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Under-Pricing and Listing Board in Explaining Heterogeneity of Opinion Regarding Values of Malaysian IPOs

(Darjah Terkurang Harga dan Papan Penyenaraian sebagai Faktor yang Menerangkan Perbezaan Pendapat tentang nilai TAA Malaysia)

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ABSTRACT

Heterogeneity of opinion regarding the value of an initial public offering (IPO) is arguably high due to the lack of prior information on the IPO. This situation is especially true in the case of a fixed-price IPO where, unlike book-building and auction offering methods, potential investors do not have the opportunity to "reveal" their private valuations of the IPO. Using a sample of 112 fixed-price Malaysian IPOs from January 2009 to December 2015, and employing OLS regression together with stepwise regression and hierarchical multiple regression, the objective of this study is to examine the level of under-pricing as the main factor that can possibly explain the heterogeneity of opinion among investors regarding the true value of a fixed-price IPO. The study found that the level of under-pricing, together with control variable ACE Market versus Main Market can explain 50.7 percent of the variation in the heterogeneity of opinion regarding the value of Malaysian fixed-price IPOs. The novelty of this study as opposed to an earlier study by Low and Yong (2013) is in terms of the more rigorous method employed in the form of not just the OLS, but also the stepwise and the hierarchical multiple regressions. This study also offered an improved model with higher R^2. The results have some policy implications for the regulatory bodies of Bursa Malaysia in terms of special attention to IPOs listed on the ACE market due to their high initial return and price spread which could be due to excessive speculation.

Keywords: IPO; Malaysian IPOs; under-pricings; heterogeneity of opinion; price spread

ABSTRAK

Perbezaan pendapat tentang nilai sesuatu tawaran awam awal (TAA) adalah tinggi disebabkan kekurangan maklumat tentang TAA tersebut. Situasi ini lebih menonjol dalam kes TAA jenis harga tetap kerana bakal pelabur tidak berpeluang untuk mendedahkan penilaian persendirian mereka terhadap TAA tersebut, tidak sebagaimana TAA jenis "bookbuilding" mahupun jenis lelongan. Dengan menggunakan sampel 112 TAA Malaysia jenis harga tetap untuk tempoh dari Januari 2009 hingga Disember 2015, dan dengan menggunakan kaedah OLS berserta regresi "stepwise" dan "hierarchical," objektif kajian ini ialah untuk meneliti tahap terkurang harga sebagai faktor utama yang boleh menerangkan perbezaan pendapat di kalangan para pelabur tentang nilai sebenar sesuatu TAA jenis harga tetap. Kajian ini mendapati bahawa tahap terkurang harga beserta pemboleh ubah kawalan Pasaran ACE lawan Pasaran Utama boleh menerangkan 50.7 peratus kelainan pada perbezaan pendapat tentang nilai TAA Malaysia jenis harga tetap. Sesuatu yang baharu yang dibawa oleh kajian ini berbanding kajian sebelum ini oleh Low and Yong (2013) ialah daripada segi kaedah kajian yang lebih mantap dalam bentuk bukan sahaja OLS tetapi juga regresi "stepwise" dan "hierarchical" yang digunakan untuk menyokong keputusan yang diberikan oleh kaedah regresi OLS. Tambahan pula, kajian ini berjaya menemukan model yang lebih baik daripada sebelumnya dengan nilai R^2 yang lebih tinggi. Keputusan kajian juga mempunyai implikasi polisi daripada segi perhatian khusus perlu diberikan oleh pihak berwajib Bursa Malaysia kepada TAA yang tersenarai di pasaran ACE disebabkan pulangan awal dan pembezaan harganya yang tinggi berkemungkinan disebabkan aktiviti spekulasi yang melampau.

Kata kunci: TAA; TAA Malaysia; terkurang harga; perbezaan pendapat; pembezaan harga

INTRODUCTION

Behavioural finance which was established during the 1990's acknowledges that every investor is assumed to be unique in his valuation of an asset, and thus it is quite impossible to have homogeneity of opinion among all investors regarding the value of an asset. This means that investors are more likely to make different estimates of expected return from an asset, which in turn can affect their buying and selling decisions. As postulated by Miller (1977), heterogeneity of opinion regarding the value of an asset existed due to the lack of information on the past track record of that asset. With fixed-price initial public offering (IPO), where the offer price is set prior to IPO allocation, the offer price carries no information about investors' valuations of the IPO. This is in contrast to book-

building and auction offering methods where potential investors have the opportunity to reveal a significant part of their private valuations of the new issue, either through soliciting process in the case of book-building, or through bidding price in the case of auction (Chahine 2007; Derrien & Womack 2003). This means that a fixed-price IPO will arguably have a higher level of heterogeneity of opinions among investors compared to book-building and auctioned IPOs. Lowry and Schwert (2002) suggested that the level of under-pricing in an IPO can be attributed to some IPO-specific information known prior to the offering. Since prospective IPO investors have no opportunity to reveal their beliefs based on the disclosed information, in offerings that employ a fixed-price mechanism, heterogeneity of opinion among investors will be higher in fixed-price IPOs compared to book-building or auction methods of offerings.

