

## Investor Sentiment and Stock Returns: Evidence in Malaysia

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### ABSTRACT

*The objective of the research is to investigate the role of investor sentiment in Malaysia's stock returns. The state of investor rationality and efficiency of the stock market is debated in theoretical lenses of the behavioural finance paradigm. The behavioural factor, namely, closed-end fund discount, advance-decline ratio, trading volume/turnover, consumer sentiment index (CSI) and business condition index (BCI) that act as the sentiment proxies. These variables are utilized to analyse the relationship with stock returns by implementing a statistical method including Ordinary Least Square (OLS) regression model. The research findings are suggested consistently with theoretical perspectives on the view of behavioural finance and existing evidence on revealing the relationship between sentiment and stock market return index that is statistically significant. However, the risk proxies' relationship with the stock market is heterogeneous that is in line with the view of the stock market in a complex state. In summary, this study offers important finance body of knowledge (academic), practice (investor) and policy implications through a new insight of theoretical and empirical evidence on the role of sentiment towards the stock market in Malaysia. Briefly, behavioural factors in particular sentiments can be taken into consideration instead only relying on a fundamental factor for stock investment decision making.*

## INTRODUCTION

Empirical studies of financial markets have uncovered numerous anomalies and puzzles, where asset returns behave in ways that traditional finance theories struggle to explain. Examples include short-horizon stock price momentum (Jegadeesh & Titman, 1993), long-run mean reversion (DeBondt & Thaler, 1985) and excess volatility (Shiller, 1981). To explain these and other anomalies, finance research has been extended to include the direct study of market participants, integrating psychological insights with neo-classical economic theories. Much of this literature is concerned with investor sentiment: its formation, development and possible impact on share returns. Seminal examples include Kahneman and Tversky (1973, 1974), DeLong, Shleifer, Summers, and Waldmann, (1990), Daniel, Hirshleifer and Subrahmanyam (1998), Odean (1998), and Barberis, Shleifer and Vishny (1998). These studies demonstrate that investor sentiment may divert asset prices from their “rational, fundamental” values.

Baker and Wurgler (2007) which defined sentiment as a belief about future cash flows or investment risks that are not justified by the facts at hand. Moreover, investor sentiment indeed represents optimism and pessimism of a bounded rational investor through the exogenous opinions or beliefs with regards to the future returns of asset prices. The word sentiment has been variously defined as an index expressing an opinion, irrational beliefs, erroneous beliefs, and investor opinions, on the expectation for future cash flows and investment risk (e.g. Solt & Statman, 1988; Morck, Shleifer, & Vishny, 1990; Barberis, Shleifer, & Vishny, 1998; Shefrin, 2008; Chang, Faff, & Hwang, 2012). Intrinsically, for the theoretical foundations of sentiment to be validated as well to secure its claims on the empirical evidence, a theory on investor sentiment must be justified for further research (Jasman, 2011). As such, a theory of investor sentiment warrants further scrutiny

to validate its theoretical foundations and to defend its empirical claims. Understanding human behaviours are rooted in psychology domains. In psychology perspectives, Cooley (1909) as cited in Stets (2003) defined sentiment as feeling raised by thought and intercourse with other minds. Dow (2011) added that sentiment which is interconnected with cognition and decisions is always involved with some sentiment.

## LITERATURE REVIEW

Basically, it is rooted in psychology domains when the study intends to understand how human behaviours operate in the decision-making process. As mentioned by Stets (2003), the sentiment was originally defined by Cooley (1909) as a feeling that stimulated by beliefs or opinion that associate with minds from another person in psychological perspectives. Another meaning for sentiment is cognition that is interrelated with the sentiment which consistent with neuroscience perspectives and decision making often involves some sentiment an emotion (Dow, 2010, 2011). Based on the definition of sentiment that already been discussed, there is no actual definition for sentiment until now.

There is no definite measurement for sentiment proxies until now (Baker and Wurgler, 2006; Schmeling, 2009). “Now the question is no longer, as it was a few decades ago, whether investor sentiment affects stock prices, but rather how to measure investor sentiment and quantify its effect”, as confirmed by Baker and Wurgler (2007, p. 130). Due to indefinite of sentiment measurement, previous empirical evidence related to the impact of sentiment on stock returns automatically become inconsistent such as Aissia (2016) where Liston (2016) documented that investor sentiments influenced stocks return. Baker and Wurgler (2006) show that stocks that have subjective valuations and are difficult to arbitrage mostly tend to be

small, young, highly volatile, unprofitable, non-dividend paying, extreme growth and distressed stocks, and these stocks are main victims of investor sentiment.

