empirical Results and Discussion

This section discusses the impact of investor confidence on the performance of mutual funds in India and Pakistan. Table 3 provides variable descriptive statistics. Panel A shows that Indian mutual fund returns on average are 6.31%, while the standard deviation means fluctuates less compared to Pakistan, which measures 0.47%. The net asset value of the mutual funds is Rs 13.47 billion and the median value of net assets is about Rs 8.75 billion, which indicates that there are extraordinarily large mutual funds. Moreover, the mean value of investor confidence is, not surprisingly, outsized, while expense ratios are lower compared to the size of funds that does not support the earning of larger returns.

Panel B reveals that the mutual funds' return mean is 4.05%, while their standard deviation is 1.56%. The net asset value of the mutual fund is Rs5.67 billion and the median value of the net assets is approximately 2.56 billion. This indicates that there are few extraordinarily large mutual funds as the NIT and upwards skewed. Moreover, the mean value of investor confidence is not surprisingly outsized; the expense ratios are lower as a compared to the size of funds that do not support the production of larger returns.

[Insert table 3 and table 4 here]

The correlation matrix of variables, presented in table 4, shows the correlation between the hypothesized variables. We do not consider these correlations high enough to cause concerns for issues related to multicollinearity. However, as a robustness test to control for potential bias, we perform the VIF test, the outcome of the tests are presented in table 5, which indicates that multicollinearity is not a problem in our data. In table 4, the results indicate that

1
2 the VIF value for the individual independent variable is less than 2.5 and differs from 1.44 to
3
4 2.40 for India, and differ from 1.14 to 2.10 for Pakistan .
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7 [Insert table 5 here]
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9 Tables 6 and 7 report the multivariate regressions of mutual fund performance on
10 alternative measures of investor confidence and the hypothesized independent variables for the
11 each country separately. Both tables presents the results of the OLS regression, which is our
12 baseline specification. The results show that *investor confidence* and *the interaction* between
13 *investor confidence* and *performance persistence* score are positively associated with fund
14 returns. The impacts of investor confidence and interaction term are highly significant in Indian
15 market with higher coefficients compare to Pakistan. The results also confirm that fund
16 characteristics such as *fund size*, *expense ratio*, *turnover ratio*, *fund age* and *performance*
17 *persistence score* are statistically significant with the mutual fund returns. Particularly, we
18 found that *fund size* and *turnover* are negatively associated to mutual fund return while *expense*
19 *ratio*, *net cash flow*, *fund age*, *performance persistence* score and *market volatility* are positively
20 associated to the mutual fund returns. Our results are consistent to both alternative measures of
21 investor confidence and in both markets. Market conditions such as *market volatilities*, *money*
22 *supply growth rate*, and *real GDP growth rate* have no impact to mutual fund performance in
23 Pakistan, while in India, *GDP real growth rate* has significant impact on mutual fund
24 performance.
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43 Part of our results support the theory of efficient markets (EMH) and are in line with our
44 prediction. First of all, our results support the hypothesis that a smaller *fund (size)* will have a
45 higher operating efficiency, which is consistent to numerous studies that document a negative
46 relationship between fund size and fund performance include Chen et al. (2004), Becker and
47 Vaughan (2001), Dahlquist et al. (2000), Yan (2008), Berk and Green (2002), Kleiman and
48 Sahu (1988), Gorman (1991). Secondly, the level of *turnover of mutual funds* were found
49 negatively related to mutual fund performance in both countries in our models. This may signify
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2 a reflexive and redirected strategy of management adopted by the fund managers. Our results is
3 consistent to noticeably studies by Carhart (1997), Chen et al. (2004), and Gallagher (2003),
4 who finds that the association between fund turnover levels and returns was statistically
5 negative, and not consistent to many studies in the literature such as Dahlquist et al. (2000) and
6 Wermers (2000), who find that the relationship between fund turnover level and returns is
7 significantly positive.
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16 Turning to other hypothesized variables, *the operational expense* coefficient is negative
17 according to agency theory predictions, however we found a positive relation between mutual
18 fund return and expense ratio, which is not consistent to the literature and existing empirical
19 evidence. It could be explained that where the fund performs better, the fund manage tends to
20 charge a higher expense ratio for their administration work. Our results are not consistent to
21 many of the existing literature including Livingston and O'Neal (1998), Elton et al (1993),
22 Korkeamaki and Smythe (2004), who confirm that the performance of an equity fund is
23 negatively associated with the value of expense ratios, and Smythe (2004) whoes findings
24 indicate that investors were not rewarded for paying higher expenses with higher risk-adjusted
25 returns. In contrast, our results support Droms and Walker 1995 findings, that better
26 performing funds tend to have higher expense ratios
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40 Additionally, *the net cash flow* prediction in our model are positive, which suggests that
41 higher net cash flow ratio motivates investors to invest and hold portfolios, i.e. mutual funds
42 with a high liquidity (net cash flow) level can survive better. This could be explained that
43 investors can detect skilled mutual fund managers and direct their savings to them. Our result is
44 consistent to many of existing literature such as Gruber (1996), Zheng (1999) , Ippolito (1992),
45 Chevalier and Ellison (1997), and Sirri and Tufano (1998). Our results, however, is not
46 consistent to Dichev (2007) and Glenn and Patrick (2004) who document that mutual funds with
47 a low cash holding level can survive better.
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The fund ages in both panels are positively associated with fund performance, which indicates that older funds perform better. The age of the fund has been suggested as a determinant of different characteristic attributes such as fund returns, expenses of a mutual fund, fund flows and the size of a mutual fund, hence it may affect the mutual fund management effectiveness, therefore have impacts on mutual fund performance. Our results are consistent to Bauer et al, (2005), Ferreira et al. (2013), and Afza and Rauf (2009) studies.

