


Article

Do Share Allocations to the Indigenous Investor Drive the Demand for IPOs?

Ahmad Hakimi Tajuddin ^{1,2,*} , Kanesh Gopal ³, Rasidah Mohd-Rashid ⁴, Waqas Mehmood ¹ and Elkhan Richard Sadik-Zada ^{5,6,7,*}

¹ School of Accounting & Finance, Faculty of Business and Law, Taylor's University, Subang Jaya 47500, Malaysia

² Digital Economy and Business Transformation Impact Lab, Taylor's University, Subang Jaya 47500, Malaysia

³ Faculty of Accountancy, Finance and Business, Tunku Abdul Rahman University of Management and Technology, Kuala Lumpur 53300, Malaysia; kanesh@tarc.edu.my

⁴ School of Economics, Finance and Banking, Universiti Utara Malaysia, Sintok 06010, Malaysia

⁵ Institute of Development Research and Development Policy, Ruhr-University Bochum, 44801 Bochum, Germany

⁶ Center for Studies on Europe, Azerbaijan State University of Economics (UNEC), 1001 Baku, Azerbaijan

⁷ Institute of Social Development, University of the Western Cape, Cape Town 7535, South Africa

* Correspondence: ahmadhakimi.tajuddin@taylors.edu.my (A.H.T.); elkhan.r.sadik-zada@ruhr-uni-bochum.de (E.R.S.-Z.)

Abstract: The purpose of this paper was to investigate the impact of allocating shares to the indigenous (*Bumiputera*) investors on the oversubscription ratio of IPO. This factor is unique to Malaysian IPOs and would enable us to reflect the signaling theory. Data on 348 IPO firms listed on Bursa Malaysia over a span of 17 years from 2002 to 2018 were examined using a cross-sectional regression analysis. The findings demonstrated no significant impact arising from the fractions of shares allocated to *Bumiputera* investors on the oversubscription ratios, except that the revised guidelines on the *Bumiputera* equity requirement had a significant negative influence on oversubscription. Further tests showed that the influence of such share allocation on oversubscription was moderated by firm size, which was proxied by market capitalization. The findings lend support to the signaling theory, indicating that the demand for IPOs will be slightly higher for larger firms listed in bigger markets.

Keywords: indigenous; *Bumiputera*; IPO; oversubscription; signaling; firm size; retail investors



Citation: Tajuddin, Ahmad Hakimi, Kanesh Gopal, Rasidah Mohd-Rashid, Waqas Mehmood, and Elkhan Richard Sadik-Zada. 2023. Do Share Allocations to the Indigenous Investor Drive the Demand for IPOs? *Economies* 11: 117. <https://doi.org/10.3390/economies11040117>

Academic Editor: Robert Czudaj

Received: 28 February 2023

Revised: 5 April 2023

Accepted: 9 April 2023

Published: 14 April 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

Captivating the interest of primary market investors to ensure that initial public offering (IPO) issues are completely subscribed is a challenging task. Investor demand, which is often measured using the over subscription ratio, plays a significant role in inducing the after-market performance of IPOs (Chowdhry and Sherman 1996; Arora and Singh 2020; Mohd-Rashid et al. 2022a). Consequently, IPOs with higher public demand will see higher levels of initial return (Mehmood et al. 2021b; Mohd-Rashid et al. 2022b). Higher investor demand, which is largely attributed to better market conditions and investment opportunities, has led to significant oversubscriptions in Asian IPO markets and turned into a serious concern among investors and financial market regulators in emerging markets such as China, Hong Kong, Singapore, and Malaysia (Agarwal et al. 2008; Chowdhry and Sherman 1996; Loughran et al. 1995). Table 1 provides a brief overview of the IPO allocation rules in some Asian countries in terms of the allocation process and any restrictions on institutional or foreign investors.

Table 1. Guidelines on the IPO allocation in selected Asian countries.

Country	Retail Investor	Foreign/Institutional Investor
China	The allocation process is usually conducted through a lottery system, where investors are assigned a random number and shares are allocated based on that number.	There are restrictions on the participation of foreign investors in the initial stages of IPOs.
Japan & India	The allocation process is generally based on a fixed-price method, where shares are allocated to investors who have submitted purchase applications at the IPO price.	There are no specific restrictions on the participation of institutional or foreign investors in IPOs.
South Korea	The allocation process is typically conducted through a lottery system, with both retail and institutional investors participating in the lottery	Foreign investors can participate in IPOs but they are subject to certain restrictions, such as a limit on the percentage of shares they can purchase.
Malaysia	Under the fixed price offering, investors can apply for a specific number of shares at a fixed price. Further, a book-building process is also available but normally large firms will assess issues through book-building.	There are no specific restrictions on the participation of foreign investors in IPOs in Malaysia, but they are subject to certain limits on the percentage of shares they can purchase.

The diverse characteristics of investor demand in different countries indicate the presence of market-specific factors that influence oversubscription. For example, the A-Class shares listed on the Shenzhen Stock Exchange, China, can only be traded by Chinese citizens and are often in high demand or oversubscribed (Yu and Tse 2006). Major portions of these companies are government-linked and offer high underpricing to save investors the agency cost of investing in IPOs issued by government-linked companies. Moreover, for each company, the higher the equity retained by the government, the lower the liquidity of the equities (Chen et al. 2004). As such, investors need to be compensated for the lower liquidity with a premium, i.e., underpricing. However, potentially high underpricing increases the demand from investors (Mohd-Rashid et al. 2019). The underpricing and oversubscription rates of Malaysian IPOs were among the highest in the world, as the country was well-known for offering deep discounts on its IPOs compared to other developing markets (Loughran et al. 1995). In Malaysia, a government regulation requires a fraction of the IPOs issued to be allocated to indigenous *Bumiputera* investors, identified as *Bumiputera* investors. According to Prasad et al. (2006), the implementation of the *Bumiputera* equity requirement policy since 1976 has influenced the underpricing levels of Malaysian IPOs. Thus, this institutional difference that is unique to Malaysia may influence the oversubscription phenomenon. The present paper examines whether share allocations to the *Bumiputera* people have any influence on the demand for IPOs in Malaysia. To date, this factor by all accounts has been neglected by numerous researchers (Abdullah and Taufil-Mohd 2004; How et al. 2007; Jelic et al. 2001; Paudyal et al. 1998; Prasad et al. 2006; Taufil-Mohd 2007). However, the high oversubscription rates observed cannot be treated as isolated cases. Thus, it is important to understand if the fractions of shares set aside for *Bumiputera* investors would affect the oversubscription of IPOs, especially in the Malaysian market, which is characterized by a high degree of information asymmetry (Eldomiaty 2008; Mohd-Rashid et al. 2017). In addition, there is a wide gap between the lowest and highest oversubscription ratios (demand from investors), as shown in Table 2, which motivated the researchers to carry out this study.

Table 2. Descriptive statistics for the variables from January 2002 to December 2018.

Variables	Mean			Median	Minimum	Maximum	Standard Deviation
	Before Revised (n = 244)	After Revised (n = 104)	Full Sample (n = 348)				
Oversubscription ratio (times)	33.97	21.10	30.13	16.67	−0.67	229.20	39.31
BUMI Ownership (%)	22.43	20.16	21.75	13.20	0.00	87.50	22.06
DBUMI Revised	-	-	0.29	0.00	0.00	1.00	0.45
Market Capitalization (RM million)	135.00	1310.00	485.00	72.04	16.00	40,400.00	2610.00
Offer price (RM)	0.81	0.99	0.86	0.70	0.12	5.05	0.66
Delay	30.54	24.23	28.66	26.50	14.00	86.00	9.31
Retail (%)	17.24	15.54	16.73	14.81	0.00	75.00	12.05
Market Return (%)	0.008	0.008	0.008	0.010	−0.066	0.071	0.024

Notes: Std. Dev. = standard deviation; Skew = skewness; Kurt = kurtosis; RM = Ringgit Malaysia.

This study differs from others in two ways. First, this paper highlights the *Bumiputera* equity ownership, which is said to influence oversubscription. Prasad et al. (2006) found that the 30% *Bumiputera* equity requirement imposed by the Malaysian government in 1976 has an impact on IPO underpricing. However, the findings have not been followed up by further investigations on the relationship between *Bumiputera* equity ownership and the oversubscription ratio. Similarly, Abdullah and Taufil-Mohd (2004) noted that *Bumiputera* ownership is one of the variables affecting the underpricing of IPOs in Malaysia. However, they found that the *Bumiputera* ownership allocation reduces the underpricing levels of Malaysian IPOs. In contrast, Taufil-Mohd (2007) found no link between *Bumiputera* equity ownership and IPO underpricing. The inconsistent evidence warrants further examination to determine whether *Bumiputera* equity ownership has some effect on the level of IPO oversubscription. The authors of the present paper are of the opinion that this factor requires special considerations given its uniqueness to the Malaysian market, where it has been one of the New Economic Policy (NEP) tools used to increase *Bumiputera* participation in the equity market since 1976.