Researchers in behavioural finance establish the strong influence of investor sentiment on asset prices (Baker & Wurgler, 2006). Earlier studies had investigated the influence of investor sentiment on asset prices of different sizes of companies (small versus large firms), various countries (developed versus emerging), and various sectors (finance, industrial and properties) (Brown & Cliff, 2004; Fauzias, Izani & Rashid 2013). These studies reported a strong positive connection between investor sentiment and stock prices. Stock price tends to shoot upward during the state of higher investor sentiment. Furthermore, investor sentiment is widely determined by the overly optimistic or pessimistic behaviour of the investors. Investor sentiment is also strong when investors rely on noise and invest in stocks that are difficult to arbitrage (Qiu & Welch, 2006).

Shliefer and Vishny (1997) note that, in extreme circumstances, it may be difficult for professional arbitrageurs to bring the mispriced security value back to its fundamental values. The effects of sentiment on stock returns are more pronounced in countries with low institutional development or countries which are prone to herd-like behaviour and overreaction. However, Brown and Cliff (2004) do not find any such increased tendency for sentiment to affect the returns of small stocks. Also, Berger and Turtle (2012) document that sentiment has a greater effect on stocks with specific firm characteristics especially firms that are transparent whereas Zhu and Niu (2016) suggest that firms with high information uncertainties are more affected by sentiment. In a recent study, Tuyon, Ahmad and Matahir (2016) noted that the degree to which sentiment affects stock prices may differ based on firm-size.

Past papers have largely concentrated on western and developed markets, especially the US stock market (e.g. Baker & Wurgler, 2006; Lemmon & Portniaguina, 2006; Abdelhédi-Zouch, Abbes, & Boujelbène, 2015; Smales, 2017). The literature on emerging markets and also Asian markets is not as extensive as developed markets. It is important to manage more investigation on investor sentiment in Asians market especially in Malaysia market to provide knowledge for the global investor since lack in the literature (Tuyon, Ahmad & Ghazali, 2016). Besides that, people cultures in Asian might have a greater level of behavioural biases due to a variety of cultures than other countries (Kim & Nofsinger, 2008). Therefore, the study hopes to simultaneously fill these gaps in the literature by examining the relationship for investor sentiment on stock return in Malaysia.

## **METHODOLOGY**

### **Data Descriptions**

Data collected from secondary data due to its validity in term of measurement and information accessibility easily to be gathered through a computerized database. The period of the study conducted from January 2007 until December 2017 in monthly frequencies covered total. Sample collected from Bursa Malaysia specifically in the main market index including 12 firms of Large Cap (KLCI 30 index), 9 firms of Mid Cap (mid-70 index), 9 firms of the small-cap index and 8 firms of fledging index that in form of firm-level. There are five different proxies of investor sentiment including advance-decline ratio (ADR), closed-end fund discount (CEFD), trading volume (TV), consumer sentiment index (CSI) and business condition index (BCI). Data for CSI and BCI are obtained from Malaysian Institute of Economic Research (MIER) websites, while the rest of the data are obtained from the data stream (Thomson Reuter). The interpolation method is utilized because the CSI and BCI data

are originally in quarterly frequency and need to be converted into the monthly frequency to ensure the frequency of all variables are

consistent. As for the equity data, we use 12 aggregate indices data and returns.

### Empirical Model

The following regression, equation (1) is utilized to investigate the significant relationship between stock returns and investor sentiment.

$$R_t = \alpha + \beta CSI_t + \beta BCI_t + \beta ADR_t + \beta CEFD_t + \beta TV/TURN_t + \beta BTM_t + \beta DY_t + \varepsilon_t \quad (1)$$

$R_t$  represents a dependent variable in the period series,  $t$ . While sentiment proxies represent independent variables consist of CSI, BCI, ADR, CEFD and TV, control variables also included in the models, BTM and DY.

Time series stationarity tests conducted to diagnose the collection each of the data whether suffering unit root problem or not by implementing augmented Dicker-Fuller test (ADF) (1979) test and the Philips-Perron (PP) (1988) test. Then, regression model given will be analysed by using time series ordinary least square test through linear regression approach to estimate the relationship in average perspectives based on firm-level segmentation namely, KLCI top 30 index, mid-70 index, small-cap index and fledging index in Bursa Malaysia main market.