Finally, though there is ambiguous evidence in literature that investors purchase mutual funds based on historical performance information (as discussed in the literature discussion), we found a strong evidence that mutual fund performance are significantly associated to its *performance persistence score*. Our results is consistent to Brown and Goetzmann (1995), Kahn and Rudd (1995) and Grinblatt and Titman (1992) who find evidence of repeated winners, and Ibbotson and Goetzmann (1994) who find positive performance persistence.

[Insert table 6 and 7 here]

Since our above estimates may suffer from biases due to unobserved cross-sectional heterogeneity and possible endogeneity of the regressors. Thus, we also present the estimates obtained from the two stage least squares (2SLS) regression and the Generalized Method of Movement (GMM) estimator, suggested by Arellano and Bond (1991) and Blundell and Bond (1998), which appear to be more efficient in controlling both the unobserved heterogeneity and the possible endogeneity of the regressors. Additionally, GMM becomes more efficient if there is heteroskedasticity and serial correlation in the error terms. We adopt a one-period lag of the dependent variables among explanatory variables. We also use one- to two-period lags of the endogenous variables because in an imperfect market, an adjustment in explanatory variables may not lead to immediate changes in the fund performance. Our results for the 2SLS and GMM estimations are presented in table 8 and 9 for the two alternative measures of investor confidence in both markets.

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Table 8 presents the 2SLS regression outputs while Table 9 shows the results for the GMM estimation. We find that the coefficients for investor confidence and its interaction terms are positive and significant in both panels. In addition, the levels of significant of the fund performance toward the investor confidence and its interaction term are higher for Indian market. Similar as above our results suggest that the investors' confidence and the interaction term between investor confidence and mutual fund performance persistence score plays a significant role in the fund performance in both emerging market of India and Pakistan with level of sensitivity are more significant in Indian market than Pakistan. In the other words, though levels of significant are different in the two markets, there are consistent evidences of the relation between the performance of mutual funds and confidence among the investors through out all of our regression analyses.

Turning to the other mutual fund characteristic attributes, we also find that fund size, expense ratio, turnover ratio, net cash flows, and fund age are significantly associated with the returns of mutual funds in both models and both countries for alternative measures of investor confidence. First, the relationship between asset size and mutual fund returns is confirmed statistically negative significant; this confirms that shareholders can obtain more benefits via small mutual fund (smaller sizes). A large mutual fund (large size) certainly not benefits the investors because their management fees tends to increase following the increase in fund assets; this is again consistent with numerous studies that document a negative relationship between fund size and fund performance include Yan (2008), Berk and Green (2002), Kleiman and Sahu (1988), and Gorman (1991) among others. This result may support the agency theory in predicting that investors will pay higher costs when fund generate higher returns.

