



# The Influence of Market Timing and Investor Sentiment on the Performance of IPO Firms in Malaysia

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The dynamics of raising capital, the Initial Public Offering (IPO) firm performance, and the intention to re-issue equity capital immediately after the listing of IPO firms are still widely unknown within the contexts of emerging economies. Compared to other existing research on emerging countries, this present study envisages that market sentiment helps to form the demand for capital to take advantage of changes of market condition. Hence, alongside the conventional financial variables, this study aims to examine the influence of market timing and investor sentiment on the performance of the firms that raise capital immediately after initial public offerings. Using balanced panel data from 143 Malaysian IPOs listed on Bursa Malaysia for the period of 2004 to 2015, this study utilized the static framework to provide insight on IPO firm performance and the relationship with the market timing and investor sentiment. Timing is also considered, and is proxied by returns of the IPOs from three different dimensions. Investor sentiment was measured by the sentiment index, which was developed based on three IPOs proxies while the variables and relationships were controlled for growth, profitability, tangibility, size, and industry classification. The result of this study indicates that there is a significant positive relationship between timing and firm performance. It supports the market timing theory, whereby, managers will consider firm value, undervaluation, or overvaluation in their equity issuance or financing decision. Firm performance has an insignificant, negative link with tangibility, and a negatively significant link when timing proxy is in excess return. Firm performance has a positive significant relationship with growth opportunities and profitability. Consistent with previous studies, the



result of this study supports the notion that firms tend to underperform when sentiment is high and vice versa. The findings of this study would be a suitable reference for firm managers and investors to strategize for new issuances and investment decisions, respectively.

**Key words:** *Investor sentiment, market timing, financial performance, IPOs.*

## Introduction

Equity market timing is an important aspect in corporate financial policy. Equity market timing refers to the approach taken by firms to issue shares at a high price and repurchase them at a lower price, to exploit the temporary ups and downs of equity cost relative to the cost of other forms of capital. Extant literature on market timing discusses at least four major arguments; first, studies have shown that firms tend to issue equity instead of debt when market value is high and repurchase equity when market value is low (Loughran et al. 1994; Pagano et al. 1998). Second, studies revealed that on average and in the long-run, stock returns following corporate finance decisions provide that market timing is successful when firms issue equity while the cost of equity is relatively low, and repurchase it while the cost of equity is relatively high (Ritter 1991; Loughran & Ritter 1995; Brav & Gompers 1997; Eckbo et al. 2000 and Baker & Wurgler 2000). Third, in regard to the analysis of earning forecasts and realization around equity issues, the findings of existing studies suggest that firms tend to issue equity at times when investors are too enthusiastic about earning prospects (Loughran & Ritter 1997; Rajan & Servaes 1997; Teoh et al. 1998; Dennis & Sarin 2001; Dündar & Koç, 2018). Lastly, a study by Graham and Harvey (2001) found that two-thirds of CFOs agreed that the amount of stock undervalued or overvalued can be an important, or very important, consideration in issuing equity.

Based on the above arguments, one question comes into picture, what is the relationship between the timing effect and firm performance post equity issuance when firm managers time the market. To the best of the researcher's knowledge, there are no studies in existence that examine the effect of market timing and its relationship with firm performance, particularly with regards to Initial Public Offering (IPO) firms that subsequently issue equity offers. Thus, this study seeks to bridge this knowledge gap by looking at this issue from the perspective of Malaysian IPO firms that subsequently issue equity offers (or Season Offers) listed on the Malaysian stock exchange, Bursa Malaysia.

Analysis of the SEOs performance indicators is not new. There are a significant number of IPO firms that issue seasoned equity offerings (SEOs) within a very short period of time. Western literature has shown a mix of fundamental and behavioral factors that influence the long-run over- and under-performance of the IPOs reappearing with SEOs. There are three



major points that warrant further studies, first, recent literature on the role of investors' sentiment in the presence of market timing variable has shown contradictory findings as theoretically, investor sentiment is considered as an important variable (Yang & Copeland 2015). Second, existing studies have found several characteristics of firms that usually do not have predictive power, (small stocks, newly listed stocks, high or low return volatility stocks, etc.) the opposite is then shown once they are conditioned on sentiment.

This study was also motivated by the interest in designing a sentiment index that can be used to analyze the performance of different firms in Malaysia. The existing investor sentiment index (Fauzias et al. 2013) has been developed based on the time-series framework and is not suitable for cross-sectional analysis while in this study, investor sentiment is being developed to generate an index representing each firm, each year, using a cross-section method to supplement firm performance analysis based on a balanced panel data setting. The proxies for investor's sentiment in this study are IPO volume, market turnover, and dividend premium. Consequently, this study will significantly contribute to the body of the knowledge available on the existing sentiment index (Fauzias et al. 2013), which used readily available indexes from the Malaysia Institute of Economic Research (2010), particularly the Consumer Sentiment Index (CSI) and Business Condition Index (BSI). These indexes are based on time series as they were looking into the time frame of long and short-run impacts on investor sentiment on bank deposit flow.

In addition, Baker and Wurgler (2006) reported that investor sentiment would be more significant for emerging economies with volatile and small capitalization stocks (Deesomsak et al. 2004; Angabini and Wasiuzzaman 2011; Egbunike & Okoye, 2017). Hence, the testing of investor sentiment as a determinant of firm performance is more suitable for Malaysia. At the point this study is conducted, there is no study that has been done in the area of investor sentiment for IPOs in Malaysia. Therefore, this study attempts to investigate the performance of IPO firms that subsequently issued new equities. This study does so with a view to examine the role played by market timing and investor sentiment, alongside other fundamental factors in the Malaysian market.

The other sections in this study are organized as follows: Section 2 discusses the existing literature on the relationship between market timing and investor sentiment on firm performance, Section 3 discusses the methodology and data description of this study, Section 4 highlights the estimation results and finally, Section 5 presents recommendations derived from this study and the conclusion of this study.



## Literature Review

Conventional wisdom in corporate finance has always taught that the use of *judicious* aggregate of debt, enhances firm value and therefore, increases shareholder wealth. However, firms have to be cautious that the use of the *judicious* debt only signals quality before it reaches the optimum level of debt (Zainudin et. al (2017a, 2017b)). Thus firms need to carefully strategize and time their financing decisions to properly choose between either financing their investment through debt or new issues.