In Malaysia, the most popular and common method of pricing IPOs is the fixed-price method (Low & Yong 2011; Low & Yong 2013; Yong 2015).[1] In the case of a fixed-price IPO, potential investors are not given the opportunity to have their input regarding the offer price of the IPO, unlike a book-building IPO where the investors are being solicited by the issuer regarding the value of the IPO before the offer price is set up[1]. Given that most Malaysia IPOs are priced using the fixed-price mechanism, heterogeneity of opinion among investors is likely to be high because the offer price of the new issues does not reflect the beliefs of most investors (Yong 2015). For the reason that dispersion of opinions has important behavioural implications (Miller 1977; Goldberg & Nitzsch 2001), in this paper, factors that could potentially explain the level of heterogeneous opinions among IPO investors in Malaysia are explored. In this paper, the proxy for heterogeneity of opinion is tied to the first-day price spread; a variable that reflects investors' behaviour in the immediate after-market of the new issue. The level of price spread can be viewed as the extent to which investors disagree about the value of that IPO. This paper seeks to address the heterogeneity of opinion among investors based on some unique characteristics of Malaysian fixed-price IPOs, such as over-subscription ratio (which is a unique feature of a fixed-price IPO offering, unlike book-building IPOs), different listing boards within the same stock exchange, and an offer price which is generally very low. For starter, all of these variables (i.e. over-subscription ratio, listing board, and offer price) are known to the general public prior to the IPO listing date on the stock exchange, which allow investors to have divergent prior expectations regarding the true value of an IPO because each investor is using this ex-ante information to build their own interpretation. Furthermore, Vega (2006) argued that this ex-ante information (prior available information) that investors have access to before the listing could increase the disagreement among investors regarding the value of the IPO issues, which lead to higher price drift. This ex-ante uncertainty regarding the true value of IPOs could lead to extreme over-subscription ratios. On that matter, the model of Chowdhry and Sherman (1996) showed that most of the Asian IPO markets that employ the fixed-price mechanism have more extreme over-subscription ratios than countries that use U.S. book-building method. Furthermore, the uniqueness of over-subscription ratio comes from its ability to provide further information to IPO issuers about investors market demand because the fixed-price mechanism by itself provides little to no information regarding the market demand (Low & Yong 2011).

The ex-ante uncertainty could also lead to more under-pricing due to the lower offer price than the IPO market value, which attracts investors and the share price often rises dramatically in the first few days of trading after the initial public offering (Miller 1977; Ritter 1984; Beatty & Ritter 1986; Lowry & Schwert 2002). Furthermore, the offer price in a fixed-price offering mechanism is set prior to allocation and thus investors do not have the opportunity to disclose their beliefs about the true value of the IPO through placing their bids (Low & Yong 2013), which makes the offer price of the fixed-price mechanism unique as compared to the book-building and auction offering methods that factor in the investors beliefs through providing them with the incentive to put forward bids that express their expectations about the offer price of the IPO (Benveniste & Spindt 1989; Biais, Bossaerts & Rochet 2002; Derrien & Womack 2003; Chahine 2007).

Finally, the listing board in the Malaysian IPO market is classified as either the ACE Market or the Main Market. According to Yong (2015), IPO firms that are listed on the ACE Market are deemed riskier than the ones listed on the Main Market because they are thought to be more speculative in nature. Therefore, ACE Market firms are surrounded by a greater level of uncertainty. Furthermore, Yong (2015) characterised ACE Market firms to be small in size with insufficient track records information, and such firms have difficulties in securing conventional sources of financing. Due to these characteristics, IPOs listed on the ACE Market are very difficult to be valued and thus they are subjected to greater valuation uncertainty in comparison to IPO firms listed on the Main Market. Therefore, the current study proposes that the listing board which represents the size of the issuing company is a factor that can explain the heterogeneity of opinion regarding the value of the issuing firm.

In this study, initial return is defined as the percentage change from offer price to the opening price on the first trading day, or commonly known as initial return (offer-to-open). Since the level of under-pricing or the degree of initial return can be observed prior to arguably "speculative" trading activities on the first-day listing, we use this measure of under-pricing as the main predictor that can potentially explain the level of heterogeneity of opinion among investors regarding the true value of a fixed-price Malaysian IPO.

An early attempt to study the heterogeneity of opinion regarding the true value of Malaysian IPOs was conducted by Low and Yong (2013). In that study the authors employed the OLS regression method to investigate the

influence of initial return, offer size, over-subscription ratio and listing board on the heterogeneity of opinion, as measured by first-day turnover and first-day price spread. The current study differentiates itself from that of Low and Yong (2013), through implementing the stepwise regression method, in addition to using the commonly used OLS regression method, because of its ability to identify the contribution order of the independent variables to the overall model. Furthermore, the stepwise regression method can develop a regression model with the least number of statistically significant independent variables that also have the highest predictive accuracy (Yong 2015). In addition, the study also implements the hierarchical multiple regression method which is more appropriate for the inclusion of control variables in the regression model. With hierarchical regression method, control variables are first introduced into the model in the first stage, followed by the independent variable (that we are really interested to test) introduced in the second stage. In our model, the dependent variable is the price spread, and the independent variable is the level of under-pricing (or initial return (offer-to-open)). The current study controls for the divergence of opinions among investors through: (1) the size of the issuing firms, in which listing board is used as its proxy; (2) the high versus low demand, in which over-subscription ratio is used as its proxy; and (3) high versus low offer price of the issues. However, in their paper Low and Yong (2013) did not identify which variables of their study are the control variables.

