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Title Page

Board Characteristics and the Amount of Capital Raised in the Malaysian IPO Market

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Highlights

- **OLS regression shows ethnic Malays affect IPO proceeds and firm value**
- **OLS regression shows board size affect IPO proceeds and firm value**
- **Quantile regression shows board independence affect IPO proceeds in upper quantile**
- **Quantile regression shows CEO duality affect IPO proceeds in upper quantile**
- **Board gender is not related to IPO proceeds, but enhances firm value**

ABSTRACT

This study examines the impact of board characteristics on the amount of capital raised through an IPO for a sample of 220 Malaysian IPOs over the period of 2005 to 2015, applying both ordinary least squares (OLS) and quantile regression (QR) techniques. The OLS results show that board with ethnic Malay directors has a significant and positive association with the amount of capital raised, while a weak significance is found for board size. However, the QR results reveal that other than board ethnicity, other board characteristics namely board size, board independence and CEO duality are significantly associated with the amount of capital raised. The additional results suggest that QR provides a more insightful and full picture into the

association than does OLS. The overall empirical evidence lends support to the resource dependence role of the board of directors at the time of an IPO.

Keywords: Board size, Board independence, Capital raised, Ethnicity, Gender, Quantile regression.

JEL classification: G0, G3

1. Introduction

At a certain stage in a company's lifecycle, the investment scale increases, but scarce financial capital makes financing the investment opportunities a problem. To bridge the gap caused by inadequate capital, entrepreneurs/managers seek capital through an Initial Public Offering (IPO). An IPO is a critical event in a company's lifecycle as the prosperity and long-term survival of the company rest on the amount of capital raised (Ritter and Welch, 2002). Hence, a better understanding of the factors that determine the amount of capital raised remains a crucial topic in the IPO literature (Certo et al., 2009).

The capital raised is a resource that allows a company to conceive and implement strategies that can improve its efficiency and effectiveness or to generate the highest future value (Barney, 1989; Brown, 2012). However, raising capital is not an easy task, because most new companies have a limited operating track record for potential investors to consider at the time of an IPO. This results in information asymmetry and a high degree of uncertainty in the valuation and estimation of the company's prospects (Sanders and Boivie, 2004; Zimmerman, 2008). This limited record further increases the risk of both adverse selection and moral hazard problems (Akerlof, 1970; Leland and Pyle, 1977; Myers and Majluf, 1984), the consequences of which may force entrepreneurs/managers to forego profitable investment projects

(Myers and Majluf, 1984). In addition, potential investors are faced with liability of market newness and the risks associated with the intended use of the IPO proceeds (Certo, 2003). To overcome these problems and to maximise IPO proceeds[1], IPO issuers take it upon themselves to signal their quality to potential investors. An important signalling strategy issuers employ is through the board of directors' structure (Certo et al., 2001; Higgins and Gulati, 2006; Finkle, 1998; Sanders and Boivie, 2004). The board of directors is one of the important subgroups within the upper echelons of the company performing strategic functions that add value to the company (Fama and Jensen, 1983; Le et al., 2012; Ntim, 2015). Thus, the value created by the board of directors may contribute to the company's competitive advantages and increase its chances of raising capital (Bertoni et al., 2014).

During the IPO process, the board of directors has to shoulder various herculean tasks and responsibilities. These include facilitating the company's access to external capital for growth; building the company's reputation to improve its competitive advantage; creating a network of contacts; and advising the company on the strategic directions needed for long-term survival and success (Bertoni et al., 2014; Finkle, 1998). Accordingly, the resource dependence theory (Hillman and Dalziel, 2003; Hillman et al., 2000; Pfeffer and Salancik, 1978) creates a theoretical ground for the role of the board of directors in providing access to critical resources that would otherwise be unavailable.

Despite the key roles of the board of directors relative to successful listing of a company, a sparse amount of empirical literature exists on the influence of the

[1] Although the objectives of issuers may not only be to maximise IPO proceeds, but also proceeds from future sales and side payments (Loughran and Ritter, 2004).

structure of the board of directors on the amount of capital raised through an IPO[2]. Therefore, much remains unknown as to whether investors value the board structure put in place by companies at the time of an IPO (Finkle, 1998; Williams and Young, 2012). In particular, none of these studies has examined the relationship of board ethnicity and gender with the amount of capital raised. Hence, the present study contributes to the IPO literature in this regard. In addition, Yong (2007) earlier called for studies to examine corporate governance related variables in the IPO context in the Asian economies. However, studies in this context have mainly tested corporate governance variables in relation to IPO underpricing (e.g., Darmadi and Gunawan, 2013; Lin and Chuang, 2011; Yatim, 2012), ignoring the aspect of the amount of capital raised through an IPO.

Moreover, an important short-term measure of IPO performance is the amount of capital a company can raise through an IPO, which depends on the favourable evaluation of the company by the financial market (Certo et al., 2009; Quintana-García and Benavides-Velasco, 2015; Zimmerman, 2008). To close the gap in the literature, the present study considers board structure as a valuation instrument that can influence the amount of capital raised through an IPO. This factor is worth investigating in the context of the Malaysian IPO market for several reasons.

First, Malaysia is "home to the largest number of listed companies in the ASEAN. At US$29 billion, Bursa Malaysia also recorded the highest amount of funds raised in the last five years in any country in our 10 nation association" (Prime Minister's keynote address at Invest Malaysia, July 2017, Kuala Lumpur).

[2] Prior IPO studies have found that a company's scientific capabilities in terms of intangible assets (Deeds et al., 1997; Jens et al., 2006), certain pre-IPO financial information (Williams and Young, 2012), top management team heterogeneity in terms of functional, educational, age and tenure aspects (Zimmerman, 2008), board composition (Finkle, 1998) and geographical location (Amini, 2013), are associated with the amount of capital raised through an IPO.

Second, Malaysia is a multi-ethnic country with diverse cultures, identities and religious beliefs, wherein ethnicity is a potentially vital management resource for the organisation at both external (contextual) and internal (operational) levels (Bhopal and Rowley, 2005). In fact, one of the reformative actions introduced by the government to rectify the ethnic imbalances in the economy is for the corporate boards of companies to have at least 30% ethnic Malays (Abdullah and Ku Ismail, 2013; Cheong and Sinnakkannu, 2014). In doing this, the government expects corporate boards to reflect the ethnic composition of the country. Between 2004 and 2010, the ethnic Malays comprised the largest percentage of the population with 61-67% of the total population, followed by the Chinese with 24-25%, Indians with 7% and others with 0.7-1%. However, with respect to corporate board membership composition, between 50% and 60% of board members were Chinese directors, while less than 30% were Malays and Indians (Ammer and Ahmad-Zaluki, 2014; Ahmad-Zaluki, 2012).

Third, similar to the regulations with respect to ethnic Malays serving on corporate boards, another national policy introduced is for corporate boards of listed companies to have at least 30% of women at the board level by 2020 in order to achieve gender diversity in the workplace (Prime Minister's keynote address at Invest Malaysia, July 2017, Kuala Lumpur). In addition, Malaysia is a country in which discrimination against women in top leadership positions is pronounced; therefore, women who reach top positions are significantly capable, and their presence on the board has a significant impact, even when in small numbers (Abdullah et al., 2016).

Proponents of the resource dependence theory consider board ethnicity and women directors as value drivers that connect the company to diverse external

resources, such as capital, which can have a positive influence on market valuation (Hillman et al., 2009; Pfeffer and Salancik, 1978). Therefore, this study investigates the resource dependence function of board structure with respect to ethnic Malays and women on corporate boards at the time of an IPO in explaining the observable variations in the amount of capital raised.

To achieve the objectives of the study, a total sample of 220 Malaysian IPOs is investigated over the period of 2005 to 2015. In the first phase of this study, an ordinary least squares (OLS) estimate and robust OLS are applied. Based on this estimation, the results show that only board ethnicity is significantly and positively associated with the amount of capital raised. However, the application of quantile regression (QR) technique in the second phase of the analysis reveals that besides board ethnicity, the proportion of non-executive directors, as a proxy of board independence, board size and CEO duality at the time of an IPO, have a significant and positive association with the amount of capital raised at the upper quantile (.75). Hence, the findings from this study provide evidence that the board of directors plays a valuable resource dependence role in the IPO market. Therefore, the board of directors can be considered as an asset of the company which is vital for attracting and securing resources crucial for its survival as well for as contributing to its sustained value creation.

Furthermore, this study indicates that the QR technique is a more powerful and flexible econometric technique than the OLS because QR produces estimates for all conditional quantile distributions of the amount of capital raised. For instance, if not for the QR technique, this study could not have concluded that board independence, board size and CEO duality are significantly associated with the amount of capital raised, something the OLS does not identify. Thus, estimating the

quantile effects of the amount of capital raised provides information that is more valuable than estimating only the mean effect of the amount of capital raised.

The remaining structure of the paper is organised as follows: section 2 discusses the literature review and hypothesis development; section 3 captures the sample and methods; section 4 presents the empirical results; section 5 presents the discussion of the results; and section 6 concludes the paper.

2. Literature review and hypothesis development

An IPO is considered successful when a company can maximise the amount of capital raised during the IPO sale in the financial markets (Certo et al., 2009; Ritter and Welch, 2002). However, the amount of capital a company can raise depends on the favourable valuation of the company in the financial markets and the negotiations between the underwriter and the issuer (Quintana-García and Benavides-Velasco, 2015).