Second, previous studies did not consider the revised guidelines on *Bumiputera* equity requirements, and this is another motivation for conducting this research. The 30% *Bumiputera* equity requirement for firms seeking a listing was removed on 30 June 2009. Since then, all firms seeking a listing are required to allocate only 12.5% of their shares to *Bumiputera* investors, signifying a reduction in the distribution of wealth to the *Bumiputera*. This move has reduced *Bumiputera* investors' opportunity to own IPO shares. It is likely that the revised requirement could reduce investor demand, especially among *Bumiputera* investors, and could jeopardize the objective of the NEP for the *Bumiputera* investors to own 30% of the shares in the equity market. Therefore, the impact of the revised *Bumiputera* equity requirement on oversubscription needs to be empirically examined. In addition, this study contributes to the literature on oversubscription by examining the impact of the change in the *Bumiputera* equity requirement (before and after 30 June 2009) on IPO oversubscription, which has not been tested yet in previous studies.

Overall, policy-makers in Malaysia may need to consider the unique characteristics of the market and consider the potential impact of policies on investor demand and market outcomes. The allocation of shares to *Bumiputera* investors has a potential impact on the oversubscription of IPOs in Malaysia; therefore, policy-makers may need to consider this factor in their decision-making. The revision of the *Bumiputera* equity requirement from 30% to 12.5% may have reduced investor demand, especially among *Bumiputera* investors, and could jeopardize the objective of the New Economic Policy (NEP) for *Bumiputera* investors to own 30% of the shares in the equity market. Policy-makers may need to reevaluate this policy and consider whether it is achieving its intended goals.

2. Review of the Literature

Theoretical and empirical studies have revealed that the IPO pricing mechanism has a non-trivial role in creating international discrepancies in IPO oversubscription and underpricing among various countries (Agarwal et al. 2008; Benveniste and Busaba 1997; Benveniste and Spindt 1989; Chahine 2007; Chowdhry and Sherman 1996; Low and Yong 2011; Rahman et al. 2017). Chowdhry and Sherman (1996) in their model stated that higher rates of oversubscription are relatively normal in Asian countries. They noted that high oversubscription ratios of between 200 and 300 times are common in some countries. They also found that countries adopting the fixed pricing mechanism have high degrees of underpricing and IPO oversubscription ratios compared to countries using the book-building mechanism. As mentioned earlier, high IPO oversubscription ratios occur mainly in Asian markets such as China, Hong Kong, Singapore, and Malaysia (Agarwal et al. 2008; Low and Yong 2011). In China, Tian and Megginson (2007) recorded an average IPO oversubscription ratio of 187.4 times between 1992 and 2001. Meanwhile, Gao's (2010) review of a sample of 217 IPOs listed between 2006 and 2008 revealed an average IPO oversubscription ratio of 100.9 times. In Hong Kong, Agarwal et al. (2008), Cheng et al. (2005), and Mazouz et al. (2009) reported that the IPOs were oversubscribed on average by 91.36 times, 93.83 times, and 76.12 times, respectively. Similar to Hong Kong, in Singapore, Reber and Fong (2006) showed that the average oversubscription ratio from 1998 to 2000 was 55.67 times, while Lee et al. (1999) documented that between 1973 and 1992, IPOs were oversubscribed by 41.28 times. Meanwhile, Dawson (1987), Taufil-Mohd (2007), Yong and Isa (2003), and Low and Yong (2011) found that IPOs were oversubscribed by 44, 41.14, 43.71, and 33.59 times, respectively, in Malaysia.

There has been an emergence of research studies on investor demand for IPOs or IPO oversubscription (Alqahtani and Boulanouar 2017; Eng and Aw 2000; Low and Yong 2011; Mohd-Rashid et al. 2022a; Mehmood et al. 2020; Rahman et al. 2017; Tajuddin et al. 2015; Tajuddin et al. 2019). For example, Alqahtani and Boulanouar (2017) examined the roles of the *Shariah*-compliant status and investors' IPO demand in Saudi Arabia. Based on a sample of 80 IPOs listed from 2004 to 2011, the study found an inverse relationship between *Shariah*-compliant status and IPO oversubscription. In contrast, in a study conducted in Malaysia by Tajuddin et al. (2019), *Shariah*-compliant status was found to have a positive relationship with IPO oversubscription. Meanwhile, Rahman et al. (2017) observed a positive relationship between the lot size of an issue with IPO oversubscription in Bangladesh. This finding implies that an IPO with a larger lot size will have a relatively higher subscription rate. In Singapore, Eng and Aw (2000) investigated the factors affecting IPO subscription and found that the largest investors demanded IPOs with higher earning yields, especially for the Singapore dollar denominated issues. This finding indicates that earnings performance drives the demand for IPOs. Recently, Mehmood et al. (2020) examined the impact of the pricing mechanism on IPO oversubscription in Pakistan. They found that the pricing mechanism has a negative impact on oversubscription due to higher information asymmetry and uncertainty in the valuation of the IPOs.

Low and Yong (2011) addressed the factors determining IPO oversubscription in the Malaysian market. They argue that pre-listing information affects the IPO oversubscription ratio, especially among firms that employ the fixed price mechanism. They also found that the investors' demand for IPOs is significantly influenced by the IPO volume, opportunity cost of funds, offer price, and investors' optimism. Subsequently, Tajuddin et al. (2015) investigated the effects of informed investors' involvement and firm size on IPO oversubscription from 2000 to 2012. Their results showed that IPO oversubscription is positively influenced by institutional investors' involvement. The recent study by Mohd-Rashid et al. (2022b), who examined the impact of the lock-up provision on IPO oversubscription, found out that issuers with a lower lockup ratio and a shorter lockup term exhibit a lack of confidence in their future. Thus, to increase investors' intention to subscribe to IPOs, issuers would demonstrate a propensity to underprice.

Several theories have been used in the discussions on IPO underpricing, such as the bandwagon effect, information asymmetry, lawsuit avoidance, signaling theory, prospect theory, and the winner's curse. In addition, there are also models of rent-seeking that could be applied in the context of IPO underpricing (Sadik-Zada et al. 2021; Sadik-Zada 2020, 2021, 2023; Sadik-Zada and Gatto 2021; Sadik-Zada and Loewenstein 2018). Given that this study focuses on share allocations to the *Bumiputera* population as the main factor influencing IPO oversubscription, the signaling model proposed by Leland and Pyle (1977) is suitable to be investigated in this study. Leland and Pyle developed the signaling model based on the valuation of IPOs with high fractional ownership rates. The model shows that fractional ownership by a firm's existing owners signifies its confidence in the company's future success. Superior ownership indicates a firm's higher future cash flows. Accordingly, higher ownership will also contribute to lower underpricing and affect the demand for the IPOs. In further developments, signaling models were formalized by Allen and Faulhaber (1989), Grinblatt and Hwang (1989), and Welch (1989). These models are based on the view that companies have better information about their qualities than do underwriters and investors. In addition, these models express that companies use underpricing to show their values and qualities in order to influence the demand for IPOs. According to Vong (2006), investor demand is an essential element in ensuring the success of an IPO, as it shows that the firm has good quality. Firms that manage to gain a high demand from investors will have a better opportunity to sell their shares in the future (subsequent equity offerings) because they may garner favorable market reactions due to the reputation they gain from the high oversubscription of their issues (Vong 2006). As for the present study, the focus is on examining the share allocations to the *Bumiputera* population and the revision to this regulation as a signal to attract investor demand. Share allocations to *Bumiputera* investors are considered unique to the Malaysian IPO market.

A few studies have looked at *Bumiputera* equity ownership in Malaysia, such as Abdullah and Taufil-Mohd (2004), How et al. (2007), Jelic et al. (2001), Paudyal et al. (1998), Prasad et al. (2006), and Taufil-Mohd (2007). Abdullah and Taufil-Mohd (2004) found a significant negative link between *Bumiputera* equity ownership and underpricing. Abdullah and Taufil-Mohd (2004), who examined the factors influencing the underpricing of Malaysian IPOs, argued that government regulatory intervention through the *Bumiputera* equity requirement affects the underpricing of Malaysian IPOs. Using observations of 70 IPOs listed on Bursa Malaysia between 1991 and 1998, they concluded that higher allocations of shares to *Bumiputera* investors reduce underpricing. However, Taufil-Mohd (2007) opined that allocating shares to *Bumiputera* investors does not affect underpricing due to the competition among them, which allows the issuers to set competitive offer prices, resulting in an insignificant effect on underpricing. According to Taufil-Mohd (2007), IPO issuers may find it easier to deal with government agencies, especially if they plan to issue more shares in the future through rights issues.