The current study also differentiates itself from that of Low and Yong (2013) through several other points. First, the study sample used by Low and Yong (2013) was from January 2004 to December 2007, i.e. the period before the 2008 sub-prime crisis, whereas the current study focuses on the post-crisis period which is from January 2009 to December 2015. Secondly, during the study conducted by Low and Yong (2013), there were three listing boards of the Bursa Malaysia, namely the Main Board, the Second Board and MESDAQ. However, in Low and Yong's study, the Main Board and the Second Board were combined into a group, and MESDAQ was assigned as a group by itself. In August 2009, the Main Board and Second Board were merged into a new listing board called the Main Market, and MESDAQ was re-branded as the ACE Market. The present study takes advantage of this new listing board classification to investigate the heterogeneity of opinion regarding the value of IPOs. Thirdly, Low and Yong (2013) measured under-pricing as the percentage change from offer price to the closing price of the first day of trading, or usually known as initial return (offer-to-close). However, the current study measures under-pricing as the percentage change in price from the offer price to the opening price of the first trading day, or commonly known as initial return (offer-to-open). Actually there is a drawback when it comes to using initial-return (offer-to-close) to represent a factor that can be used to explain the heterogeneity of opinion regarding the value of an IPO due to the fact that closing price takes place at the end of the trading day, which means that piece of information is "not useful" to the investors in trying to gauge its relationship with the price spread (or heterogeneity of opinion). However, with initial return (offer-to-open) as proposed in the current study, the investors are able to use that information in order to gauge the price spread because opening price takes place early during the trading day. Fourthly, Low and Yong (2013) defined price spread as the difference between the highest and the lowest price on first trading day, divided by the offer price. However, the current study defines price spread as the percentage difference between the highest price and the lowest price of the first trading day, over the lowest price, which truly reflects the "actual" price spread during the first day of IPO listing. Finally, the current study argues that using the listing board as a proxy of firm size and implementing the hierarchical multiple regression method will result in a better model (higher R^2) than the one suggested by Low and Yong (2013).

This paper is organized as follows. Following the introduction section, some past studies which are relevant to the current study are presented in the literature review section. The next two sections present the sources of data and the methodology used, followed by the results and discussion section. The paper ends with the conclusion and implication of the study.

LITERATURE REVIEW

Heterogeneity of opinion usually refers to a phenomenon that reflects an extreme price movement following an event, such as an initial public offering (IPO). Wang and Liu (2014) and Miller (1977) postulated that this phenomenon is a type of investor heterogeneity, where investors have divergence of belief regarding future distribution of returns of an IPO. In behavioural finance, as argued by Goldberg and Nitzsch (2001), asset prices mirror the behaviour of investors in their interpretation of the available information. In the context of an IPO issue, investors' interpretation of the information will likely affect their willingness to buy or sell the IPO, and the overall investors' decisions are reflected in the range of trading prices, as shown by the first-day price spread.

As suggested by Miller (1977), heterogeneity of opinion can be attributed to several factors that can be linked to the uncertainty regarding the future return distribution of an asset. Furthermore, Diether, Malloy and Scherbina (2002) argued that heterogeneity of beliefs among prospective investors could change the stock market equilibrium. This means that the bigger the disagreement regarding the stock price, the higher the market price relative to the true value of the stock (Morris 1996; Chen, Harrison & Jeremy 2001).The same can be said about the Malaysian IPOs that use the fixed-price mechanism because the price of the issues does not reflect the prospective investors' expectations and beliefs regarding the true value of the issues.

In this paper, information on some potential factors that is available to prospective investors prior to the IPO listing date on the stock exchange and also considered unique to Malaysian fixed-price IPOs is examined due to its possible ability to explain the heterogeneity of opinion in the values of Malaysian IPOs. Furthermore, Vega (2006) argued that the more the investors disagree with the information they have regarding an IPO, the higher is the price drift in the IPO. The first variable this study is interested in is the over-subscription ratio, which is a unique feature of a fixed-price IPO offering, where data on over-subscription ratio are not available in the case of book-building and auction offerings (Benveniste & Spindt 1989; Biais et al. 2002; Derrien & Womack 2003; Chahine 2007). Moreover, Bubna and Prabhala (2007) documented that over-subscription ratio is less informative to prospective investors for book-building issues than for fixed-price issues. Studies such as Yong and Isa (2003) and Yong (2007), had shown that over-subscription ratio has a high degree of association with the initial returns of Malaysian IPOs. Kim and Verrecchia (1997) argued that prior information has the ability to change the prospective investors demand for the issues (Bid-Ask spread increases), which could lead to change in the price of the issue. Building on the previous arguments, this study argues that a highly demanded IPO could be a potential candidate for speculative activities once the new issue is traded on the stock exchange. High speculative trading activities can arguably lead to high stock price volatilities, i.e. high price spread.

