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Article

Response of Emerging Equity Markets to Swings in Investor Sentiments

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Abstract: The study examines the response of equity market returns to swings in investor sentiment in emerging equity markets of Brazil, Indonesia, India, Russia, South Africa, China, and Pakistan. Data is collected from 2001 to 2020, and Investor Sentiment Index is constructed by applying the Principal Component Analysis. This index is then subdivided into three stages termed moderate, extremely optimistic, and extremely pessimistic, in order to examine the impact of these sentiment swings on equity returns, Auto Regressive and Dynamic Panel Data analysis are conducted at the country-level and group level respectively. The results revealed that equity markets significantly respond to the moderate, extremely optimistic, and extremely pessimistic stage of investor sentiment swings in the selected emerging markets. Investor sentiment swings show a divergent impact in the emerging equity markets, therefore, be vigilant about the idiosyncratic behavior of equity markets.

Keywords: Emerging Financial Markets; Asset Pricing; Behavioral Finance; Investor Sentiment Swings

1. Introduction

Classical finance theories claim that markets are efficient, information distributed in the market is equally accessible to all investors, prices in the equity market remain fair and the investors do not have the opportunity to earn abnormal profit (Fama, 1970; Miller & Modigliani, 1961; Sharpe, 1964). But this situation does not exist practically because markets face bubbles and bursts. The speculations take place which results in unfair gains by the investors at least in the short run. Classical finance theory fails to explain such behavior in the market, therefore, the researchers try to search for an explanation of such phenomena in the field of human behavior that results in the evolution of behavioral finance theories (Kahneman and Tversky, 1979). Behavioral finance theories claim that markets are not always efficient, information is not evenly distributed to all investors, prices show fluctuations, and the investors have the chance of gaining abnormal profit.

Behavioral finance elaborates that there exist irrational traders called 'Noise Traders' in the market (Friedman, 1953) who trade based on their personal feelings, sentiments, and incorrect and incomplete information through a phenomenon called 'Noise Trading' that ultimately results in mispricing. The attitude of noise traders towards the stock market is termed investor sentiment, which has become the focus of stock market research in recent years. The literature is evident that investor sentiment is a key factor in affecting equity returns and its effect varies by regime and time terms (Namouri et al., 2018). Investor sentiment is a factor that not only impacts the equity market prices but also reflects the overall attitude and behavior of investors towards the market and individual stocks. The sentiment of investors is not a uniform identity, but it swings between the two extremes that are optimistic and pessimistic with moderate in between the two. All these stages affect

the equity market returns with varying intensity. Optimistic refers to a positive outlook, moderate refers to a balanced outlook, and pessimistic refers to a negative outlook toward the equity market. The positive impact of investor sentiment on equity returns created through a positive outlook is termed the 'momentum effect', whereas the negative impact of investor sentiment on equity returns created through a negative outlook is termed as 'reversal effect'.

A review of the literature shows that a large number of studies have been carried out involving various aspects of investor sentiment under varying conditions using a variety of methods and techniques and its impact on equity returns. Baker & Wurgler (2006) categorize investor sentiment as optimistic and pessimistic and consider it responsible for the deviation of prices from their intrinsic values, which are attributed to uninformed demand shocks and arbitrage limitations. They explain that uninformed traders are responsible for sentiment-based demand shocks, whereas arbitrage limitation prevents informed traders from correcting this mispricing, and thus deviations remain persistent in the market. Zhang & Yang (2009) decompose investor sentiments into negative and positive to explore the influence on the formation of asset prices and observe significant results. Fariska et al. (2021) classify the sentiments into positive, negative, and neutral and observe a causal relationship between investor sentiment and equity returns in the Indonesian market. A positive (negative) shift in investor sentiment improves (decreases) equity returns during bull markets, whereas a negative (positive) shift in sentiment during bear regimes does the opposite (Wang et al., 2022).