Factors affecting the performance of new issues and the reasons behind sudden movement in market demand of new issues, have demanded further attention in past literature. Market timing theories predict that managers time the market when issuing new stocks (Baker & Wurgler 2002; Lamont & Stein 2005). There are two versions of market timing, the first, focuses on information asymmetry as developed by Myers and Majluf (1984). The second, is based on a critical assumption that managers can time the market, it involves equity market timing, irrational investors or managers, and time-varying mispricing. La Porta et al. (1997) found that managers issue equity when they believe its cost to be irrationally low and repurchase equity when they believe its cost is irrationally high. Graham and Harvey (2001) on the other hand showed that CFOs also try to time the equity market. In their survey, two-thirds of the CFO respondents admitted to having issued equity dependant on the amount their stock is over, or undervalued. Hovakimian et al. (2004) found evidence of market timing, the result of their research showed that when there are high stock returns, the probability of equity issuance is increased without affecting the target leverage.

Conversely, investor sentiment is about the belief of investors, certain trends in investor decision making, how investors form their belief, the tendency to speculate, and overall expectations of investors about market movements (Baker & Wurgler 2007; Baker & Wurgler 2006; Barberis et al. 1998; Shleifer & Summers 1990). These definitions provide two major indications: Firstly, investor sentiment is widely about the belief of individual investors, and secondly, sentiment can be an outcome of certain expectations.

Recent studies on the Malaysian stock market found that investor sentiment is a significant determinant of stock return, see Fauzias et al. (2013) and Zainudin et al. (2019). Remarkably, in the study by Baker and Wuglar (2006), Daniel et al. (2002) and Lamont and Stein (2005), it was concluded that when compared to developed markets, investor sentiment is largely applicable, and has a stronger impact on, emerging markets. Two main reasons for this phenomenon exist, firstly, emerging markets exist when there are small and unstable companies. Secondly, the markets are carrying a larger burden of regulatory insufficiency to save retail investor interest. According to Abul and Rumi (1999), Mansor (2004), Abd



Rahim, Shaari and Harjito (2006) the overall Malaysian capital market co-integrates with other markets, and there is some sort of contagion effect among the markets.

The measurement of investor sentiment is measured through the creation of an index popularly known as the investor sentiment index. The index can be created using a number of variables through principle component analysis. Three major types of proxies were used to feed into the principle component analysis. Firstly, proxies that considered the consumer sentiment index and various other direct investor surveys to form the investor sentiment index (Qiu & Welch 2006). Secondly, market specific trading data that can be used to represent optimism (or pessimism) of investors. This market trading data includes turnover and market capitalisation, IPO under-pricing information, dividend to price information, etc. In a recent study, Fauzias at al. (2013) employed a palm oil market index and FTSE ASEAN global index as measures to monitor local market price generation and movement of local market with respect to the regional market. These were taken as proxies for investor sentiment in Malaysia. Finally, there are mixtures of the proxies used in more recent studies. These proxies are called mega measures and these include a combination of survey-based opinion data and trading-based market data. It is important to note that survey-based data largely covers the macro aspect of sentiment whereas trading based proxies cover the micro aspect of sentiment.

### **Market Timing and Firm Performance**

Market timing has been the subject of significant debates by both practitioners and academics. Managers attempt to provide the most accurate price which commonly leads to issues with mispricing and timing. The behavioral approach is obtained under time-varying mispricing, whereby irrationality of investors, which varies over time, plays a dominant role in the pricing of equities (Abdeljawad 2012).

The IPO timing decision of a firm is driven by its concern to minimize the offer mispricing due to the asymmetric distribution of information among investors. The IPO market timing emerges as an equilibrium outcome with higher offer price realization for the pioneer IPOs that better reflect investors' information, facilitate stronger spillover effect and trigger a large number of subsequent IPOs. Here, high price reveals good news but low price reveals lack of high bids and not necessarily bad news (Alti 2005).

Baker and Wurgler (2002) found that equity market timing is an important aspect of real financial policy. The implication of equity market timing is evident through capital structure, while market-to-book ratio can be used to measure the market timing opportunities perceived by managers. This finding reveals that low-leverage firms tend to raise funds when their valuations were high and high-leverage firms tend to be those who raise funds when their



valuations are high. It was concluded that capital structure is largely the collective outcome of past attempts to time the equity market (Baker & Wurgler 2002).

Another study by Ritter (1991) found that IPO firms underperform relative to indices and matching stocks in the three to five year period after going public. A similar finding on underperforming IPOs seasoned offerings was reported in studies by Loughran and Ritter (1995), Spiess and Affleck-Graves (1995), and Lee et al. (1999). Baker and Wurgler (2000) found that stock market returns are lower in the subsequent years after equity accounts for a large proportion of total financing. Moreover, numerous past studies have documented evidence of long-run underperformance of IPO firms following equity offerings in several major markets at other times; Levis (1993), Keloharju (1993), Lee et al. (1999), Arosio et al. (2001) and Gompers and Lerner (2003) documented weak long-term performance through use of event-time and buy-and-hold abnormal returns. Schultz (2003) examined a phenomenon known as pseudo market timing to explain the poor event-time performance of IPO stocks that recently issued an equity. He found that pseudo market timing can easily lead to a level of ex-post underperformance similar to what was documented for IPOs and SEO over the past 25 years. He suggests that to measure performance the use of calendar-time returns, as opposed to event-time returns, avoids the biases of pseudo market timing. For the purpose of this study, Tobins-Q was used to measure firm performance as it forms parts of the market model firm performance measurement (Schultz 2003).

Market timing has been significantly debated over the years as managers try to identify the most accurate price. In this regard, managers tend to encounter mispricing and difficulties in timing their subsequent issues. The behavioral approach is obtained under time-varying mispricing, whereby, the irrationality of investors, which varies over time, plays a dominant role in the pricing of equities (Abdel Jawad 2012).

### **Investor Sentiment and Firm Performance**

Managers time the market for equity issuance, mergers and acquisition activities, and dividend announcements (Baker & Wurgler 2002; Barberis et al. 1998; Fisher & Statman 2006; Lamont & Stein 2005). Bekaert and Harvey (2002) argued that there is a need for a new framework to understand the financial practices of managers and investors in emerging markets, as past studies have shown that emerging markets are inefficient; either structurally, informationally, or both (Dailami & Masson 2009). Emerging markets typically involve small, highly volatile firms that are trading in an efficient market and consequently, managers take advantage of the volatile market conditions in issuing new stocks. This adds to the changes in market sentiment.