Lowry and Schwert (2002) suggested that the level of under-pricing in an IPO can be attributed to some IPO-specific information known prior to the offering as well as some new information that is available in the secondary market when the IPO starts trading. Since prospective IPO investors have no opportunity to reveal their beliefs in offerings that employ a fixed-price mechanism, it can be argued that heterogeneity of opinions among IPO investors will be higher in fixed-price IPOs, especially in IPOs with high levels of under-pricing, compared to book-building or auction methods of offerings. Furthermore, Chowdhry and Sherman (1996) reported that issues priced through the fixed-price method, commonly used in the U.K. and in most Asian countries, have larger under-pricing and more extreme level of over-subscription than issues that use the book-building method as commonly practiced in the U.S. For example, Yong (2011) documented a 26.34% average offer-to-open initial return and Mohd Rashid et al. (2014) reported a 29% average initial return in Malaysia. However, Loughran et al.'s (1994) table (latest update on 16th of February 2015) shows that the U.S. has 16.9% average initial return, 16% in the U.K, 25.8% in Singapore and 21.8% in Australia. In addition, based on the argument that IPOs characterised by greater uncertainty tend to be more under-priced and according to Chahine (2007) that, highly under-priced issues tend to attract a larger pool of differentially informed investors, it can be inferred that initial return represents an important variable in determining the level of dispersion of opinions.

Some other unique features of Malaysian IPOs, such as speculative nature of IPOs listed on the ACE market, and very low offer prices are also examined. The issuing firms listed on the ACE market are surrounded by a great level of uncertainty due to their small size, scarce information regarding their track records reported in the prospectus and such firms have difficulties in securing conventional sources of financing which make them appear to be riskier in the eyes of the prospective investors than those firms listed on the Main market that have better financing and track records (Yong 2015). Therefore, IPOs listed on the ACE market should have greater heterogeneity of opinion regarding their future and their issuing price than IPOs listed on the Main market (Low & Yong 2013). Furthermore, Vega (2006) argued that smaller firms are associated with larger drift in price due to their high speculative nature than larger firms that were more transparent. Finally, Yong (2015) argued that IPOs listed on the ACE market have a low offer price which attracts more potential buyers. This will lead to a higher dispersion of beliefs due to a wider spectrum of investors with heterogeneous belief regarding the IPO true value.

Since the level of under-pricing is the main focus of this study, these other variables are treated as the control variables. In addition to using the ordinary OLS regression method, we also use the hierarchical multiple regression methods where the latter is more appropriate when we have control variables in the regression model. With hierarchical regression method, control variables are first entered into the equation in the first stage, followed by the independent variable (that we are really interested to test) in the second stage. In our model, the dependent variable is the price spread, and the independent variable is the initial return (offer-to-open), and other variables act as control variables.

DATA

This study uses a sample of 112 fixed-price Malaysian IPOs for a period from January 2009 to December 2015. Since this study focuses only on IPOs that used the fixed-price method, IPOs that employed the book-building method were excluded from the study sample. During the period of this study, there were less than ten IPOs that used the book-building pricing method. Further information is available at the Bursa Malaysia website (http://www.bursamalaysia.com/ initial-public-offerings/) . The information used in this study was retrieved from various sources, namely: (1) Bursa Malaysia website (http://www.bursamalaysia.com/ initial-public-offerings/); (2) KLSE Info website (http//: www.klse.info/counters/historical-prices/); (3) Yahoo Finance Singapore (https://sg.finance. yahoo.com); and (4) the Star Online website (http:// biz.thestar.com.my/ marketwatch/ipo). The data on over-subscription ratio are not readily available, and so we have to rely on various newspapers' reports such as Star Online (http://www.thestar.com/business/business-news), and one-million

dollar blog (http://1-million-dollar-blog.com/category/stock-market/initial-public-offering).

METHODOLOGY

In this study, initial return (offer-to-open) is calculated as the percentage change in price from the offer price to the opening price of the first trading day. The price spread is calculated as the percentage difference between the highest price and the lowest price of the first trading day, over the lowest price.

Based on the argument that IPOs characterised by greater uncertainty tend to be more under-priced and according to Chahine (2007) that, highly under-priced issues tend to attract a larger pool of differentially informed investors, it can be inferred that initial return represents an important variable in determining the level of dispersion of opinions. It can be hypothesized that an IPO characterised by high level of uncertainty and associated with a large diversity of informed investors are likely to generate high level of investor disagreement due to the heterogeneity of opinions among investors. The IPO offer price aims to capture the differences in investor opinions that may be related to the price of the offering. It can be argued that a lowly priced IPO is more likely to be subject to speculative activity and thus ex-ante uncertainty is expected to be greater for lower-priced IPOs compared to higher priced IPOs.