Meanwhile, Paudyal et al. (1998) evaluated the performance of Malaysia's private placement of initial public offerings (PIPO) for the period from January 1984 to September 1995. Their study highlighted that Malaysia's PIPOs provide significantly higher initial returns than other IPOs. Based on 95 observations of PIPOs, the average allocation of shares to *Bumiputera* investors (institutions and individuals) was 45.8% and the shares were oversubscribed by 23 times. Their finding suggests that Malaysian PIPOs experience higher underpricing than other markets due to the country's regulation on *Bumiputera* equity ownership. The study by Jelic et al. (2001) reported a similar finding, where the average share allocation to *Bumiputera* investors was 44.45%. Their study examined the role of management's earnings forecast and underwriters in the valuation of IPOs. Using observations of 182 IPOs listed on Bursa Malaysia between 1980 and 1995, they found support for signaling theory, where initial returns were found to be significantly linked to demand multiple, market sentiment, and book-to-market value.

This finding is supported by Prasad et al. (2006), who examined the impacts of government public policy and regulatory intervention on the underpricing of Malaysian

IPOs. They argued that the implementation of the *Bumiputera* equity requirement in 1976 had influenced the underpricing level of Malaysian IPOs. Based on 75 observations of IPOs listed from 1976 to 1992, they found that the *Bumiputera* equity ownership policy significantly and positively influenced IPO underpricing. This finding indicates that government intervention through the *Bumiputera* equity requirement has a great impact on IPO underpricing in Malaysia, as evidenced by the increase in the first day underpricing by an average of 61% during the period after the regulation was introduced. Their finding showed that the underpricing level increased from 57% before the implementation of the *Bumiputera* equity policy to 118% post-implementation. This finding demonstrates that the *Bumiputera* equity requirement or government intervention had raised investors' interest to subscribe to IPOs. There are other similar findings. [How et al. \(2007\)](#) examined the performance of IPO shares among Malaysian Second Board companies. Their observation of 322 IPOs listed on Bursa Malaysia from 1989 to 2000 showed that about 40% of the shares were allocated to retail *Bumiputera* investors. This finding indicates that a higher allocation of IPOs to *Bumiputera* investors tends to lead to underpricing. Furthermore, using the *Bumiputera* investors' (retail and institutional investors) shareholding proportion, they identified a positive relationship between *Bumiputera* investors' shareholding and initial returns. From the signaling theory point of view, a high proportion of *Bumiputera* ownership may entice investors to participate in an IPO exercise. The reason may be due to the issuers' belief that they should give greater discounts to enable *Bumiputera* investors to subscribe to their IPOs. This argument suggests that the *Bumiputera* equity requirement has a positive influence on oversubscription. In accordance with this, the following hypothesis was examined:

H₁. *Bumiputera* equity ownership has a positive relationship with the demand for IPOs.

The introduction of the 30% *Bumiputera* equity requirement under the NEP led to an increase in *Bumiputera* investors' participation in the equity market. The NEP also reduced poverty and increased the number of *Bumiputera* representations in professional and technical services, as well as at managerial and administrative levels. Consequently, since 30 June 2009, the proportion to be distributed to *Bumiputera* investors has been reduced to at least 12.5% of the total enlarged issued and paid-up capital of the issuing firm. This move reflects the government's effort to liberalize the equity market to make the market more competitive, attractive, and open ([Invest Malaysia 2009](#)). Most previous studies that looked at the impact of the *Bumiputera* equity requirement on underpricing used the *Bumiputera* shareholding ratio of 30%. To the best of the researcher's knowledge, no research has been conducted on the effect of the revision of the *Bumiputera* equity requirement to 12.5% effective from 30 June 2009.

[Prasad et al. \(2006\)](#) reported that after the Malaysian government implemented the 30% *Bumiputera* equity requirement in 1976, the Malaysia IPO market experienced a higher level of underpricing. They added that issuers needed to lower their IPO offer prices to attract participation from *Bumiputera* investors. As a result, the underpriced IPOs received higher subscriptions from investors and often generated high initial returns on the listing day. Similarly, [Jelic et al. \(2001\)](#) and [Paudyal et al. \(1998\)](#) found that this policy had increased the underpricing level. Given that the Malaysian government through the SC has loosened the *Bumiputera* equity requirement from 30% to 12.5%, it seems that the opposite is expected to occur. It might be that the underpricing and oversubscription could decrease as the government relaxes this policy. [Figure 1](#) depicts that the yearly average for oversubscription has shown a decreasing trend, especially after the *Bumiputera* equity requirement was revised in 2009. However, [Taufil-Mohd \(2007\)](#) opined that share allocations to *Bumiputera* investors do not affect underpricing due to the competition among *Bumiputera* investors that helps the issuer to set reasonable offer prices, resulting in a negligible effect on underpricing. [Taufil-Mohd \(2007\)](#), who investigated the regulations and underpricing, also mentioned that IPO issuers might find it easier to deal with government

agencies, particularly if the companies want to issue more shares through rights issues in the future.

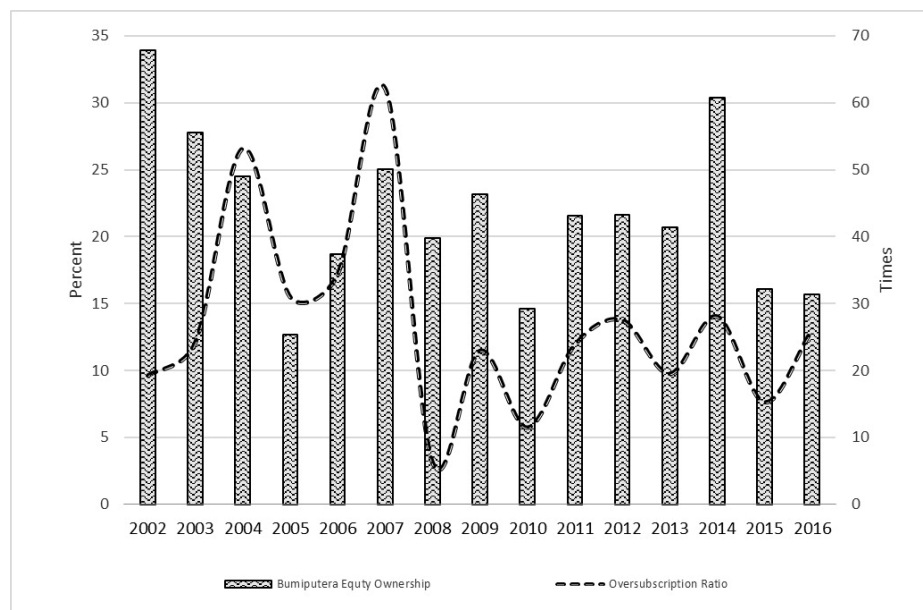


Figure 1. Yearly oversubscription.

This study expounds the idea that the revised *Bumiputera* equity requirement could provide a negative signal to investors in terms of underpricing, as they could perceive that there would be fewer allocations to *Bumiputera* investors. Following the introduction of the revised regulation, an issuer needs not lower its IPO price to attract *Bumiputera* investors. Therefore, this study hypothesized that the less stringent *Bumiputera* equity requirement indicates that the offer prices of IPOs would be higher, leading to investors' reluctance to subscribe to these shares. Furthermore, an increase in the allocation to non-*Bumiputera* investors would reduce the competition among this group of investors in subscribing to the IPOs, which could result in lower oversubscription. These arguments suggest that the revised *Bumiputera* regulation has a negative effect on IPO oversubscription. In accordance with this, the following hypothesis was examined:

H₂. *The revised regulation on the Bumiputera equity requirement in June 2009 has a negative relationship with the demand for IPOs.*

3. Data and Methodology

The key sources of data collection are IPO prospectuses, downloaded from the website of Bursa Malaysia at <http://www.bursamalaysia.com/> (accessed on 1 January 2013). These prospectuses contain information on the offer price, market capitalization, share allocation to retail and institutional investors, *Bumiputera* investors, listing day, and opening and closing application dates of each IPO. The sample of this study was chosen from the IPOs listed on Bursa Malaysia between January 2002 and December 2018. For this study, the IPO sample was selected among those offered as private placements, offers for sale, and public issues. However, financial companies which include banks, financial services companies, insurance companies, and real estate investment trusts (REITs) were excluded from the sample. In addition, the study restricted the sample such as excluding uncommon types of issues and outliers from the analysis to avoid less meaningful outcomes. Thus, the final sample of 348 IPOs was used for estimation using the regression model.