Investor sentiment may have positive (Chuang et al., 2010; Emmanuel & Ahmed, 2020; Wang et al., 2020; Yang & Zhou, 2016) as well as negative (Aissia, 2016; Bathia & Bredin, 2013; Cosemans & Frehen, 2021; Dalika & Seetharam, 2015; Yoshinaga, 2012) relationship with equity returns. An increase in the volume of trading reflects the optimistic behavior of investors, whereas a decrease in the value of trading volume exhibits the pessimistic behavior of investors (Chuang et al. 2010). Pessimistic investors avoid buying riskier assets to prevent their losses, resultantly, trading volume in the market decreases (Rousseau et al. 2008). Szpulak & Szyszka (2014) observe a positive relationship between equity returns and a shift in optimistic investor sentiment whereas, Baker & Stein (2004) find a negative relationship between investor sentiment and equity returns using trading volume as a proxy measure. Optimistic investors believe themselves good in positive situations, expect high market prices, and indulge in extraordinary buying to get high payouts; this results in overvalued prices in the market. Whereas pessimistic investors consider themselves more vulnerable in negative situations, expect low prices, and engage in extraordinary selling to minimize their losses, this results in undervalued prices of financial securities. This positive relationship between the sentiment of investors and returns does not exist over the periods because mispricing so caused does not persist for long periods and tends to revert to fundamental values with time, showing a negative relation. Negative investor sentiment may have a positive influence, whereas positive investor sentiment may have a negative effect on equity returns (Cheema et al., 2018; Yoshinaga, 2012). Sometimes the effect of negative sentiment on equity prices may be stronger than that of positive sentiment and at others vice versa (Lv et al.2021).

Sheu et al. (2010) categorize investor sentiment into 'extremely high level' and 'extremely low level', and claim that these categories can be used as leading indicators for market returns. Liu et al. (2011) categorize it into 'extremely bright' and 'extremely dark' and find that Extreme Dark Sentiment Indicator (EDSI) has a significant negative relationship with spot and futures market returns and in all markets, it dominates by the "price pressure effect," whereas Extreme Bright Sentiment Indicator (EBSI) has a significant positive relation with spot market and negative for futures market and it dominates by price-pressure (a hold-more) effect in the futures (spot) market. In short, extreme investor sentiment significantly affects market returns, but the magnitude depends on various factors. Wu et al. (2015) categorize it into 'extreme optimism' and 'extreme pessimism' to explore the nonlinear and heterogeneous effect of investor sentiment on the risk premiums and find that both levels decrease the market premiums and these premiums in 'holding growth stocks' dominate the 'holding value stocks' under extreme sentiments. Namouri et al. (2018) categorize investor sentiment

into 'neutral', 'optimistic', and 'overly optimistic', and find that these categories have a heterogeneous effect on market returns- neutral showing a predominant effect, optimistic showing a positive and more activated effect, and overly optimistic showing a reversal effect. Li (2020) categorizes it into 'moderate', 'extremely optimistic', and 'extremely pessimistic' levels and finds that a moderate level has a positive correlation with equity returns, whereas, both extremely optimistic and extremely pessimistic levels have a negative correlation with returns. Dahmene et al. (2020) categorize it into 'extreme optimism' and 'extreme pessimism' and claim that these categories smoothly switch the market from bullish to bearish and bearish to bullish states, depending on the heterogeneous responses of the market participants and the investors' risk appetite.

In light of above narrated facts, the results cannot be unified as both extremely optimism and pessimism sentiments of investors revealed opposite influence (Wu et al., 2015; Li, 2020), but moderate level of sentiments are demonstrated as momentum effect for stock markets (Namouri et al., 2018; Li, 2020). According to Liu et al., (2011), the past studies showing the inverse effect of "Extreme Dark Sentiment indicator" stage and moment effect of "Extreme Bright Sentiment Indicator" stage for future markets. Namouri et al., (2018) discussed the predominant effect for "Neutral" stage and positive effect for "Optimistic" stage of investors' sentiments. Inconsistency in the results is required to probe the study in detail to capture the status of extremely optimistic, pessimistic and moderate investors' sentiment effect on stock market returns. Therefore, the study is carried out to pinpoint the effect of investors' sentiments at three different stages (Extremely optimistic, pessimistic and moderate) on equity market returns.