In this study, the listing board is used as a proxy for firm size, where IPOs that are listed on the ACE Market are considered to be small-sized speculative firms, and those that are listed on the Main arket are large-sized quality firms. It is interesting to find out whether listing board (or size of firms) plays an important role in explaining the level of price spread of Malaysian IPOs.

In addition to using the ordinary least squares (OLS) as adopted by Low and Yong (2013), we also employed the stepwise regression due to its ability to identify the contribution order of the independent variables to the overall model. Furthermore, according to Yong (2015), the stepwise method is very useful in including only those variables with highest predictive accuracy and statistically significance in the model, and evaluate the order of importance of variables and to select useful subsets of variables. Furthermore, the study also employed the hierarchical multiple regression method which is more appropriate with the inclusion of control variables in the regression model. With hierarchical regression method, control variables are first introduced into the model in the first stage, followed by the independent variables introduced in the second stage. The independent variable is represented by the initial return or the level of under-pricing, which is the variable that we are really interested in testing its relation with the dependent variable, price spread. This interest in the level of under-pricing is due to the argument that under-priced issues tend to attract a larger pool of investors; thus, it can be inferred that initial return represents an important variable in determining the level of divergence in opinions among IPO investors (Low & Yong 2013).

The control variables are included in order to determine the effect of these factors in explaining the variation in the dependent variable, but they are not the main focus of our study. In this study, the control variables are the over-subscription ratio, the listing board, and the offer price. The literature was able to show that issuing firms with small size (listed on the ACE market), low offer price and high over-subscription ratio could explain the variation in the heterogeneity of opinion. For that reasons, the data are recoded into dummy variables, with a value of either 1 or 0. In the case of over-subscription ratio, IPOs with higher than the median over-subscription ratio are assigned a value of 1, and the rest the value of 0. In the case of offer price, the IPOs with offer price higher than the median are assigned a value of 1, and the rest the value of zero. For listing board, IPOs listed on the ACE Market are assigned the value of 1, and the ones listed on the Main Market the value of zero. For instance, Ritter (1984) argued that firm size matters, where smaller issuing firms have higher speculative activity and uncertainty than for larger ones. Furthermore, Low and Yong (2013) suggested that issuing firms with high over-subscription ratio is the result of greater diversity of informed investors around their issues than issuing firms with lower than average over-subscription ratio.

RESULTS

Table 1 presents a summary of the characteristics of the 112 IPOs used in this study, for the period between January 2009 and December 2015. Panel A, presents the descriptive statistics of initial return, first-day price spread, over-subscription ratio, offer price, number of shares issued, and offer size for IPOs listed on the ACE Market (offer size refers to the number of shares issued by the issuing firm multiplied by the offer price),[2] and the descriptive statistics for IPOs listed on the Main Market are presented in Panel B. The descriptive statistics for the overall 112 IPOs are presented in Panel C. Initial return reported refers to percentage change from offer price to opening price during the first day of trading, or usually referred to as initial return (offer-to-open).

For the full sample of 112 fixed-price IPOs, the average number of shares issued is 295 million shares, and a median value of 91.24 million shares, with a maximum value of 4,120.16 million shares and a minimum value of 15.32 million shares. The average offer price is RM1.00, a median offer price of RM0.72, a maximum offer price of RM5.05 and a minimum offer price of RM0.12. The average offer size is RM587.28 million, with a median of RM48.21 million, a maximum value of RM12.5 billion and a minimum value of RM8.1 million.

The mean initial return for IPOs listed on the ACE Market is 42.66 percent as opposed to only 6.80 percent,

i.e. more than 6 times higher, for IPOs listed on the Main Market, an indication of the existence of "size effect" in Malaysian IPOs, where small companies perform (in terms of return) better than big companies. For the overall 112 IPOs, the mean initial return is 16.41 percent, with a median of 7.95 percent, and a maximum value of 288.89 percent and a minimum value of -66.84 percent. For comparison, Yong and Isa (2003) reported a mean initial return (offer-to-open) of 94.91 percent for 468 Malaysian IPOs for the period 1990-1998, and Yong (2007) reported a mean initial return (offer-to-open) of 38.08 percent for 185 Malaysian IPOs for the period 1999-2003. A more recent study by Yong (2015) reported an average initial return (offer-to-open) of 16.27 percent for 93 Malaysian IPOs from January 2009 to December 2013, with an average initial return of 43.23 percent and 7.41 percent for IPOs listed on the ACE Market and IPOs listed on the Main Market, respectively.