According to the established literature on investor sentiment, the belief and emotion of investors is dominant in decision-making on matters related to financial markets (Brown & Cliff 2004). These investors are typically referred to as irrational investors who do not follow fundamental changes in the market such as trading on noise (Barber, Odean & Zhu 2006; 2009; Black 1986). The IPO market is particularly important for these irrational investors. For instance, the overconfident investors earn a relatively higher return and outperform the rational investors in primary markets (Hsu & Shiu 2010).

In the meantime, IPO underpricing, number of IPOs and IPO subscription ratios are considered as important determinants of market sentiment (Qiu & Welch 2006). Reviews of IPO activities in various countries reveal the influence of investor sentiment in primary markets. The extant literature reveals the fundamental and behavioral factors which influence IPO underpricing in the short- and long-term (Ritter & Welch 2002; Yong 2007). Kaustia (2004) discussed the presence of the strong disposition effect in primary markets, while Leite (2005) reported the strong connection between the presence of investor sentiment and a positive return in primary markets. Ljungqvist et al. (2006) explored the reasoning behind underpricing and found investor sentiment is a strong predictor of IPO underpricing, they also reported that issuers do not price very aggressively in popular markets due to the presence of investor sentiment.

Seasoned equities and investor sentiment are also strongly connected. Eckbo and Masulis (1995) summarized a number of studies on SEO and reported the presence of significant behaviorism in seasoned equity markets. On the contrary, Howe and Zhang (2010) argued that investor sentiment is not a significant factor behind over- or under-performance of SEOs. Instead, the study suggested that the demand for capital and market timing are the important factors for seasoned equity markets. In light of this contradicting evidence, the current study examined the influence of investor sentiment and market timing alongside other fundamental factors in determining the performance of IPO firms in Malaysia.

In regard to the above explanation, this study hypothesized that timing and investors' sentiment do influence firm performance. This study introduces a new investor sentiment index and investigates the interaction effect on firm performance through a cross-sectional effect with IPO stock return. Baker and Wurglar (2006) presented that there is evidence that investor sentiment has significant effects on the cross-section of stock prices.

## **Data and Methodology**

This study examined the performance of IPO firms in Malaysia that subsequently issue seasoned offers (hereafter called "IPO firms") and the determinant factors that influence the performance of IPO firms in the short and long-run. In the case of Malaysia, the average of



IPO firms' appearance within a short-period of time is 30%. As such, it would be interesting to see how these IPO firms perform in the long-run, particularly in consideration of timing effect, investor sentiment and other conventional firm-specific determinants factors, namely growth opportunities, tangibility, and profitability. This study also introduced investor sentiment index as a proxy for investor sentiment and analyzed the IPO firm performance using Tobins-Q as a measure of perceived firm potential (Welbourne & Andrews 1996). Moreover, a panel data regression was utilized to analyze the relationship between IPO firm performance, with the relevant determinants, and explanatory factors.

### **Data and Selection of Sample**

The dataset used in this study consists of Malaysian firms listed on Bursa Malaysia. This data was obtained from Thompson Reuters' Worldscope database for the period of 2004 to 2015. The data comprises of active and inactive IPO firms from the main board, second board, Mesdaq, and ACE. After screening, only 143 firms fulfill the requirements for selection. The criteria for selection are as follows, first, firms subsequently issued equity through seasoned offers. Secondly, firms must meet the requirement for dividend premium calculation, in terms of paying and non-paying dividend firms. The rationale for this criterion is to enable the calculation of dividend premium as a proxy to develop the investor sentiment index. In this study, the dividend premium was calculated based on Tangjitprom (2011).

Following the suggestions from Baker and Wurgler (2002), Fama and French (2002), as well as Rajan and Zingales (1995), financial firms' decisions on financing, are considered as reflections of the respective industry regulatory requirements on capital adequacy, or special considerations, rather than of independent capital policy. Hence, firms from the financial sectors and utilities firm were excluded from the study sample (these firms included banks, asset management firms, insurance firms, financial services firms, and real estate investments firms). Additional data on the sectors, size, and board characteristics were also collected and coded using dummy variables.

The final sample of this study consists of a balanced panel data whereby the same number of firm-year observations were used in each regression. The total number of firms included in the study was 143 firms and the firm-year observations amounted to 1716 observations.

### **Models and Variables of the Study**

The ultimate aim of this research is to investigate the performance of IPO firms post equity issuance and the role of investor sentiment in determining the firms' financing performance. The discussions of each variable in the model cover the models themselves and besides the main models, several robustness checks have also been proposed. The regression models that



were developed to measure the performance of IPO firms that subsequently issue equity were sought to test the hypothesis using the following equation:

$$\text{Tobins-Q} = \alpha + \beta_1 \text{TIMG}_{i,t} + \beta_2 \text{SENT}_{i,t} + \beta_3 \text{GROW}_{i,t} + \beta_4 \text{TANG}_{i,t} + \beta_5 \text{PROF}_{i,t} + \beta_6 \text{SIZE}_{i,t} + \beta_7 \text{IND}_{i,t} + \epsilon_{i,t} \quad (1)$$

Apart from the general model in Equation (1), this study includes sub-equations that were expanded from Equation (1) to represent a time period model to capture three different timing proxies, which are presented as:

$$\text{Tobins-Q} = \alpha + \beta_1 (\text{IR})_{i,t} + \beta_2 \text{SENT}_{i,t} + \beta_3 \text{Growth}_{i,t} + \beta_4 \text{Tang}_{i,t} + \beta_5 (\text{PROF})_{i,t} + \beta_6 \text{SIZE}_{i,t} + \beta_7 \text{IND}_{i,t} + \epsilon_{i,t} \quad (1.1)$$

$$\text{Tobins-Q} = \alpha + \beta_1 (\text{SPP})_{i,t} + \beta_2 \text{SENT}_{i,t} + \beta_3 \text{Growth}_{i,t} + \beta_4 \text{Tang}_{i,t} + \beta_5 (\text{PROF})_{i,t} + \beta_6 \text{SIZE}_{i,t} + \beta_7 \text{IND}_{i,t} + \epsilon_{i,t} \quad (1.2)$$

$$\text{Tobins-Q} = \alpha + \beta_1 (\text{ER})_{i,t} + \beta_2 \text{SENT}_{i,t} + \beta_3 \text{Growth}_{i,t} + \beta_4 \text{Tang}_{i,t} + \beta_5 (\text{PROF})_{i,t} + \beta_6 \text{SIZE}_{i,t} + \beta_7 \text{IND}_{i,t} + \epsilon_{i,t} \quad (1.3)$$

Where,

Tobins-Q = Firm Performance measured by Tobins-Q

$\alpha$  = the constant term

$\beta$  = the estimated coefficient or loading of the respective factor

*TIMG* = timing variable  $i = 1, \dots, 3$  capturing three different timing proxies, which are:

IR = Initial return on IPO?