Moreover, valuing a company correctly presents a considerable challenge to investors because little publicly available information about the company's quality exists at the time of an IPO, the consequence of which creates an information gap between issuers and investors and subsequently an adverse selection problem with regards to investment decisions. To address these challenges, Spence (1974) and Bergh et al. (2014) suggest that signals, which are "observable actions that provide information about unobservable attributes", can be used to close the gap and reduce the uncertainty about a company's value. One such observable means by which issuers can signal their quality to receive favourable valuation in the market to maximise the amount of capital raised, is through the structure of their boards of directors. Bertoni et al. (2014) point out that an effective board of directors creates

value through the facilitation of access to external capital and provision of strategic advice to improve a company's competitive advantage, reputation and network of business contacts. Thus, the structure of the board of directors can increase investors' patronage (Gomper, 1995) and serve as a useful screening and sorting criterion that can influence investors' valuation of the company to make an appropriate investment decision (Finkle, 1998; Sanders and Boivie, 2004).

Similarly, the resource dependence theory by Pfeffer (1972) and Pfeffer and Salancik (1978) establishes a theoretical foundation that companies can use boards of directors as a mechanism to minimise environmental uncertainty and transaction costs and gain resources. According to the theory, the board functions as a resource catalyst for the company by providing linkages to crucial resources, which would not be otherwise available. This means that companies can obtain significant value and resources through the structure of the board.

Indeed, several studies are of the view that the board of directors provides a range of resources through the resource provisioning function of the board (Certo, 2003; Drees and Heugens, 2013; Haynes and Hillman, 2010; Hillman and Dalziel, 2003; Hillman et al., 2009; Johnson et al., 1996; Pfeffer and Salancik, 1978; Zahra and Pearce, 1989). These include offering advice and counsel to the company's executives on key strategic decisions and participating in the decision-making process on how to effectively manage the company. Additionally, the board provides legitimacy[3] signals to enhance the company's reputation to external constituents to improve the chances of the company to gain access to external resources, such as capital. Furthermore, the board can serve as a communication agent between the

[3] Legitimacy is concerned with the survival of the company to remain a going concern and can be equated with liability of market newness. Thus, the board of directors reduces the liability of market newness and increases the chances of the company to gain legitimacy (Brown, 2012).

company and the external environment, thereby reducing the transaction costs of dealing with uncertainties in the environment.

All these benefits point to the board as an asset that contributes to the value creation of the company (Hillman et al., 2009) and a co-optive tool to extract the resources needed for the company's success (Zahra and Pearce, 1989). Therefore, board structure plays a crucial role in connecting the company to the external environment, gaining legitimacy and assuring preferential access to resources. As a result, individuals are appointed to the board in alignment with one or more of these resources required by the company, and the company attempts to match its needs with the resources provided by the board of directors (Hillman et al., 2000).

Meanwhile, Pfeffer (1972) is of the view that the structure of the board in terms of size and composition can reveal the ability of the board to provide critical resources to the company. Size and composition signal whether a board is internally and externally oriented and serve as boundary spanners to provide the company with competitive advantage through network contacts in the environment and easy access to large amounts of external capital (Pfeffer, 1972; Zahra and Pearce, 1989).

The size and composition of the board are contingent on the company's strategy, such as IPO decisions (Pearce and Zahra, 1992). Kroll et al. (2007) are of the view that rather than monitoring the top management, non-executive board members should provide the resources that the company's top managers might use to execute their strategies. This means that the composition of the board (i.e., the presence of non-executive directors) on the corporate board can impact the ability of the company to extract resources from the environment due to their expertise, prestige and contacts, which are valuable sources of information and resources that might enhance the company's success (Finkle, 1998; Pfeffer, 1973).

Both board size and composition (i.e., large board and a higher proportion of non-executive directors) have been seen to be related to better advice, communication and facilitation, in terms of receiving crucial resources, the company needs (Dalton et al., 1999; Goodstein et al., 1994; Zahra and Pearce, 1989). The provision of access to information and resources, such as access to markets, new technologies and raw materials, among others, reduces information asymmetry and volatility that occur because of environmental uncertainties; it is also helpful for securing the critical resources needed for survival (Birnbaum, 1984; Goodstein et al., 1994; Pearce and Zahra, 1992). The argument that environmental uncertainty generally leads to large board size is premised on the fact (Booth and Deli, 1996) that a large board creates effective external linkages that would provide the company the needed resources (Pfeffer and Salancik, 1978). A large board also signals that the company has access to a wide range of resources via its board members (Daily et al., 2005). Likewise, such companies are assumed to have board members with diverse experience and more knowledge with the ability to provide high-quality strategic advice that would improve the company's market share and legitimacy (Coles et al., 2008; Dalton et al., 1999).

In conjunction with theoretical arguments, considerable empirical efforts have been carried out. Pfeffer (1973) finds that board size is correlated positively with the source of funds in hospitals, suggesting that large boards provide greater resources than small boards. Provan (1980) reports similar evidence of a positive relationship between board size and funding in the case of non-profit companies' access to sources of funding. More specifically, Certo et al. (2001:12) find that board size is significantly related to IPO performance, which implies that, "potential investors may consider larger boards as a signal of increased access to resources".

For example, a large board may provide greater access to tangible resources, such as capital and raw materials, through linkages of directors representing financial institutions and providers of finance, among others. A large board may also provide greater access to intangible resources, such as information, that is either company or industry-specific. Conversely, Finkle (1998) fails to find a significant association between board size and the amount of capital raised, but the author argues that board size could influence the quality of strategic decisions made by directors. For instance, companies with a larger board are assumed to have directors with diverse educational and industrial backgrounds who can help in implementing strategic decisions of the company, which are likely to influence its market valuation and enhance its chances of raising substantial amounts of capital through an IPO. Bertoni et al. (2014) find that board size is positively associated with the initial market value of IPO companies, measured by enterprise vale (EV) to sales. Other studies that focused on established companies have also found that a large board adds value to the company (Adams and Mehran, 2005; Dalton et al., 1999; 2008; Kiel and Nicholson, 2003; Pham et al., 2011). Based on these findings, a large board is likely to benefit IPO companies by providing them with more access to external resources. Thus, this study posits that board size is positively related to the amount of capital raised.

H1. Board size is positively associated with amount of capital raised

As with board size, the resource dependence theory suggests that companies seeking financial resources will appoint non-executive directors to facilitate access to capital markets, boost the company's public image and reduce dependence on the environment (Hillman & Dalziel, 2003; Lynall et al., 2003; Pfeffer, 1972; Pfeffer and Salancik, 1978). In fact, potential investors may consider non-executive board

members as a signal of increased access to resources, because, in most cases, they are appointed based on their uniqueness in terms of expertise, independent mind-set and professional network that can improve the quality of board deliberations and increase access to resources (Certo et al., 2001; Gompers, 1995; Pearce and Zahra, 1992). As such, non-executive directors are often regarded as professional experts and prestigious members of the board who play an advisory rather than decision-making role (Garg, 2013).

A prestigious board of directors is interpreted as a valuable, rare, inimitable, and non-substitutable resource that can provide the IPO company with valuable assets to enhance its chances of gaining critical resources from the external environment (Coles et al., 2008; Daily et al., 2005; Finkle, 1998). Notably, board prestige increases when the corporate board comprises a higher number of non-executive directors. Hence, a higher proportion of non-executive directors serving on the corporate board at the time of an IPO may lead to higher valuation in the IPO market.

Several studies have reported a positive relationship between board independence and IPO valuation, meaning that a higher proportion of non-executive board members creates value for the company (Bertoni et al., 2014; Chahine and Filatotchev, 2008; Roosenboom and van der Goot 2005; Sanders and Boivie, 2004). Others have also found that board independence is associated with higher stock returns and an increase in the likelihood of survivability of IPO companies. Non-executive directors provide valuable sources of information and resources that might enhance the performance of the company (Chancharat et al., 2012; Howton et al., 2001). Considering the aforementioned benefits of having most of the board members as non-executive directors, this study proposes that a higher proportion of

non-executive directors increase investors' patronage, thereby providing a better chance for the company to raise substantial amounts of capital at the time of an IPO. On this note, the following hypothesis is posited:

H2. Board independence is positively associated with the amount of capital raised

Besides board size and board independence, another important determinant of a board's ability to connect the company to an assortment of external resources is diversity in the corporate boardroom (Abdullah et al., 2016; Pfeffer and Salancik, 1978). Board diversity helps in gaining critical resources and is perceived as a value driver in a company's strategy for raising capital (Cox et al., 1991; Hillman, 2014). In particular, leadership diversity is important for a company's financial success as it helps to achieve growth and profitability (Cheong and Sinnakkannu, 2014). Diversity also leads to better board deliberations, creativity, innovativeness and communication that are more effective to produce better decision-making and responsiveness to customers and employees as well as providers of finance (Hillman, 2014; Miller and del Carmen Triana, 2009; Nielsen and Huse, 2010; Zahra and Pearce, 1989). A diverse board is likely to provide extensive networks and facilitate opportunities that would enable the company to obtain more resources that can help achieve its strategic objectives (Williams and O'Reilly, 1998). The main categories of board diversity include gender (i.e., female representation on board) and ethnicity (Cox, 2001; Cheong and Sinnakkannu, 2014).

Under the purview of the resource dependence theory, female directors are seen as better in an advisory role, in providing legitimacy and in gaining access to resources, such as financial capital in the markets. The reason is that their human and social capital skills (competencies and knowledge) are distinctively different from

that of male directors (Adams and Ferreira, 2004; Dang and Vo, 2013; Hillman et al., 2007; Terjesen et al., 2009).

According to Dunn (2012), female directors who are appointed to an existing all-male board have specialised knowledge and skills, either in the form of company-specific knowledge as insiders or as support specialists with specific financial or legal expertise that can enrich the quality of board discussions. In addition, female directors are more watchful and determined towards equipping the company they manage with adequate resources that will lead to the growth and survival of the company (Adams and Funk, 2012; Capezio and Mavisakalyan, 2016; Huang and Kisgen, 2013).

In fact, investors do welcome the appointment of women to a board (Ku Ismail and Abdul Manaf, 2016). Several studies have indicated that companies can gain legitimacy through the appointment of female directors because of the type of resources they possess (e.g., strategic planning, risk attitude and leadership style), which contributes to a board's reputational value (Brammer et al., 2009; Campbell and Minguez-Vera, 2008; Dunn, 2012; Hillman et al., 2007; Peterson and Philphot, 2007; Zahra and Pearce, 1989).