The average price spread for IPOs listed on the ACE Market is 36.93 percent, as opposed to the average of only 13.18 percent, i.e. nearly three times higher, for the IPOs listed on the Main Market. The larger price spread for the issues in the ACE market shows that prospective investors have greater disagreement among themselves regarding the true value of the issues. This heterogeneity of opinion is driven by the optimistic investors who drive the issuing price higher and the pessimistic ones who drive the issuing price down. Therefore, price spread is a good indication of the opinion dispersion between investors (Yong 2015; Low & Yong 2013). For the overall 112 IPOs, the average price spread is 19.54 percent, with a median value of 13.81 percent. For comparison, Yong (2015) reported an average first-day price spread of 40.91 percent for IPOs listed on the ACE Market, and 13.21 percent for IPOs listed on the Main Market, where first-day price spread is defined as the difference between the highest and lowest stock price on the first trading day, divided by the lowest price, in percent.

TABLE 1. Descriptive statistics of initial return, price spread, over-subscription ratio, offer price, number of shares issued and size of offer, based on the listing board, for period 2009-2015

	Mean	Median	Std. Dev.	Min.	Max.
Panel A: ACE Market (n = 30)					
Initial return (%)	42.66	20.48	60.41	-24.21	288.89
Price spread (%)	36.93	26.54	33.96	8.16	165.06
Over-subscription ratio (times)	54.28	34.12	72.07	2.08	315.17
Offer price (RM)	0.38	0.31	0.22	0.12	1.08
Number of shares issued (million)	83.00	79.35	49.68	15.93	228.24
Size of offer (RM million)	25.31	23.22	11.97	8.10	63.91
Panel B: Main Market (n = 82)					
Initial return (%)	6.80	5.04	16.14	-66.84	47.06
Price spread (%)	13.18	10.52	10.15	1.03	68.42
Over-subscription ratio (times)	10.37	7.00	10.07	-0.50	63.92
Offer price (RM)	1.22	0.89	0.91	0.50	5.05
Number of shares issued (million)	373.00	99.78	669.40	15.32	4120.16
Size of offer (RM million)	792.88	91.35	2216.72	10.42	12500.00
Panel C: Overall (n = 112)					
Initial return (%)	16.41	7.95	37.39	-66.84	288.89
Price spread (%)	19.54	13.81	22.09	1.03	165.06
Over-subscription ratio (times)	22.20	10.45	42.63	-0.50	315.17
Offer price (RM)	1.00	0.72	0.87	0.12	5.05
Number of shares issued (million)	295.00	91.24	586.70	15.32	4120.16
Size of offer (RM million)	587.28	48.21	1924.17	8.10	12500.00

The descriptive statistics in Table 1 shows the information on the low offer price (ACE Market has an average RM0.38 versus RM1.22 for the Main Market) of the issuing firms in the ACE market which is provided to the general public before the listing date, and this information allows investors to have divergent prior expectations regarding the true value of the issues because each investor is using this ex-ante information to build their own interpretation (Vega 2006; Low & Yong 2013). Furthermore, the low offer price will attract more investors who look for higher probability of capital gain (Low & Yong 2011; Kim & Verrecchia 1997), which refers to the increase in the price of the IPO from its offer price. This will lead to higher demand (ACE Market has an average over-subscription ratio of 54.28 times versus an average over-subscription ratio of 10.37 times for the Main Market) for such issues, as shown by their high over-subscription ratios (Chowdhry & Sherman 1996), which will be followed by a dramatic increase in prices during the first few days of trading after the initial listing

of the IPOs (Miller 1977; Ritter 1984; Beatty & Ritter 1986; Lowry & Schwert 2002) due to their high under-pricing (ACE Market has an average initial return of 42.66 percent versus an average of 6.80 percent for the Main Market) (Chowdhry & Sherman 1996). Moreover, the issuing firms listed on the ACE market are characterised with small size (ACE Market has an average offer size of RM25.31 million versus RM792.88 million for the Main Market) which could associate such issues with potentially high speculative activities among investors due to their being less transparent than big size issuing firms (Ritter 1984; Vega 2006). This situation could lead to huge differences in their market price (Vega 2006).

Table 2 reports the results of cross-sectional regressions for the entire sample of 112 IPOs. In Panel A of Table 2, the regression analysis is based on the enter method (i.e. the OLS method). The dependent variable is the first-day price spread, and the independent variables are the initial return, ACE Market versus Main Market, low versus high offer price, and high versus low over-subscription ratio. Of those four independent variables, only two variables, namely initial return (*t*-statistic of 7.667, with the corresponding *p*-value of 0.000) and ACE Market versus Main Market (*t*-statistic of 2.387, with the corresponding *p*-value of 0.019), are significant in explaining the first-day price spread. The adjusted R^2 is 0.506, and a Durbin-Watson statistic of 1.868. According to Bayley and Walter (2006), there are some certain behavioural tendencies that can be generated by IPO under-pricing that influence the investors trading decisions. They documented that the likelihood of investors to sell their initial allocation of shares increases as the level of under-pricing increases, which means that under-pricing has a role in influencing the IPO investors' decisions. Furthermore, this high under-pricing is driven by the disagreement among investors regarding the "true" value of an IPO, which is caused by the uncertainty of investors. Previous studies have suggested that that IPOs that are characterised by greater level of uncertainty tend to be more under-priced (Baron 1982; Beatty & Ritter 1986; Houge et al. 2001; Lowry & Schwert 2002; Megginson & Weiss 1991; Miller 1977; Ritter 1984; Rock 1986). The value of the Durbin-Watson statistic indicates that there is no auto-correlation in the residuals. Furthermore, the adjusted R^2 of the present study (0.507) is higher than that of Low and Yong (2013) (0.483), which suggests that the newly proposed model of the current study has higher explanatory power.