## RESULTS AND DISCUSSION

### Descriptive Statistics

Descriptive statistic summarizes the normality on the coefficient description that consists of variability measurement including standard deviation, minimum, maximum, and Jarque-Bera. Referring to Table 1, CSI and BCI have the same mean (4.5509) and (4.6138) for all different group of the index. The similar maximum value (4.8211) for CSI and (4.8203) for BCI. While the minimum value for CSI (4.1158) and BCI (3.9853) with a standard deviation of 0.2011 for CSI and 0.1591 for BCI. As for stock returns, small-cap has the highest maximum value of 98.0829 and lowest minimum value of -75.6902 with 0.9324 for the mean. As for ADR, KLCI 30 has the highest maximum value of 3.9644 and lowest minimum value of 1.7492 with 0.578 of standard deviation. Meanwhile, KLCI 30 has

the highest maximum value of 42.1392 with a standard deviation of 7.3986 but the lowest minimum value of -0.7917 for small-cap for CEFD variable. The lowest minimum value and highest maximum value for TV/TURN goes to small-cap which is 21.2936 and 13.2162 with a standard deviation of 1.8205. Even though KLCI 30 has the lowest minimum value of 0.1099 but the fledging index has the highest maximum value of 15.3783 with 2.7610 of standard deviation for BTM variable. Fledging index has the lowest minimum value (4.5525) and highest maximum value (-0.3857) for DY with 1.5014 of standard deviation. Most of the variables in all different index are normally distributed as the jarque-bera shows less than 0.05 of probability except for TV/TURN where most of the segments including KLCI 30, Mid 70 and small-cap are more than 0.05 for jarque-bera probability. Also, only mid 70 for CEFD and small-cap for DY that are not significance which indicates non-normal of the dataset.

**Table 1** Descriptive statistics of raw data for different indexes in Malaysia

Variables	Index	Mean	Min	Max	Std Dev	Jarque-Bera
R	KLCI 30	2.7821	-41.1099	42.8790	12.6924	0.0092***
	Mid 70	0.6396	-44.6747	38.6122	11.7606	0.0000***
	Small Cap	0.9324	-75.6902	98.0829	17.4796	0.0000***
	Fledging	0.2328	-26.6446	65.5168	8.7751	0.0000***
CSI	KLCI 30	4.5509	4.1558	4.8211	0.2011	0.0009***
	Mid 70	4.5509	4.1558	4.8211	0.2011	0.0009***
	Small Cap	4.5509	4.1558	4.8211	0.2011	0.0009***
	Fledging	4.5509	4.1558	4.8211	0.2011	0.0009***
BCI	KLCI 30	4.6138	3.9853	4.8203	0.1591	0.0000***
	Mid 70	4.6138	3.9853	4.8203	0.1591	0.0000***
	Small Cap	4.6138	3.9853	4.8203	0.1591	0.0000***
	Fledging	4.6138	3.9853	4.8203	0.1591	0.0000***
ADR	KLCI 30	2.5097	1.7492	3.9644	0.5378	0.0006***
	Mid 70	0.1105	0.0258	0.7345	0.0896	0.0000***
	Small Cap	0.2479	0.0645	1.5041	0.1934	0.0000***
	Fledging	0.1134	0.0000	0.8671	0.0961	0.0000***
CEFD	KLCI 30	18.2276	7.7948	42.1392	7.3986	0.0001***
	Mid 70	28.9354	19.0837	37.8492	4.8229	0.0946*
	Small Cap	0.9696	-0.7917	8.1942	2.2346	0.0000***
	Fledging	0.2653	-0.4225	4.7404	0.8235	0.0000***
TV/TURN	KLCI 30	18.7053	17.5078	20.6749	0.5509	0.1473
	Mid 70	18.9601	17.2323	21.0043	0.6949	0.0643*
	Small Cap	17.5194	13.2162	21.2936	1.8205	0.2809
	Fledging	16.8530	14.0931	20.9464	1.2643	0.0037***
BTM	KLCI 30	1.0920	0.1099	3.0970	0.6464	0.0000***
	Mid 70	2.0977	0.8190	7.4686	1.1180	0.0000***
	Small Cap	3.3874	0.2089	14.1212	2.4160	0.0000***
	Fledging	2.9963	1.1252	15.3783	2.7610	0.0000***
DY	KLCI 30	2.2655	1.3737	2.7311	0.3290	0.0000***
	Mid 70	0.8840	-0.0726	2.0028	0.7063	0.0042***
	Small Cap	1.4778	-0.0726	3.1032	0.9396	0.0751*
	Fledging	1.5633	-0.3857	4.5525	1.5014	0.0001***

Notes: Acronym; Consumer sentiment index (CSI), business confidence index (BCI), advance decline ratio (ADR), closed end fund discount (CEFD), trading volume/turnover (TV/TURN), book-to-market ratio (BTM), dividend yield (DY). The asterisk \*, \*\*, and \*\*\* denote significant levels of 1%, 5% and 10% respectively.

### Stationarity Tests

Unit root test or stationarity test conducted to analyse the collection of data whether suffering unit root problem to diagnose the stationarity for each of the variables in to ensure the robustness of the estimation. Therefore, the augmented Dicker-Fuller test (ADF) (1979) test and the Philips-Perron (PP) (1988) test had been utilized as a measurement to analyse the

unit root problem where returns. As shown in Table 2, ADR and TV/TURN are stationary at the level for all different index at the firm level which means the p-value is less than 0.05 while CSI, BCI, CEFD, BTM and DY variables are significance after conduct first-order difference as the p-value is still more than 0.05 at the level.