This paper presents the descriptive statistics for the whole sample and an analysis of median differences for two samples of IPOs. In addition, we also segregated the IPOs based on listing date between before and after 30 June 2009, when the revised *Bumiputera* equity requirement became effective. The Wilcoxon signed-rank test is non-parametric and can be

used to determine whether two dependent samples were selected from populations having the same distribution. We segregated the IPOs with high and low investor demand rates based on the median of all investor demand rates. All IPOs with investor demand above the median were categorised as high-investor-demand IPOs. Likewise, the low-investor-demand IPOs included those that fell below the median. The same classification was used to segregate the IPOs with high and low initial returns. In addition, we also segregated the IPOs based on listing date between before and after 30 June 2009, when the revised *Bumiputera* equity requirement became effective. This study employed a cross-sectional multiple regression analysis to test the hypotheses. The main focus of this study was exploring the impacts of *Bumiputera* equity ownership and the revised *Bumiputera* equity requirement on the demand for IPOs. This study's regression model had two independent variables and five control variables to attain the research objectives. The equation is set out as follows:

$$DD_i = \beta_0 + \beta_1 BEQ_i + \beta_2 DBUMI\Delta_i + \beta_3 MCAP_i + \beta_4 RISK_i + \beta_5 DELAY_i + \beta_6 RETAIL_i + \beta_7 3MR_i + \varepsilon_i \quad (1)$$

where the dependent variable in this study is the investors' demand for IPOs (DD), measured using the oversubscription ratio (Mehmood et al. 2021a). Oversubscription is determined by dividing the total number of shares demanded by investors over the total number of shares offered. *Bumiputera* equity ownership (BEQ) is the total number of shares allocated to *Bumiputera* public investors over the total number of shares offered, since *Bumiputera* public investors represent the *Bumiputera* equity requirement under the retail offering. The revised *Bumiputera* regulation is proxied by $DBUMI\Delta$. $DBUMI\Delta$ is a dummy variable that takes the value of "1" for the new *Bumiputera* equity ruling after 30 June 2009 and "0" otherwise. The natural logarithm of market capitalization ($MCAP$) represents the firm size, while risk ($RISK$) is the reciprocal of the offer price. $DELAY$ is the number of days from the opening application date to the listing date to capture information leakage. Retail investors' involvement ($RETAIL$) is measured using the percentage of retail offering over the total number of shares issued. Finally, the weighted average return of the EMAS index three months before listing is used to reflect the market condition ($3MR$).

In addition, the interaction between the *Bumiputera* equity ownership and firm size was added, as the authors of this study believe that the signaling mechanisms differ according to the firm size. This argument is also consistent with Abdullah and Taufil-Mohd (2004) and Tajuddin et al. (2018), who claimed that the firm size of the IPOs does affect the signaling mechanism. This interaction effect is examined using the interaction term ($BEQ \times MCAP$), which is entered into the regression model as follows:

$$DD_i = \beta_0 + \beta_1 BEQ_i + \beta_2 DBUMI\Delta_i + \beta_3 CAP_i + \beta_4 RISK_i + \beta_5 DELAY_i + \beta_6 RETAIL_i + \beta_7 3MR_i + \beta_8 BEQ_i \times MCAP_i + \varepsilon_i \quad (2)$$

A further analysis was carried out using least squares with breakpoints (LSWB). The breakpoints were determined using the methods used by Bai and Perron (1998). LSWB is a statistical method that is commonly used to model relationships between variables that exhibit abrupt changes or "breakpoints" in their behavior. The method involves dividing the data into several segments and fitting a linear regression model to each segment. The goal of the method is to find the best fit for the data, minimizing the sum of squared differences between the observed values and the predicted values. This is achieved by minimizing a cost function that penalizes deviations from the fitted model. LSWB is a statistical method that can be used to model the relationship between variables that exhibit abrupt changes or "breakpoints" in their behavior. In the context of an IPOs oversubscription, this method can be useful in analyzing the demand of the IPOs, particularly in identifying any significant changes in the stock price trend. By fitting linear regression models to each segment of the data, we can identify any changes or breakpoints in the stock price trend and determine the strength and significance of these changes. For example, we may find that there was a significant increase in stock prices during a particular segment of the data, or that there was a sudden drop in stock prices during another segment. By dividing each period into

segments of the breakpoints or changes in the demand trend, we can then fit a linear regression model to each segment using the least squares method, which minimizes the sum of squared differences between the observed stock prices and the predicted values.

4. Empirical Results

Table 2 presents the descriptive statistics for the sample of 348 IPOs listed between January 2002 and December 2018. The oversubscription ratio for the entire sample is 33.97 times on average. The lowest oversubscription is -0.67 times, equivalent to 67% undersubscription or 33% subscription for the overall issue. Meanwhile, the highest oversubscription is 229.20 times. The large gap between the lowest and highest oversubscription ratios reflects the variation in demand across the IPOs issued in Malaysia. This phenomenon provided an opportunity for this study to further explore a variety of factors that may influence oversubscription.

The IPO sample was segregated between those listed before and after the revision of the *Bumiputera* equity requirement on 30 June 2009. The IPO sample listed before the revision recorded an average oversubscription ratio of 33.97 times, which was close to the ratio of the full sample of 30.13 times. This result was expected, as out of the total number of IPOs issued between 2002 and 2018, 67% were issued before the revision. Next, the IPOs issued after the revision showed a lower oversubscription ratio of 21.10%. Regarding *Bumiputera* equity ownership, slight differences were recorded between before the revision, after the revision, and for the full sample, with averages of 22.43, 20.16, and 21.75 times, respectively.

The firm size, represented by market capitalization, is RM485 million on average, with the smallest firm size being RM16 million and the biggest being RM40.4 billion. This shows large differences between small and big firms in the Malaysian IPO market in terms of market capitalization. Further, the average firm size before the revision of the *Bumiputera* equity requirement is smaller (RM135 million) than after the revision (RM1.31 billion). Meanwhile, the offer price is RM0.86 on average, with values ranging from RM0.12 to RM5.05, signifying a huge gap between the lowest and highest IPO offer prices. The average offer price before the revision is RM0.81, which is lower than the average offer price of RM0.99 after the revision. Next, the *DELAY* as a proxy for information leakage is an average of 28 days from the opening application date to the listing date. The longest *DELAY* is about 86 days and the shortest is 14 days. The retail investors' involvement is 16.73% on average, with a maximum of 75%. Finally, the market return shows a mean of 0.8% and a range of -6.6% to 7.1% .

Table 3 presents a comparison of the median values of the main variables using the independent sample Wilcoxon signed-rank test results. The basic purpose of using the Wilcoxon–Mann–Whitney (WMW) rank test is to compare nonparametric groups, specifically when the normality of the underlying distribution is questionable, which commonly exists in secondary data (Rosner and Glynn 2009; Lehmann 2009). Therefore, the Wilcoxon signed-rank test results explain the differences in medians between two groups. Non-parametric tests would assume that the investor demand is not normally distributed. In reporting the results of an independent Wilcoxon signed-rank test, the significant value of the test's *T* value is required. The values of high and low investor demand rates for IPOs, high and low *Bumiputera* equity ownership (BEQ) rates, and the rates before and after the revised *Bumiputera* equity requirement (*DBUMIΔ*) in June 2009 are reported in panels A, B, and C, respectively.

Table 3. Comparison of the median values of the main variables.

	OSR (Times)	Bumiputera Equity Ownership (%)	Revised Bumiputera Equity Requirement	Offer Price (RM)	Market Capitalization (RM million)	DELAY (Days)	Retail (%)	3 Month Market Return (%)
<i>Panel A: High and Low Investors Demand</i>								
High-demand IPOs (N = 174)	39.86	30.02	-	0.60	64,800,000.00	25.00	12.01	0.012
Low-demand IPOs (N = 174)	5.70	12.5	-	0.755	91,670,000.00	28.00	16.05	0.006
Median difference	34.16	17.52	-	-0.16	(26,870,000.00)	-3.00	-4.03	0.007
Wilcoxon Z-statistic	-15.95 ***	3.55 ***	-	-3.76 ***	-5.36 ***	-2.15 **	-2.44 **	-2.80 ***
<i>Panel B: High and Low Bumiputera Equity Ownership</i>								
High BEQ (N = 174)	20.07	32.96571	-	0.48	62,076,795.00	25.00	10.34474	0.009482
Low BEQ (N = 174)	12.17065	0.080676	-	0.975	82,175,005.00	28.50	19.55005	0.012399
Median difference	7.899	32.885	-	-0.495	(20,098,210.00)	-3.500	-9.205	-0.003
Wilcoxon Z-statistic	-3.79 ***	16.25 ***	-	-9.01 ***	-4.40 ***	-4.13 ***	-7.34 ***	-1.30 *
<i>Panel C: Prior and Post Revised Bumiputera Equity Requirement (DBUMIA)</i>								
Prior Revised DBUMIA (N = 244)	18.1694	30.04282	-	0.675	65,360,000.00	28.00	14.76035	0.010276
Post Revised DBUMIA (N = 104)	12.82	12.50172	-	0.71	157,000,000.00	23.00	15.21726	0.010122
Median difference	5.349	17.541	-	-0.035	(91,640,000.00)	5.000	-0.457	0.000
Wilcoxon Z-statistic	-1.62 *	0.64	-	-0.89	-7.99 ***	-6.51 ***	-0.18	-0.62

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. OSR is the oversubscription ratio. BEQ is the total number of shares allocated to Bumiputera public investors over the total number of shares offered. DBUMIA is a dummy variable taking a value of 1 for the new Bumiputera equity ruling after 30 June 2009 and "0" otherwise. MCAP is the natural logarithm of market capitalization. RISK is the reciprocal of the offer price. RETAIL is the percentage of retail investors, while 3MR is the weighted average return of the EMAS Index three months before listing.