Secondly, we confirm a negative relation between mutual fund turnover ratio and fund performance. As discussed in the above part, our results is consistent to studies by Carhart (1997) Chen et al. (2004), and Gallagher (2003) but not consistent to other literature such as

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2 Dahlquist et al. (2000) and Wermers (2000), who find that the relationship between fund
3 turnover level and returns is significantly positive.
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7 Thirdly, our results in the last two models further confirm that fund performance
8 differences are positively associated with the differences in expenses. The significant expense
9 ratio is in some way support the EMH, i.e., the higher expense ratio has a significant influence
10 on the mutual fund's returns. Our findings are however, not consistent with previous studies that
11 affirmed that the expense ratio is negatively related to risk-adjusted returns, as mentioned above
12 (Livingston and O'Neal,1998; Elton et al.1993; Korkeamaki and Smythe, 2004 among others).
13 In fact, the expense ratio is the only item of cost allowed to be (apart from the optional exit load)
14 charged by the fund managers. The fund managers is free to peg its expense ratio sharply up or
15 down over time, and they could increase the expense ratio with better performed funds. In this
16 context, our results support Droms and Walker (1995) conclusion.
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28 Henceforth, the coefficient of the net cash flow is still positive and statically significant
29 in table 8 and 9. This is again consistent to numerous existing literature as mentioned above, i.e.
30 Gruber (1996), Zheng (1999) , Ippolito (1992), Chevalier and Ellison (1997), and Sirri and
31 Tufano (1998), but not consistent to Dichev (2007) and Glenn and Patrick (2004) in that mutual
32 funds with a low cash holding level can survive better. The funds have an option of meeting
33 investors' redemption either by liquidating securities or holding cash. The fund manager has to
34 maintain a balance between holding cash or investments because holding more cash would
35 decrease the expected returns.
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46 [Insert table 9 here]
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48 With regards to fund age, as reported in table 6 and 7 and from the literature (Bauer et al,
49 2005, Ferreira et al. 2013; Afza and Rauf, 2009), we reconfirm in our table 8 and 9 that
50 developed (older) mutual funds exhibit better performance due to experience and maturity - the
51 age variable is positively significant, which indicates that older funds generally perform better.
52 Finally, performance persistence score are also found positively significant to mutual fund
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2 performance in both countries. Our results are again consistent with Brown and Goetzmann
3 (1995), Kahn and Rudd (1995), Grinblatt and Titman (1992), and Ibbotson and Goetzmann
4 (1994) who find a positive relationship between a fund's return and its historical performance.
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9 As to other variables that control for market conditions such as market volatility, growth
10 rate of money supply M2, and real GDP growth rate, we report no statistical relationship with
11 mutual fund performance in Pakistan sample. We also report very little evidence that market
12 volatility and real GDP growth rate would have impact on mutual fund performance in India .
13
14 In other words, there is little evidence that fund performance will be boosted following an
15 improvement in the level of economic activity and market liquidity in our two selected countries.
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20 In summary we believe that the above findings are important for investment advisors,
21 fund managers, investors, and researchers particularly when they are professionally devoted to
22 understanding the historical performance and predicting the future behaviour of the funds'
23 returns in the emerging markets.
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31 **6. Conclusions**