**Table 2** Summarization for results of time series data unit root tests from different indexes in Malaysia

Stationarity Test							
KLCI 30		Mid 70		Small Cap		Fledging	
ADF	PP	ADF	PP	ADF	PP	ADF	PP
Returns: Mostly significance at level		Returns: Mostly significance at level		Returns: Mostly significance at level		Returns: Mostly significance at level	
CSI: Mostly significance at 1 <sup>st</sup> diff		CSI: Mostly significance at 1 <sup>st</sup> diff		CSI: Mostly significance at 1 <sup>st</sup> diff		CSI: Mostly significance at 1 <sup>st</sup> diff	
BCI: Mostly significance at 1 <sup>st</sup> diff		BCI: Mostly significance at 1 <sup>st</sup> diff		BCI: Mostly significance at 1 <sup>st</sup> diff		BCI: Mostly significance at 1 <sup>st</sup> diff	
ADR: Mostly significance at level		ADR: Mostly significance at level		ADR: Mostly significance at level		ADR: Mostly significance at level	
CEFD: Mostly significance at 1 <sup>st</sup> diff		CEFD: Mostly significance at 1 <sup>st</sup> diff		CEFD: Mostly significance at 1 <sup>st</sup> diff		CEFD: Mostly significance at 1 <sup>st</sup> diff	
TV: Mostly significance at level		TV: Mostly significance at level		TV: Mostly significance at level		TV: Mostly significance at level	
BTM: Mostly significance at 1 <sup>st</sup> diff		BTM: Mostly significance at 1 <sup>st</sup> diff		BTM: Mostly significance at 1 <sup>st</sup> diff		BTM: Mostly significance at 1 <sup>st</sup> diff	
DY: Mostly significance at 1 <sup>st</sup> diff		DY: Mostly significance at 1 <sup>st</sup> diff		DY: Mostly significance at 1 <sup>st</sup> diff		DY: Mostly significance at 1 <sup>st</sup> diff	

Notes: This table summarizes unit root test using the method of augmented Dicker-Fuller test (ADF) and Philips-Perron (PP) for firms in each index. Acronym; Consumer sentiment index (CSI), business confidence index (BCI), advance-decline ratio (ADR), closed-end fund discount (CEFD), trading volume/turnover (TV/TURN), book-to-market ratio (BTM), dividend yield (DY).

### Regression Analysis

After analysing the unit root tests, the study proceeds to regression model analysis by using the Ordinary Least Squared (OLS) approach to investigate the significant relationship of investor sentiment towards stock returns in Malaysia by referring Tables 3(a), 3(b), 3(c) and 3 (d). Based on the result in Table 3(a), there is a significant relationship between investor sentiment and stock returns. However, not all of the proxies for sentiment are consistently significance at the same time for all firms listed in the KLCI 30 index. CSI is negatively significance towards returns for firm 7,8,9 and 11 while BCI is positively significance towards returns for firm 1,3,4,8,9 and 11. There is positive significance at the 10% level between CEFD and returns for most of the firms. Firms 5, 6 and 7 show a positive significance result between ADR and returns which similar to TV/TURN where only firm 9 and 10 is positively significance. Then, *R*-squared represents the coefficient of determination to identify the relationship between sentiment and stock returns. Therefore, 92.13% variations of dependent variables which are stock return are

explained by independent variables which are the sentiment variables while the remaining percentage is explained by other factors which are the error terms,  $\epsilon$ . The model is fit as the probability (*f*-statistics) shows a significant result of the 99% confidence interval that below 0.01.

There is a significant relationship between sentiment and returns for Mid 70 Index as referred in Table 3(b) but not consistently significance for all different proxies for the sentiment which occur similarly with small-cap index and fledging index. Among all sentiment proxies, CEFD is positively significance towards returns with 99% of the confidence interval for most of the firms. There is a positive relationship between CSI, BCI, TV/TURN and returns which only a few firms affected as shown from the result. The relationship between ADR and returns is negative significance where the higher the sentiment, the lower the stock returns of the firms. Then, *R*-squared represents the coefficient of determination to identify the relationship between sentiment and stock returns. Therefore, 92.9% variations of

dependent variables which are stocks return are explained by independent variables which are the sentiment variables while the remaining percentage is explained by other factors which are the error terms,  $\epsilon$ . The model is fit as the probability ( $f$ -statistics) shows a significant result of the 99% confidence interval that below 0.01.

