*International*
*Journal*
*Of Advanced Research in Engineering& Management (IJAREM)*
*ISSN: 2456-2033 || PP. 09-21*

# Entrepreneurs are not the Same: Investigation the Impact of Business Network and Human Capital on Business Performance

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**Abstract:** This paper aims to investigate the (1) impact of business network on business performance, and (2) the moderating impact of human capital on the relationship between business network and business performance in the Malaysian manufacturing Small and Medium Enterprises (SMEs). The research data were collected through mail and self-administered questionnaires sent to owner-manager around Malaysia. A stratified random sampling was used which elicited 226 (15%) useable responses for further analysis. Out of twelve hypotheses presented, only four were supported; (1) the significant positive effect of network centrality on financial business performance, (2) the significant positive effect of network centrality on non-financial business performance, (3) age of entrepreneur as a moderator on the relationship between network centrality and non-financial business performance, (4) gender as a moderator on the relationship between network size and financial business performance. The study advances research on strategic business network for SME entrepreneurs particularly. Besides, there is still a shortage of research applying the moderating impact of human capital on the relationship between business network and business performance. Thus, this study contributes significantly to the body of knowledge especially to the manufacturing industry.

**Keywords:** Business network, human capital, business performance, SMEs

## I. INTRODUCTION

This paper focuses on the direct relation between business network and business performance; besides to explore the potential moderating impact of human capital on said relationship in SMEs in Malaysia. Business network is defined as a relationship between entrepreneurs and their alter/s (Hoang and Antoncic, 2003). This network in terms of alter/s may include family members, friends, relatives and business contacts (Birley, 1985; Brown and Butler, 1995; Das and Teng, 1997; Premaratne, 2001; Sequeira, Mueller and McGee, 2007). Entrepreneurs are more likely to achieve success in business when they embed in the business network to gain the material and non-material supports (Premaratne, 2001) and benefits such as firm's market, brand, legitimacy, reputation and innovation (Nybakk, Vennesland, Hansen and Lunnan, 2008; Sepulveda and Gabrielsson, 2013).

Prior research on business network-based theme revealed that effect of business network on business performance (Jenssen and Koenig, 2002; Premaratne, 2001; Maduperruma, 2010; Nybakk, Lunnan, Jenssen and Crespell, 2013). However, no serious research investigates the moderating impact of human capital on the relationship between business network and business performance. Previous researches examine the human capital which influences the business performance because it plays vital roles to entrepreneurial activities (Mazzarol, Volery, Doss and Thein, 1999; Rosa, Carter and Hamilton, 1996). This paper seeks to understand the roles of business network and human capital in contributing to the business performance for SMEs.

The following two main research questions are addressed in this study: (1) To what extent does business network impact business performance? (2) To what extent does human capital moderate the relationship between business network and business performance? Based on a literature review of business network and resource-based view (RBV), we propose analyses with twelve hypotheses and will be empirically tested by using the regression technique.

The structure of the paper is as follows. After the introduction, this paper reviews the literature of the underpinning theories; network theory and resource-based view (RBV). The following sections discuss the

development of the hypotheses, research methodology, data analysis and the results. Finally, the discussion of the findings' implications for theory, entrepreneurs and policy maker.

## II. LITERATURE REVIEW

### 2.1 Network Theory

Since 1970s, the business network-based studies have focused on sociological perspectives that examined the ties between the persons involved. Granovetter (1973) who proposed the strong and weak ties theory has argued the ties focus on the types of connections between the individuals and how they influenced the flow of resources. After the emerging of the strong and weak ties theory, the resource dependency theory was come forward that explains the exchange mechanism involved whilst gathering the important resources (Aldrich and Pfeffer, 1976; Pfeffer and Salancik, 1978). The sociological perspective has advanced and developed into a new theme, namely social capital theory as popularised by Bourdieu (1980) cited in Siisiainen (2000). Essentially, the social capital theory is associated with the structure in the network and elaborates on the functions of reciprocity between two parties; ego (the person whose network being studied) and alter (the person who interact with ego) (Burt, 1992; Coleman, 1988; Putnam, 2000). Then, the business network research began to garner the scholars' interest in facilitating the entrepreneurs' activities for firm's development (Birley, 1985).