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33 Mutual funds have developed into a dominant savings vehicle worldwide. According to
34 practitioners, mutual funds are among the most robust investment sectors in the international
35 financial markets. The growth in mutual funds reveals investors' preferences for this kind of
36 investment. Over the last two decades, the mutual fund sector has grown remarkably; however,
37 in developing financial markets, mutual funds are still a relatively modern phenomenon.
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45 While most mutual fund studies focus on the determinants of mutual fund management
46 effectiveness in developed markets, we are the first to examine the impact of investor
47 confidence and information tracking efficiency on mutual fund performance in two vulnerable
48 and leading developing markets in Asia. Overall, we show evidence that mutual fund investor
49 behaviour in these two countries is influenced not only by fund characteristic attributes and
50 fundamental economic factors but also by investor confidence. We attribute this finding partly
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3 to the relatively unique feature of emerging markets in our study, where there is a lack of
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5 awareness of mutual funds being a low-cost investment vehicle and where the interplay of
6
7 cultural and behavioural changes have prevented investor savings from being channelled into
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9 investment products from gold or property. This finding increases the need for mutual fund
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11 researchers to take mutual fund investor confidence into account when studying mutual fund
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13 performance. Gaining a more complete understanding of investor confidence would help
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15 explain the pattern of fund allocation in emerging countries, where there is always a shortage of
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17 funds, especially in highly vulnerable markets. Furthermore, our findings provide information
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19 to the investor community and fund managers, help them understand the factors that might have
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21 impacts on the mutual fund performance. Investors are all self biased and lack of information.
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23 The key to better investing is to identify those weaknesses and create rules to minimize their
24
25 effect on investing decisions. If investors were provided sufficient information and could avoid
26
27 their psychological bias, they could make smarter investment decisions with their money. Fund
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29 managers could predict the performance of the funds they manage based on the fund
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31 characteristic attributes, hence improve their management efficiency. Indeed, our findings
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33 provide an opportunity for mutual funds to become more efficient investment channel for every
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35 stakeholder.
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39 Furthermore, our evidence suggests that while making decisions, investors' confidence
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41 is subject to the historical performance of the fund. The returns of the mutual fund are also
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43 positively associated with other fund characteristics such as fund size, turnover and fund age.
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45 The maturity of funds enables better operating efficiency through a reduction in operational
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47 expenses. Such findings provide an opportunity for the mutual fund sector to operate more
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49 efficiently in markets, where there is a lack of awareness of mutual funds as a low-cost/low-risk
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51 investment vehicle, and there is also an interplay of cultural and behavioural factors that prevent
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53 savings from being channelled into investment products. In both India and Pakistan, gold and
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55 property are presently perceived as less risky alternatives when compared to other investments.
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Further study may continue examining the other cultural factors and traditional saving habits, such as property investment and gold consumption, that could explain investor confidence in order to see what factors, precisely, drive investor behaviours in such countries.

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Table 1. Definition of variables

Variable/	Measurement
Fund Return (RETURN)	The fund quarterly Sharpe ratio.
Investor Confidence (SENTI)	Investor confidence is proxied by daily net flows of the individual mutual fund, calculated as F_{it}/TNA_{it-1} where $F_{it} = TNA_{it} - TNA_{it-1} \times NAV_{it}/NAV_{it-1}$, where NAV is the daily net asset value and TNA is the daily total value of assets of the fund.
Information Tracking Efficiency (IRSit)	Alternatives measure of investor confidence which measures a portfolio manager's ability to generate excess returns relative to benchmark, but also attempts to identify the consistency of the investor. Information Tracking Efficiency (IRSit) is measured as weight average score of information ratio over six months (50%), three years (30%), and five years periods (20%). Information Ratio for each period is calculated as follows: Information Ratio = $ER_t/STDV(ER_t)$, where: $ER_t = (RP_t - RB_t)$, where RP_t = Return on the portfolio over time period t, RB_t is Return on a benchmark (NIFTY50 for India and KSE100 for Pakistan) over time period t, and $STDV(ER_t)$ = Standard deviation of ER_t over the same time period t.
Fund size ln(FUNDSIZE)	Fund size is measured in the natural logarithm form of the total net assets.
Expense ratio (EXPENSE)	Expense is calculated by total of fund management fees, distribution fees and other expenses as a percentage of the fund average net assets.
Turnover ratio (TURNOVER)	Turnover ratio reflects the total trading activity undertaken by the fund during the period, which is measured as $NETSALE_{it} \times 100 / FUNDSIZE_{it}$.
Net Cash flow (NCF)	Net Cash Flow is measured as the total cash inflow and outflow of the fund divided by fundsize.
Age ln(AGE)	Age is measured by the natural logarithm of the number of years that the fund has been operating.
Performance persistence score (PERSISTENCE)	Performance persistence score is measured as weighted average score of 6 month, 1 year, 3 years and 5 years fund returns.
Market Volatility (VOLATILITY)	Standard Deviation of market benchmark index return. NIFTY50 is taken as benchmark index for India, and KSE100 is taken as benchmark index for Pakistan.
Money Supply (MSgrowth)	The money supply (%) is measured as growth rate of M2; it reflects the increases in the market liquidity, ultimately leading to increases in the prices of equity. It is also a key economic indicator used to forecast inflation
Economic Growth Rate (GDPgrowth)	Economic Growth rate (%) is measured as the real growth rate of Gross Domestic Product within the country.