2. Literature Review

The concept of "noise" and "noise trader" originated in the field of traditional finance and has been the focus of research in the field of behavioral finance also since long. In traditional finance, according to Friedman (1953), noise traders have a significant effect on the market prices however, their effect is eliminated by rational traders, whereas, according to Fama (1965) and West (1988) noise traders are not under the influence of rational traders and also do not play a significant role in determining equity prices. On the other hand, behavioral finance takes the noise traders differently, for example, Black (1986) suggests that the effect of noise traders on equity prices is not eliminated by rational traders and remains persistent in the market, similarly Trueman (1988) is of the view that noise traders provide liquidity in the market and create the opportunity for informed investors to trade thus play a significant role in determining the equity prices. Long et al. (1990) were the first to develop the DSSW model to simulate the impact of noise traders on asset prices and found that noise traders affect the market prices significantly and their sentiments create a risk to asset prices which does not allow the rational traders to take corrective measures resultantly unfair equity prices persist in the markets and that there always remains space for noise traders to trade in the market. Shefrin & Statman (1994) by using their Behavioural Capital Asset Pricing Model observe the interplay between noise traders and informed traders and conclude that noise traders act as market drivers taking asset prices away from efficiency. From both perspectives, it can be argued that noise traders as well as rational traders exist in the financial market and influence the asset prices in accordance with their strength in the market. Mispricing so observed in the stock market under the influence of personal feelings and emotions of noise traders which is called investor sentiment has been a focus of research in financial market studies. Investor sentiment acts as a swing with two opposing extremes with a long intermediate span, each point in the swing having a different effect on the returns.

Barberis et al. (1998) claim that earning behavior of firms remains moving between any two regimes- in the first regime, earnings show mean-reverting behavior because of corrections in the mispricing behavior, and in the second, earnings show trending behavior, because of continued earnings after an increase at an initial stage. Easaw & Ghoshray (2008) find that household sentiment in both UK and US shows a mean reverting behavior, in the UK the shift in sentiment depicts symmetric behavior whereas, in the US shift in sentiment depicts asymmetric behavior showing more

momentum toward the optimistic side and less momentum towards the pessimistic side. The asymmetric effect of investor sentiment on returns of diverse portfolios is also observed by Yan & Na (2009). Fung et al. (2010) find that after reaching the extreme points sentiments revert to their reference point showing a magnitude effect more prominent in the initial periods that gradually decreases at later stages. Ling et al. (2010) find that sentiment pushes asset prices away from their fundamental values in both private and public markets, however, the effect is more persistent in private markets because of arbitrage limitations and delayed price revelation, whereas, public markets experience quick reversals following periods of sentiment-induced mispricing. Rahman et al. (2013) observe a significant and positive relationship between shifts in noise traders' sentiment and excess future equity market returns in the frontier market of Bangladesh.

Miwa (2016) finds that under spans of high investor sentiment, the investor overestimates the growth of some specific stocks which creates a high level of mispricing, resulting in low earnings over time. In the US stock market sentiment traders react asymmetrically to sentiment swings by trading more aggressively during low sentiment periods (Chau et al., 2016). Goh et al. (2018) observe that sentiment swing switches the Malaysian market between bull and bear regimes. During a bearish market, positive investor sentiment has a greater probability of regime switching. The heterogeneous behavior of interacting investors is studied by Li et al. (2019) observing the significant contribution of sentiment indicators to several financial anomalies such as fat tails and volatility clustering of returns. According to Cosemans & Frehen (2021), investors expect the continuation of the past positive gains in the future; hence they invest in overvalued assets that result in lower returns subsequently and vice versa. Chughtai (2017) finds that overall investor sentiment has a negative effect on equity returns, and suggests that mispricing persists over time due to the overreaction of investors to the available information and that equity markets are not fully efficient in adjusting mispricing in Pakistan. In past studies the results showing strong influence of optimistic sentiments on stock market returns than the pessimistic sentiments (Ding, 2004; Zhang & Yang, 2009; Huang et al. 2014; Dong, 2020) and opposite results reported in previous studies (Dhaoui & Khraief, 2014; Zheng, 2015; Paramanik & Singhal, 2020; Fang et al. 2021). According to Chen et al., (2013) and Smales (2017), the asymmetric influence of sentiments on industrial stock returns and stock market returns have been reported respectively, which are difficult to arbitrage.