Besides that, the result for regression analysis can be seen in Table 3(c) as there is significance relationship between investor sentiment and returns but not consistently significance for all sentiment proxies for small-cap index. Among all sentiment proxies, CEFD is positively significance towards returns with 99% of the confidence interval for most of the firms. While BCI and TV/TURN are positively significance towards returns in which 4 to 5 firms affected but there is positively and negatively significance between CSI and returns. However, there is no significant relationship between ADR and returns for all firms. Then,  $R$ -squared represents the coefficient of determination to identify the relationship between sentiment and stock returns. Therefore, 97.44% variations of dependent variables which are stock return are explained by independent variables which are

the sentiment variables while the remaining percentage is explained by other factors which are the error terms,  $\epsilon$ . The model is fit as the probability( $f$ -statistics) shows a significant result of the 99% confidence interval that below 0.01.

For the last result for linear regression analysis as shown in Table 3(d), there is a significant relationship between sentiment and stock returns for the fledging index but not consistently significance for all sentiment proxies. CSI is negatively and positively significance towards returns for firms 2, 3 and 5. While the rest of the data, BCI, ADR, CEFD and TV/TURN are positively significant when giving impacts towards returns in Malaysia fledging index. Then,  $R$ -squared represents the coefficient of determination to identify the relationship between sentiment and stock returns. Therefore, 90.39% variations of dependent variables which are stock return are explained by independent variables which are the sentiment variables while the remaining percentage is explained by other factors which are the error terms,  $\epsilon$ . The model is fit as the probability ( $f$ -statistics) shows a significant result of the 99% confidence interval that below 0.01.

**Table 3(a) Result of linear OLS regression on sentiment towards sentiment for Top 30**

Result for Regression Analysis for Top 30										
Model 1: Stock Returns										
	Cons	CSI	BCI	ADR	CEFD	TV/TURN	BTM	DY	R-Squared	F-Stats
Firm 1	0.6076 (0.6090)	-2.4956 (5.4112)	12.4837 *** (3.7399)	-0.0534 (20.3133)	47.9534 *** (3.1361)	-0.0784 (0.9467)	-2.7289 (2.7186)	3.5712 (2.3023)	0.7191	44.9901 ***
Firm 2	-5.3020 (6.0585)	-2.5159 (5.0520)	-2.0557 (4.0266)	12.0165 (16.5641)	23.1243 *** (2.8961)	0.3622 (0.3587)	-52.8518 *** (4.0230)	5.3675 *** (2.0225)	0.8637	111.3183 ***
Firm 3#	-3.8086 (7.5395)	0.2990 (3.4286)	-5.6552 ** (2.5804)	0.1203 (5.2664)	0.6589 (8.6947)	0.3140 (0.4935)	-107.2558 *** (16.3346)	-3.5545 (3.6224)	0.8141	75.6754 ***
Firm 4	5.3327 (17.9755)	-4.3266 (8.8122)	20.4651 *** (6.4671)	-7.7346 (31.1770)	-1.8629 (2.4730)	-0.2707 (0.9611)	-117.0533 *** (28.9285)	2.3744 (4.7031)	0.4352	13.5419 ***
Firm 5	-13.3435 (8.2151)	3.4236 (4.8479)	-4.1952 (3.4002)	35.9757 ** (16.0751)	52.8069 *** (6.6983)	0.8015 (0.4987)	-1.8306 (2.2624)	-0.0384 (1.9804)	0.4837	16.4633 ***
Firm 6#	-0.4536 (5.2371)	2.1128 (2.2512)	1.1174 (1.6323)	59.2434 *** (4.5673)	-23.0722 *** (5.9615)	0.0321 (0.2739)	-391.5244 *** (29.7776)	2.4313 *** (0.7224)	0.9213	205.5693 ***
Firm 7	-0.7990 (2.7946)	-6.9764 ** (3.4006)	-0.0204 (2.4244)	12.7835 ** (5.3638)	2.1533 *** (0.3882)	0.0431 (0.2149)	-171.3119 (122.2053)	6.6976 (6.9899)	0.5996	26.3101 ***
Firm 8	5.2288 (5.8185)	-4.6785 * (2.4850)	5.3502 *** (1.7359)	0.0104 (8.8936)	13.2547 *** (1.0579)	-0.2944 (0.3638)	-128.2516 *** (11.3167)	-1.0795 (0.8954)	0.9199	201.8480 ***
Firm 9	-31.4173 ** (15.0598)	-20.0769 *** (7.4013)	17.2580 *** (5.2582)	-5.2686 (35.6963)	27.6162 *** (5.1213)	1.9681 ** (0.9219)	1.6929 (3.8386)	-9.6915 (8.0307)	0.2993	7.5052 ***
Firm 10	-39.8529 *** (10.2679)	9.5113 (10.656)	-11.4109 (8.1388)	3.7002 (33.9159)	9.1148 *** (2.2805)	2.3522 *** (0.5906)	-52.3806 *** (4.9132)	-1.7422 (3.1136)	0.6776	36.9338 ***
Firm 11	0.3201 (0.7406)	-17.4835 ** (6.8276)	21.2773 *** (4.8915)	-8.7700 (9.2502)	27.8103 *** (5.3984)	0.2573 (1.1119)	-1.6667 (1.8021)	0.8666 (3.3039)	0.3563	9.7257 ***
Firm 12	-8.4841 (10.8678)	-0.3590 (3.8443)	-0.8922 (2.8664)	24.4507 (16.5291)	36.4187 *** (8.6077)	0.4590 (0.5751)	-52.2897 *** (15.3094)	-3.9753 (2.6749)	0.8023	71.3173 ***