SPP = Stock price performance

ER = Excess return

*SENT* = investor sentiment index for cross-section of data

*GROW* = growth variable for demand for capital

*TANG* = variable for asset tangibility

*PROF* = variable for profitability (ROA)

*SIZE* = company size measured by market value

*IND* = industry classification of the firm listed in Bursa Malaysia and,

*IR* = Initial return of IPO

*SPP* = Stock price performance

*ER* = Excess return

$\varepsilon$  = error term

In this study, Tobin's Q was used as the firm performance measurement as it takes into consideration the differences in the performance of transferring competencies to widely varying markets (Wernerfelt & Montgomery 1988). This approach has been used in numerous studies to measure a combined performance for firms (Chua, Eun & Lai 2007; Saeedi & Mahmoodi 2011). Tobin's Q is defined as the ratio of market capitalization (market value of equity), plus book value of the total debt divided by the book value of the total asset of each firm by years (Fauzias Mat Nor et al. 2011; Abdul Rahim et al. 2010). Profitability was measured as Return on Assets (ROA), that serves as an accounting performance measure. Tangibility was measured using the percentage of long-term tangible assets to total assets, which is a ratio of net property, plant, and equipment to total assets. The demand for capital can be measured using a firm's growth opportunities, which is a ratio of total value of the firm's total assets plus the incremental market value of equity less book value of equity to total assets. The size of a firm was measured based on its market value. Lastly, the industry classification will follow Bursa Malaysia's IPO firm listing. Following Bursa Malaysia's classification, firms are grouped based on the type of business activities. Firms from the financial sector, such as banks, insurance firms, financial services firms, and real-estate investment trusts, were excluded from the classification. Table 1 shows the equation for the variables used for the study:

**TABLE 1:** List of Variables and Description

Variables	Description
Tobins-Q	$\text{TOBINS-Q} = \frac{\text{Market Value of Equity} + \text{Book Value of Total Debt}}{\text{Book Value of Total Asset}}$
Profitability	$\text{ROA} = \frac{\text{Earnings before interest, taxes and depreciation}}{\text{Total Asset}}$
Tangibility	$\text{TANG} = \frac{\text{Net of Property, Plant and Equipment (PPE)}}{\text{Total Asset}}$
Growth	$\text{GROW} = \frac{\text{Total asset} - \text{book equity} + \text{market equity}}{\text{Total Asset}}$
Size	Log of total sales
Industry classification	Bursa Malaysia industry clustering: plantation, manufacturing, industrial, infrastructural, and consumer

## Timing Variables

The selection of the timing variables is supported by past literature which suggested several proxies to measure timing. Initial return of the IPO firm is used as one of the proxies to calculate timing. This measurement is made by calculating the difference between the subscription price and the closing market price on the first day of trading.

While stock price performance compares the price of the stock with prices of the recent past. Porter, Graham, and Harvey (2001) found evidence that recent stock price performance is one of the most popular factors affecting the decision to issue equity. Their finding is consistent with De Bondt (1993) who found that investors expect the continuation of past price changes and this would assign a higher probability to recent changes.

Another proxy that has been frequently used in past studies is excess return. Excess return is defined as the stock return minus the benchmark return of the firm for the year preceding the issue (Marsh 1982). Each of these measurements has its own advantages and to ensure robustness all the three methods of return, namely initial return, stock price performance, and excess return, were used to measure timing variables. Apart from that, excess return captures the differences in stock returns from the average firm while relative price compares the current price with past prices. The benchmark for excess return is the return to the market portfolio as determined by the stock market index. Table 1.2 provides the description of each timing variable measures:

**TABLE 2: Timing Variables**

Variable	Description
TIMG: Initial Return (IR)	Timing: Initial return of the firm $R_{it} = \frac{P_{IT} - S_{i0}}{S_{i0}}$
Stock price performance (SPP)	First difference of the log of annual share prices $R = \ln P_t - \ln P_{t-1}$
Excess return (ER)	Stock returns minus market returns $R = R_{it} - R_{mt}$

### Investors Sentiment Variables

This study attempts to introduce investor sentiment and investigate the interaction effect on firm performance through its cross-sectional effect on IPO's stocks return. As reported in Baker and Wurglar (2006), investor sentiment significantly affects the cross-section of stock prices. However, the most current concern is how to measure and quantify investor sentiment and its effects on IPO's stock return (Baker and Wuglar 2007). Investor sentiment is broadly defined as a belief about future cash flows and investment risks that are not justified by the facts at hand. Investors are generally susceptible to sentiment (DeLong et al. 1990) and as such, betting against sentimental investors is costly and risky. As a result, rational investors or arbitrageurs, are not as aggressive in forcing prices to fundamentals as suggested in the standard model (Shleifer & Vishny 1997). The existing investor sentiment index in Malaysia is based on time series proxies, which is not suitable for this study that uses cross-sectional analysis. As such, this study sought to develop a sentiment index based on three proxies, IPO volume, market turnover, and dividend premium. These proxies are based on the studies conducted by Lowry (2003) as well as Baker and Wuglar (2006; 2007).

The higher volume of IPO, higher market turnover and premium in dividend are all connected to optimistic market conditions where overall market trading activity is strongly connected to these proxies. These proxies are defined in Table 3:

**TABLE 3:** Proxies for Investor Sentiment Index

Variables	Definition
SENT:	Investor Sentiment index:
IPO volume	Number of IPO issued
Turnover	Firm share turnover
Dividend premium	Difference of the natural logarithm of the average market-to-book ratio between firms paying dividends and non-payers.

This study employs factor analysis to calculate the sentiment index as a proxy for investor sentiment. Factor Analysis has been used to generate a factor loading and a Kaiser Test has been run to determine the significant level of each factor represented by each firm each year. The steps are then repeated for each firm's data, and results of the sentiment index is tabulated in Appendix B. Results of the sentiment index shows that the value of the index fell between the ranges of 80 to 120 across all the 143 firms samples in the study. In view of this index being developed for this study, and currently only utilised herein, there is no other benchmark to compare to assess whether the value range is higher or lower. An explanation

for these values could be that firms whose index is higher than others, potentially contributed to the proxy factors on an abnormal level. For example, IPO volume for the respective years was higher than other years, or firm market turnover was very high in certain years. Sentiment indices are mainly used by investors to get more information about other investor's assessment of the market.