In terms of risk attitude, female directors tend to be more risk averse, but they are more ethical and socially conscious than their male counterparts (Mohan and Chen, 2004; Fondas, 2000). In addition, female directors often adopt a participative leadership style and show greater concern for interpersonal relationships, which make managers be more willing to voluntarily provide them with information, especially in an environment in which the returns associated with an investment are shrouded or affected by a high degree of uncertainty (Chen et al., 2015). To corroborate this, Gul et al. (2011) document that stock prices of companies with

gender-diverse boards incorporate more company-specific information. Adams and Ferreira (2004) find that companies facing more variability in their stock returns have fewer female directors. All these suggest that female directors create a more transparent and informative environment that could enhance public confidence in the company.

Studies have shown that a positive relationship exists between company value and the percentage of women on the corporate board (Campbell and Mınguez-Vera 2008; Carter et al., 2003; Francoeur et al., 2008). Similarly, Ntim (2015) shows that the stock market values gender diversity on a corporate board. Abdullah et al. (2016) also find that female directors create economic value, but the market discounts their impact, suggesting that a negative relationship exists between female representation and Tobin's Q. This implies that the perception of women in positions of power in Malaysia is unfavourable.

On the other hand, Huang and Kisgen (2013) document that shareholder value tends to be higher when female CEOs or CFOs make financial and investment decisions compared to their male counterparts. Similarly, Ku Ismail and Abdul Manaf (2016) find that the market reacts positively to the appointment of female directors. Other studies have revealed that having women on a corporate board sends a positive signal to both internal and external constituents (Bernardi et al., 2006; Daily and Dalton, 2003; Daily et al., 1999; Hillman et al., 2007). For instance, Hillman et al. (2007) report that women directors provide a link to different customers and employees, as well as providers of finance (such as institutional investors). In addition, Carter et al. (2003) claim that institutional investors (e.g., Calvert) publicly express preference for the appointment of female directors, as it allows the company to benefit from improved investor relationships. Furthermore,

companies can also use female participation in the board to gain a competitive advantage because women have a greater diversity value than men (Cox and Blake, 1991; Farrell and Hersch, 2005; Leslie et al., 2017).

Therefore, female participation in the corporate board at the time of an IPO may be considered beneficial because this participation increases the chances of a company to penetrate the market and provide linkages to the external environment to raise capital and gain legitimacy, which may positively affect the initial market value of the company. This is because female directors are better in establishing relationships in the environment that can increase investors' confidence in a company (Abdullah et al., 2016). Based on all the value-added advantages of female participation in the corporate board, this study posits that:

H3. Participation of female directors on the board is positively associated with the amount of capital raised.

It is not only gender diversity on the board of directors that is beneficial to a company; ethnicity also plays a vital role because the identity of board members can be highly impactful in connecting the company to the external environment (Hillman, 2014). For instance, Ntim (2015) confirms that the stock market values ethnicity more than gender diversity in the corporate board. Similarly, Carter et al. (2010) are of the view that the types of diversity that are important in a specific country or culture may vary widely. Other studies have shown that ethnicity improves company performance (Abdullah and Ku Ismail, 2013; Cheong and Sinnakkannu, 2014; Erhardt et al., 2003; Richard, 2000) and company reputation (Miller and del Carmen Triana, 2009). Ethnicity shapes people's view, perceptions, attitude and behaviour in society (Ramasamy et al., 2007).

In a multi-ethnic, multicultural and multilingual business environment, like Malaysia, the capital market is shaped along ethnic lines, i.e., the Chinese and the Malays (Cheong and Sinnakkannu, 2014; Storz, 1999; Yatim et al., 2006). Although the Chinese are mainly in control of businesses, the Malays have been appointed to participate in real decision-making in Chinese companies primarily because of their political connections and ethnic favouritism (Gul et al., 2016). Since the introduction of the New Economic Policy in 1970 following the race riots in 1969 due to the economic dominance of the Chinese amidst the poverty of the Malays, there is an institutionalised positive discrimination in favour of the Malays where they are offered various concessions, including business contracts (Haniffa and Cooke, 2005). In view of this, scholars are of the view that the main reason why most Chinese communities appoint ethnic Malays to their boards is to exploit their personal influence to secure access to capital and government contracts (Abdul Wahab et al., 2015; Gomez and Jomo, 1997; Johnson and Mitton, 2003; Wan Mohammad et al., 2016). For example, a report by KPMG (2013) for a sample of the top 100 ranked companies in Malaysia shows that almost 45% of the independent directors are retired civil servants or former politicians, who are predominantly ethnic Malays. Therefore, ethnic Malays may be appointed for political gain and legitimacy, thereby facilitating the company's access to projects and support and financing for business operations. Yusof (2013) confirms that board appointments are based on social networking because social networks provide a channel for the strengthening of power. Thus, a Chinese network with influential Malays would have strong economic power.

Similarly, Bajuri and Chakravarty (2009) demonstrate that in inter-ethnic business coalitions, the role of the ethnic Malay is mainly to advance his or her

Chinese partner's business opportunities with better terms and access to government contracts, licences, permits and trade protection, while the Chinese partner's role is to ensure the job gets done.

In fact, under various government economic initiatives, ethnic Malays have enjoyed various financial advantages and privileges (Bliss & Gul, 2012; Gul et al., 2016). Wan Jan (2011) claims that Chinese capitalists subscribe to the appointment of ethnic Malays to boards to enjoy access to contracts and tenders. Considering the value-added advantage of ethnic Malays on the board, such as their connections in society, IPO companies are likely to appoint ethnic Malays to their corporate boards to improve the perceptions of market regulators and to gain access to financing to execute their investment opportunities. As a result, this study suggests that the proportion of ethnic Malays on the board is positively associated with the amount of capital raised.

H4. A board with ethnic Malays is positively associated with the amount of capital raised

The resource dependence theory further reiterates that placing the leadership roles of the CEO/Chairman in the hands of a single person increases a company's responsiveness to its goals and objectives and the ability to secure critical resources needed for the long-term growth of the company (Pfeffer and Salancik, 1978). CEO duality can be construed as a signal that the company is under an efficient and powerful leader who does not have to struggle with coalition factors in making decisions (Finkelstein and D'Aveni, 1994). Rhoades et al. (2001) claim that without powerful and unified leadership, companies may be unable to take decisive actions and set strategic goals.

Therefore, the board may use CEO duality to convey to stakeholders that the company has a clear sense of direction necessary for success (Finkelstein and D'Aveni, 1994; Pfeffer and Salancik, 1978; Salancik and Meindl, 1984). Empirical evidence by Brown (2012) confirms that CEO duality increases a company's legitimacy and the chances of survival. In the IPO context, Mak and Roush (2000) document that IPO companies with a dual CEO position have more growth opportunities. Other benefits of CEO duality in the IPO context include, "clear lines of reporting authority that reduces uncertainty, centralized organizational spokesperson, and communication of strong company leadership style to external constituents" (Daily et al., 2002; p. 395). These benefits would let such a company arrange resources and partners necessary during the IPO process more quickly than a company in which two different people hold the two positions (Daily et al., 2002). Based on the potential benefits of CEO duality, this study anticipates that an increase in responsiveness of a company in securing critical resources for growth opportunities would enable the company to raise substantial amounts of capital at the time of an IPO. Therefore, the next hypothesis is to test whether a positive relationship exists between CEO duality and the amount of capital raised.

H5. CEO duality is positively associated with the amount of capital raised

In sum, because an IPO is a transitory stage as well as the rebirth of a new company, the composition of the board of directors is critical in this emblematic situation (Finkle, 1998). As such, understanding the impact of board structure on the amount of capital raised is a key issue for IPO issuers and public policy-makers, most especially in the Malaysian IPO market.

3. Research methods

3.1. Data sources

The initial sample of the present study comprises all Malaysian companies that conducted IPOs from January 2005 to December 2015. A total of 301 IPOs span this period. However, to allow a comparison of the results from this study with prior IPO studies (e.g., William and Young, 2012; Yatim, 2011; Zimmerman, 2008), this study excludes REITs, SPACs and close-ended fund IPOs, giving a final sample of 220 IPOs. Of the final sample, most IPOs are listed on the two major markets, i.e., the Main Board and MESDAQ. Seventy percent of the IPOs were listed in these two markets over the sample period of study. Notably, 26% of the IPOs were listed in 2005 alone.

The primary source of data collection is the prospectus, which can be downloaded from the Bursa Malaysia website. The prospectus is a mandatory document that each IPO company must provide to the public. The document provides information that regulators, underwriters and potential investors use for the valuation of the company (Zimmerman, 2008). Considering the importance of prospectus information, data related to the board characteristics, offer price, number of primary shares issued and number of secondary shares offered, financial data and other relevant data are extracted from the IPO prospectuses.

3.2 Statistical method

A common method that prior scholars have used is the standard regression method, i.e., based on OLS and Hierarchical Regression (Amini, 2013; Deeds et al., 1997; Williams and Young, 2012). However, the use of the standard regression method as a regression estimate has received criticisms from econometric scholars (Hao and Naiman, 2007; Koenker and Hallock, 2000). One such criticism is that the

standard regression method is ineffective for capturing extreme values, such as outliers. In short, it fails to quantify the extreme values.

Second, the standard regression method is a mean regression estimate based on the average value of the conditional distribution of the dependent variable. However, the use of average value provides an incomplete picture or a partial view for a set of conditional distributions of the dependent variable and is sensitive to outliers. For example, evidence related to the skewness of the dependent variable (amount of capital raised) as presented in the descriptive statistics results in Table 1 shows that despite the logarithm transformation, the skewness value is not close to zero. This implies that the variable is not symmetrically distributed. In addition, the kurtosis value is more than three for the amount of capital raised and other variables, such as Tobin's Q, Z-Score, proportion of non-executive directors, proportion of female directors, among others. This is an indication of observations with extreme values. In fact, untabulated statistics using the "extremes" command in Stata statistical software further show the presence of some influential observations.

