SOCIAL AND MANAGEMENT RESEARCH JOURNAL

RESEARCH MANAGEMENT INSTITUTE

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CAN BEHAVIOURAL THEORIES EXPLAIN
THE INITIAL RETURN OF MALAYSIAN IPOs?

Fen Nee Chong

*Faculty of Business Management, Universiti Teknologi MARA,
Sarawak Campus, Jalan Meranek, 94300 Kota Samarahan,
Sarawak, Malaysia
Email: fenneechong@sarawak.uitm.edu.my*

ABSTRACT

*This paper investigated the impact of behavioural biases on the initial
returns of Malaysian IPOs from the perspectives of divergence of opinion
and representative heuristics theories. The initial returns were calculated
using 142 IPO samples listed on the Main Board of Bursa Malaysia
(formerly known as Kuala Lumpur Stock Exchange). In addition to the
behavioural proxies, ex-ante variables were included as control variables
in the models for analysis. The findings showed support for initial
underpricing of 66.51%. Behavioural biases, divergence of opinion and
representative heuristics, were found to have significant explanatory
powers over initial returns. The findings fit well with the profile of the
Malaysian market whereby the majority of the investors are individuals
who are not well-informed and have an emerging market status.*

Keywords: *IPO, divergence of opinion, representative heuristics*

INTRODUCTION

Traditional finance theories such as the Efficient Market Hypothesis
assumed that investors are rational, and therefore abnormal returns should
not exist as stock prices reflect fundamental value. However, previous
empirical studies have consistently reported IPO initial underpricing
phenomenon in the majority of the stock markets for the past forty years

(Ritter, 1998). In Malaysia, initial underpricing is common and has been documented by Dawson (1987), Isa and Ahmad (1996) as well as Leong *et al.* (2000) among others.

Numerous researches explained the initial return anomalies based on the assumption that the market is rational and efficient. Therefore, the extraordinarily high return earned in the aftermarket is rationalized as an issuer's intentional discounting on the IPO's intrinsic value so as to persuade investors to purchase the IPOs. Consequently, this phenomenon is termed 'underpricing'. Nevertheless, shares performances are reflections of investors' behaviours and since markets are composed of both rational and irrational investors, therefore, apart from the explanations based on neo-classical finance paradigm, the recognition of individual behavioural influences in affecting market outcomes should also be considered in explaining initial performance.

Hence this study examined the Malaysian IPO market from the divergence of opinion and representative heuristics perspectives. Divergence of opinion occurs when investors fail to show confirming trend of thinking on the value of the same asset and hence behave differently in pricing the assets (Miller, 1977 and 2000). On the other hand, representative heuristics refers to the tendency for investors to make quick decisions based on recent evidences rather than underlying probabilities (Shiller, 2003).

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Previous researches reported that the Malaysian IPO initial return was on average to be above 100%. Amongst others, Dawson (1987) reported initial return of 166.7% for the study period 1978 to 1983, Ismail *et al.* (1993) documented initial return of 114.6% for the period 1980 to 1989 while Leong *et al.* (2000) found an initial return of 107% for IPOs undertaken from 1992 to 1998. Firm-level misevaluation, listing regulations and intentional underpricing are some of the reasons behind the extraordinarily high initial returns (Hertzel and Li, 2010; Beatty and Ritter, 1986; Dawson, 1987 and Loughran and Ritter, 2001).

However, excessive underpricing does not only jeopardize underwriter's future market share (Beatty and Ritter, 1986), but also causes tremendous loss to the issuers. Therefore, in a market with excessive returns like Malaysia, besides intentional underpricing and regulatory requirements, behavioural explanations would offer considerable promises to enrich the knowledge content of the Malaysian IPO market.

The theory of divergence of opinion asserts that due to the high uncertainty, divergence of opinion in the new listing market is high. A higher divergence of opinion about an IPO leads to more short-run overreaction and long-run underperformance. This is because IPOs do not offer much information on track record and history of earning in the initial aftermarket. But over time, with more disclosures, divergence of opinion has narrowed, thus, uncertainty reduced followed by the fall of long-run returns (Miller, 1977). Besides, assuming heterogeneous investor's expectation regarding the valuation of a firm, Miller (1977) argues that the less informed investors are more optimistic and hence, willing to buy the IPOs at a higher price.