Notes: Acronym; Consumer sentiment index (CSI), business confidence index (BCI), advance-decline ratio (ADR), closed-end fund discount (CEFD), trading volume/turnover (TV/TURN), book-to-market ratio (BTM), dividend yield (DY). The  $R^2$  represents  $R$ -squared for OLS regression. The asterisk \*, \*\*, and \*\*\* denote significant levels of 1%, 5% and 10% respectively, refer to Prob,  $p$ -value. The value in parentheses is the standard error and non-parentheses are the coefficients.

**Table 3(b) Result of linear OLS regression on sentiment towards sentiment for Mid Cap 70**

Result for Regression Analysis for Mid Cap 70										
Model 1: Stock Returns										
	Cons	CSI	BCI	ADR	CEFD	TV/TURN	BTM	DY	R-Squared	F-Stats
Firm 1	8.7461 (15.8959)	27.3336 *** (8.3292)	-6.1699 (6.0182)	-5.9893 (6.7918)	26.1859 *** (3.8230)	-0.3887 (0.8674)	-45.3731 *** (5.8172)	20.4393 *** (4.3819)	0.7760	60.8604 ***
Firm 2	-10.8718 ** (4.9153)	-2.8725 (2.4245)	9.1302 *** (1.8845)	-3.5965 (2.9411)	34.9998 *** (4.3716)	0.6762** (0.2906)	-50.9637 *** (9.1462)	2.5205 * (1.4329)	0.9378	265.0911 ***
Firm 3	-18.9183 (13.3906)	-2.4914 (4.5106)	18.5137 *** (3.4241)	-13.4975 *** (5.0541)	56.3075 *** (3.0933)	1.1325 (0.7470)	-0.7706 * (0.4209)	-2.5851 (3.9665)	0.7930	67.2971 ***
Firm 4	9.4532 (9.6227)	0.0590 (4.8754)	-2.6368 (3.3860)	-17.4033 ** (7.9665)	0.1940 (0.1835)	-0.5284 (0.6513)	-1284.399 *** (205.9288)	32.3640 *** (11.7369)	0.5525	21.6969 ***
Firm 5	-23.6194 (19.6397)	4.6024 (6.1036)	-6.5327 (4.6415)	-21.3704 *** (5.9378)	-4.8976 (3.0352)	1.4039 (1.0848)	-159.3760 *** (17.7063)	-5.7173 * (2.9208)	0.7393	49.8218 ***
Firm 6	-30.9712 * (16.6481)	-1.6945 (5.2207)	-1.3680 (4.1879)	-6.5570 (4.3164)	-11.6834 ** (5.7446)	1.6998 * (0.90202)	-19.4251 *** (1.3510)	-0.3890 (2.7527)	0.8004	70.4686 ***
Firm 7	4.8433 (8.7405)	6.7035 (4.2001)	4.5247 (3.1542)	8.3504 (7.3824)	26.6963 *** (2.2572)	-0.2906 (0.5542)	-30.6506 *** (4.1106)	30.5965 *** (4.6741)	0.7433	50.8744 ***
Firm 8	-18.9183 (13.3906)	-2.4914 (4.5106)	18.5137 *** (3.4241)	-13.4975 *** (5.0541)	56.3075 *** (3.0933)	1.1325 (0.7470)	-0.7706 * (0.4209)	-2.5851 (3.9665)	0.7930	67.2971 ***
Firm 9	-23.8455 (19.7128)	-0.6151 (7.6811)	2.7865 (5.3419)	5.8314 (11.0023)	25.5256 *** (9.1367)	1.2441 (1.0806)	-0.3656 (2.4107)	-2.8899 (2.7559)	0.2148	4.8064 ***

Notes: Acronym; Consumer sentiment index (CSI), business confidence index (BCI), advance-decline ratio (ADR), closed-end fund discount (CEFD), trading volume/turnover (TV/TURN), book-to-market ratio (BTM), dividend yield (DY). The R<sup>2</sup> represents R-squared for OLS regression. The asterisk \*, \*\*, and \*\*\* denote significant levels of 1%, 5% and 10% respectively, refer to Prob, p-value. The value in parentheses is the standard error and non-parentheses are the coefficients.