In the Mexican market, Liston & Huerta (2012) observe that a positive swing in sentiment leads to higher excess returns for large, medium, and small-cap portfolios. In a Korean market, Yang et al. (2017) confirm a positive and significant relationship between investor sentiment and asset returns by explaining that high stock market returns are induced by the high level of investor sentiment. A positive relationship between sentiment swings and equity returns is also observed in the Nigerian market by Emmanuel & Ahmed (2020). The asymmetric V-shaped disposition effect, stronger than the traditional disposition effect, is observed in the sentiments of Chinese investors (Su et al., 2020). Yang (2021) finds a significant momentum effect of investor sentiment on returns of the Shanghai market but does not find a reversal effect. Saxena & Chakraborty (2022) demonstrate that an increase in abnormal attention increases abnormal returns, and this increase becomes strengthened for firms following positive swings in sentiment in India. After reviewing the literature, the following hypotheses are constructed.

H a: Moderate stage of investor sentiments has positive and significant influence on stock market returns.

H b: Extreme stage of investor sentiments has negative and significant impact on stock market returns.

3. Methodology

The present study aims to examine the impact of investor sentiment swings on equity returns of Brazil, South Africa, Russia, India, China, Indonesia, and Pakistan at the individual as well as group levels. These countries represent the emerging financial markets and are supposed to be more sensitive to shifts in the sentiment of investors. Daily data for relevant variables related to

representative indices of the sample countries is fetched from investing.com and International Financial Statistics websites for a period from 2001 to 2020.

3.1. Measurement of Variables

Equity market returns for each index are derived by using the following formula.

$$MR_t = \ln \left(\frac{MP_t}{MP_{t-1}} \right) \dots \dots \dots (1)$$

Where MR_t denotes market returns, \ln denotes natural log, MP_t denotes current day price, MP_{t-1} denotes the lag price of the selected index.

The Equations (2) and (3) have been used to create the index for investor sentiments at country and group level respectively.

$$SNT_t = \beta_0 + \beta_1 TVO_t + \beta_2 TRA_t + \varepsilon_t \dots \dots \dots (2)$$

$$SNT_{i,t} = \beta_0 + \beta_1 TVO_{i,t} + \beta_2 TRA_{i,t} + \varepsilon_{i,t} \dots \dots \dots (3)$$

SNT_t , TVO_t , and TRA_t are showing the index of investor sentiment, trading volume and turnover ratio respectively at country level. Whereas, $SNT_{i,t}$, $TVO_{i,t}$ and $TRA_{i,t}$ are representing the index of investor sentiments, trading volume and turnover ratio respectively at group level. To capture the extremely optimistic, pessimistic and moderate level of investor sentiments, dummy variables D_o and D_p with the threshold of ΔSNT_o and ΔSNT_p have been used. Equation (4) is used to measure the extremely optimistic sentiments of the investors.

$$D_o = \begin{cases} 0, & \text{if } \Delta SNT_t < \Delta SNT_o; \\ 1, & \text{if } \Delta SNT_t \geq \Delta SNT_o; \end{cases} \dots \dots \dots (4)$$

ΔSNT_o Denotes the extremely optimistic sentiment. Equation (5) is used to capture the pessimistic sentiment of the investors.

$$D_p = \begin{cases} 0, & \text{if } \Delta SNT_t > \Delta SNT_p; \\ 1, & \text{if } \Delta SNT_t \leq \Delta SNT_p; \end{cases} \dots \dots \dots (5)$$

ΔSNT_p is showing the extremely pessimistic sentiment of the investors. Afterwards, the dummy variables are taken to measure the sentiment swings. The interaction terms that are $(\Delta SNT_t - \Delta SNT_o) * D_{o,t}$ and $(\Delta SNT_t - \Delta SNT_p) * D_{p,t}$ have been used for the measurement of extremely optimistic and pessimistic investor sentiments respectively.