Table 2. The hypothesis of the study and prediction signs

No	Hypothesis	Expected. sign
H1	a) Investor confidence is positively associated with fund performance	+
	b) The interaction between investor confidence and performance persistence score is positively associated with mutual fund performance.	+
H2	The return of mutual funds is positively/negatively associated with the size of fund.	Ambiguous +/-
H3	The mutual fund return is negatively associated with operational expenses.	-
H4	The return of a mutual fund is positively/negatively related to turnover ratio.	(Ambiguous) +/-
H5	The mutual fund return has a positive/negative relationship with net cash flows (liquidity)	Ambiguous +/-
H6	The mutual fund return has a positive/negative relationship with the fund's age	Ambiguous +/-

Table 3. Descriptive statistics (% and local currency)

Variable	Panel A India			Panel B Pakistan		
	Mean	Median	Std.Dev	Mean	Median	Std. Dev
RETURN (%)	6.314	4.506	0.471	4.051	3.143	1.562
SENTI	3.138	-0.044	70.080	0.236	0	1.432
FUNDSIZE (Billion)	13.472	29.750	28.610	5.672	2.564	11.863
EXPENSE (%)	2.569	1.108	1.014	1.196	0.857	1.348
TURNOVER	64.560	25.506	1.274	57.290	19.861	1.318
NCF (Billion)	6.109	4.501	0.984	4.521	3.540	1.164
AGE(Year)	24	18.00	1.456	21.000	19.000	3.233
PERSISTENCE	35.167	31.610	10.167	41.747	46.455	10.798
VOLATILITY	21.105	17.740	9.281	19.320	16.230	6.883
MS Growth (%)	13.372	12.320	13.436	3.506	2.364	1.289
Real GDP growth (%)	2.834	2.768	1.174	2.430	1.019	0.981

Note: Definitions of variables are provided in table 1.

Table 4. Pearson correlation Matrix

	1	2	3	4	5	6	7
Panel A India							
1.RETURN	1.00						
2.SENTI	0.237*	1.00					
3.ln FUNDSIZE	-0.348*	0.109*	1.00				
4.EXPENSE	0.168*	0.285**	0.319*	1.00			
5.TURNOVER	-0.516*	0.269	0.208*	0.309	1.00		
6. NCF	0.228*	0.173*	0.308*	-0.108	0.286	1.00	
7.MSgrowth	0.209*	0.324*	0.279*	0.128**	0.250*	0.409*	1.00
8.Real GDP growth	0.370	0.442*	0.423*	0.054	0.448***	0.473	0.169*
Panel B Pakistan							
1.RETURN	1.00						
2.SENTI	0.194*	1.00					
3.lnFUNDSIZE	-0.242**	0.036*	1.00				
4. EXPENSE	0.278*	0.323	-0.274	1.00			
5. TURNOVER	-0.453*	0.348***	0.128*	0.253**	1.00		
6. NCF	0.329*	0.429*	0.274*	-0.392*	0.341	1.00	
7.MSgrowth	0.301	0.473**	0.258	-0.045	0.069**	0.316*	1.00
8.Real GDPgrowth	0.148	0.245*	0.034*	0.053*	0.189*	0.237*	-0.263

Note: Definitions of variables are provided in table 1

*** Significant at 1%, ** significant at 5% level and * significant at 10% level.

Table 5. The Variance inflation factors (VIF) of predictor variables

Variables	India		Pakistan	
	VIF	Tolerance	VIF	Tolerance
NETFLOWS	1.65	0.61	1.14	0.88
lnFUNDSIZE	2.40	0.42	2.10	0.48
EXPENSE	1.44	0.69	1.85	0.54
NCF	2.25	0.44	1.76	0.57
MSgrowth	1.88	0.53	1.28	0.78
RealGDPgrowth	1.56	0.64	1.86	0.54

Note: Definitions of variables are provided in table 1

Table 6. Pooled OLS analysis of the investor confidence effect on mutual fund performance in emerging stock markets in India and Pakistan.