The basis of network theory in the business explains that the individuals need to socialize through his/her business contacts for business survival (Chin, Hamid, Rasli and Tat, 2014). Due to the turbulence in current's business environment, a business network is accepted as a tool for securing important resources from the alters (Tehseen, Qureshi and Ramayah, 2018). This network is usually governed by a reciprocal relationship and trust (Sepulveda and Gabrielsson, 2013). Members of the business network trust one another to abide by the terms of the network into which they voluntarily enter. This trust is based on repeated interactions, exchange of resources and shared expectations of behaviour which is strengthened by the accepted norms of the network (Jenssen and Koenig, 2002). People in the clique who trust one another in social relations are what constitute a business network (Sengupta, 2011).

### 2.2 Resource-based View (RBV) Theory

A lot of attentions are focused on human capital in entrepreneurship research as it enhances the business performance (Coleman, 2007; Haber and Reichel, 2007). The RBV theory explains the use of the internal resources as a strength for firm to compete in the business (Alvarez and Busenitz, 2001, Barney, 1991; Grant, 1991). According to Barney (1991), the scholar proposes that a firm's resources should be valuable, rare, imperfectly imitable and non-substitutable (VRIS) to generate sustained competitive advantage. For example, an innovative entrepreneur who has incorporated a phone and fax to the normal photocopy machine is viewed employing a strategic resource because of its capability to improve the performance of the original device. In this situation, the value of this particular resource is immeasurable to other firms and the employer thus gains competitive advantage.

We propose two elements of human capital namely gender and age of the entrepreneurs into the analysis and act as moderators. We therefore define the human capital as the innate capability possessed by the entrepreneurs that enable them to act in new ways. The internal firms' resources such as the said two elements can be used to overcome the internal weaknesses especially on poor management and therefore strategically to position their organization in the market. Furthermore, research found that gender and age of entrepreneurs are important factors in determining business performance (Mazzarol et al., 1999; Yusof, 2003).

### 2.3 Direct Relationship between Network Size and Business Performance

Scholars have recognised the benefit of having a business network. For example, business networks resulted on increasing on firm's revenue (Maduperruma, 2010), enhancing firm's innovation activities (Cantner and Joel, 2011; Nybakk et al., 2013) and increasing on resource accessibility in terms of knowledge and feedback (Jangongo and Kinyua, 2013). Indeed, having a business network is vital especially to the new firm to avoid the liabilities of newness syndrome (Kamaruddin et al., 2018).

The business network theme is largely associated with the network size and centrality. The larger the network size, the more resources are made available to the entrepreneur (Greve and Salaff, 2003). Having diverse networks offers the entrepreneurs information channels which would have been previously inaccessible to them. Scholars posit the network size is positively affected business performance (Madurapperuma, 2010; Nybakk et al., 2013). Meanwhile, network centrality is referring to the position of the ego in the social network

(Liu and Ipey, 2010). A central position will allow the entrepreneur to interact with diverse alters, thus increasing the accessibility to different resources (Surin and Wahab, 2013). Scholars also found that network centrality acts as a bridge in transferring a technological knowledge and led to more innovative success (Cantner and Joel, 2011). Previous discussion signifies the importance of business network for firm performance and leads to the following hypotheses;

**$H_{1a}$** There is a positive relationship between network size and financial business performance
**$H_{1b}$** There is a positive relationship between network size and non-financial business performance

**2.4 Direct Relationship between Network Centrality and Business Performance**

Network centrality refers to the position of the ego in the social network (Liu and Ipey, 2010). The more central the position of the ego, the less dependent he/she will be on a single relation (Cook and Emerson, 1978). A central position will allow the entrepreneur to interact with diverse alters, thus increasing the accessibility to different resources. The entrepreneur in this key position will be able to gain faster access and control the information transfer to others (Mehra, Kilduff and Brass, 2001). The centrality of the ego may serve to acquire the novel information from weak ties (non-frequent contacts) during networking (Granovetter, 1973).