## Empirical Result and Discussion

### *Descriptive Statistic of Overall Variables*

The descriptive statistic indicators for all variables throughout study period of 2004 to 2015 are presented in Table 4 below. The mean, median, maximum, minimum, skewness, kurtosis and standard deviation and the number of observations for each variable are reported in the same table. Mean and standard deviation are central tendency measurements for the data range.

The overall mean of Tobins-Q is 0.88 at standard deviation of 65.4 percent. The value is slightly lower than findings by Fauzias et al. (2011) and Chua et al. (2007) for the value in the context of Malaysian firms. The average value of Tobins-Q at 0.88 represents a slightly unfavourable valuation of Malaysian firms by the market as compared to the replacement value- The profitability ratio, as measured by ROA and ROE's mean value, is 4% and 3% respectively, with a standard deviation of 10% and 63%, respectively. Investor sentiment, which is proxied by sentiment index, shows a mean of 99.9, almost 100%. Growth's mean is 97%, with a 87% standard deviation level. The SPP, or Stock Price Performance, a proxy for timing, has a mean of negative 0.8%, which is almost consistent with past studies by Abdel Jawad (2012). However, in this study, the excess return mean is recorded around 25% as compared to Abdel Jawad (2012), which found a mean excess return is -98%. Initial Return mean of this study is around -30%.

**Table 4:** Descriptive Indicators of All Variables

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Obs
TOBINS-Q	0.8836	0.7021	6.8682	0.0773	0.6538	3.6805	22.9979	1716
IR	-0.2994	-0.5402	8.9111	-0.9936	0.8155	3.7184	24.1640	1716
SPP	-0.0086	0.0000	2.4567	-3.0043	0.4784	-0.2616	6.1384	1716
ER	0.2506	-0.0594	63.0000	-1.1975	2.4627	15.6137	321.3056	1716
SENT	99.99	100.00	121.00	75.00	6.95	-0.0581	3.5023	1716
ROA	0.0400	0.0465	0.4087	-0.7262	0.0955	-1.7273	12.2578	1716
ROE	0.0291	0.0640	3.1726	-24.59	0.6314	-34.6283	1349.9362	1716



TANG	0.9747	0.8953	6.0111	-9.2187	0.8743	-2.8552	37.8529	1716
GROW	2.4332	1.8625	9.9438	0.0029	2.2226	0.7155	2.5007	1716
SIZE	19.0482	18.9647	22.2078	10.9853	1.1893	-0.1883	5.2402	1716
IND	18.6079	18.6875	21.7194	13.4588	1.2975	-0.4983	3.9226	1716

### Sentiment Index Results

This study employs factor analysis to calculate the sentiment index as a proxy for investor sentiment. Factor Analysis has been used to generate a factor loading and a Kaiser Test has been run to determine the significant level of each factor represented by each firm each year. The steps are repeated for each firm's data and results of the sentiment index by each firm for each year is tabulated in Appendix A across the study period of 2004 to 2015. Results of the sentiment index shows that the value of the index fell between the ranges of 80 to 120 across all the 143 firms samples in the study. In view of this index being developed for this study, and currently only utilised herein, there is no other benchmark to compare to assess whether the value range is higher or lower. An explanation for these values could be that firms whose index is higher than others, potentially contributed to the proxy factors on an abnormal level. For example, IPO volume for the respective years was higher than other years, or firm market turnover was very high in certain years. Sentiment indices are mainly used by investors to get more information about other investor's assessment of the market.

### Fixed Effect Estimation Results

Market timing is expected to positively affect firm performance (Alti 2006, Kayhan & Titman 2007). Firm performance is proxied by market performance measurement Tobins-Q. Using Equation (1), an estimation is run on Sub-equation (1.1), (1.2) and (1.3). In order to test for the multicollinearity effect, this study has used the variance inflation factor (VIF). Gujarati and Porter (2009) indicated that as a general rule of thumb is if the VIF value exceeds 10 (or 5 as mentioned by other authors), the variables are considered to be highly collinear. VIF test results indicate that the highest VIF values of each variable in the equation are below 3, thus, there is no serious multicollinearity detected. The VIF results for the main regression are depicted in Appendix B. The results of Equation (1) Sub-Equation (1.1), (1.2) and (1.3) are tabulated in Table 5.



**TABLE 5:** Fixed Effect Estimation results for Equation (1) Sub-Equation (1.1), (1.2) and (1.3) on the relationship between firm performances with the explanatory variables

Independent Variables	Dependent Variables		
	TOBINs-Q		
	Eq 1.1	Eq 1.2	Eq 1.3
IR	0.2632 (16.1937)***	-	-
SPP	-	0.0752 (5.1707)***	-
ER	-	-	0.0182 (3.2219)***
SENT	0.0010 (0.7937)	0.0009 (0.5438)	0.00336 (2.4252)**
ROA	0.1260 (1.3985)	0.2350 (2.2371)**	0.2539 (2.6003)**
TANG	-0.0071 (-1.2845)	-0.0143 (-2.109513)**	-0.0117 (-1.9487)**
GROW	0.6133 (33.40123)***	0.6906 (34.43394)***	0.7278 (40.1302)***
SIZE	-0.0899 (-4.7164)***	-0.0894 (-4.1585)***	-0.0788 (-3.8444)***
IND	-0.1386 (-5.6721)***	-0.0754 (-2.7794)**	-0.0839 (-3.2480)***
No of observations	1573	1573	1573
Adjusted R <sup>2</sup>	0.8620	0.8294	0.8375
Durbin Watson	2.0465	2.0966	2.0464
F-statistics	(66.4509)***	(47.3052)***	(55.0077)***

Notes: Estimation result for Equation (1.1), (1.2) and (1.3)

All regressions are estimated using Fixed Effect. The numbers in parenthesis are t-statistics calculated based on robust standard errors. \*\*\*, \*\*, \* indicate significance at 1%, 5% and 10% respectively.

The adjusted R Squared value of Tobins-Q under all the three equation estimates is 86, 83 and 84% respectively, which is quite high. This finding provides a more substantial explanation compared to previous studies, such as Welbourne and Andrews (1996), where the R squared value was only 4%. The R Squared value obtained by Fauzias et al (2011) was slightly higher compared to the results of this study at around 90%. A High R squared value gives a good indication of the overall model fit given that it does not violate other necessary



assumptions of normality, heteroskedasticity, autocorrelation, and multicollinearity. Using Panel Data also helps to cater to the needs of the assumption as it captures more variance in the data. The F-statistics for all three models' Sub-equations is also significant at 1%. This indicates that the explanatory variables explain a significant portion of the variations in the dependent variable.