3.2. Research Models

3.2.1. Research Model (Country Level)

The following research equation (Equation (6)) is used at the country level to capture the influence of extremely positive, negative and moderate sentiments on stock market returns.

$$R_t = \beta_0 + \beta_1 \Delta SNT_t + \beta_2 (\Delta SNT_t - \Delta SNT_o) * D_{o,t} + \beta_3 (\Delta SNT_t - \Delta SNT_p) * D_{p,t} + \beta_4 AR_{t-1} + \varepsilon_t \dots \dots \dots (6)$$

R_t showing the stock market return for each country, ΔSNT_t is for moderate change of investor sentiment, $(\Delta SNT_t - \Delta SNT_o) * D_{o,t}$ is for extremely optimistic investor sentiment if it is greater than the threshold limit of ΔSNT_o and $(\Delta SNT_t - \Delta SNT_p) * D_{p,t}$ is for extremely pessimistic investor sentiment if it is less than the limit of ΔSNT_p . AR_{t-1} is used for capturing the auto regressive effect at country level.

3.2.2. Research Model (Group Level)

Equation (7) is used to capture the influence of extremely optimistic, pessimistic and moderate stage of sentiments on stock market returns at the group level.

$$R_{i,t} = \beta_0 + \beta_1 \Delta SNT_{i,t} + \beta_2 (\Delta SNT_{i,t} - \Delta SNT_{o,i,t}) * D_{o,i,t} + \beta_3 (\Delta SNT_{i,t} - \Delta SNT_{p,i,t}) * D_{p,i,t} + \beta_4 AR_{i,t-1} + \varepsilon_{i,t} \dots \dots (7)$$

$R_{i,t}$ is for the stock return at time t and for each country i, $\Delta SNT_{i,t}$ is for moderate change in sentiments, $(\Delta SNT_{i,t} - \Delta SNT_{o,i,t}) * D_{o,i,t}$ is for extremely optimistic sentiments if it is greater than the threshold limit of $\Delta SNT_{o,i,t}$ and $(\Delta SNT_{i,t} - \Delta SNT_{p,i,t}) * D_{p,i,t}$ is for extremely pessimistic investor

sentiment if it is less than the limit of ΔSNT_P . $AR_{i,t-1}$ is for capturing the effect of the Auto-Regressive at group level.

In both Equations (6) and (7) if $(\beta_1 + \beta_2) < 0$ it means that when investor sentiment is extremely optimistic it exerts a reversal effect on returns. if $\beta_1 > 0$ and $(\beta_1 + \beta_3) < 0$ it means that when investor sentiment is extremely pessimistic it also exerts a reversal effect on returns.

4. Results and Discussion

4.1. Descriptive Statistics

Table 1 is demonstrating the results for descriptive statistics for all variables. In descriptive statistics, the average value of each variable in the context of all emerging economies has been mentioned and it is measured by mean value. The variation has been shown by standard deviation.

Table 1. Descriptive Statistics.

	Brazil	Russia	Indonesia	India	China	South Africa	Pakistan	Panel
EXTREMELY OPTIMISTIC LEVEL OF INVESTOR SENTIMENT (Ext. OPT)								
Mean	0.059	0.231	0.099	0.089	0.052	0.113	0.115	0.108
Max	6.831	8.556	4.646	7.178	1.968	5.319	3.690	8.556
Min	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Std. Dev.	0.313	0.507	0.247	0.242	0.127	0.278	0.247	0.305
MODERATE LEVEL OF INVESTOR SENTIMENT (Δ SENTIM)								
Mean	0.000	0.001	0.001	0.001	0.001	0.001	0.000	0.001
Max	7.064	4.278	5.029	8.444	2.087	10.166	4.659	10.166
Min	-7.101	-2.809	-5.218	-6.003	-1.799	-10.014	-4.354	-10.014
Std. Dev.	0.823	0.394	0.493	0.504	0.264	0.741	0.510	0.561
EXTREMELY PESSIMISTIC LEVEL OF INVESTOR SENTIMENT (Ext. PES)								
Mean	-0.098	-0.081	-0.100	-0.109	-0.060	-0.146	-0.115	-0.101
Max	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Min	-7.031	-2.358	-4.558	-6.003	-1.799	-10.014	-4.354	-10.014
Std. Dev.	0.537	0.194	0.232	0.261	0.131	0.432	0.241	0.319
MARKET RETURNS (MR)								
Mean	0.001	0.000	0.001	0.001	0.000	0.000	0.001	0.001
Max	0.137	0.202	0.076	0.163	0.094	0.091	0.083	0.202
Min	-0.160	-0.212	-0.110	-0.139	-0.093	-0.105	-0.077	-0.212
S.D	0.018	0.020	0.013	0.014	0.015	0.013	0.013	0.015
Observations	5219	5219	5219	5219	5219	5219	5219	36533