The empirical evidence offered by Houge *et al.* (2001) using 2,025 US IPOs during the 1993 to 1996 period has supported the divergence of opinion theory. Their study used opening-day activities: opening spread, time of first trade and differences between flipping ratios of institutions and individuals as proxies for divergence of opinion and uncertainty representing three parties, namely, market makers, underwriters and institutional investors. They found that IPOs with wide spread, late time of first trade and high proportion of institutional flipping are significantly related to underpricing and poor long-run performance.

A related study by Mayshar (1983) contends that divergence of opinion does not only exist in the capital market but is also essential in the markets with transaction cost and heterogeneous investors. Moreover, Diether *et al.* (2002) document that stocks with higher dispersion in analysts' earnings forecasts performed worse than otherwise similar stocks. Analysts' earnings forecasts are used as proxies for divergence of opinion among investors in this study.

Similar to Diether *et al.* (2002), Doukas *et al.* (2004) contend that the magnitude of diversity of opinion among the analysts has an impact on the investors' earning expectations. If divergence of opinion among analysts' forecast is low, then, the credibility of the earning forecast is high. Consequently, investors become more optimistic and this causes overvaluation. Based on the literature discussed above, Hypothesis 1 for this study is presented as follows:

H1: There is a positive relationship between divergence of opinion and initial return of IPOs.

Representative heuristics is another well-known behavioural bias on judgment under uncertainty. The representative heuristics concept was first introduced by two renowned psychologists Tversky and Kahneman (1974). In a related article, they characterised the concept of representative heuristics as follows:

> "Representativeness is an assessment of the degree of correspondence between a sample and a population, an instance and a category, an act and an actor, or more generally between an outcome and a model" (Tversky and Kahneman, 1983, pp 295-296).

Shefrin and Statman (1993) relate representative heuristics to the investment decision process and they contend that investors' behaviour in overweighting recent performance may be explained by representative heuristics. In the stock market, this judgment bias can drive investors to perceive a stock as a winner or loser and a market as a bull or bear based on what had happened in the recent sequences without valuing the underlying fundamentals. In the same light, investors can also become more optimistic due to recent gains and more pessimistic due to recent losses.

On the other hand, the study done by Bayley *et al.* (2006) has shed some lights on the impact of representative heuristics in the Australian IPO environment. The authors document a positive relationship between investors' decision to flip and the level of underpricing of the most recent IPOs for both institutional and individual investors. Hence, based on the literature discussed above, this study proposes that:

H2: There is a positive relationship between representative heuristics and IPOs' initial return.

DATA AND METHODOLOGY

This paper used IPO samples listed on the Main Board of Bursa Malaysia for analysis. The Main board is the funding avenue for bigger capitalized companies. Samples were only chosen from the Main Board as they had more or less the same background and could be subject to similar quantitative and qualitative listing requirements. Hundred and forty two samples between 1993 and 2006 were selected and the required data were drawn from the Securities Commission, the Bursa Malaysia Research and Data Centre, the Central Bank of Malaysia and relevant publications.

Hierarchical multiple regression analysis was used to examine the hypotheses proposed. This method was chosen because it allows comparison to be made to determine the significance of the primary explanatory variables have and beyond the control variables. Model 1 was used to examine the predictive power of proxies of divergence of opinion on market adjusted initial returns as stated under Hypothesis 1.

$$MAIR = \alpha + \beta_1 ODS + \beta_2 FR - \beta_3 OH + \beta_4 SR + \beta_5 MktCon - \beta_6 LOGSizeOff - \beta_7 UR\ Dummy + \beta_8 Pre\text{-}Crisis\ Dummy + \beta_9 Post\text{-}Crisis\ Dummy + \varepsilon \qquad (1)$$

Whereby, ODS refers to opening-day-spread, FR the flipping ratio, OH the operating history, SR the subscription ratio and MktCon the market condition, which are calculated as the average market index return one week prior to the listing date. LOGSizeOff represents size of offer; a log-transformation is applied to this variable due to its positive skewness (Kaustia, 2004). The UR dummy refers to the quality of the lead underwriter and the classification is in accordance with the rating of Central Bank of Malaysia. The pre-crisis dummy represents the period before the commencement of the Asian financial crisis in June 1997 while the post-crisis dummy the period after the Asian financial crisis that began on October 1, 1998.