Similarly, the mean and median values for most of the variables in Table 1 differ, meaning that the data are not bell-shaped. Additionally, the Jarque-Bera normality tests using the "jb6" command for each of the variables show that the null hypothesis that the data are not normally distributed at the 1% level of confidence with two degrees of freedom is rejected for all variables except for the natural logarithm of board size ($X^2(2) = 1.45$ and $p < 0.10$).

In all, this evidence shows that using the standard regression method which estimates the mean of the dependent variable, may not capture the general description of the relationship between the dependent and explanatory variables in the presence of extreme upper or lower tails. Hence, the use of a more robust and

sophisticated method is needed. On this note, this study uses robust regression techniques[4], i.e., the "rreg", "mmregress" commands by Verardi and Croux (2009) in Stata and the QR method of Koenker and Bassett (1978) to quantify the relationship between the board characteristics and the amount of capital raised. The QR method is a non-parametric regression technique that offers a more complete statistical model than the standard regression and is currently gaining widespread application in financial economics (Barnes and Hughes, 2002; Chiang and Li, 2012; Kuan et al., 2012; Raji et al., 2017; Ramdani and Witteloostuijn, 2010; Yu et al., 2003).

The QR technique is a median regression estimate with the objective of estimating the median of the dependent variable (amount of capital raised), conditional on the values of board characteristics as well as other control variables. The advantage of the QR technique is that it provides a full characterisation of the conditional distribution of the dependent variable in different quantiles and elaborates more on different points of a conditional distribution (e.g., 0.25, 0.50, 0.75, 0.90, and 0.95). It also is a parsimonious way of representing the whole distribution and provides the much value-added information in a situation whereby the relationship between the dependent and the explanatory variables moves across its conditional distribution. This enables the current study to quantify the effect of all independent and control variables along the probability distribution of the dependent variable and provides a more detailed result as reflected in the sign and significance of estimated coefficients of the different variables.

An additional advantage of the QR technique is that it finds a line through the data that minimises the symmetrically weighted sum of the absolute residuals to estimate the conditional median function, which is less susceptible to outliers than

[4] The robust regression techniques are better ways to handle the impact of outliers in a regression model by smoothing the effect of outliers on the coefficient regression (see Williams, 2016).

the OLS which uses the sum of squares of the residuals (Hao and Naiman, 2007). This is because there is no assumption about the distribution of the error component. As a result, this enables the current study to mitigate statistical problems that may arise, such as the Gaussian error and the presence of outliers, and provides a comprehensive distribution of the dependent variable.

3.3 Variable measurements

The dependent variable is the total amount of capital raised through the IPO. This is considered as a short-term measure of IPO performance (Deeds et al., 1997; Gulati and Higgins, 2003; Williams and Young, 2012; Zimmerman, 2008) and an indicator of how the market values the company at the time of the IPO (Finkle, 1998; Mousa et al., 2014). It is calculated as the offer price multiplied by the total number of primary shares issued less underwriter fees as stated in the intended use of the IPO proceeds section in the prospectus (Amin, 2015; Deed et al., 1997; Finkle, 1998; Mousa et al., 2014; Zimmerman, 2008). The amount of capital raised is based on primary issues because the proceeds go directly to the company for growth opportunities and debt repayment, among other reasons.

In addition to the amount of capital raised as the dependent variable, this study also considers the initial market value of IPO companies, measured as Tobin's Q and EV to sales ratio to test the robustness of the results[5]. All these measures are consistent with prior studies (e.g., Bertoni et al., 2014; Daily et al., 2005; Quintana-García and Benavides-Velasco, 2015). Tobin's Q is the ratio of market value of assets to book value of assets. The market value of assets is a mathematical function of the addition of the book value of assets and the market value of common stock minus the book value of common stock. The market value of the common stock is

[5] The authors appreciate the reviewers for pointing out the alternative measures for IPO value.

the number of shares outstanding post-IPO multiplied by share price. The share prices used in this study are offer price and first day opening and closing price, which is consistent with Bertoni et al. (2014). The EV to sales equals the sum of book value of assets and market value of common stock to sales.

The main explanatory variables in this study are board characteristics, which include board size, board independence, board gender, board ethnicity and CEO duality at the time of the IPO. Board size (LNBZ) is the natural logarithm of the total number of persons holding seats in the boardroom. Board independence (PND) is the proportion of non-executive directors to the total number of directors on the board at the time of the IPO. Board gender (PFD) is the proportion of female directors to total number of directors on the board. Ethnic Malays board (EM) is measured as the proportion of ethnic Malay directors to total number of directors on the board. CEO is considered to have dual position (CEODUA) if a single person serves as both the chairman and the CEO, where a dummy variable of 1 is allocated for such a person and 0, if otherwise.

In line with prior IPO studies (Deeds et al., 1997; Williams and Young, 2012; Zimmerman, 2008), several control variables are included, namely company age (LNCAGE), company size (LNSales), auditor's quality (AQ), underwriter's reputation (UWR), pre-IPO financial health (Z-Score) and participation ratio (PR).

Company age is the number of years a company has been in operation till the year of the IPO. The age of a company is used to control for uncertainty surrounding an IPO decision. The older the company is, the larger the amount of information available to potential investors to make an investment decision (Finkle, 1998). However, prior literature has provided conflicting results on the relationship between age and IPO proceeds. For example, Deeds et al. (1997) show that company age is

positively related to IPO proceeds, which implies that older companies raise more capital than younger companies. However, other studies (Amini, 2013; Zimmerman, 2008) have documented an insignificant relationship between company age and IPO proceeds. In contrast, Mousa et al. (2014) find a significant and negative relationship between company age and IPO proceeds, which implies that younger companies are expected to raise a larger amount of capital at IPO than the older ones. Based on these findings, the present study posits that company age is related to IPO proceeds.

In addition to company age, company size is seen as having a significant and positive influence on IPO proceeds (Deeds et al., 1997; Finkle, 1998; Mousa et al., 2014;Quintana-García and Benavides-Velasco, 2015). Building on these findings, this study expects company size to be positively related to IPO proceeds.

Another important variable that has a significantly positive influence on IPO proceeds is pre-IPO financial health. Two common measures of pre-IPO financial health are total revenue reported in the income statement of the prospectus and return on assets. These two measures have been found to have a significant and positive impact on IPO proceeds (Williams and Young, 2012; Zimmerman, 2008). Nevertheless, these measures capture only the pre-IPO profitability measurement, thereby ignoring other important aspects of a company's financial health.

Considering the importance of pre-IPO financial health, this study uses a comprehensive measure of a company's financial health that captures not only profitability but other aspects as well, which include the liquidity, productivity and gearing capacity of the company. This is measured using the Altman (2000) Z-Score as indicated in model 2. Based on the model, the expectation is that the higher the Z-Score, the larger the amount of capital raised. Therefore, a positive relationship is expected between the measure of pre-IPO financial health and IPO proceeds.

Furthermore, financial intermediaries, particularly, the underwriter and auditor, play important roles in ensuring the successful listing of a company. For instance, the underwriter provides valuable guidance to managers on the listing process and takes primary responsibility for ensuring effective marketing of the company shares.

Like the underwriter, the auditor is also a critical figure in the IPO process, whereby he/she provides assurance on the financial information presented in the prospectus. Both financial analysts and underwriters use this information to value the company. Therefore, the quality of information provided by the company and the successful listing of the company depend on the quality of the auditor and underwriter, who are important agents in the IPO process. Based on the importance of the auditor and underwriter, Mousa et al. (2014), Williams and Young (2012), Zimmerman (2008) and Gulati and Higgins (2003) find that underwriter's reputation is positively related to IPO proceeds. Likewise, Jens et al. (2006) and Willenborg (1999) find that employing a high-quality auditor (Big 4 auditor) has a positive influence on IPO proceeds. Therefore, this study posits that auditor's quality and underwriter's reputation are positively related to IPO proceeds.

Relative to the role of financial intermediaries, the commitment of existing shareholders can also signal market confidence, leading to favourable valuation of the IPO. This represents the secondary shares sold by existing shareholders relative to IPO volume. Bertoni et al. (2014) argue that the structure of the offer could account for the effect of the nature of shares offered to the public. They argue that an offer with a large fraction of newly issued shares signals a high commitment by existing shareholders. Therefore, the higher the participation ratio, the lower the amount of capital raised.

3.4 Model specification

The hypotheses developed in this study are tested using the following regression specification models, 1A and 1B. Model 1A represents the standard OLS regression model and model 1B is the QR model.

$$NP_i = \beta_0 + \beta_1 \text{LNBZ}_i + \beta_2 PND_i + \beta_3 PFD_i + \beta_4 EM_i + \beta_5 CEODUA_i + \beta_6 LNCAGE_i + \beta_7 \text{PR}_i + \beta_8 UWR_i + \beta_9 AQ_i + \beta_{10} LNSales_i + \beta_{11} Z\_Score_i + \varepsilon_i \quad (1A)$$

$$NP_q = \beta_{0q} + \beta_{1q} \text{LNBZ}_i + \beta_{2q} PND_i + \beta_{3q} PFD_i + \beta_{4q} EM_i + \beta_{5q} CEODUA_i + \beta_{6q} LNCAGE_i + \beta_{7q} \text{PR}_i + \beta_{8q} UWR_i + \beta_{9q} AQ_i + \beta_{10q} LNSales_i + \beta_{11q} Z\_Score_i + \varepsilon_i \quad (1B)$$

Where, q indicates a quantile in the conditional distribution of the amount of capital raised. The q (s) are 0.25, 0.50 and 0.75.