The literatures have emphasised the importance of network centrality to the business performance. For example, Sparrowe, Liden, Wayne and Kraimer (2001) discovered that a central position in the social network will increase the individual's performance as well as improve business performance. Similarly, scholars also found that network centrality acts as a bridge in transferring a technological knowledge and led to more innovative success (Cantner and Joel, 2011).

**$H_{2a}$** There is a positive relationship between network centrality and financial business performance
**$H_{2b}$** There is a positive relationship between network centrality and non-financial business performance

**2.5 Moderating Role of Human Capital**

Past researches have shown how 'fit' between business network and human capital to influence the business performance (Cantner and Stuetzer, 2010; Naala et al., 2019). In this manner, embed on a strategic business network alone does not guarantee in enhancing a firm performance. It is much depending on how well firm's capability been used to exploit the opportunities. Due to the variability level in human capital will result to significant differences in venture achievement (Bhagavatula, 2009). Scholars forward the arguments that higher level for human capital will lead to the higher level of firm performance (Gates and Langevin, 2010; Samad, 2010). In this study, two elements of human capital are introduced; age of entrepreneurs and gender.

H3a The age of the entrepreneurs moderates the relationship between network size and financial business performance
H3b The age of the entrepreneurs moderates the relationship between network size and non-financial business performance
H3c The age of the entrepreneurs moderates the relationship between network centrality and financial business performance
H3d The age of the entrepreneurs moderates the relationship between network centrality and non-financial business performance
H4a Gender moderates the relationship between network size and financial business performance
H4b Gender moderates the relationship between network size and non-financial business performance
H4c Gender moderates the relationship between network centrality and financial business performance
H4d Gender moderates the relationship between network centrality and non-financial business performance

## III. RESEARCH METHOD

**3.1 Research Setting, Population and Sample**

This study focuses on SMEs manufacturing sector. The choice on this sector is due to their large numbers and significant contributions to the nation's economy (Long and Wan Ismail, 2008). Their huge presence in various economic activities and the significant amount of goods and services produced are evidence that they are an important part of the economy. Additionally, a social network-based research is likely to be more valid by using a single-industry study where the network emphasises strategic critical linkages (Hoang and

Antoncic, 2003). The choice to study the manufacturing industry is valid as this industry strongly effects economic growth.

The sample of manufacturing companies was compiled through the following sources; (a) SME Corporation Malaysia, (b) Federation of Malaysian Manufacturers (FFM), and (c) Malaysia External Trade Development Corporation (MATRADE). The original population consists of 5576 firms around Malaysia. The stratified random sampling was used to select the sample (n= 357) by using Krejie and Morgan (1970) table. The firms then been categorised based on their geographical zones (North, South, East, Central and West). Past research indicated that these methods allowed the fair representation of Malaysian SMEs for each region (Ismail, Ishak, Karim and Ismail, 2010).

The current research utilised mailed questionnaires and self-administered questionnaires to obtain data from the sample companies in Malaysia. Due to budget restriction, the self-administered questionnaire was only gathered from the Western region with respondent consent prior to the researcher sending them questionnaires. Western region was chosen due to their enormous numbers of SME firms compared to other regions. Through this method, busy respondents may complete the questionnaire in their leisure without interviewer interference. Previous research had adopted this method to boost response rates (Mat Nor, Ibrahim, Haron, Ibrahim and Alias, 2012). Others methods to increase response rate, the follow-up mail was sent four weeks after the initial questionnaire. In addition, due to cost constraints, only fifty postcards were also posted after sixteen weeks after the initial questionnaire. Overall, 226 respondents (15%) have completed the questionnaires; among them, 57.1 percent male. The Malays ethnic group predominated with 87.6 percent of respondents. This was followed by the Chinese (11.5%) and Indian groups (0.9%).

**3.2 Operalisation of Variables**

The scales used are followed the prior research. The network size is measured through the self-generated answers by the respondents to indicate the number of contacts. This method was adopted from Greve (1995). This technique was requested respondents to estimate the number of people that they interacted with to discuss important business matters. For network centrality, the entrepreneurs were asked to list down five names of alters they had been in contact with over the last month. In general, respondents are usually required to name five important alters that they interact with whilst running the business (Greve, 1995). Then, the respondents were asked his/her position on three items from Frazier's (2000). The items are measured by using a 5-points Likert type scale (1=strongly disagree, 5=strongly agree).