**Table 3(c) Result of linear OLS regression on sentiment towards sentiment for Small Cap**

Result for Regression Analysis for Small Cap										
Model 1: Stock Returns										
	Cons	CSI	BCI	ADR	CEFD	TV/TURN	BTM	DY	R-Squared	F-Stats
Firm 1	-1.1669 (2.6942)	9.1602 ** (4.3254)	-2.0881 (3.1368)	1.8620 (2.1071)	56.3612 *** (3.0608)	0.06720 (0.1492)	-33.2905 *** (1.6404)	-11.0788 ** (4.5897)	0.9479	319.3790 ***
Firm 2	-13.7300 (13.3891)	23.0513 * (13.0832)	15.8030 * (8.2408)	1.4526 (8.2445)	19.2005 *** (2.4563)	0.8925 (0.8237)	-11.0796 *** (2.4668)	2.5819 (4.6976)	0.6372	30.8555 ***
Firm 3	0.2688 (0.6425)	-3.0041 (4.5118)	4.2919 (3.2117)	0.1784 (5.1836)	31.0614*** (2.1257)	-0.1789 (0.5301)	-30.8076 *** (1.6609)	58.0697 (4.5742)	0.8766	122.8244 ***
Firm 4	1.3605 (3.6844)	-2.8511 (3.5017)	8.1436 *** (2.4845)	1.3092 (3.1235)	105.5009 *** (8.2495)	-0.0677 (0.2545)	-13.5075 *** (2.0567)	8.9190 *** (2.3816)	0.9000	158.2043 ***
Firm 5	-12.4803 * (7.5183)	-0.7791 (4.9377)	11.3074 *** (3.7693)	-2.7046 (3.1459)	32.1230 *** (2.0725)	0.8053 * (0.4622)	-48.3525 *** (2.6384)	-3.8433 * (2.2679)	0.9405	277.7455 ***
Firm 6	-24.0823 *** (7.1965)	-20.6460 ** (10.1946)	-0.6647 (7.3996)	4.1346 (2.7073)	45.1648 *** (4.6942)	1.4051 *** (0.4301)	-12.5354 *** (0.8461)	15.6190 (22.5051)	0.8449	95.6881 ***
Firm 7	-0.9755 (3.5767)	3.0321 (2.7871)	5.7158 ** (2.1908)	2.2359 (1.9616)	129.1560 *** (7.5162)	0.0570 (0.2144)	-14.5013 *** (1.2461)	0.8255 (0.7061)	0.9691	550.3492 ***
Firm 8	-6.9005 (4.3145)	-5.3633 ** (2.7004)	1.9053 (1.8841)	-3.1976 (2.5757)	14.8124 *** (1.1070)	0.4623 * (0.2771)	-141.1995 *** (11.3197)	3.6528 *** (1.1045)	0.9461	308.6609 ***
Firm 9	-10.5888 * (6.0805)	-7.0372 ** (2.9563)	5.9251 *** (2.1305)	-1.0623 (1.9266)	51.5818 *** (2.8632)	0.6193 * (0.3542)	-39.0089 *** (2.0342)	-0.9508 (0.9918)	0.9744	669.2138 ***

Notes: Acronym; Consumer sentiment index (CSI), business confidence index (BCI), advance-decline ratio (ADR), closed-end fund discount (CEFD), trading volume/turnover (TV/TURN), book-to-market ratio (BTM), dividend yield (DY). The R<sup>2</sup> represents R-squared for OLS regression. The asterisk \*, \*\*, and \*\*\* denote significant levels of 1%, 5% and 10% respectively, refer to Prob, p-value. The value in parentheses is the standard error and non-parentheses are the coefficients.