Timing is represented by three proxies' namely initial return, stock price performance, and excess return. The results in Table show that all three timing proxies' have a positive significant relationship with firm performance and the 10% increase in timing is associated with a 2% to 26% increase in firm performance. The t-statistics coefficient for the initial return value of 16 is the highest, as compared to stock price performance with a value of 5, and followed by excess return having the lowest coefficient value of 3. All three proxies have a strong relationship at 1% level of significance. This is consistent with the findings in Baker and Wurgler (2002), which suggested that firms successfully time the market with IPO equity issuance near market peaks.

Investor sentiment proxy, which refers to the sentiment index is not significantly related to firm performance when timing is proxied by the initial return and stock price performance. It is however, significantly related at 5% significance level with firm performance when the timing proxy is the excess return. This finding is consistent with Leite (2005) where the presence of investor sentiment was found to have either a positive or negative influence on the expected excess return. In this regard, a 10% increase in sentiment is associated with 0.3% increase in firm performance, indicating that the relationship is quite weak in nature.

Profitability is proxied by the Return on Asset (ROA); ROA is not significantly related to firm performance when timing is proxied by initial return. However, ROA has a positive significant relationship with firm performance when timing is proxied by stock price performance and excess return. The t-statistics of the profitability coefficient is significant at 5% level of significance. When there is a 10% increase in profitability, the ROA is associated with a 23% to 25% increase in firm performance.

Tangibility is found to be statistically insignificant with firm performance when the proxy for timing is the initial return. On the other hand, tangibility has a negative and statistically significant relationship with firm performance when timing is proxied by stock price performance and excess return. A 10% increase in tangibility is associated with a 0.7% to 1.4% reduction in firm performance. When timing is represented by proxies of stock price performance and excess return, the t-statistic of the tangibility coefficient is negatively significant at a 5% level of significance.

Growth, which is a variable for demand for capital has a positive relationship with firm



performance in all three timing proxies. A 10% increase in growth is associated with an increase in firm performance from 61% to 73%. The t-statistic of growth coefficient with all specifications is positively significant at the significance level of 1%.

The t-statistic of firm size coefficient is negatively significant at the significance level of 1%; a 10% increase in firm size is associated with an 8 to 9% reduction in firm performance. The industry was measured based on the Bursa Malaysia classification excluding the financial sector (Frank & Goyal 2009), and was found to have a negative relationship with firm performance where a 10% increase in industry changes is associated with weaker firm performance by 14%. The t-statistics of industry coefficient is negatively significant at the significance level of 1%.

## **Conclusion**

The main purpose of this study is to investigate the role of market timing and investor sentiment in determining firm performance in the Malaysian market. The findings of this study provide further insight into the relationship of key determinants, market timing and investor sentiment, on firm performance in Malaysia. In this study, market timing is found to have a strong influence on firm performance with a positive and high level of significance. The results are strongly evident in all of the three proxies used for timing across the regression models. This indicates the plausibility of the existence of timing behavior. It is evidenced that managers wait before issuing equity until the stock market conditions improve. This result means that firm performance is only determined by the timing effect.

The findings on investor sentiment reveal that investor sentiment is positively related to firm performance. However, this relationship is not significant when the timing effect exists and it has a significantly positive relationship when timing is proxied by excess return. The results show that there is evidence of a mispricing version of timing effect in the relationship. This is consistent with Shiller (1990) who suggests that the overpricing issue is due to the presence of fads in the market while Tversky and Kahneman (1974) stipulated that mispricing is consistent with representative heuristic behavior.

Investors view trends of earning growth as representative and put less weight on the probability of forming expectations. This leads them to create an optimistic expectation about future earnings. However, it was found that the influence of investor sentiment on firm performance is not significantly strong. This is consistent with past research that posited sentiment as a social construct rather than an outcome of individual actions, feelings and an individual's characteristics (Homans 1950). Similarly, Baker and Wurgler (2006) and Barberis et al. (1998) outlined investor sentiment is the investors' beliefs, the tendency to speculate and the overall expectation of investors about market movement. However, future



prospects may arise from an understanding, misevaluation, peer effect or tendency to speculate. Hence, the above notion supports the argument of the weak influence of investor sentiment on firm performance.

The results of this study also reveal that among the firm specific explanatory variables namely profitability, growth, tangibility and size, growth is showing the strongest positively significant relationship with the firm performance. This is consistent with a past study that claims that this variable commonly influences firms financial performance. Overall, the results suggest that firm's managers certainly time the market in their decision of issuing new issues. This timing effect will result in mispricing the new issuance price and subsequently affect the investors' wealth. As such, investors have to carefully strategize their investment decisions, by focusing on the fundamental aspects of the new issues instead of the sentiment aspects. For policy makers, they may have to look into regulating the process, or putting a remedial action in place to control the mispricing of the equity.

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**APPENDIX A. INVESTOR SENTIMENT INDEX BY FIRM BY YEAR**

<b>FIRM CODE</b>	<b>FIRM NAME</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2015</b>	<b>2015</b>
1	ACCSOFT TECHNOLOGY	84	93	99	103	100	98	104	101	102	107	104	105
2	ACME HOLDINGS	85	83	96	102	98	107	107	105	104	105	104	102
3	AE MULTI HOLDINGS	85	92	100	104	97	101	105	101	102	105	104	104
4	ANALABS RESOURCES	87	91	99	112	98	104	106	98	98	103	100	103
5	APB RESOURCES	88	89	101	107	97	104	104	100	98	102	105	104
6	APEX HEALTHCARE	87	93	102	111	97	103	106	98	99	104	99	102
7	ASTINO	87	94	102	110	98	100	102	99	99	104	103	102
8	ACOUSTECH	96	104	110	113	95	97	96	92	91	100	105	101
9	ATURMAJU RESOURCES	118	111	102	103	104	95	98	97	95	93	93	92
10	AYS VENTURES	86	94	103	107	99	101	101	98	101	105	103	103
11	BLD PLANTATION	85	94	103	114	102	102	104	100	99	103	98	98
12	BOON KOON GROUP BHD.	116	100	93	92	103	102	93	107	102	100	98	96
13	BINTULU PORT HOLDINGS	118	106	101	96	100	102	100	99	101	94	94	89
14	BRITE TECH	119	97	95	93	99	98	96	101	102	97	102	100
15	CAB CAKARAN	118	112	105	96	94	93	95	97	96	94	100	100
16	CAM RESOURCES	102	117	112	115	99	89	98	91	94	93	98	94
17	CENTURY BOND	83	90	111	107	94	103	102	97	103	108	98	103
18	CCM DUOPH.BIOTECH	120	118	101	101	94	91	97	97	92	94	96	97
19	CAELY HOLDINGS	116	109	99	97	102	97	96	97	98	97	98	94