NP_i is the net amount of capital raised. LNBZ represents board size, measured as the natural log of total number of directors on the board at the time of the IPO. PND represents board independence, which is the proportion of non-executive directors to total number of directors. PFD represents board gender, measured as the proportion of female directors to total number of directors. EM represents ethnic Malays, which is the proportion of Malay directors to total number of directors. CEODUA denotes CEO duality, measured as a binary number of 1 if the CEO is the same person as the Chairman of the board and 0, if otherwise. LNCAGE is the company age at the time of the IPO, measured as the natural logarithm of year of establishment to IPO year. PR is the participation ratio, measured as the ratio of secondary shares to total shares

offered. UWR represents underwriter's reputation, measured as a binary number, equalling 1 if the firm's IPO is underwritten by Top Five underwriters and 0, if otherwise. The top five underwriters are Affin Hwang Investment Berhad, CIMB Investment Bank Berhad, RHB, MayBank and Kenanga Investment Berhad. Similarly, AQ is the auditor's quality, which is measured by a binary number, which equals 1 if the company is audited by audit firms affiliated with the Big 4 (Ernst and Young, PricewaterhouseCoopers, KPMG and Deloitte) and 0, if otherwise. LNSales is a proxy for company size, measured as the natural logarithm of pre-IPO total sales, ε is the error term and Z-Score is a proxy for pre-IPO financial health calculated based on model 2 (see equation below):

$$Z_i = 0.717X_{1i} + 0.847X_{2i} + 3.107X_{3i} + 0.420X_{4i} + 0.998X_{5i} \qquad (2)$$

where Z is the measure of the overall financial health of the company; X_1 represents the net assets of the company's liquidity relative to current assets minus current liabilities divided by total assets; X_2 represents the total amount of reinvested earnings calculated as retained earnings divided by total assets; X_3 represents the productivity of the company's assets calculated as earnings before interest and taxes divided by total assets; X_4 represents the gearing capacity of the company calculated as book value of equity divided by book value of liabilities; and X_5 represents income generating ability and management capacity in dealing with competitive conditions. This is calculated as sales divided by total assets, respectively.

4. Empirical results

4.1 Descriptive statistics

Table 1 provides the descriptive statistics of the sample used in this study. The data include the mean, median and the standard deviation of all the variables. The descriptive statistics reveal that average and median amounts of capital raised are RM84.96 and RM16.91 million, respectively. In fact, companies raised as high as RM4,299 million. In addition, the average and median ages at which a company issued an IPO are approximately five and two years, respectively, when determined from the date of incorporation to the listing date. The maximum total sales, which is a measure of company size, is RM7,474.85 million. Furthermore, on average, the pre-IPO financial health, measured by Altman Z-Score, shows a value of 1.93 and a median value of 1.81. This indicates that most Malaysian IPOs were financially strong at the time of going public.

Regarding board characteristics, the average and median size of the board is 6.86 and 7.00, respectively, with a maximum number of 13 members, similar to the results of Abdul Wahab et al. (2015) and Yatim (2011) on the average and median value of the number of persons on the board at the time of the IPO. In addition, on average, 60.51% of directors are non-executive directors. This result is consistent with Abdul Wahab et al.'s (2015) reported value, but higher than Yatim's (2011) reported figure of 53% of non-executive directors at the time of the IPO. The average percentage of female directors at the time of the IPO is 9% with a maximum value of 50%. This result concurs with the findings of Ming and Hock Eam (2016) and Ahmad-Zaluki (2012), where they report that average percentage of female directors on a board is 10% and 8%, respectively, for a sample of Malaysian IPOs.

Because of this low representation, Ahmad-Zaluki (2012) suggests that the dwindling numbers of women on the corporate board may be due to the Malaysian companies focusing on developing Malaysian women for leadership positions rather

than choosing them as board members. This shows that much remains to be done to achieve at least 30% female representation on corporate boards as the Prime Minister of Malaysia indicated in his keynote address in July 2017. In fact, only 43% of the sample IPO companies have female directors on the board, leaving 57% without any female representation, implying that corporate boards in Malaysia are still "Men's clubs".

The statistics in Table 1 also show that on average, 58% of board members are Chinese compared to 30% of Malays. This is consistent with the findings of Ammer and Ahmad-Zaluki (2014) and Ahmad-Zaluki (2012) that between 50-60% of board members in Malaysia are Chinese, while less than 30% are Malays. Abdul Wahab et al. (2015) report an average of 33% of Malay directors serving on the boards.

During the period of study, 74% of the companies have separate positions of the CEO and Chairperson. This is consistent with Yatim's (2011) study in which 70% of IPOs have different people serving as the CEO and the Chairperson. This indicates that the separation of the position of CEO and board Chairman is a common in the Malaysian IPO market.

4.2 Correlation analysis

The results of the correlation matrix are presented in Table 2. Significant correlations exist between the amount of capital raised and all the control variables, namely, company age (LNCAGE), participation ratio (PR), underwriter's reputation (UWR), auditor's quality (AQ), pre-IPO financial health (Z-Score) and company size (LNSales). Significant correlations are also reported between the amount of capital raised and all the independent variables, namely, board size (LNBZ), board independence (PND), ethnic Malay directors (EM) and CEO duality (CEODUA),

except the proportion of female directors (PFD) on the board. Specifically, the amount of capital raised is significantly and positively correlated with board size, board independence and board ethnicity, implying that an IPO with higher proportion of these sets of variables is more likely to raise a larger amount of capital in the market. This result is consistent with the earlier predictions in the hypothesis development section. To further confirm the correlation results, a regression analysis is carried out, the results of which are shown in Table 3.

. 4.3 Regression results

Table 3 presents the main regression results of the association between the amount of capital raised, board characteristics and the control variables. In the first phase of the regression analysis, the control variables are tested on the amount of capital raised, and the results appear in the second column. In the third column, the main explanatory variables are added to the control variables, while the fourth and fifth columns present the robust regression results. Other remaining columns provide results on the association between the amount of capital raised, the explanatory variables and the control variables with the aid of the QR technique.

The QR technique is employed to estimate the association between board characteristics as well as other control variables, and the amount of capital raised across quantiles (0.25, 0.50, and 0.75). The other results in the last column of Table 3 show the test for the presence of multicollinearity via the variance inflation factor (VIF). The results of the VIF show that multicollinearity is not a problem in this study because all the variables have a VIF below 2.0, which is within the cut-off threshold of 10 or less (Cryer and Miller, 1994; Cohen et al., 2013).

In the second column, a significant and positive association is found between the amount of capital raised and control variables, namely, company size (LNSales),

pre-IPO financial health (Z-Score) and underwriter's reputation (UWR). These variables are all significant at the 1% level. Additionally, a significant and negative association is found between the amount of capital raised and participation ratio (PR), while a non-significant relationship is reported between auditor's quality (AQ) and the amount of capital raised. This suggests that besides AQ, LNSales, Z-Score, UWR and PR, are significant determinants of the amount of capital raised through an IPO. Altogether, these variables explain 55% of the variance in the amount of capital raised.

The addition of the main explanatory variables of board size (LNBZ), proportion of non-executive directors (PND), proportion of female directors (PFD), proportion of ethnic Malays on the board (EM) and CEO duality (CEODUA) to the control variables increases the adjusted R^2 by 2%. However, the significance level of underwriter's reputation drops to 5% compared to the earlier reported 1%.

With respect to LNBZ, PND, PFD, EM and CEODUA, the OLS results show that only EM has a strong association with the amount of capital raised. Additionally, a weak association is found between PND and the amount of capital raised. However, the robust regression, which reduces the effect of outliers on regression estimators by smoothing the impact of outliers on the coefficient regression, reveals that LNBZ and EM have 5% and 1% levels of significance, respectively. These results suggest that board size (LNBZ) and ethnic Malay directors on the board (EM)[6] at the time of the IPO, have a strong positive influence on the amount of capital raised. These results provide support for the resource dependence role of the board of directors at the time of an IPO.

[6] To avoid bias in the results, the proportion of Chinese directors is included in the regression model. A negative relationship is found between this proportion and the amount of capital raised. This is consistent with Cheong and Sinnakkannu (2014) who find that company performance differs among ethnicities.

The other results presented in columns six to eight provide the association of each variable with the amount of capital raised across the conditional quantiles of the distribution of the amount of capital raised for θ = 0.25, θ = 0.50 and θ = 0.75. According to the results, differences exist in the significance of each variable across quantiles. For example, board independence (PND) and CEO duality (CEODUA) are insignificantly associated with the amount of capital raised in both the OLS and robust OLS results are found to be significantly and positively associated with the amount of capital raised at the upper quantile level (0.75).

Similarly, EM has a significant and positive association with the amount of capital raised at the 1% level of significance across quantiles (0.25, 0.50, and 0.75). However, LNBZ is found to have a 1% significance level at the upper quantile (0.75). Further, results presented in Table 3 show that company size (LNSales) is significantly and positively associated with the amount of capital raised across quantiles (0.25, 0.50, and 0.75). In contrast, participation ratio (PR) has a significant and negative association with amount of capital raised across quantiles, whereas the pre-IPO financial health (Z-Score) is only found to be significantly and positively associated with the amount of capital raised from the median (.50) and upper (0.75) quantiles.

The differences in the results suggest that estimating only the conditional mean of the amount of capital raised can be inappropriate because it does not provide more insights into the association of the variables that can explain the amount of capital raised. Therefore, estimating the effect of board characteristics on the amount of capital raised at different points is clearly needed because each quantile may be associated with different impacts. In fact, the QR results show that the impact of board characteristics differs across the quantiles in the conditional distribution of the amount of capital raised.

To show this, the impacts for all quantiles are graphically displayed in Figure 1. The Figure shows the plot of the coefficients of each variable along the vertical axis and the quantiles along the horizontal axis. The middle line of the shaded area in each graph reflects the coefficient estimates of the QR in different quantiles. The

dashed line in each graph provides the standard OLS estimate of the impact of the conditional mean. The shaded area reveals the confidence band for the QR estimate.