The results shown in Panel B of Table 2 further substantiates what the results in Panel A indicate, namely, only initial return and ACE Market versus Main Market are significant in explaining the level of price spread. The present study initially argued that issuing firms in the ACE market have some characteristics that cause the disagreement among investors regarding the "true" value of an IPO to increase. These characteristics are small size issuing firms (Ritter 1984; Vega 2006), high over-subscription ratio for such issues (Chowdhry & Sherman 1996) and low offer price (Low & Yong 2011; Kim & Verrecchia 1997), which according to the literature can lead to high heterogeneity of opinion among investors. This high disagreement can be reflected in the price spread of the first day. With the stepwise method of regression analysis, we have the opportunity to know the order of contribution of an independent variable to the overall model. Hair et al. (2010) documented that the stepwise

TABLE 2. Cross-sectional regression results for all IPOs (n = 112), with first-day price spread as the dependent variable

Variable	Coefficient	*t*-statistic	*p*-value	VIF
Panel A: Enter method				
Constant	9.535	3.946	0.000	0.000
Initial return	0.347	7.667**	0.000	1.315
ACE Market versus Main Market	9.537	2.387*	0.019	1.454
Low versus high offer price	4.214	1.285	0.201	1.248
High versus low	-0.758	-0.237	0.813	1.192
Over-subscription ratio				
F-value = 29.403*** (p-value = 0.000); Adjusted R^2 = 0.506; Durbin-Watson D = 1.868[@]				
Panel B: Stepwise method				
Constant	10.799	6.214	0.000	0.000
Initial return	0.350	8.046**	0.000	1.222
ACE Market versus Main Market	11.192	3.059**	0.003	1.222
F-value = 58.031** (p-value = 0.000); Adjusted R^2 = 0.507; Durbin-Watson D = 1.853[@]				

Notes:

1. First-day spread refers to [(maximum price – minimum price)/ (minimum price)] x 100%, which is the percentage change from minimum to maximum price.
2. A diagnostic measure using variance inflation factor (VIF) is employed to check for the presence of multi-collinearity. None of the VIFs for the variables specified in the model have a value greater than 10, which means there is no evidence of multi-collinearity in the regression models.
3. [@] The value of the Durbin-Watson statistic indicates that there is no auto-correlation in the residuals.
4. * Significant at the 5 percent level.
5. ** Significant at the 1 percent level.

regression method is designed to develop a regression model with the fewest number of statistically significant independent variables and maximum predictive accuracy. In this case, the initial return is entered first, followed by ACE Market versus Main Market. With the stepwise method, the adjusted R^2 is 0.507, with a Durbin-Watson statistic of 1.853. Again, the value of the Durbin-Watson statistic indicates that there is no auto-correlation in the residuals.

Based on the stepwise regression method, the model formed is as follows:

FIRST-DAY PRICE SPREAD = 10.799 + 0.350 INITIAL RETURN + 11.192 ACE MARKET VERSUS MAIN MARKET

Table 3 present the results of the hierarchical multiple regression analysis, with price spread as the dependent variables, initial return as the independent variables, and ACE Market versus Main Market, low offer price versus high offer price, and high versus low over-subscription ratio as the control variables. With only the independent variable introduced into the model as shown in Panel A, the model formed has an adjusted R-square value of 0.470. With only the control variables introduced into the model, as shown in Panel B, the model formed has an adjusted R-square value of 0.241. Of those three control variables, only one control variable, namely ACE Market versus Main Market, is significant (t-value of 3.934 with corresponding p-value of 0.000).

TABLE 3. Cross-sectional regression (hierarchical multiple regression analysis) results for all IPOs (n = 112), with first-day price spread as the dependent variable, initial return as the independent variable, and ACE Market versus Main Market, low versus high offer price and high versus low over-subscription ratio as control variables