In panel A, the levels of investor demand vary considerably between high- and low-demand groups based on the observed median values. The median oversubscription is 39.86 times for the high-demand group but only 5.07 times for the low-demand group. This implies that a high oversubscription ratio is associated with high investor demand. Next, the median BEQ is 30.02% for the high-investor-demand group and 12.5% for the low-investor-demand group. This indicates that high allocations to Bumiputera investors would increase the subscription rates, since issuers would offer larger discounts to attract Bumiputera investors. In addition, the competition among non-Bumiputera investors could lead to higher oversubscription. This result is consistent with panel B, showing that a high BEQ allocation increased oversubscription to as much 20.07 times as compared to a low BEQ allocation, which reported an oversubscription rate of only 12.17 times. Meanwhile, in panel C, before the revision of the Bumiputera equity requirement, the median is 18.17 times (244 IPOs), while after the revision, the median is lower at 12.82 times (104 IPOs). The reduction in the percentage of shares to be allocated to Bumiputera investors indicates that issuers no longer need to reduce their offer prices to attract Bumiputera subscription. This move also reduces the competition among non-Bumiputera investors in subscribing to IPOs, resulting in less oversubscription.

Panel A also shows that the median market capitalization rate of the IPOs is RM64.8 for the IPO group with high demand and RM91.67 for the IPO group with low demand. This indicates that a small company would have higher investor demand than a large company. In general, small companies apparently set lower offer prices, which would attract investor demand for their IPOs (Bradley and Jordan 2002). This argument is supported by the result shown in panel A that the median offer price for the high-demand IPO group is RM0.60, which is much cheaper than the median offer price of RM0.755 reported by the low-demand IPO group. Next, a longer time from the opening application date to the listing date of an IPO (DELAY) would make it more risky for investors to participate in the IPO, since information about the company could be revealed (information leakage) during this period. From panel A, it can be seen that the longer time (28 days) is associated with low demand compared to the shorter time (25 days), which has higher demand. Next, the percentage of retail investors for the high-demand IPOs group is 12.01%, which is lower than the

16.05% recorded by the high-demand IPOs group. This finding is consistent with the result found by Easley and O'hara (2004) that retail investors own a substantial number of shares that carry bad news and fewer stocks that carry good news. This would be affected by the demand for IPOs. Finally, a comparison of the three-month weighted average market return revealed that a good market return of 0.012 or 1.2% led to higher demand from investors compared to an average of 0.6% market return, which caused lower demand from investors. Overall, the observed median differences for oversubscription, *Bumiputera* equity ownership, revised *Bumiputera* requirement, offer price, market capitalization, information leakage, retail offering, and market return rates were observed to be significant at least at the 5% level between high- and low-investor-demand groups.

Pearson's bivariate correlation coefficient analysis between independent variables was used to ensure that there were no multicollinearity issues. Pearson's correlation matrix between variables is presented in Table 4. The results show that all independent variables recorded correlations of less than 0.50. A further test using variance inflation factors (VIF) generated VIF values ranging from 1.07 to 2.23, as shown in Table 5. Therefore, there was no multicollinearity issue, as the results were far below the 10.00 cut-off point (Gujarati and Porter 2010; Kleinbaum et al. 2013; Sadik-Zada and Loewenstein 2020).

Table 4. Pearson's correlation matrix between variables.

Variables	OSR	BEQ	DBUMIΔ	MCAP	RISK	DELAY	RETAIL	3MR
OSR	1							
BEQ	0.22 ***	1						
DBUMIΔ	−0.14 ***	−0.07	1					
MCAP	−0.28 ***	0.27 ***	0.46 ***	1				
RISK	0.31 ***	−0.43 ***	0.01	−0.44 ***	1			
DELAY	−0.11 **	0.16 ***	−0.32 ***	−0.03	−0.18 ***	1		
RETAIL	−0.23 ***	0.23 ***	−0.07	−0.10 *	−0.22 ***	0.05	1	
3MR	0.08	0.04	−0.03	−0.03	−0.11 **	0.07	0.14 **	1

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. OSR is the oversubscription ratio. BEQ is the total number of shares allocated to *Bumiputera* public investors over the total number of shares offered. DBUMIΔ is a dummy variable taking a value of 1 for the new *Bumiputera* equity ruling after 30 June 2009 and "0" otherwise. MCAP is the natural logarithm of market capitalization. RISK is the reciprocal of the offer price. RETAIL is the percentage of retail investors, while 3MR is the weighted average return of the EMAS Index three months before listing.

Table 5 shows the results of the ordinary least squares regression based on the model shown in Equation (1) to examine the impacts of share allocations to *Bumiputera* investors, the revised *Bumiputera* equity requirement in June 2009, and five other control variables on the demand for IPOs. We present the findings for before and after the revision of the *Bumiputera* equity requirement in June 2009, the full sample, and the interaction. In the full sample, the *Bumiputera* equity ownership (BEQ) is not statistically significant. This finding is in line with the view that as there are a number of *Bumiputera* investors who are likely to participate in the IPOs, the high competition among the *Bumiputera* investors would allow firms to set competitive offer prices, resulting in an insignificant impact of this variable on oversubscription. Next, the revised *Bumiputera* regulatory requirement (DBUMIΔ) that became effective in June 2009 has an influence on the investors' demand for IPOs. As expected, the revised *Bumiputera* regulatory requirement has a significant but negative relationship with oversubscription. The coefficient of DBUMIΔ is −10.5299, which means that after the revision of the *Bumiputera* regulatory requirement, the oversubscription was reduced by 10.5299 times. Therefore, the second hypothesis of this study is not rejected. According to Prasad et al. (2006), after the Malaysian government implemented the 30% *Bumiputera* equity requirement in 1976, the Malaysian IPO market experienced an increasing trend of underpricing and oversubscription. It appeared that the reverse occurred when the government relaxed the requirement from 30% to 12.5%. Due to the less stringent requirement, issuers and underwriters no longer need to underprice their IPOs to attract

Bumiputera investors. Better IPO prices allow issuers to raise higher proceeds. However, lower underpricing means lower returns, which may reduce the number of applications from among the *Bumiputera* investors. Another explanation is that the increased allocation of shares to non-*Bumiputera* investors would likely reduce the competition among them, since there are more shares available for subscription. Subsequently, the reduced competition would reduce the probability of IPOs being oversubscribed.

Table 5. Regression results.

Variables	Dependent Variable Is Oversubscription Ratio			
	Ordinary Least Squares			
	Prior Revised	Post Revised	Full Sample	Interaction
BEQ	0.1328	0.0004	0.0995	1.8032
	0.9482	0.0048	1.0963	1.8349 *
DBUMIA	-	-	-10.5299	-10.0536
	-	-	-2.5090 **	-2.4087 **
MCAP	-7.9434	-3.9493	-5.366	-7.9408
	-2.6027 ***	-2.4791 **	-3.5257 ***	-3.4498 ***
RISK	3.6213	6.3419	4.9425	4.5784
	1.0720	3.1253 ***	2.2813 **	2.1358 **
DELAY	-0.5850	0.1517	-0.4777	-0.4845
	-2.5329 *	0.5747	-2.3347 **	-2.3652 **
RETAIL	-0.7144	-0.7313	-0.7000	-0.6861
	-3.9923 ***	-2.1566 **	-4.5178 ***	-4.4055 ***
3MR	236.3907	41.1164	208.5687	210.6635
	2.4391 **	0.5425	2.4881 **	2.5271 **
BEQ × MCAP	-	-	-	0.0815
	-	-	-	1.8173 **
CONSTANT	202.2266	92.7502	148.7947	196.4415
	3.4500 ***	2.72898 ***	4.6878	4.28898 ***
Adjusted R-squared	0.1508	0.3108	0.1817	0.1835
F-Statistics	8.1909 ***	8.7421 ***	12.0071 ***	10.74883 ***
Probability	0.0000	0.0000	0.0000	0.0000
Durbin–Watson	1.4177	1.4814	1.4058	1.3875
VIF range	1.1252–1.6054	1.2368–2.8260	1.0702–2.2302	1.0700–371.1480

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. *OSR* is the oversubscription ratio. *BEQ* is the total number of shares allocated to *Bumiputera* public investors over the total number of shares offered. *DBUMIA* is a dummy variable taking a value of 1 for the new *Bumiputera* equity ruling after 30 June 2009 and “0” otherwise. *MCAP* is the natural logarithm of market capitalization. *RISK* is the reciprocal of the offer price. *RETAIL* is the percentage of retail investors, while *3MR* is the weighted average return of the EMAS Index three months before listing.