A look at Figure 1 indicates that the line in the middle has different patterns. Looking at the graph for the impact of the proportion of non-executive directors on the board on the amount of capital raised, the largest positive impact can be found in the upper quantile (0.75). In fact, the coefficients of the QR at all quantile levels are lower than the OLS estimate, except at the upper quantile level (0.75). The impact is significant and positive (0.75), whereas insignificant in the lower (0.25) and median quantile (0.50) levels, which is indicated by the wide band interval of confidence.

This illustration suggests that the QR technique results reveal the impact of the proportion of non-executive directors is different across quantiles, which cannot be revealed using OLS because it produces a single estimate that is conditional on the mean. Thus, the QR results reveal that the proportion of non-executive directors on the board at the time of the IPO is a critical resource mechanism for companies that raise a large amount of capital through an IPO, but not for low and median capital raising IPOs. This demonstrates that the resource dependence role of board independence is very crucial for companies that raise a large amount of capital through an IPO.

A similar description appears for CEO duality, which implies that CEO duality, as a resource dependence mechanism, plays a more vital role in companies that raise a large amount of capital than low and median capital raising companies.

5.0 Discussion

The board structure is a critical element that shows the ability of the board to influence corporate outcomes, one of which is the ability to access resources from the external environment (Johnson et al., 2013). This study investigates the impact of board characteristics on the amount of capital raised in the Malaysian IPO market. The results indicate that board size, proportion of non-executive directors and proportion of ethnic Malays on the board as well as CEO duality, are significantly associated with the amount of capital raised through an IPO.

The significance of board size confirms the assertion of the resource dependence theory that board size provides a link between the company and the external environment to generate resources, such as capital (Goodstein et al., 1994; Pfeffer, 1972, 1973). This is an indication of the number of links that a board has with the environment to raise capital. Thus, the positive relationship between board size and amount of capital raised in the upper quantile level indicates that companies engaged in an IPO are better off with large boards, which implies that each member of the board brings both expertise and resources to enable the company to connect to the external environment to secure capital. Other resources that may be provided by a larger board include access to technologies and raw materials to sustain the company (Ning et al., 2010).

All these results suggest that a large board can reduce the uncertainties surrounding an IPO and signals that a company has access to a wide range of resources via its board members. The board directors have diverse educational and industrial expertise that can enable the board to offer high-quality advice to management in making strategic decisions. This in turn can influence the market

valuation of the company and enhance its chances of raising a larger amount of capital through an IPO (Finkle, 1998; Zahra and Pearce, 1989).

The significance of the proportion of non-executive directors on the board at the time of an IPO also indicates that board independence can be considered as a value-creation instrument. A higher proportion of non-executive directors on the board sends a positive signal to the marketplace (i.e., investors and industry players) that the company is of good quality, a situation wherein investors can have confidence about their investment decisions (Certo et al., 2001).

This evidence supports the resource dependence theory that non-executive directors add value to a company in the form of the provision of resources, connections and reputation, all of which contribute to a company's competitive advantage and success (Hillman and Dalziel, 2003; Peffer and Salancik, 1978). Other studies have also indicated that non-executive directors provide companies with relevant knowledge and advice (Hillman et al., 2000; Roy, 2009) and access to strategically related external organisations that can provide them with large financial resources (Carpenter and Westphal, 2001; Pearce and Zahra, 1992; Chen et al., 2015). More importantly, the experience of non-executive directors serves as a critical source of human and social capital that can reduce the company's liabilities with respect to market newness (Kor and Misangyi, 2008). Therefore, IPO companies can benefit from valuable resources that independent directors can provide.

In contrast, a non-significant association is found between the proportion of female directors on the board and the amount of capital raised. This result does not provide support for the resource dependence theory that companies are more capable

of attracting and preserving a stream of resources from the external environment when female directors are on the board.

Interestingly, the proportion of ethnic Malay directors on the board is significantly related to the amount of capital raised virtually across all aspects of the analysis. This shows that ethnic Malays are more helpful in facilitating access to finance, and their presence on the board can serve as a resource-provisioning function. Therefore, this study concludes that the ethnic identity of board members can be highly impactful in connecting a company to the external environment (Hillman, 2014).

In addition, this study shows that ethnicity, rather than gender diversity, is important in a country like Malaysia. Hence, this study concurs with Carter et al.'s (2010) earlier statements that the importance and meaning of diversity differ across various countries. They claim that while gender diversity is important in Scandinavian and some European countries, such as Spain, ethnicity is important in other European countries.

Further results show that CEO duality has a significant and positive association with the amount of capital raised. This provides support for the resource dependence theory that having the role of the CEO and Chairman in the hands of a single individual increases the ability to secure critical resources needed for the long-term growth of the company (Pfeffer and Salancik, 1978). Therefore, potential investors will be more likely to value a company with CEO duality more highly at the time of IPO because this duality signals that a company is under an efficient and powerful leader who does not have to struggle with coalition factors in making decisions (Finkelstein and D'Aveni, 1994).

Consistent with the role of the board in securing resources for the company to grow and develop (Hillman and Dalziel, 2003; Pfeffer and Salancik, 1978), this study concludes that the board of directors is a value creation mechanism that provides valuable resources to the company, contributing to its chances of raising substantial amount of resources in the external environment.

With respect to control variables, evidence exists that company size, company's financial health and underwriter's reputation are significantly and positively associated with the amount of capital raised, while participation ratio has a significant and negative association with the amount of capital raised through an IPO. The positive sign associated with underwriter's reputation is consistent with William and Young (2012) and Zimmerman (2008) in the United States, which indicates that the reputation of the underwriter is crucial for IPO success. More importantly, the underwriter plays a significant role in mitigating information asymmetry between the issuers and potential investors.

Similarly, the significant and positive influence of pre-IPO financial health suggests that financially healthy companies are more likely to raise a larger amount of capital through an IPO. This indicates that the financial health of companies matters at the time of an IPO and can be a strong determinant of the amount of capital raised. This evidence is consistent with prior empirical studies, which have shown that pre-IPO financial performance influences the amount of capital raised (William and Young, 2012; Zimmerman, 2008). Therefore, IPO companies can use strong financial performance as a signal of good quality.

In addition to the company's financial health, the positive relationship between company size and the amount of capital raised suggests that investors' perceptions of the company's value or viability increases with company size. This

result is similar to that of several studies on IPO value (Deeds et al. 1997; Finkle, 1998; Quintana-García and Benavides-Velasco, 2015).

However, a negative association is found between participation ratio and the amount of capital raised through an IPO, which indicates that an offer with a large fraction of existing shares reduces the amount of capital raised. Logically, this is so because the amount of capital raised is a function of primary shares multiplied by the offer price.

Furthermore, the effect of company age on IPO proceeds is insignificant, which may be because the effect of age may be incorporated into the effect of firm size, as older firms tend to be larger (Quintana-García and Benavides-Velasco, 2015).

5.1 Robustness tests

Further robustness tests using the common measures of initial market value of the company (e.g., Tobin's Q and EV to sales) show some interesting results. The results are presented in Tables 4-6. Notably, the board ethnicity variable remains positive and significant across the various regression models. This indicates that ethnicity is not only an important determinant of the amount of capital raised, but also of the initial market value of IPO companies. Based on these findings, a conclusion can be made that ethnicity, in terms of ethnic Malays, adds much value to the company.

Besides the significant and positive association found between ethnicity and the amount of capital raised, the proportion of female directors on the board is only found to be significantly and positively associated with the amount of capital raised when the initial market value measure is EV to sales. This suggests that female

directorship may not be really related to market-based measures or the notion that the stock market values female representation on a board. Therefore, the impact of gender diversity in corporate boardrooms remains contentious. Extant literature has documented that the association between gender diversity and market measures is mixed (Abdullah and Ku Ismail, 2013; Badru et al., 2015). Some have found it to be detrimental (Adams and Ferreira, 2009), whilst others have found it to be insignificant (Carter et al., 2010; Rose, 2007).

Consistent with Bertoni et al. (2014), this study finds that board size has a positive influence on the initial market value of IPO companies. The summation of these findings is that the proportion of ethnic Malays on the board can be considered as a significant factor that determines the initial market value of IPO companies, while board size and female representation on the board have minimal influence on the initial market value of IPO companies.

Conclusion

The general aim of this study is to investigate the impact of board characteristics on the amount of capital raised in the Malaysian IPO market by employing both the OLS and QR techniques. Specifically, the study considers the impact of board size, board independence, board gender, board ethnicity, CEO duality and other control variables. More importantly, this study explores the resource dependence role of board gender and ethnicity, which are currently lacking in the literature.

This study also differs from prior studies that have mainly analysed the impact of board size, board independence and CEO duality using conditional mean

regression estimates. Conversely, the QR estimates produce different estimates at conditional quantiles, which allow this study to identify the full association of board characteristics with the amount of capital raised and other proxies for initial market value of the company.

The results show that the proportion of ethnic Malays on the board has a significant influence on the amount of capital raised and the initial market value of companies, indicating that having Malay directors on the board is vital for connecting the company to the society. However, board size, board independence and CEO duality are associated with the amount of capital raised in the upper quantile level. The implication of the result suggests that a larger board has the potential to mitigate information asymmetry between IPO issuers and likely investors. It also suggests that a larger board benefits companies by providing access to more external resources. In a similar vein, independence of board members is also perceived by investors as signal of the company's quality. Hence, board size, a higher proportion of non-executive directors on the board and CEO duality are beneficial to a company at the time of an IPO and can be used by issuers as a signal of the company's quality.

Overall, these empirical results demonstrate that board structure is a crucial asset that can assist a company to secure resources and contribute to its sustained value creation because the board considers the task of generating capital as its main priority when going public. By implication, issuers can consider board characteristics, as a link to the external environment because the most crucial task of the board is to provide advice and access to financial capital.