Variables	Panel A India		Panel B: Pakistan	
	Model 1	Model2	Model 1	Model 2
SENTI		0.014** (0.034)		0.302** (0.014)
SENTI*PERSISTENCE		0.0004** (0.036)		0.006** (0.017)
lnFUNDSIZE	-0.023*** (0.000)	-0.019*** (0.000)	-0.0019* (0.0671)	-0.002* (0.095)
EXPENSE	0.056*** (0.000)	0.0064*** (0.000)	0.038* (0.051)	0.041* (0.060)
TURNOVER	-0.873*** (0.000)	-0.895*** (0.000)	-0.280*** (0.000)	-0.284*** (0.000)
NCF	7.186*** (0.000)	7.315** (0.000)	0.885** (0.025)	1.206** (0.026)
LnAGE	0.085*** (0.000)	0.092*** (0.000)	0.028** (0.031)	0.038** (0.023)
PERSISTENCE	0.057*** (0.000)	0.057*** (0.000)	0.032*** (0.000)	0.033*** (0.000)
VOLATILITY	0.0024** (0.011)	0.0028*** (0.004)	0.005 (0.486)	0.011 (0.511)
MSgrowth	0.0003 (0.522)	0.0002 (0.644)	0.005 (0.669)	0.033 (0.224)
GDPgrowth	0.125** (0.011)	0.110** (0.021)	0.007 (0.813)	0.250 (0.688)
CONSTANT	-1.526*** (0.000)	-1.574*** (0.000)	0.591* (0.086)	0.857 (0.252)
R-squared	0.665	0.664	0.288	0.325

Note: $RETURN_{it}$ is the fund quarterly Sharpe ratio. Investor Confidence (SENTI) is proxied by the daily net flows of the individual mutual fund, measured as $SENTI = F_{it} / TNA_{it-1}$, where $F_{it} = TNA_{it} - (TNA_{it-1} \times NAV_{it}) / NAV_{it-1}$ with NAV as the daily net asset value and TNA representing the daily total value of assets of the fund. Fund size (lnFUNDSIZE) is measured as the natural logarithm of total net assets. Turnover ratio (TURNOVER) reflects the total trading activity undertaken by the fund during the period, measured as $NETSALE_{it} * 100 / FUNDSIZE_{it}$. Net cash flows (NCF) is calculated as the net cash flows of the individual mutual fund divided by fund size. Expense ratio (EXPENSE) is calculated by total of the fund management fees, distribution fees and other expenses as a percentage of the fund average net assets. Age (lnAGE) is measured by the natural logarithm of the number of years that the fund has been operating. Money supply (MSgrowth) is the growth rate of money supply M2. Economic Growth rate (GDPgrowth) is real growth rate of the gross domestic product within the economy. Models 1 (Equation 7) and Model 2 (Equation 8) include year effects and a constant term. The p-values are presented in parentheses.

*** Significant at 1%, ** significant at 5% level and * significant at 10% level.

Table 7. Alternative mesuare of investor confidence and its impacts on mutual fund performance in emerging stock markets in India and Pakistan.

Variables	Panel A India	Panel B: Pakistan
IRS	0.002** (0.054)	0.036*** (0.000)
IR*PERSISTENCE	0.001*** (0.000)	0.0005*** (0.008)
lnFUNDSIZE	-0.033*** (0.003)	-0.057* (0.054)
EXPENSE	0.126*** (0.000)	0.043 (0.531)
TURNOVER	-0.922*** (0.000)	-0.227*** (0.000)
NCF	7.356** (0.000)	0.652** (0.037)
LnAGE	0.106*** (0.000)	0.013** (0.023)
PERSISTENCE	0.175*** (0.000)	0.041*** (0.000)
VOLATILITY	0.0028*** (0.004)	-0.004 (0.571)
MSgrowth	0.0004 (0.321)	-0.008 (0.473)
GDPgrowth	0.015** (0.000)	0.021 (0.484)
CONSTANT	-4.433*** (0.000)	0.330 (0.441)
R-squared	0.664	0.356