There are mixed results on the impact of the control variables on IPO demand. Market capitalization (*MCAP*) was found to be significantly and negatively related to oversubscription. The negative result for *MCAP*, which represents the size of the firms, shows that there is less investor demand for large firms. The possible reason is that since large firms have good track records and good corporate governance ethics, issuers and underwriters do not need to discount their IPO prices. This might explain why large firms have lower demand from investors than smaller firms. Next, the *RISK*, which is the reciprocal to the offer price, has a significant positive relationship with investor demand. The result indicates that there is higher investor demand for higher risk firms (lower offer prices). There is a high probability that issuers and underwriters underprice IPOs to attract investors to high-risk firms. Meanwhile, the duration from the opening application date to the listing date (*DELAY*), which is a proxy for information leakage, is negatively related to oversubscription. This means that a longer time between the opening application date and the listing date would reduce the demand for the IPO. The possible explanation is that investors are exposed to more risks as the firms’ bad information might be revealed (information leakage) during this

time period, thereby reducing oversubscription, as modeled by [Chowdhry and Sherman \(1996\)](#) and [Chen et al. \(2004\)](#). Regarding the retail investors (RETAIL), their participation in the IPOs will not increase the demand for IPOs. Unlike institutional investors, retail investors generally do not invest in large amounts. This phenomenon may explain why the result shows a significantly negative link between RETAIL and oversubscription. Finally, the market return, represented by a three-month weighted average market return before listing (3MR), was found to be significant and positively related to oversubscription. This positive result was expected, since investors would invest more money during a bullish market, which is in line with [Goergen et al. \(2006\)](#) and [Gounopoulos \(2006\)](#).

As mentioned in Section 2, the *Bumiputera* equity allocation is only mandatory for all corporations seeking a listing on the Main Market of Bursa Malaysia. In general, companies listed on the main market are larger (higher market capitalization), have better earnings, and have been operating longer than companies on the ACE Market. Since the *Bumiputera* equity allocation is only mandatory for companies seeking a listing on the main market, the interaction between *Bumiputera* equity ownership (BEQ) and market capitalization (MCAP) was included in the analysis for robustness. Thus, the previous models were re-estimated by including an interaction variable between *Bumiputera* equity ownership and market capitalization ($BEQ \times MCAP$). The interaction result shows that $BEQ \times MCAP$ is significant and positively related to oversubscription at the 5% level. This finding implies that the oversubscription rates of IPOs are significantly higher for the companies listed on the main market but mitigated by market capitalization, which supports the signaling theory argument. The positive coefficient is due to three reasons. First, during the listing process, issuers must comply with the *Bumiputera* equity requirement policy. Therefore, it is believed that issuers would offer their IPOs at larger discounts even though they would receive less proceeds in order to attract *Bumiputera* investors, which is in line with [How et al. \(2007\)](#), [Paudyal et al. \(1998\)](#), and [Prasad et al. \(2006\)](#). With the underpriced IPOs, the subscription rates among *Bumiputera* investors would increase as they would earn higher returns. Second, the positive coefficient might be due to the participation of institutional investors or *Bumiputera* trust agencies such as *Permodalan Nasional Berhad (PNB)*, *Pelaburan MARA*, and *Equinas*. These agencies or investors would generally agree in advance to purchase a large number of shares in an IPO issued by a well-established firm, which would in turn increase the oversubscription rate of the IPO.

Third, the purchasing power of non-*Bumiputera* investors also increases the probability of oversubscription. Non-*Bumiputera* investors, particularly the Chinese ethnic group, constitute 80% of the Malaysian stock market participants, indicating their superior purchasing power to speculate or invest ([Ramayah et al. 2009](#)). Thus, given that the *Bumiputera* equity requirement policy reduces the numbers of shares allocated to this ethnic group, the competition among them causes oversubscription of IPOs. In other words, the competition among investors would be higher due to the lower allocation of shares to them at a lower offer price, since successful applicants would generate higher returns. This is demonstrated in Table 6, which compares the share allocations and oversubscriptions between *Bumiputera* and non-*Bumiputera* investors. This could be explained as the significant effect of this variable on the oversubscription ratio.

Table 6. Comparison of share allocations, applications, and oversubscription ratios between *Bumiputera* and non-*Bumiputera* investors.

Investors	Offering (Million)	Application (Million)	Oversubscription Ratio (Times)
<i>Bumiputera</i>	674.64	7782.68	15.55
non- <i>Bumiputera</i>	674.64	11,479.29	23.97
Total	1349.28	19,261.97	19.76

Notes: We were only able to gather data on 54 IPOs that went public after 30 June 2009, specifically the oversubscription ratios for *Bumiputera* and non-*Bumiputera* investors, using the Malaysian Issuing House (MIH) website.

Table 6 presents a comparison of the shares allocated to *Bumiputera* and non-*Bumiputera* investors along with the oversubscription ratios. The analysis is based on 54 IPOs that went public after 30 June 2009 until December 2018. During the period, only those companies provided detailed breakdowns of the share allocations and oversubscriptions among *Bumiputera* and non-*Bumiputera* investors. It can be seen from the table that the same number of shares was offered to *Bumiputera* and non-*Bumiputera* investors (674.64 million each). This is in line with the SC's guidelines requiring 50% of the 25% public spread to be allocated to *Bumiputera* (12.5%) and the remaining to non-*Bumiputera* (12.5%) investors. Out of 674.64 million shares offered to each group, *Bumiputera* investors applied for 7.7 billion shares, whereas non-*Bumiputera* investors applied for 11.4 billion shares. Thus, the shares allocated to *Bumiputera* investors were oversubscribed by 15.55 times, while those allocated to non-*Bumiputera* investors were oversubscribed by 23.97 times. This finding indicates that non-*Bumiputera* investors have higher purchasing power than *Bumiputera* investors to speculate or invest, which is in line with Ramayah et al. (2009).

Table 7 shows the estimation results based on least squares with breakpoints (LSWB). We identified the changes or breakpoints in the demand trend during the period of the study. The results showed two separate periods of January 2002 to July 2004 and August 2004 to December 2018.

Table 7. Least squares with breakpoints.

Variables	Dependent Variable Is Oversubscription Ratio	
	Least Squares with Breakpoints	
	2 January to 4 July	4 August to 18 December
BEQ	0.0421	0.1973
	0.1953	2.7177
DBUMIA	-	-
	-	-
MCAP	8.9069	4.7840
	2.1915	3.6931
RISK	0.2273	7.3442
	0.0609	2.9079
DELAY	1.7299	0.1289
	4.9642	0.3594
RETAIL	0.3443	0.8461
	1.5293	4.0868
3MR	96.9744	257.0667
	0.9198	2.2679
CONSTANT	261.0800	114.2915
	3.2246	3.9279
OBSERVATION	103	245
R-squared	0.2686	
F-Statistics	9.4348 ***	
Probability	0.000	
Durbin–Watson	1.4921	

Notes: *** denotes statistical significance at the 1% level. OSR is the oversubscription ratio. BEQ is the total number of shares allocated to *Bumiputera* public investors over the total number of shares offered. DBUMIA is a dummy variable taking a value of 1 for the new *Bumiputera* equity ruling after 30 June 2009 and "0" otherwise. MCAP is the natural logarithm of market capitalization. RISK is the reciprocal of the offer price. RETAIL is the percentage of retail investors, while 3MR is the weighted average return of the EMAS Index three months before listing.

Prior to July, the demand for IPOs was extremely oversubscribed. After July 2004, the Kuala Lumpur Composite Index (KLCI) experienced a significant decline, dropping by over 8% in a single day of trading. This decline was part of a broader sell-off in emerging market equities that was triggered by concerns about rising US interest rates and a slowdown in global economic growth, which was the beginning of "the great recession". The decline in the KLCI had several implications for the Malaysian market. Firstly, it created uncertainty

and risk for investors, who may have become more cautious about investing in Malaysian equities. This could have made it more difficult for companies to raise capital through the stock market, as investors may have been less willing to participate in IPOs or buy shares in listed companies. Secondly, the decline in the KLCI could have had negative implications for the broader Malaysian economy. The stock market is an important source of financing for companies, and a decline in the market can make it more difficult for companies to invest in new projects or expand their operations. This, in turn, can slow down economic growth and have negative implications for employment and other economic indicators. Finally, the decline in the KLCI highlighted the importance of monitoring global economic trends and market conditions for Malaysian investors and companies. As a small, open economy, Malaysia is particularly susceptible to external shocks, and events in other parts of the world can have significant implications for the Malaysian market. As such, investors and companies need to be aware of these risks and take steps to manage them. Overall, the use of least squares with break points can provide valuable insights into the behavior for IPOs over time, particularly in identifying any significant changes or breakpoints in the trend. This can be useful in analyzing a company's performance and making informed investment decisions.