FIRM CODE	FIRM NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2015	2015
20	CENTURY LOGISTICS HDG.	85	88	99	111	97	102	99	96	100	104	108	112
21	COASTAL CONTRACTS	86	82	100	108	98	98	101	104	104	107	106	106
22	COUNTRY VIEW	116	108	98	96	96	92	97	100	98	98	100	98
23	CYBERTOWERS	85	92	101	105	99	101	100	100	103	106	103	105
24	CYL	87	92	101	108	96	105	102	98	99	103	103	105
25	CYMAO HOLDINGS	117	107	105	102	99	97	97	101	94	94	96	92
26	DBE GURNEY RESOURCES	115	103	98	93	98	100	100	103	102	96	97	96
27	DEGEM	119	116	107	103	97	95	99	94	92	93	93	92
28	DIGISTAR	116	104	100	95	97	96	96	105	100	97	99	96
29	D'NONCE TECHNOLOGY BHD	85	94	102	107	99	102	102	98	100	104	103	103
30	DOMINANT ENTERPRISE	86	94	101	108	97	100	102	100	101	104	103	104
31	EDARAN	113	113	107	105	98	89	94	95	100	95	97	94
32	ESTHETICS INTL.GROUP	86	98	103	113	98	101	100	95	102	102	101	101
33	EKA NOODLES	117	102	97	89	98	92	100	106	104	97	100	96
34	ENG KAH	117	107	104	98	102	92	94	104	98	95	93	96
35	EMAS KIARA	118	101	93	93	98	96	101	105	99	95	100	101
36	ENGTEX GROUP	87	89	103	110	102	100	100	94	94	109	105	105
37	EUROSPAN HOLDINGS	86	91	103	107	96	99	107	100	97	104	107	102
38	ABLEGROUP	84	81	100	106	98	108	96	98	109	106	106	108
39	GHL SYSTEMS	85	94	108	107	93	105	103	95	95	107	104	103





<b>FIRM CODE</b>	<b>FIRM NAME</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2015</b>	<b>2015</b>
40	GLOMAC	86	94	101	108	99	103	101	99	100	106	102	101
41	GPA HOLDINGS	85	82	91	109	101	106	101	102	104	103	108	107
42	HCK CAPITAL GROUP	86	90	100	107	99	99	98	98	107	108	107	103
43	HEITECH PADU	86	98	106	112	102	99	105	94	93	100	103	102
44	HUAT LAI RESOURCES	117	113	107	98	97	96	103	101	95	89	90	93
45	HUP SENG INDUSTRIES	116	104	95	93	100	99	100	100	99	95	99	100
46	HIAP TECK VENTURE	118	112	104	104	98	97	100	99	94	93	92	88
47	HUA YANG	85	89	98	104	96	99	105	103	104	107	105	104
48	IRIS	83	97	114	113	94	101	97	98	96	104	104	101
49	IFCA MSC	85	90	105	106	96	97	103	98	103	102	107	107
50	IRE-TEX	115	105	99	94	99	97	98	100	100	95	99	99
51	JAG	86	90	100	104	97	99	103	101	103	105	106	105
52	JAYCORP BHD.	119	111	101	96	95	97	98	97	91	94	99	101
53	JOHORE TIN	86	91	100	106	96	98	102	99	105	107	104	106
54	KBES	84	90	108	111	97	102	104	92	101	99	107	105
55	KIM LOONG RESOURCES	84	97	105	115	103	100	101	98	99	100	100	98
56	KNM GROUP	81	81	95	101	103	109	102	102	101	104	110	110
57	KNUSFORD	86	97	104	118	98	99	98	97	96	101	102	104
58	KUMPULAN POWERNET	116	110	102	101	100	95	100	96	95	92	9	1

<b>FIRM CODE</b>	<b>FIRM NAME</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2015</b>	<b>2015</b>
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59	KINSTEEL	90	87	94	104	104	108	102	98	98	105	105	105
60	KSL HOLDINGS	85	80	97	104	100	103	101	100	102	110	112	107
61	KEJURUTERAAN SAMUDRA TIMUR	87	82	98	106	100	101	106	101	99	106	107	105
62	KOTRA INDUSTRIES	117	104	101	98	100	98	99	100	99	93	96	94
63	LONDON BISCUITS	87	89	98	102	96	101	101	100	105	106	108	108
64	LEBTECH	118	115	103	100	101	98	101	98	92	90	92	91
65	LFE	85	85	92	97	98	107	100	107	108	108	104	108
66	LII HEN INDS.	119	114	103	99	91	99	100	95	95	97	96	92
67	LNG RESOURCES	86	94	103	108	99	101	102	98	100	104	103	103
68	LUSTER INDUSTRIES	84	95	104	109	96	97	97	94	103	109	106	104
69	LTKM	82	95	107	106	96	101	107	99	99	99	101	106
70	M3 TECHNOLOGIES (ASIA)	115	115	108	105	94	96	97	99	96	91	96	88
71	MALAYSIAN BULK CARRIERS	115	106	98	94	100	98	98	100	100	96	98	96
72	MUDAJAYA GROUP BHD.	87	83	94	107	99	104	105	103	105	105	105	102
73	MEDA	112	116	110	106	95	98	100	98	92	90	95	88
74	MHC PLANTATIONS	84	102	103	113	100	97	103	99	101	102	100	96
75	MMAG HOLDING	87	83	98	101	97	101	99	106	108	108	107	107
76	MAGNI-TECH INDUSTRIES	115	109	96	95	97	95	97	101	99	97	98	101
77	NICHE CAP.EMAS HDG.	86	94	102	107	100	102	101	98	100	104	103	

FIRM CODE	FIRM NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2015	2015
78	NETX HOLDINGS	85	93	102	108	96	98	101	99	106	105	102	104