Variable	Coefficient	*t*-statistic	*p*-value	VIF
Panel A: Initial return as independent variable with no control variable in the model				
Constant	12.865	7.745**	0.000	0.000
Initial return	0.407	9.968**	0.000	1.000
F-value = 99.354** (p-value = 0.000); Adjusted R^2 = 0.470; Durbin-Watson D = 1.790@				
Panel B: Only the control variables ACE Market versus Main Market, low versus high offer price and high versus low over-subscription ratio are introduced into the model				
Constant	8.566	2.865**	0.005	0.000
ACE Market versus Main Market	18.601	3.934**	0.000	1.326
Low versus high offer price	6.645	1.643	0.103	1.236
High versus low over-subscription	5.224	1.357	0.178	1.121
F-value = 12.775** (p-value = 0.000); Adjusted R^2 = 0.241; Durbin-Watson D = 1.953@				
Panel C: Initial return as independent variable with ACE Market versus Main Market, low versus high offer price and high versus low over-subscription ratio as control variables				
Constant	9.535	3.946**	0.000	0.000
Initial return	0.347	7.667**	0.000	1.315
ACE Market versus Main Market	9.537	2.387*	0.019	1.454
Low versus high offer price	4.214	1.285	0.201	1.248
High versus low over-subscription	-0.758	-0.237	0.813	1.192
F-value = 29.403** (p-value = 0.000); Adjusted R^2 = 0.506; Durbin-Watson D = 1.868@				
Panel D: When stepwise regression method is used in selecting control variables				
Constant	10.799	6.214**	0.000	0.000
Initial return	0.350	8.046**	0.000	1.222
ACE Market versus Main Market	11.192	3.059**	0.003	1.222
F-value = 58.131** (p-value = 0.000); Adjusted R^2 = 0.507; Durbin-Watson D = 1.853@				

Notes:

1. First-day spread is defined as [(maximum price – minimum price)/(minimum price)] x 100%.
2. A diagnostic measure using variance infl ation factor (VIF) is employed to check for the presence of multi-collinearity. None of the VIFs for the variables specified in the model have a value greater than 10, which means there is no evidence of multi-collinearity in the regression models.
3. @ The value of the Durbin-Watson statistic indicates that there is no auto-correlation in the residuals.
4. * Significant at the 5 percent level.
5. ** Significant at the 1 percent level.

With the addition of the independent variable initial return, as shown in Panel C, the percent of variability in the dependent variable that can be accounted for by all the predictors together has increased to from 24.1 percent (as shown in Panel B) to 50.6 percent (as shown in Panel C), with an F-value increases from 12.775 (corresponding *p*-value of 0.000) to 29.403 (with corresponding *p*-value of 0.000). Again, as indicated in Panel B, only one control variable, i.e. ACE Market versus Main Market, is significant. Moreover, as shown in Panel D, the stepwise regression method indicates only ACE Market versus Main Market is the significant control variable. The adjusted R-square has slightly improved to 0.507, with F-value of 58.131 (corresponding p-value of 0.000). The overall model formed, based on the stepwise regression method, is

FIRST-DAY PRICE = 10.799 + 0.350 INITIAL SPREAD RETURN + 11.92 ACE MARKET VERSUS MAIN MARKET

CONCLUSION

This paper examines the heterogeneity of opinion, measured as the first-day price spread, among investors regarding the value of an IPO, using a sample of 112 fixed-price IPOs listed on the Main Market and the ACE Market of Bursa Malaysia. The study period is from January 2009 to December 2015, a period after the 2008 global sub-prime crisis. In general, the average initial return of IPOs listed on the ACE market (proxy for small-sized firms) is 6 times higher than the average of those IPOs listed on the in Malaysian IPOs. Similarly, the average price spread of IPOs listed on the ACE Market is nearly three times higher than those IPOs listed on the Main Market. This study also examines factors that, with special focus on the level of under-pricing as the main predictor, could potentially explain investor heterogeneous belief in a fixed-price method of the IPO pricing mechanism. The first-day price spread is used as the proxy for investor heterogeneity. In the model formed, the independent variable consists of initial return (offer-to-open), with ACE Market versus Main Market as the control variable. In the model formed, the predictor variables together can explain 50.7 percent of the variation in the price spread, an improved model from the one proposed by Low and Yong (2013) with an R^2 of 0.483. This means that the level of under-pricing (measured by initial return (offer-to-open) as opposed to the measure initial return (offer-to-close) used by Low and Yong) proposed in this study has a higher degree of explanatory power than the one proposed by Low and Yong in explaining the heterogeneity of opinion regarding the value of fixed-price Malaysian IPOs.

The results of this study contribute to the existing theory on the heterogeneity of opinion regarding the value of an IPO in terms of the new improved model than the one offered earlier by Low and Yong (2013). In addition, the results imply that an investor who is risk-averse should avoid IPOs listed on the ACE market due their higher price spread, thus higher risk. The results also have some policy implications for the regulatory bodies of Bursa Malaysia where special attention should be given to IPOs with high initial return (offer-to-open) and listed on the ACE market where these IPOs are subject to speculation due to their high divergence of opinions among investors regarding their true values, as shown by their significantly higher (3 times higher) price spread than those IPOs listed on the Main market.

ENDNOTES

1 The current study focuses only on IPOs that use fixed-price method of pricing. However, during the period of this study there were less than ten IPOs that used the book-building pricing method, which is very popular in the U.S., and these book-building IPOs were excluded from the study sample. Further information on the classification of pricing method of Malaysian IPOs is available at the Bursa Malaysia website (http://www.bursamalaysia.com/initial-public-offerings/).

2 The present study uses the offer size to show the differences between the firm sizes listed on the ACE market and the Main market. However, in the analysis the listing board is used to represent the issuing firms' size.

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