Note: $RETURN_{it}$ is the fund quarterly Sharpe ratio. Investor Confidence (IRS) is proxied by the information tracking efficiency, measured as weight average score of information ratio over six month (50%), three year (30%), and five year periods (20%) (see definition in Table 1). Fund size (lnFUNDSIZE) is measured as the natural logarithm of total net assets. Turnover ratio (TURNOVER) reflects the total trading activity undertaken by the fund during the period, measured as $NETSALE_{it} * 100 / FUNDSIZE_{it}$. Net cash flows (NCF) is calculated as the net cash flows of the individual mutual fund divided by fund size. Expense ratio (EXPENSE) is calculated by total of the fund management fees, distribution fees and other expenses as a percentage of the fund average net assets. Age (lnAGE) is measured by the natural logarithm of the number of years that the fund has been operating. Money supply (MSgrowth) is the growth rate of money supply M2. Economic Growth rate (GDPgrowth) is real growth rate of the gross domestic product within the economy. Our models include year effects and a constant term. The p-values are presented in parentheses.

*** Significant at 1%, ** significant at 5% level and * significant at 10% level.

Table 8. Two stage least squares (2SLS) analysis of the investor confidence effect on mutual fund performance in emerging stock markets in India and Pakistan. (IV variables included are one to two period lags of fundsize, investor confidence, and ineteration between investor confidence and persistence score)

Variables	Panel A India		Panel B: Pakistan	
	IRS	Senti	IRS	Senti
INVESTOR CONFIDENCE	0.122*** (0.000)	0.0005* (0.064)	1.204** (0.031)	0.305* (0.042)
INTERACTION	0.010*** (0.000)	0.027*** (0.000)	0.029** (0.033)	0.075** (0.040)
lnFUNDSIZE	-0.007** (0.000)	-0.019*** (0.000)	-0.878* (0.050)	-0.007* (0.090)
EXPENSE	0.184*** (0.000)	0.0057*** (0.000)	2.425* (0.051)	0.087* (0.068)
TURNOVER	-1.131*** (0.000)	-0.887*** (0.000)	-0.309** (0.043)	-0.227* (0.100)
NCF	9.477*** (0.000)	7.246** (0.000)	6.895** (0.028)	3.220* (0.098)
LnAGE	0.072*** (0.000)	0.117*** (0.000)	0.0184** (0.031)	0.0138 (0.022)
PERSISTENCE	0.190*** (0.000)	0.057*** (0.000)	1.075** (0.030)	0.026** (0.006)
VOLATILITY	0.003 (0.248)	0.0035*** (0.001)	0.018 (0.739)	-0.018 (0.769)
MSgrowth	0.00008 (0.494)	0.00028 (0.624)	-0.040 (0.632)	-0.080 (0.690)
GDPgrowth	0.0094** (0.064)	0.0098** (0.060)	0.195 (0.424)	0.057 (0.701)
Wald chi2 Stat	5209.16	4119.72	28.45	29.59
Sargan test	(0.6202)	(0.6192)	(0.6452)	(0.6443)
F-Stat (first stage)	2765.91	6856.07	579.28	892.33

Note: $RETURN_{it}$ is the fund quarterly Sharpe ratio. Investor Confidence (SENTI) is proxied by the daily net flows of the individual mutual fund, measured as $SENTI = F_{it} / TNA_{it-1}$, where $F_{it} = TNA_{it} - (TNA_{it-1} \times NAV_{it}) / NAV_{it-1}$, NAV is the daily net asset value, TNA is the daily total value of assets. Alternative measure of Investor Confidence (IRS) is proxied by the information tracking efficiency, measured as weight average score of information ratio over six month (50%), three year (30%), and five year periods (20%) (see definition in Table 1). Fund size (lnFUNDSIZE) is measured as the natural logarithm of total net assets. Turnover ratio (TURNOVER) reflects the total trading activity undertaken by the fund during the period, measured as $NETSALE_{it} \times 100 / FUNDSIZE_{it}$. Net cash flows (NCF) is calculated as the net cash flows of the individual mutual fund divided by fund size. Expense ratio (EXPENSE) is calculated by total of the fund management fees, distribution fees and other expenses as a percentage of the fund average net assets. Age (lnAGE) is measured by the natural logarithm of the number of years that the fund has been operating. Money supply (MSgrowth) is the growth rate of money supply M2. Economic Growth rate (GDPgrowth) is real growth rate of the gross domestic product within the economy. Models 1 and 2 include year effects and a constant term. Sargan test is a test of overidentifying restrictions, distributed as chi - square under the null of instrument validity. The p - values are presented in parentheses. *** Significant at 1%, ** significant at 5% level and * significant at 10% level.