79	NAIM HOLDINGS	87	88	96	108	97	102	97	100	102	109	107	105
80	NOVA MSC	85	96	108	111	96	98	97	96	98	103	105	107
81	NPC RESOURCES	121	115	106	102	99	90	98	97	94	93	94	92
82	NTPM HOLDINGS	89	87	100	105	97	106	100	95	102	107	106	105
83	NWP HOLDINGS	117	114	107	101	97	97	95	98	99	92	94	89
84	ORIENTAL FOOD INDS.HDG.	87	94	106	110	96	102	103	95	98	104	100	105
85	OPCOM HOLDINGS	117	107	99	95	95	98	99	100	97	94	96	103
86	OKA	87	85	98	103	95	108	100	98	100	107	109	109
87	ORNAPAPER BERHAD	85	85	98	108	97	100	98	102	105	106	110	107
88	OPENSYS (M)	85	94	102	107	99	102	101	98	100	104	103	103
89	PANPAGES	118	107	96	98	93	100	98	104	101	94	97	94
90	PAOS HOLDINGS	119	114	104	101	100	88	98	102	97	93	93	90
91	PBA HOLDINGS	88	88	100	106	98	99	102	101	99	106	107	107
92	PENTAMASTER	84	82	98	101	97	105	106	102	103	104	108	111
93	PESONA METRO HOLDINGS	82	87	105	104	92	101	101	97	104	109	107	110
94	PERDANA PETROLEUM	102	121	106	102	101	97	95	91	95	95	97	98
95	POH HUAT RESOURCES HDG.	90	87	96	106	100	107	99	97	100	107	105	107
96	PIE INDUSTRIAL	86	87	108	111	96	97	104	99	99	105	103	105
97	PINEAPPLE RESOURCES	116	105	100	96	100	96	99	99	100	96	98	94

FIRM CODE	FIRM NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2015	2015
98	PJBUMI	84	94	101	108	104	108	99	97	100	105	102	98



99	POH KONG HOLDINGS	115	105	97	94	100	99	99	101	101	95	96	97
100	PLENITUDE	94	101	106	117	95	97	104	94	91	105	102	93
101	PALETTE MLTM.	87	89	102	108	97	104	99	102	102	107	102	101
102	PELANGI PUBLISHING GP.	117	104	96	94	95	98	99	100	101	97	101	96
103	PRG HOLDINGS	87	93	103	108	97	103	100	94	95	108	105	106
104	PROTASCO	84	91	103	108	95	97	100	97	98	109	110	108
105	PLASTRADE TECHNOLOGY	115	108	101	95	97	95	96	99	100	96	99	98
106	PUC FOUNDER MSC	85	86	97	101	97	99	101	102	107	105	108	110
107	PWF CONSOLIDATED	118	107	101	96	96	93	96	100	96	97	101	98
108	PRICEWORTH INTERNATIONAL	82	101	105	110	93	102	100	100	93	103	107	104
109	QL RESOURCES	85	91	104	113	96	101	104	103	94	104	100	104
110	RGB INTERNATIONAL	91	84	96	104	97	105	99	100	102	104	108	111
111	REDTONE INTERNATIONAL	86	93	102	107	98	103	102	99	101	105	102	102
112	SCOPE INDUSTRIES	94	102	107	99	102	102	99	101	104	103	102	
113	SCOMI GROUP	86	88	101	108	104	98	99	98	106	103	105	106
114	SILK HOLDINGS	84	87	99	107	95	110	102	98	103	102	111	102
115	SKB SHUTTERS	86	96	104	111	98	97	102	97	98	105	104	102
116	SERN KOU RESOURCES	86	92	101	106	98	105	102	98	102	104	104	103
117	SKP RESOURCES BERHAD	87	92	104	112	93	100	99	97	101	105	105	106

FIRM CODE	FIRM NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2015	2015
118	STONE MASTER	86	94	102	106	99	102	101	99	100	105	103	103
119	SMIS	113	110	104	108	92	98	102	96	93	95	98	91



120	SPRITZER BERHAD	86	83	96	102	97	103	107	101	103	109	108	106
121	SUPERMAX	86	91	101	105	93	106	106	99	100	105	103	105
122	SWS CAPITAL	86	100	114	112	99	101	103	92	92	100	103	98
123	SYF RESOURCES	115	107	101	95	99	98	98	103	99	94	96	96
124	SYMPHONY LIFE	86	97	105	113	95	100	99	97	97	101	107	104
125	THREE-A RES.	87	88	101	109	98	108	105	96	102	101	102	104
126	TIME DOTCOM	75	98	106	113	100	105	107	101	98	101	97	98
127	TOP GLOVE	86	85	96	101	100	103	108	99	103	104	103	112
128	TOYO INK GROUP	86	90	97	111	101	103	104	100	99	105	107	98
129	TPC PLUS	114	112	103	95	94	100	102	104	97	92	95	91
130	TRC SYNERGY	87	89	99	110	101	101	101	102	103	104	103	101
131	TSR CAP.	87	96	106	113	99	100	103	97	93	101	105	100
132	TA WIN HOLDINGS	111	109	111	108	95	93	96	95	93	95	101	92
133	UCHI TECHS.	117	107	100	98	100	100	101	98	93	96	96	94
134	UNIMECH GROUP	105	109	107	115	92	87	100	96	97	104	95	92
135	UNITED U-LI	84	92	106	113	94	97	100	104	96	105	105	103
136	WEIDA (M)	84	84	101	111	93	100	105	101	104	104	108	105
137	WILLOWGLEN MSC	87	97	106	112	92	99	100	94	96	107	10	4

FIRM CODE	FIRM NAME	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2015	2015
138	XIAN LENG HDG.	87	89	101	110	98	106	101	96	105	102	100	105
139	Y&G	118	108	104	98	102	99	100	97	92	91	94	97
140	YFG	85	97	105	115	99	101	103	101	92	100	100	102



141	YI-LAI	117	112	105	105	97	92	100	98	92	95	98	89
142	YSP STHEAST.AI.HLDG.	89	87	96	103	97	101	100	101	104	107	107	110
143	YTL E-SOLUTIONS	116	107	99	97	99	98	100	101	98	94	96	95

**APPENDIX B. VIF for the variables of the relationship between firm performance and the determinants with ROA**

Independent Variables	Eq 1.1		Eq 1.2		Eq 1.3	
	VIF	1/VIF	VIF	1/VIF	VIF	1/VIF
IR	1.24	0.8071	-	-	-	-
SPP	-	-	1.07	0.9320	-	-
ER	-	-	-	-	1.02	0.9771
SENT	1.01	0.9926	1.03	0.9686	1.01	0.9918
ROA	1.33	0.7494	1.33	0.7499	1.31	0.7640
TANG	1.02	0.9781	1.02	0.9841	1.02	0.9837
GROW	1.15	0.8711	1.10	0.9082	1.10	0.9065
SIZE	3.75	0.2666	3.75	0.2667	3.75	0.2666
IND	3.68	0.2717	3.59	0.2783	3.59	0.2784