5. Conclusions

The share fraction allocated to *Bumiputera* investors is one of the distinct features of the Malaysian IPO market. On the other hand, the descriptive results show a large difference between the minimum and the maximum oversubscription ratios, thereby allowing this study to investigate whether the requirement to allocate shares to *Bumiputera* investors affects investor demand. However, the regression results show that the allocation of shares to *Bumiputera* equity ownership (BEQ) does not affect oversubscription. This could be due to the competitive offer prices set by issuers and underwriters, resulting in an insignificant impact on IPO oversubscription. Meanwhile, the revised *Bumiputera* equity requirement from 30% to 12.5% has a significant negative effect on the demand for IPOs. There are two possible reasons for this finding: the first is the competitive offer prices for *Bumiputera* investors and the second is the lower competition among non-*Bumiputera* investors due to the higher number of shares made available to them. We also believe that *Bumiputera* equity ownership (BEQ) has an indirect influence on IPO demand, since it is mandatory for large firms seeking a listing on the main market to offer their shares to the *Bumiputera*. Thus, another model was estimated by adding the interaction term ($BEQ \times MCAP$) to the existing model. It revealed a significant and positive link between the interaction term and investor demand. This finding implies that the investors' demand for an IPO is significantly higher for companies seeking a listing on the main market but is mitigated by market capitalization, which supports the signaling theory argument. This investigation provides an important understanding of oversubscription, explicitly regarding the Malaysian IPO market. The oversubscription ratio indicates investors' optimism about the prospects of IPOs based on pre-listing information. The distinct feature of the Malaysian IPO market, namely the *Bumiputera* equity requirement, is perceived to be a significant determinant of investor demand, thereby supporting the need to carry out this study. Thus, this study's findings may be of interest to practitioners such as investors, issuers, underwriters, regulators, and policymakers in maneuvering the Malaysian IPO market. Further, the high degree of information asymmetry in the Malaysian market may contribute to the observed oversubscription rates, and policy-makers may need to address this issue to ensure a fair and transparent market. In addition, *Bumiputera* equity ownership (BEQ) does not have a significant impact on IPO oversubscription, indicating that the requirement to allocate shares to *Bumiputera* investors may not be necessary to support investor demand. Policymakers may consider revising this requirement to reduce the burden on issuers and underwriters, which may lead to more efficient IPO market outcomes. Moreover, the revised *Bumiputera* equity requirement from 30% to 12.5% has a significant negative effect on the demand for IPOs. Policy-makers may need to consider the implications of reducing

the BEQ requirement on investor demand and weigh it against the objective of promoting *Bumiputera* participation in the capital market.

Finally, the regression results of this study consistently showed significant interception and adjusted *R*-squared values of around 12%. These findings suggest that the estimated model does not sufficiently describe all of the variations in oversubscription in the Malaysian IPO market. On other hand, Zhang (2022) suggests that national culture plays a significant role in determining the corporate capital structure. Thus, we argue that culture can influence the way a company operates and makes decisions, including its financial decisions in these kinds of allocations. Further, there may be policies or regulations in some countries or regions that require companies to allocate a certain percentage of their shares to indigenous or minority groups. The company's ability to fulfill these obligations and its relationship with indigenous or minority communities could be harmed if it goes public before satisfying these requirements (Johan 2010). Thus, the potential repercussions of an early IPO on an indigenous role would depend on the country or region's particular policies, regulations, and conditions. Therefore, there are other elements that future researchers should consider when analyzing the phenomenon of oversubscription, such as the lock-up ratio, auditor reputation, venture capital, policies, culture diversity, and other macroeconomic variables.

Author Contributions: Conceptualization, A.H.T., K.G. and E.R.S.-Z.; methodology, A.H.T.; data collection, A.H.T. and W.M.; data analysis, A.H.T.; writing—original draft preparation, A.H.T.; writing—review and editing, R.M.-R. and E.R.S.-Z.; project administration, R.M.-R.; funding acquisition, A.H.T. and E.R.S.-Z. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by CIRI Seed Fund, grant number [CIRI-SEED/1/2022/SOAF/001].

Informed Consent Statement: Not applicable.

Data Availability Statement: Data is unavailable due to privacy.

Acknowledgments: The authors are grateful to the anonymous referees of the journal for their extremely useful suggestions to improve the quality of the paper. The authors would like to acknowledge the research support from CIRI Seed Fund (CIRI-SEED/1/2022/SOAF/001) provided by Taylor's University.

Conflicts of Interest: The authors declare no conflict of interest.

References

- Abdullah, Nur-Adiana Hiau, and Kamarun Nisham Taufil-Mohd. 2004. Factors influencing the underpricing of initial public offerings in an emerging market: Malaysian evidence. *International Journal of Economics, Management and Accounting* 12: 1–21.
- Agarwal, Sumit, Chunlin Liu, and S. Ghon Rhee. 2008. Investor demand for IPOs and aftermarket performance: Evidence from the Hong Kong stock market. *Journal of International Financial Markets, Institutions and Money* 18: 176–90. [CrossRef]
- Allen, Franklin, and Gerald R. Faulhaber. 1989. Signalling by underpricing in the IPO market. *Journal of Financial Economics* 23: 303–23. [CrossRef]
- Alqahtani, Faisal, and Zakaria Boulanouar. 2017. Sharia compliance status & investor demand for IPOs: Evidence from Saudi Arabia. *Pacific-Basin Finance Journal* 46: 258–68.
- Arora, Nischay, and Balwinder Singh. 2020. Determinants of oversubscription of SME IPOs in India: Evidence from quantile regression. *Asia-Pacific Journal of Business Administration* 12: 349–70. [CrossRef]
- Bai, Jushan, and Pierre Perron. 1998. Estimating and testing linear models with multiple structural changes. *Econometrica* 66: 47–78. [CrossRef]
- Benveniste, Lawrence M., and Paul A. Spindt. 1989. How investment bankers determine the offer price and allocation of new issues. *Journal of Financial Economics* 24: 343–61. [CrossRef]
- Benveniste, Lawrence M., and Walid Y. Busaba. 1997. Bookbuilding vs. fixed price: An analysis of competing strategies for marketing IPOs. *Journal of Financial and Quantitative Analysis* 32: 383–403. [CrossRef]
- Bradley, Daniel J., and Bradford D. Jordan. 2002. Partial Adjustment to Public Information and IPO Underpricing. *Journal of Financial and Quantitative Analysis* 37: 595–616. [CrossRef]
- Chahine, Salim. 2007. Investor interest, trading volume, and the choice of IPO mechanism in France. *International Review of Financial Analysis* 16: 116–35. [CrossRef]
- Cheng, Louis T. W., Kam C. Chan, and Billy S. C. Mak. 2005. Strategic share allocation and underpricings of IPOs in Hong Kong. *International Business Review* 14: 41–59. [CrossRef]