In addition, consistent with Sanders and Boivie (2004), investors can use certain characteristics of the board as resource and signalling mechanisms and

market sorting criteria, especially in an emerging market setting, like Malaysia, where severe information asymmetry and uncertainty about company value exist. Therefore, the board of directors can reduce uncertainty about a company by providing connections to the marketplace, which can increase a company's legitimacy and contribute to its competitive advantage.

A takeaway from these findings is that companies at different quantiles should pay specific attention to certain important board variables to be able to penetrate the IPO market and raise sufficiently amounts of capital. The findings are also valuable for investors for making investment decisions and for IPO issuers to provide signals that would mimic their quality. This study further indicates that the institutional context could play a role in shaping the influence of board structure on the amount of capital raised and therefore concludes that ethnicity is more crucial than gender diversity in the Malaysian IPO context.

Notwithstanding the above, the present study suffers from limitations. The objective of issuers is not solely focused on the maximisation of IPO proceeds, but also on future sales and side payments, which tend to be maximised by offering underpriced shares (Loughran and Ritter, 2004). However, recent literature on IPO underpricing in Malaysia has documented a decrease in the average amount of IPO underpricing. Therefore, whether the objective function of Malaysian issuers differs is yet to be known. Future studies should use the Herfindahl-Hirshman Index (HHI), often referred to as the Blau Index of Heterogeneity, to test how the level of board diversity could explain the amount of capital raised and the initial market value of a company. This would allow researchers to see more clearly how the stock market perceives ethnic diversity on corporate boards at the time of an IPO. Another avenue

for future research is to explore whether board members' political connections and educational qualifications have an influence on the amount of capital raised.

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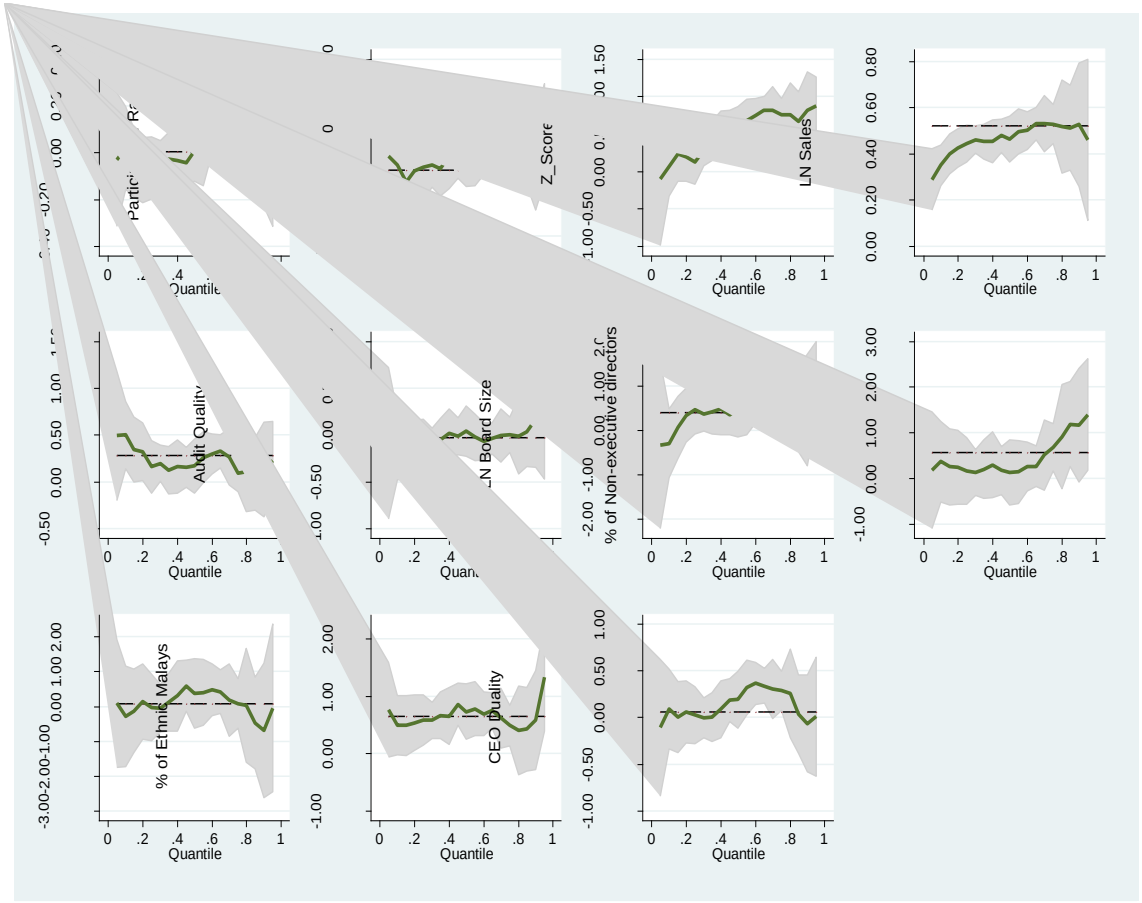

Figure 1. Estimates for all variables used for the regression analysis.

Table 1
Descriptive Statistics of all Variables

Variable	Mean	Median	Max	SD	Skewness	Kurtosis
Net Proceeds in RM Millions	84.96	16.91	4299	357.98	8.69	92.77
Ln Net Proceeds (NP)	3.08	2.83	8.37	1.18	1.71	6.92
Tobin's Q at offer price	2.67	1.93	17.34	2.05	2.90	16.05
Tobin's Q at opening price	3.00	2.18	19.02	2.57	3.06	15.56
EV/Sales	33.77	3.63	6113.04	411.81	14.72	217.85
Company Age	4.83	2.00	37.00	6.67	2.61	10.13
Ln Company Age (LNCAGE)	0.97	0.69	3.61	1.02	0.79	2.67
Participation Ratio (%) (PR)	21.73	11.14	83.33	0.25	0.74	2.24

Z-Score	1.93	1.81	6.71	1.04	0.42	6.95
Sales in RM Millions	212.97	51.20	7,474.85	737.27	7.25	61.21
Ln Sales (LNSales)	17.75	17.76	22.73	1.56	0.30	3.27
Board Size	6.86	7.00	13.00	1.53	0.87	4.19
Ln Board Size (LNBZ)	1.90	1.95	2.56	0.22	0.20	3.04
Non-executive Directors	4.17	4.00	13.00	1.84	1.38	5.45
Non-executive Directors (%) (PND)	60.51	57.12	100.00	0.20	0.60	2.43
Female Directors	0.60	0.00	4.00	0.85	1.63	5.89
Female Directors (%) (PFD)	9.00	0.00	50.00	0.12	1.48	4.87
Malay Directors (%) (EM)	30.00	20.00	100.00	0.28	0.99	3.18
Chinese Directors (%)	58.00	60.00	100.00	0.30	-0.35	2.08
CEO duality (CEODUA)	0.26	0.00	1.00	0.19	1.10	0.44

Binary variables

Variable	**0**	**Percentage**	**1**	**Percentage**
CEODUA	164	74	57	26
Underwriter's reputation (UWR)	60	27	161	73
Auditor's quality (AQ)	130	59	91	41
Female dummy	126	57	95	43

Notes: NP represents the net amount of capital raised; Tobin's Q is the ratio of market value of assets to book value of assets; EV/Sales, where EV is the sum of book value of assets and market value of common stock minus book value of common stock; LNCAGE represents the natural logarithm of year of incorporation to the listing year; PR is the ratio of secondary shares offered to IPO volume; UWR is a dummy variable of 1 for a highly reputable underwriter, otherwise 0; AQ is a dummy variable of 1 for a high quality auditor, otherwise 0; Z-Score is the continuous value derived from the Altman Z-Score model in model 2; LNSales is the natural logarithm of pre-IPO total sales; LNBZ is the natural logarithm of the total number of board members PND is the proportion of non-executive directors to total number of directors; PFD is the proportion of female directors to total number of directors; EM is the proportion of ethnic Malays to total number of directors; CEODUA represents a dummy variable of 1 for an IPO where a single person is both the CEO and board Chairperson; and Ln represents natural logarithm of the variables.

Table 2
Correlation Results

Variable	1	2	3	4	5	6	7	8	9	10	11	12
NP (1)	1.00											
LNCAGE (2)	0.24***	1.00										
PR (3)	0.19***	0.12*	1.00									
UWR(4)	0.16**	-0.01	0.01	1.00								
AQ (5)	0.20***	0.07	0.11	0.12*	1.00							
Z-Score (6)	0.25***	0.19***	0.10	0.08	0.24**	1.00						
LNSales (7)	0.69***	0.26***	0.48***	0.01	0.19***	0.03	1.00					
LBZ (8)	0.28***	0.16**	0.08	0.08	0.19***	-0.19***	0.26***	1.00				
PND (9)	0.38***	0.19***	0.14**	0.25***	0.10	-0.14**	0.28***	0.11	1.00			
PFD (10)	0.04	0.02	0.04	0.06	0.00	0.04	0.09	0.06	0.03	0.04	1.00	
EM (11)	0.33***	0.10	0.08	0.02	0.13*	-0.11	0.19***	0.11*	0.35***	-0.28	1.00	
CEODUA (12)	-0.24***	-0.16**	-0.03	-0.08	0.01	0.14**	-0.23	-0.14**	-0.27***	-0.08	-0.25***	1.00

Notes: NP represents the net amount of capital raised; LNCAGE represents the natural logarithm of year of incorporation to the listing year; PR is the ratio of secondary shares offered to IPO volume; UWR is a dummy variable of 1 for a highly reputable underwriter, otherwise 0; AQ is a dummy variable of 1 for a high quality auditor, otherwise 0; Z-Score is the continuous value derived from the Altman Z-Score model in model 2; LNSales is the natural logarithm of pre-IPO total sales; LNBZ is the natural logarithm of the total number of board members PIND is the proportion of non-executive directors to total number of directors; PFD is the proportion of female directors to total number of directors; EM is the proportion of ethnic Malays to total number of directors; CEODUA represents a

dummy variable of 1 for an IPO where a single person is both the CEO and board Chairperson. In addition, *, **, *** represent statistical significance at the 10, 5 and 1% levels, respectively.