Table 9. Generalized Method of Movement (GMM) analysis of the impact of investor confidence on mutual fund performance in emerging stock markets in India and Pakistan (IV variables included are one to two period lags of fundsize, investor confidence, and interaction between investor confidence and persistence score)

Variables	Panel A India		Panel B: Pakistan	
	IRS	Senti	IRS	Senti
INVESTORCONFIDENCE	0.118*	0.0006*	1.124**	0.291
	(0.070)	(0.064)	(0.031)	(0.077)
INTERACTION	0.008**	0.026***	0.030**	0.074
	(0.015)	(0.009)	(0.034)	(0.077)
lnFUNDSIZE	-0.006***	-0.018***	-0.889*	-0.006
	(0.034)	(0.000)	(0.051)	(0.100)
EXPENSE	0.234***	0.0057***	2.251**	0.083
	(0.000)	(0.000)	(0.050)	(0.057)
TURNOVER	-1.148***	-0.892***	-0.293**	-0.224
	(0.000)	(0.000)	(0.030)	(0.082)
NCF	9.339***	7.131**	6.959	3.721
	(0.000)	(0.000)	(0.289)	(0.097)
LnAGE	0.076**	0.107***	0.089**	0.128*
	(0.050)	(0.050)	(0.031)	(0.069)
PERSISTENCE	0.175***	0.057***	1.073**	0.017**
	(0.000)	(0.000)	(0.030)	(0.041)
VOLATILITY	0.0029**	0.0034***	0.018	-0.119
	(0.030)	(0.001)	(0.397)	(0.368)
MSgrowth	0.00029	0.00027	-0.042	-0.255
	(0.141)	(0.592)	(0.326)	(0.309)
GDPgrowth	0.011	0.0098**	0.191	-0.357
	(0.171)	(0.070)	(0.241)	(0.447)
Wald chi2 Stat	305.80	1169.57	84.5	54.5
Hansen test	(0.6450)	(0.6458)	(0.5464)	(0.5475)
AR(1)	(0.000)	(0.000)	(0.047)	(0.063)
AR(2)	(0.411)	(0.453)	(0.129)	(0.293)

Note: RETURN_{it} is the fund quarterly Sharpe ratio. Investor Confidence (SENTI) is proxied by the daily net flows of the individual mutual fund, measured as SENTI = F_{it} / TNA_{it-1}, where F_{it} = TNA_{it} - (TNA_{it-1} × NAV_{it}) / NAV_{it-1}, NAV is the daily net asset value, and TNA is the daily total value of assets. Alternative measure of Investor Confidence (IRS) is proxied by the information tracking efficiency, measured as weight average score of information ratio over six month (50%), three year (30%), and five year periods (20%) (see definition in Table 1). Fund size (lnFUNDSIZE) is measured as the natural logarithm of the total net assets. Turnover ratio (TURNOVER) reflects the total trading activity undertaken by the fund during the period, measured as NETSALE_{it}*100/ FUNDSIZE_{it}. Net cash flows (NCF) is calculated the net cash flows of the individual mutual fund divided by fund size. Expense ratio (EXPENSE) is calculated by total of fund management fees, distribution fees and other expenses as a percentage of the fund average net assets. Age (lnAGE) is measured by the natural logarithm of the number of years the fund has been operating. Money supply (MSgrowth) is the growth rate of money supply M2. Economic Growth rate (GDPgrowth) is real growth rate of the gross domestic product within the economy. Hansen test is a test of overidentifying restrictions, distributed as chi-square under the null of instrument validity. AR(1) and AR(2) are tests for the first and second order serial correlation in residuals. The p-values are presented in parentheses. *** Significant at 1%, ** significant at 5% level and * significant at 10% level.

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