**Table 3(d) Result of linear OLS regression on sentiment towards sentiment for Fledging**

Result for Regression Analysis for Fledging										
Model 1: Stock Returns										
	Cons	CSI	BCI	ADR	CEFD	TV/TURN	BTM	DY	R-Squared	F-Stats
Firm 1#	-1.6619 (2.8260)	-3.8610 (2.3986)	5.9933 *** (1.7234)	2.2529 (4.0527)	254.2261 *** (18.7254)	0.1115 (0.2174)	51.0379 *** (4.7076)	0.2539 (0.5167)	0.6965	40.3316 ***
Firm 2	-4.6626 (5.8263)	-12.2822 * (6.6429)	12.8041 ** (5.1583)	-0.7121 (5.0490)	68.5390 *** (11.0224)	0.3515 (0.3880)	-13.1216 *** (1.5571)	6.3674 (4.4027)	0.7559	54.4165 ***
Firm 3	2.1468 (4.4181)	9.2027 * (5.0790)	-7.4428 ** (3.7274)	19.6750 *** (5.7157)	11.4337 (16.9101)	-0.2569 (0.3179)	-13.0200 *** (1.1277)	2.0586 (2.3376)	0.7774	61.3765 ***
Firm 4	-10.1083 *** (3.8035)	-4.7262 (6.4970)	7.5829 (4.6626)	10.2435 ** (4.5477)	88.5550 *** (7.0068)	0.5311 ** (0.2422)	-14.6113 *** (1.6425)	-4.0422 * (2.3020)	0.8640	111.5999 ***
Firm 5	-18.0804 *** (5.9512)	-16.3505 * (9.0650)	23.7732 *** (6.5929)	8.8567 (5.9021)	1.5934 (2.0578)	1.3736 *** (0.4497)	-41.9361 *** (6.5490)	-3.3070 (2.6658)	0.5104	18.3152 ***
Firm 6	2.1190 (12.3180)	15.5943 (12.7327)	1.3374 (9.2586)	-1.1045 (11.5916)	44.5438 ** (18.6331)	-0.1577 (0.7807)	-1.3523 (1.11669)	-5.4866 * (3.1407)	0.2130	4.7562 ***
Firm 7	-8.2792 ** (3.2228)	-2.5813 (3.9524)	12.2299 *** (2.9958)	2.7528 (3.9440)	153.8848 *** (16.6321)	0.6152 ** (0.2534)	-7.0987 *** (2.5291)	5.7624 *** (0.7352)	0.9039	165.1835 ***
Firm 8	-0.9234 (7.0172)	-0.6887 (6.2570)	6.1160 (4.4598)	3.5860 (4.2384)	2.6060 (4.4317)	0.1566 (0.3924)	-40.3332 *** (1.9220)	-2.4931 (3.3867)	0.8094	74.6370 ***

Notes: Acronym; Consumer sentiment index (CSI), business confidence index (BCI), advance-decline ratio (ADR), closed-end fund discount (CEFD), trading volume/turnover (TV/TURN), book-to-market ratio (BTM), dividend yield (DY). The  $R^2$  represents R-squared for OLS regression. The asterisk \*, \*\*, and \*\*\* denote significant levels of 1%, 5% and 10% respectively, refer to Prob,  $p$ -value. The value in parentheses is the standard error and non-parentheses are the coefficients.

## CONCLUSION

To recap, the study investigates the impact of investor sentiment towards stock returns based on firm-level listed in Bursa Malaysia. Segregation of sample including KLCI 30, mid-70, small-cap and fledging constructed to analyse which category is more sensitive to sentiment. This study is a time-series data analysis and utilized the linear ordinary least square (OLS) regression analysis for January 2007 until December 2017 approximately 10 years. The result based on OLS regression analysis shows that there is a significant relationship between investor sentiment and stock returns, however, not consistently significance for all proxies that utilized as sentiment proxies to give impact towards returns. The sentiment not only sensitive to small-cap firms but also the large firms after the result had been analysed. These indicators can be considered by the investors when deciding their investment activities because sentiment reflects the investor behaviour which sentiment with high indices causes optimism while sentiment with low indices causes pessimism that experienced by investors.

The quasi rationale of asset pricing model penetrates the existence of rational and irrational element as fundamental risk and behavioural risk respectively concluded in investors decision making towards the market especially the sentiment that can influence the investor behaviour to be underreacting (pessimistic) or overreact (optimistic) on the market fluctuations due to the dynamic and complex environment generally. Sentiment can be in any form such as news, rumours, and much more either external (surrounding; media) or internal factor (psychologically) influencing the human behavioural biases to make decision therefore relevant with Keynes' (1937) statement because the way of other people thinking also has the potential to give impact towards the investor perception on the market and the role of sentiment towards US stock market is having a non-linear relationship due to heterogeneous nature of their relationships.

There are implications on the research applied as the valuable finance body of knowledge (academic), practice (investor) and policy implications on the role of sentiment towards the stock returns in Malaysia. Firstly, this study contributes to academic purposes

for the readers and academician to understand the behavioural theoretical and empirical evidence regarding the sentiment. Secondly, for practitioner which this study can act as a guideline to assist the investor to make a smart decision making to ensure investor can adapt properly to their circumstances internally or externally on how the investor react or beliefs when sentiment influence the human behaviour to the stock market for being both rational and irrational in making a decision. Finally, the rules of policymaker should manage the systematic behavioural risk that overflow in the financial market to be able to minimize negative consequences of behavioural factor through the development of sufficient model regarding sentiment risk on stock market return.

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