The initial return is measured using market-adjusted initial return (MAIR), which is defined as the difference between initial raw return and the market return on the first trading day. The level of divergence of opinion is measured using two first day trading indicators, namely, opening-day-spread and flipping ratio. Opening-day- spread is defined as the difference between day high and day low on the first trading day. Optimist's opinions are reflected on day high while pessimist's opinions are represented by day low. The flipping ratio is defined as the percentage of opening day trading volume divided by the number of shares offered on the first trading day (Miller and Reily, 1987 and Aggarwal, 2003). High flipping ratio indicates wide divergent opinions and vice versa. Heterogeneous beliefs are argued to create higher trading volume (Harris and Raviv, 1993); hence, higher flipping activity is expected for IPOs with greater disagreement on the true aftermarket value. Therefore, the expected signs for proxies of divergence of opinion, namely, opening-day-spread (ODS) and flipping ratio (FR) are positive.

In addition to the primary explanatory variables, namely, opening-day spread and flipping ratio, ex-ante variables such as operation history, subscription ratio, market condition, prestigious underwriter dummy, pre-crisis dummy and post-crisis dummy are included as control variables in the regression analysis.

Ritter (1984) as well as Beatty and Ritter (1986) document a causal relationship between underpricing and ex-ante variables whereby underpricing is positively associated to issues of greater uncertainty. Thus, operating history (OH) is expected to be negatively related to initial return as longer operating history before listing implies lower risk and uncertainty. On the other hand, subscription ratio (SR) is expected to have a positive sign. A higher subscription reflects higher demand and optimism among the investors. Subscription ratio (SR) was proved to be positively related to underpricing in Malaysia (Yong et al., 1999 and Wan-Hussin, 2002). Meanwhile, a small size of offer indicates small firm size and generally, small firms are more uncertain as they are more easily affected by averse speculative forces (Ritter, 1984). Thus a negative coefficient is expected for this variable. Market condition (MktCon) is expected to have a positive sign as the higher the KLCI, the more optimistic the investor would be about a firm's future growth. Hence, a higher valuation is assigned to the share offered. This relationship is supported by Isa and Ahmad (1996).

Carter and Manaster (1990) state that high-quality underwriters are typically associated with less underpricing. Nonetheless, Loughran and Ritter (2001) contend that IPOs underwritten by prestigious underwriters during the dot-com boom in the late 90s were associated with more underpricing than those managed by the less prestigious underwriters. In line with the findings from other Asian countries, Wan-Hussin (2002) finds that there is no association between underwriter reputation and IPO valuation in Malaysia. Since theoretically, prestigious underwriters are associated with higher quality and less uncertain IPO, this study expects a negative sign for underwriter dummy. Pre-crisis and post-crisis dummy are included as control variables as they might have an influence on the market adjusted initial return.

To capture the impact of representative heuristics on the initial performance of the IPOs in Malaysia, following Bayley *et al.* (2006), the equally-weighted underpricing for the three most recent IPOs listed prior to the firm's listing date is used as the proxy for representative heuristics (RH). Answering Hypothesis 2, hierarchical multiple regression analysis was performed on Equation 2. Since investors' judgments on the valuation of IPOs could be associated with the performance of the most recently offered IPOs, therefore, a positive relationship is expected between this proxy (RH) and the level of initial return. Similar to Model 1, control variables were included in Model 2 for further analysis.

$$MAIR = \alpha + \beta_1 RH - \beta_2 OH + \beta_3 SR + \beta_4 MktCon - \beta_5 LOGSizeOff - \beta_6 UR$$
$$Dummy + \beta_7 Pre\text{-}Crisis\ Dummy + \beta_8 Post\text{-}Crisis\ Dummy + \varepsilon \quad (2)$$

TEST AND RESULTS

Descriptive Statistics

The mean market adjusted initial return for samples was 66.51% with a minimum -21.00% and a maximum 212.00%. The opening-day-spread which is defined as day high minus day low had a mean of RM0.59. The lowest opening-day spread was recorded at RM0.03 while the highest RM2.02. The average flipping ratio was 7.66%, the maximum flipping ratio 21.52% while the minimum flipping 0.01%. The representative

heuristic which is represented by the equally-weighted underpricing for the three most recent IPOs listed prior to the firm's listing date had a mean of 67.69%.

Results of Multiple Hierarchical Regression Test

Results on the explanatory power of proxies of divergence of opinion and representative heuristics on MAIR are presented in Table 1.