Table 1 is showing that the average value measured by mean is positive for optimist level sentiments in the context of all countries. Maximum mean value is 0.231 for Russia and lowest average is 0.052 for China. Minimum values in all cases are zero, which indicates that optimist level of sentiments is greater than 0. The variation in data is measured by standard deviation showing the

minimum variation is 0.127 and maximum variation is 0.507 in the context of China and Russia respectively.

In case of extremely pessimistic level of sentiments, the average values are negative, which are showing the pessimistic stage of investor's sentiments. The range of average values is from -0.146 to -0.060 for South Africa and China respectively. The average values for rest of countries are between these ranges. The variation in data measured by standard deviation is from 0.1311 to 0.537 for China and Brazil respectively. So, in the case of Brazil the investor sentiments have more variation in pessimistic sentiments.

As concerned moderate stage of sentiments, average values are closer to zero, with maximum mean is 0.001 and minimum mean is 0.000. The standard deviation showing the variation maximum i.e. 0.823 and minimum 0.264 for Brazil and China respectively. Average value of stock market returns having the range from 0 to 0.00. The variation in the stock market return is measured by standard deviation is from 0.013 to 0.0204 for Pakistan and Russia respectively.

4.2. Influence of Investor Sentiment Swings on Equity Returns

The impact of investor sentiment swings on equity returns is analyzed by decomposing investor sentiment into extremely optimistic levels, moderate level, and extremely pessimistic level.

Table 2 reports the impact of investor sentiment at its moderate level (Δ SENTIM), extremely optimistic level (Ext. OPT), and extremely pessimistic level (Ext. Pes) on equity returns at the country and group level. For the country-level analysis, the Auto Regressive model is applied and for the group-level analysis Dynamic Panel Regression is applied.

Table 2. Response of Equity Returns to Investor Sentiment Swings.

	Brazil	Russia	Indonesi a	India	China	South Africa	Pakista n	Panel
Constant	0.070**	0.712***	-0.079***	0.173***	-0.078***	-0.258**	0.162***	0.024***
Δ SENTI M	0.109*	0.271***	-0.069***	-0.210***	0.640***	0.042*	0.497***	0.145***
Ext. OPT	0.064	-0.469***	0.161***	-0.539***	0.495***	-0.015	0.259***	0.048*
Ext. PES	-0.010	0.777***	0.130***	0.153***	-0.169*	-0.149***	0.091*	-0.042**
AR (1)	0.054***	0.1286***	0.247***	0.114***	0.074***	0.183***	0.163***	0.424***
Adj-R ²	0.005	0.054	0.056	0.018	0.036	0.022	0.087	0.019
D.W	1.962	2.195	2.225	1.625	2.028	1.696	2.025	2.001

Δ SENTIM represents the moderate level of investor sentiment index, Ext. OPT represents an extremely optimistic level of investor sentiment, Ext. PES represents an extremely pessimistic level of investor sentiment, and AR (1) represents Auto Regressive term. (*) denotes a significant level at 1%, (**) denotes a significant level at 5%, and (***) denotes significance at a 10% confidence level.