- Chen, Gongmeng, Michael Firth, and Jeong-Bon Kim. 2004. IPO underpricing in China's new stock markets. *Journal of Multinational Financial Management* 14: 283–302. [CrossRef]
- Chowdhry, Bhagwan, and Ann Sherman. 1996. International differences in oversubscription and underpricing of IPOs. *Journal of Corporate Finance* 2: 359–81. [CrossRef]
- Dawson, Steven M. 1987. Secondary Stock Market Performance of Initial Public Offers, Hong Kong, Singapore and Malaysia: 1978–84. *Journal of Business Finance & Accounting* 14: 65–76.
- Easley, David, and Maureen O'hara. 2004. Information and the cost of capital. *The Journal of Finance* 59: 1553–83. [CrossRef]
- Eldomiaty, Tarek I. 2008. Determinants of corporate capital structure: Evidence from an emerging economy. *International Journal of Commerce and Management* 17: 25–43. [CrossRef]
- Eng, Li Li, and Hwee Shan Aw. 2000. An analysis of factors affecting investor demand for initial public offerings in Singapore. *Multinational Finance Journal* 4: 133–53. [CrossRef]
- Gao, Yan. 2010. What comprises IPO initial returns: Evidence from the Chinese market. *Pacific-Basin Finance Journal* 18: 77–89. [CrossRef]
- Grinblatt, Mark, and Chuan Yang Hwang. 1989. Signalling and the pricing of new issues. *The Journal of Finance* 44: 393–420. [CrossRef]
- Goergen, Marc, Luc Renneboog, and Arif Khurshed. 2006. Explaining the diversity in shareholder lockup agreements. *Journal of Financial Intermediation* 15: 254–80. [CrossRef]
- Gounopoulos, Dimitrios. 2006. Flipping Activity in Fixed Offer Price Mechanism Allocated IPOs. In *Initial Public Offering: International Perspective of IPOs*. Burlington: Butterworth-Heinemann, pp. 159–75.
- Gujarati, Damodar, and Dawn Porter. 2010. *Essentials of Econometrics*. New York: McGraw-Hill International.
- How, Janice, Ranko Jelic, Brahim Saadouni, and Peter Verhoeven. 2007. Share allocations and performance of KLSE second board IPOs. *Pacific-Basin Finance Journal* 15: 292–314. [CrossRef]
- Invest Malaysia. 2009. Najib's speech at Invest Malaysia 2009, The Edge 30 June 2009. Available online: <https://www.theedgemarkets.com/article/najibs-speech-invest-malaysia-2009> (accessed on 1 January 2015).
- Jelic, Ranko, Brahim Saadouni, and Richard Briston. 2001. Performance of Malaysian IPOs: Underwriters reputation and management earnings forecasts. *Pacific-Basin Finance Journal* 9: 457–86. [CrossRef]
- Johan, Sofia A. 2010. Listing standards as a signal of IPO preparedness and quality. *International Review of Law and Economics* 30: 128–44. [CrossRef]
- Kleinbaum, David G., Lawrence L. Kupper, Azhar Nizam, and Eli S. Rosenberg. 2013. *Applied Regression Analysis and Other Multivariable Methods*. Boston: Cengage Learning.
- Lee, Philip J., Stephen L. Taylor, and Terry S. Walter. 1999. IPO Underpricing Explanations; Implications from Investor Application and Allocation Schedules. *Journal of Financial and Quantitative Analysis* 34: 425–44. [CrossRef]
- Lehmann, Erich L. 2009. Parametric versus nonparametrics: Two alternative methodologies. *Journal of Nonparametric Statistics* 21: 397–405. [CrossRef]
- Leland, Hayne E., and David H. Pyle. 1977. Informational asymmetries, financial structure, and financial intermediation. *The Journal of Finance* 32: 371–87. [CrossRef]
- Loughran, Tim, Jay Ritter, and Kristian Rydqvist. 1995. Initial public offerings: International insights. *Pacific-Basin Finance Journal* 2: 165–99. [CrossRef]
- Low, Soo-Wah, and Othman Yong. 2011. Explaining over-subscription in fixed-price IPOs—Evidence from the Malaysian stock market. *Emerging Markets Review* 12: 205–16. [CrossRef]
- Mazouz, Khelifa, Brahim Saadouni, and Shuxing Yin. 2009. Offering methods and issuer-oriented underpricing costs: Evidence from the Hong Kong IPO market. *Journal of International Financial Markets, Institutions and Money* 19: 937–49. [CrossRef]
- Mehmood, Waqas, Rasidah Mohd-Rashid, and Ahmad Hakimi Ahmad. 2020. Impact of pricing mechanism on IPO oversubscription: Evidence from Pakistan stock exchange. *Pacific Accounting Review* 32: 239–54. [CrossRef]
- Mehmood, Waqas, Rasidah Mohd-Rashid, Ahmad Hakimi Tajuddin, and Hasssan Mujtaba Nawaz Saleem. 2021a. Shariah-compliance and IPO underpricing: Evidence from Pakistan Stock Exchange. *International Journal of Islamic and Middle Eastern Finance and Management* 14: 1081–98. [CrossRef]
- Mehmood, Waqas, Rasidah Mohd-Rashid, and Ahmad Hakimi Tajuddin. 2021b. IPO initial return in Pakistan: Influence of country-level institutional quality. *South Asian Journal of Business Studies* 12: 1–24. [CrossRef]
- Mohd-Rashid, Rasidah, Ahmad Hakimi Tajuddin, Karren Lee-Hwei Khaw, and Chui Zi Ong. 2022a. The impact of changes in regulations on Malaysian IPOs. *Accounting Research Journal* 35: 317–35. [CrossRef]
- Mohd-Rashid, Rasidah, Karren Lee-Hwei Khaw, Waqas Mehmood, and Ahmad Hakimi Tajuddin. 2022b. New evidence of Lockup Provisions: Effects on IPO Demands. *Journal of Contemporary Eastern Asia* 21: 43–52.
- Mohd-Rashid, Rasidah, Ruzita Abdul-Rahim, Norliza Che-Yahya, and Ahmad Hakimi Tajuddin. 2017. Voluntary Lock-Up provisions and performance of IPOs: Effects of information asymmetry. *Journal of Economic Cooperation and Development* 38: 1–24.
- Mohd-Rashid, Rasidah, Ruzita Abdul-Rahim, Norliza Che-Yahya, and Ahmad Hakimi Tajuddin. 2019. Impact of a regulatory change on initial performance of IPOs. *Afro-Asian Journal of Finance and Accounting* 9: 332–48. [CrossRef]
- Paudyal, Krishna, B. Saadouni, and R. J. Briston. 1998. Privatisation initial public offerings in Malaysia: Initial premium and long-term performance. *Pacific-Basin Finance Journal* 6: 427–51. [CrossRef]

- Prasad, Dev, George S. Vozikis, and Mohamed Ariff. 2006. Government public policy, regulatory intervention, and their impact on IPO underpricing: The case of Malaysian IPOs. *Journal of Small Business Management* 44: 81–98. [CrossRef]
- Rahman, Md Tahidur, Syed Zabid Hossain, and Normah Omar. 2017. Factors influencing subscription of IPO in Banglades. *International Journal of Economics, Management and Accounting* 25: 529–48.
- Ramayah, Thurasamy, Kamel Rouibah, M. Gopi, and Gary John Rangel. 2009. A decomposed theory of reasoned action to explain intention to use internet stock trading among Malaysian investors. *Computers in Human Behavior* 25: 1222–30. [CrossRef]
- Reber, Beat, and Caroline Fong. 2006. Explaining mispricing of initial public offerings in Singapore. *Applied Financial Economics* 16: 1339–53. [CrossRef]
- Rosner, Bernard, and Robert J. Glynn. 2009. Power and sample size estimation for the Wilcoxon rank sum test with application to comparisons of C statistics from alternative prediction models. *Biometrics* 65: 188–97. [CrossRef] [PubMed]
- Sadik-Zada, Elkhan Richard. 2020. Distributional Bargaining and the Speed of Structural Change in the Petroleum Exporting Labor Surplus Economies. *The European Journal of Development Research* 32: 51–98. [CrossRef]
- Sadik-Zada, Elkhan Richard. 2021. Natural resources, technological progress, and economic growth. *Review of Development Economics* 25: 381–404. [CrossRef]
- Sadik-Zada, Elkhan Richard. 2023. Resource rents, savings behavior, and scenarios of economic development. *Resources Policy* 81: 103258. [CrossRef]
- Sadik-Zada, Elkhan Richard, and Andrea Gatto. 2021. The puzzle of greenhouse gas emissions of oil abundance. *Socio-Economic Planning Sciences* 75: 100936. [CrossRef]
- Sadik-Zada, Elkhan Richard, and Wilhelm Loewenstein. 2018. A Note on Revenue Distribution Patterns and Rent-Seeking Incentive. *International Journal of Energy Economics and Policy* 8: 196–214. Available online: <https://www.econjournals.com/index.php/ijeep/article/view/6078/3658> (accessed on 1 January 2021).
- Sadik-Zada, Elkhan Richard, and Wilhelm Loewenstein. 2020. Drivers of CO₂-Emissions in Fossil Fuel Abundant Settings: (Pooled) Mean Group and Nonparametric Panel Analyses. *Energies* 13: 3956. [CrossRef]
- Sadik-Zada, Elkhan Richard, Wilhelm Loewenstein, and Yadulla Hasanli. 2021. Production linkages and dynamic fiscal employment effects of the extractive industries: Input-output and nonlinear ARDL analyses of Azerbaijani economy. *Mineral Economics* 34: 3–18. [CrossRef]
- Tian, Lihui, and William L. Megginson. 2007. Extreme Underpricing: Determinants of Chinese IPO Initial Returns. *Social Science Research Network*. Available online: <https://ssrn.com/abstract=891042> (accessed on 1 January 2021).
- Tajuddin, Ahmad Hakimi, Nur Adiana Hiau Abdullah, and Kamarun Nisham Taufil Mohd. 2018. Shariah-compliant status and IPO oversubscriptions. *Journal of Islamic Accounting and Business Research* 9: 531–48. [CrossRef]
- Tajuddin, Ahmad Hakimi, Rasidah Mohd Rashid, Karren Lee-Hwei Khaw, and Norliza Che Yahya. 2019. Shariah-compliant status and investors' demand for IPOs: The effects of information asymmetry. *International Journal of Islamic and Middle Eastern Finance and Management* 12: 489–508. [CrossRef]
- Tajuddin, Ahmad Hakimi, Rasidah Mohd-Rashid, Nur Adiana Hiau Abdullah, and Ruzita Abdul-Rahim. 2015. An empirical examination of over-subscription in the Malaysian IPO market. *International Journal of Economics and Management* 9: 81–102.
- Taufil-Mohd, Kamarun Nisham. 2007. Regulations and Underpricing of IPOs. *Capital Markets Review* 15: 1–27.
- Vong, Anna. 2006. Rate of subscription and after-market volatility in Hong Kong IPOs. *Applied Financial Economics* 16: 1217–24. [CrossRef]
- Welch, Ivo. 1989. Seasoned offerings, imitation costs, and the underpricing of initial public offerings. *The Journal of Finance* 44: 421–49. [CrossRef]
- Yong, Othman, and Zaidi Isa. 2003. Initial performance of new issues of shares in Malaysia. *Applied Economics* 35: 919–30. [CrossRef]
- Yu, Ting, and Yiu Kuen Tse. 2006. An empirical examination of IPO underpricing in the Chinese A-share market. *China Economic Review* 17: 363–82. [CrossRef]
- Zhang, John Fan. 2022. Cultural Diversity and Capital Structures of Multinational Firms. *Review of Corporate Finance* 2: 295–351. [CrossRef]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.