Table 1: Multiple Hierarchical Regression Analysis

	Variables	Model		
		1	2	3
	Control variables			
Step 1	Operating history .	0.223	0.336	-0.131
	Subscription ratio	1.252	0.117	1.116
	Market condition	5.285**	5.271**	2.633**
	LOG Size of offer	-2.441**	-3.036**	-2.474**
	Underwriter's reputation Dummy	0.640	0.682	1.162
	Pre-crisis Dummy	1.975	1.680	0.981
	Post-crisis Dummy	-0.805	-0.781	-0.465
	Model Primary Explanatory variables			
Step 2	Opening-day spread		5.010**	
	Flipping ratio		2.063**	
	Representative Heuristics			5.005**
	F value	22.511**	27.423**	26.735**
	R^2	0.561	0.669	0.635
	Adjusted R^2	0.535	0.645	0.611
	R^2 change	0.560**	0.110**	0.074**

**Significant at 5% level.

Model 1 (Table 1) reports the results of the control variables and the level of initial underpricing. In the analysis, the results showed that the model was significant at a 5 percent level. Among the control variables included in the model, the market condition and the LOG size of offer were significant and in the predicted direction. The finding of a significant negative relationship between LOG size of offer and MAIR had supported Tay's (1993) claim that smaller firms outperform bigger firms in initial returns. The report of a positive significant relationship between market condition and MAIR supported Isa and Ahmad (1996). On the other hand, the finding of no significant relationship between the underwriter's quality and MAIR was consistent with that of Wan-Hussin (2002).

Meanwhile, Model 2 investigated the impact of the proxies of divergence of opinion on initial underpricing. A positive and significant relationship between divergence of opinion proxies (opening-day-spread and flipping ratio) and initial return was reported. The multiple hierarchical regression analysis reported an adjusted R-square of 0.535 for the controls and a further improvement of 11% in adjusted R-square after adding the behavioural indicators proxing for divergence of opinion. In addition, opening-day-spread was a better predictor of MAIR if compared to other ex-ante variables such as operating history, subscription ratio, LOG size of offer, underwriter's reputation as well as dummies for pre and post crisis. The positive relationship between flipping and MAIR was consistent with Houge *et al.* (2001) and Bayley *et al.* (2006)'s findings.

Model 3 presented the multiple hierarchical regression results of the impact of representative heuristics on initial performance proposed under Hypothesis 2. Table 1 shows a significant positive relationship between representative heuristics and MAIR after controlling for ex-ante and economic factors. With an F value of 26.735 and R-square change of 0.074 which was significant at the 5% level, supporting Hypothesis 2. These results implied that the investors' manifestation of representative heuristics based on the return of prior IPOs had significantly impacted the initial returns. The market condition and LOG Size of Offer, the control variables, remained as significant predictors of MAIR.

SUMMARY AND CONCLUSION

Using a sample of 142 IPOs listed on the Main Board of Bursa Malaysia, this study examined the explanatory power of proxies of divergence of opinion and representative heuristics on the initial return of Malaysian IPOs. The descriptive statistics reported a mean market-adjusted initial return (MAIR) or underpricing of 66.51% for the study period. The maximum underpricing was reported high at 212% while the poorest IPO underperformed the market with an MAIR equals to -21%. Two hypotheses are proposed to evaluate the impact of behavioural biases on MAIR from the perspectives of divergence of opinion and representative heuristics theories. However, it is noteworthy that these behavioural biases are not mutually exclusive.

Multiple hierarchical regression analysis of divergence of opinion proxies – opening – day - spread and flipping ratio with ex-ante factors as controls show that the model is able to explain about 64.5% of the variation in the short-run return of the IPOs. The inclusion of divergence of opinion proxies in the model showed a significant R-square change of 11%.

On the other hand, multiple hierarchical regression analysis explored the predictive power of representative heuristic proxy on MAIR showing that the inclusion of this proxy had generated a significant R-square change of approximately 7.4%. This results implied that the performance of the three most recent IPOs prior to the listing of a particular IPO had significantly influenced the performance of the IPO. This finding confirmed Shefrin and Statman's (1993) assertion that investors' behaviour in overweighting recent performance could be explained by the representative heuristics.

In conclusion, the findings from this study prove that on top of the explanations based on the neo-classical finance paradigm, behavioural biases also affect the variations in short-run IPO anomalies in Malaysia significantly. Nevertheless, the impacts of these behavioural biases on MAIR are not mutually exclusive. Overall, the findings also fit well with Malaysia's emerging market status.

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