Equity returns in Brazil, Russia, China, South Africa, and Pakistan respond significantly and positively to a moderate level of investor sentiment which indicates that the equity markets of these countries exhibit overpricing (underpricing) caused by the activities of optimistic (pessimistic) investors. These results are aligned with those of Namouri et al. (2018) & Li (2020a). Equity returns respond significantly and negatively to moderate level of investor sentiment in Indonesia and India,

which indicates that investors are correcting prevalent mispricing in these markets. These results are in accordance with those of Liu et al. (2011). The magnitude of the impact of a moderate level of investor sentiment on returns is highest (0.6396) in China and lowest (-0.0689) in Indonesia.

Equity returns are increased in response to the extremely optimistic level of investor sentiment in Indonesia, China, and Pakistan, which may be due to dominating role of extremely optimistic investors in these markets, who at their extreme level of optimism expect good returns, therefore, they indulge in extraordinary buying that results in increased demand, increased prices, and ultimately high payback. An increase in returns due to extreme optimism and extreme pessimism is also observed by Liu et al. (2011). Equity returns are decreased in Russia and India which indicates that investors in these markets are correcting the overvalued securities. These results are in accordance with those of Namouri et al. (2018). Equity returns do not respond to the extremely optimistic level of investor sentiment in Brazil and South Africa which may be due to the absence of irrational and extremely optimistic investors in these markets. This insignificant response is aligned with the results observed by Namouri et al. (2018).

Equity returns are increased under the influence of extremely pessimistic investor sentiment in Russia, India, China, and Pakistan which is likely due to the reason that investors at their extreme pessimism level, expect low returns, engage in extraordinary selling to minimize their losses, as a result, prices become undervalued and create a chance of high paybacks for actively buying investors. Equity returns are decreased in South Africa which reflects the correction of mispricing in this market. Market returns show no response to extremely pessimistic level in Brazil which is attributed to the absence of extremely pessimistic investors in this market. The equity markets of Russia, India, and South Africa are revealed to be more efficient and less prone to sentimental effects. Whereas, in Brazil and South Africa, investor sentiment swings have no effect on returns.

At the group level, the results reveal that equity returns respond significantly and positively to moderate and extreme level of optimism. Whereas it responds significantly and negatively to extremely pessimistic level of investor sentiment. It indicates that extremely optimistic investors enthusiastically enter the equity markets and invest eagerly in the market during their spans of over-optimism. In contrast, they sell their assets, avoid investments, and wait for opportunities during their over-pessimism. Significant results at an extreme level of optimistic and pessimistic investors are aligned with the study of Li (2020a) and Namouri et al. (2018).

4. Conclusions

At the country level, equity market returns respond significantly to extreme level of optimism in investors in all the markets except Brazil and South Africa. All markets except Brazil also respond significantly to extreme level of investor pessimism. Similarly, equity returns respond significantly to a moderate level of investor sentiment in all the countries under study. At the group level, market returns respond significantly to all three levels of investor sentiment namely extremely optimistic, moderate, and extremely pessimistic. In short, Investor Sentiment Swings have a significant effect on equity returns at all three stages (moderate, extreme optimism, and extreme pessimism) of sentiment in the selected emerging markets. Therefore, stakeholders may be aware of the relationship between investor sentiment swings and equity market return for better performance of the financial markets.

Sentiment, a trait of human behavior, cannot be quantitatively measured even through a well-defined and unified tool; thus, many proxies are used to quantify it. Similarly, the traits dependent on human sentiment are likely to show different results under different conditions. Therefore, there is a need to utilize many more measures to get more reliable results.

5.1. Practical Implications

The results of the research are useful for the policy makers to formulate suitable strategies for market efficiency. It also helps the investors in managing their asset portfolio and mitigating the risk by following the strategies for portfolio and risk management

5.2 Limitations and Future Aspects of the Study

Human sentiments cannot be measured quantitatively despite the availability of a unified tool, and many measurements are taken as a proxy for investor sentiments. So, a comprehensive proxy is required to use for the measurement of sentiments in future studies. The study has been carried out in the context of emerging economies only. In future studies, the research may be conducted in both emerging and developed countries to compare the results.

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