Table 3
Ordinary Least Squares Regression and Quantile Regression Results Using IPO Proceeds

Variable	**OLS Regression**				**Quantile Regression**				**VIF**
	OLS	OLS	HB Robust	MM Robust	0.25	0.50	0.75	Robust Q	
LNCAGE	0.03	0.00	-0.00	-0.05	-0.07	0.01	0.07	0.01	1.14
PR	-0.91***	-0.88***	-0.75***	-0.54*	-0.84***	-0.61**	-0.47**	-0.61**	1.32
UWR	0.35***	0.28**	0.22*	0.12	0.16	0.17	0.09	0.17	1.10
AQ	0.02	-0.03	-0.02	0.04	-0.09	0.04	0.00	0.04	1.16
Z-Score	0.60***	0.53***	0.53***	0.24	0.12	0.56***	0.76***	0.56***	1.17
LNSales	0.57***	0.52***	0.49***	0.35***	0.44***	0.46***	0.53***	0.46***	1.60
LNBZ		0.40	0.59**	0.71**	0.47*	0.46	0.76***	0.46	1.13
PND		0.57*	0.31	-0.23	0.17	0.13	0.68***	0.13	1.36
PFD		0.08	0.27	0.48	-0.04	0.37	0.08	0.37	1.05
EM		0.64***	0.53***	0.58***	0.58***	0.73***	0.49***	0.73***	1.22
CEODUA		0.06	0.09	0.06	0.02	0.19	0.28***	0.19	1.19
Constant	-7.26***	-7.63***		-4.78***	-6.34***	-6.61***	-8.15***	-6.61***	
Mean VIF									1.22
R^2(AdjustR^2) %	56 (55)	60 (58)							
Pseudo R^2 %					23	31	42		

Notes: LNCAGE represents the natural logarithm of year of incorporation to the listing year; PR is the ratio of secondary shares offered to IPO volume; UWR is a dummy variable of 1 for a highly reputable underwriter, otherwise 0; AQ is a dummy variable of 1 for a high quality auditor, otherwise 0; Z-Score is the continuous value derived from the Altman Z-Score model in model 2; LNSales is the natural logarithm of pre-IPO total sales; LNBZ is the natural logarithm of the total number of board

members; PND is the proportion of non-executive directors to total number of directors; PFD is the proportion of female directors to total number of directors; EM is the proportion of ethnic Malays to total number of directors; CEODUA represents a dummy variable of 1 for IPO where a single person is both the CEO and board Chairperson. In addition, *, **, *** represent statistical significance at 10, 5 and 1% levels, respectively.

Table 4
Ordinary Least Squares Regression and Quantile Regression Results Using Tobin's Q at Offer Price

Variable	**OLS Regression**			**Quantile Regression**			
	OLS	**HB Robust**	**MM Robust**	**0.25**	**0.50**	**0.75**	**Robust Q**
LNCAGE	-0.11	-0.07	-0.01	-0.04	-0.08	-0.19	-0.08
PR	-0.92*	-0.66	-0.44*	-0.14	-0.74***	-1.67**	-0.74*
UWR	0.15	0.10	0.18*	0.21**	-0.02	0.32	-0.02
AQ	-0.05	0.10	-0.09	-0.01	0.11	0.21	0.11
Z-Score	0.65***	0.39***	0.27**	0.42***	0.44***	0.96***	0.44***
LNSales	-0.58***	-0.36***	-0.22***	-0.36***	-0.43***	-0.45***	-0.43***
LNBZ	0.10	0.05	-0.01	0.09	0.04	0.42	0.04
PND	0.21	0.59	0.35	-0.01	0.08	1.81	0.08
PFD	0.67	0.05	-0.31	0.02	0.13	0.25	0.13
EM	1.28***	0.57**	0.50***	0.53***	0.75***	1.24*	0.75*
CEODUA	0.01	0.07	0.05	-0.03	0.08	-0.04	0.08
Constant	11.24***	7.34***	4.96	6.85***	8.86***	7.50**	8.86***

R^2(AdjustR^2)%	36 (33)						
Pseudo R^2 %				16	21	27	

Notes: LNCAGE represents the natural logarithm of year of incorporation to the listing year; PR is the ratio of secondary shares offered to IPO volume; UWR is a dummy variable of 1 for a highly reputable underwriter, otherwise 0; AQ is a dummy variable of 1 for a high quality auditor, otherwise 0; Z-Score is the continuous value derived from the Altman Z-Score model in model 2; LNSales is the natural logarithm of pre-IPO total sales; LNBZ is the natural logarithm of the total number of board members; PND is the proportion of non-executive directors to total number of directors; PFD is the proportion of female directors to total number of directors; EM is the proportion of ethnic Malays to total number of directors; CEODUA represents a dummy variable of 1 for IPO where a single person is both the CEO and board Chairperson. In addition, *, **, *** represent statistical significance at the 10, 5 and 1% levels, respectively.

Table 5

Ordinary Least Squares Regression and Quantile Regression Results Using Tobin's Q at Opening Price

Variable	**OLS Regression**			**Quantile Regression**			
	OLS	**HB Robust**	**MM Robust**	**0.25**	**0.50**	**0.75**	**Robust Q**
LNCAGE	-0.04	-0.06	-0.04	-0.07	-0.10	-0.36*	-0.10
PR	-1.29*	-0.74**	-0.62*	-0.24	-1.06***	-1.89**	-1.06**
UWR	0.02	0.43***	0.33*	0.29**	0.36**	0.10	0.36
AQ	0.55*	-0.19	-0.16	-0.07	0.12	0.13	0.12
Z-Score	0.63***	0.41***	0.28***	0.42***	0.54***	0.81***	0.54***
LNSales	-0.70***	-0.35***	-0.37***	-0.43***	-0.43***	-0.48***	-0.43***
LNBZ	-1.46**	0.14	0.38	0.34	-0.48	-0.21	-0.48
PND	0.28	0.32	-0.08	-0.17	-0.07	1.88*	-0.07
PFD	-0.02	-0.06	-0.14	0.28	-0.46	1.25	-0.46
EM	1.05*	0.68**	0.53**	0.55***	0.77***	1.48**	0.77**
CEODUA	-0.47	-0.10	-0.15	-0.18	-0.15	-0.29	-0.15
Constant	16.66***	7.14***	7.39***	7.84***	9.78***	9.92***	9.78***
R^2(AdjustR^2)%	31 (28)			15	21	22	
Pseudo R^2 %							

Notes: LNCAGE represents the natural logarithm of year of incorporation to the listing year; PR is the ratio of secondary shares offered to IPO volume; UWR is a dummy variable of 1 for a highly reputable underwriter, otherwise 0; AQ is a dummy variable of 1 for a high quality auditor, otherwise 0; Z-Score is the continuous value derived from the Altman Z-Score model in model 2; LNSales is the natural logarithm of pre-IPO total sales; LNBZ is the natural logarithm of the total number of board members; PIND is the proportion of non-executive directors to total number of directors; PFD is the proportion of female directors to total number of directors; EM is the proportion of ethnic Malays to total number of directors; CEODUA represents a dummy variable of 1 for IPO where a single person is both the CEO and board Chairperson. In addition, *, **, *** represent statistical significance at the 10, 5 and 1% levels, respectively.

Table 6

Ordinary Least Squares Regression and Quantile Regression Results Using EV to Sales

Variable	**OLS Regression**			**Quantile Regression**			
	OLS	**HB Robust**	**MM Robust**	**0.25**	**0.50**	**0.75**	**Robust Q**
LNCAGE	12.78	0.18	0.15	0.07	0.03	0.26	0.03
PR	35.69	-0.72	-0.13	0.15	-1.14**	0.44	-1.14*
UWR	6.72	0.45	0.34	0.11	0.34	1.24	0.34
AQ	92.18	-0.82**	-0.73**	-0.65**	-0.72***	-0.35	-0.72*
Z-Score	63.06	3.16***	1.58***	1.65***	3.68***	4.84***	3.68***
LNSales	-62.47***	-1.39***	-1.05***	-1.35***	-1.41***	-2.19***	-1.41***
LNBZ	-149.83	1.48*	1.26*	1.53**	2.31***	3.36*	2.31**
PND	184.23	0.91	0.09	0.95	0.69	3.39*	0.69
PFD	-84.68	1.64	1.59	1.93*	2.23**	2.08	2.23
EM	3.74	2.14***	2.07***	1.43***	1.95***	1.84	1.95**
CEODUA	-63.84	-0.01	0.38	0.19	-0.03	0.24	-0.03
Constant	1258.74***	24.42***	18.64***	22.68***	23.44***	34.50	23.44
R^2(AdjustR^2)%	7 (3)						
Pseudo R^2 %				3	3	3	

Notes: LNCAGE represents the natural logarithm of year of incorporation to the listing year; PR is the ratio of secondary shares offered to IPO volume; UWR is a dummy variable of 1 for a highly

reputable underwriter, otherwise 0; AQ is a dummy variable of 1 for a high quality auditor, otherwise 0; Z-Score is the continuous value derived from the Altman Z-Score model in model 2; LNSales is the natural logarithm of pre-IPO total sales; LNBZ is the natural logarithm of the total number of board members; PIND is the proportion of non-executive directors to total number of directors; PFD is the proportion of female directors to total number of directors; EM is the proportion of ethnic Malays to total number of directors; CEODUA represents a dummy variable of 1 for IPO where a single person is both the CEO and board Chairperson. In addition, *, **, *** represent statistical significance at the 10, 5 and 1% levels, respectively.