The business performance was operationalised by two factors; financial and non-financial. For financial business performance, we used four items; sales growth, net profit growth, market share growth and cash flow growth. The items were adopted from Ahmad (2007) by using the subjective measure. The respondents were then asked to rate the items using a 5-points Likert type scale (1= decreasing rate, 5= increasing significantly). For non-financial business performance, the modified items were adopted from Lee and Lee (2007) and were rated using the 5 points Likert scale. In this scale, 5 points signify strong agreement whilst 1 point shows that the entrepreneurs strongly disagreed. Lee and Lee reported a high internal consistency alpha of 0.94 in their research.

The human capital is represented by two variables; entrepreneur's age and gender. Entrepreneur's age is measured on ordinal scale (1= below 25, 6= above 45). Respondents also were asked to rate their gender (0= female, 1= male).

Since business performance can be impacted by many factors, control variables must be put in place to ensure the validity of data. The control variables include firm size, firm age and parental business history. Firm size is measured by the number of fulltime employees (Majumdar, 1997). Firm age is measured from the date of the firm's incorporation. Finally, previous research also indicated that entrepreneurs who have parents who were previously or currently involved in business are more successful in their ventures (Davidson and Honig, 2003). This variable is a binary variable, with their parents are not run the business coded as "zero" and "one" if their parents have established the business.

**3.3 Analyses**

Multivariate data analysis requires the data to comply with certain assumptions which include measurement scales, ratio of cases to independent variables, sample size requirements, outliers, homoscedasticity, multicollinearity and linearity. Therefore, there is a need to ensure that data meets the requirements for multivariate analysis prior to hypothesis testing. This study followed the recommendations provided by Hair, Black, Babin and Anderson (2010).

The process of validity consists of content validity, construct validity and convergent validity. The content validity process involved the questionnaires checking thoroughly by a panel of experts in the area of entrepreneurship and SMEs in Malaysia. The academics thoroughly examined the definition and operationalisation of the variables used. The study also engaged five SMEs entrepreneurs to screen the items.

Although the scales were validated by previous scholars, the possibility of trial bias could occur due to different testing settings for construct validity. This process involves two steps which include the Kaiser-Meyer-Olkin (KMO) and factor loading. The value of KMO of more than 0.6 is suitable and is recommended prior to conducting the next step (Kaiser, 1974). Principle axis factoring is used to determine the number of eigenvalues for each variable. The factor with a Kaiser's eigenvalue of more than 1 was used to determine the number of the factor.

For convergent validity, the Varimax rotation was used to classify the measure for each variable. As the sample size was above 200, the rule of thumb suggested that only variables with a loading of. 0.40 and above were representative of the variables studied and were hence retained (Hair et al., 2010). Through this process, the business performance variable sorted out two factors; financial and non-financial business performance. The summary of factor analysis is portrays in Table I.

Table I: Factor Analysis of Business Performance

| **Items** | **Factor Loading** |
|---|---|
| **Factor 1: Financial business performance** | |
| 1. Sales growth | .841 |
| 2. Net profit growth | .849 |
| 3. Market share growth | .617 |
| 4. Cash flow growth | .833 |
| | |
| **Factor 2: Non-financial business performance** | |
| 1. My firm is successful to increase employee productivity | .596 |
| 2. My firm is successful in increasing the yield of products | .729 |
| 3. My firm is successful in keeping the consistency of product quality | .693 |
| 4. My firm is successful in cutting production time of a product | .552 |
| 5. My firm has the capability to produce product variety | .413 |
| 6. My firm has the capability to increase production rate quickly | .658 |

This study defines reliability as measurements for a particular test that are repeatable and produce equivalent results even when distributed amongst different people (Nunnally, 1970). It implies that the measurement of variables should consistently produce results that are repeatable. Cronbach's alpha (α) is a perfect measure of reliability. The α-values of variables are shown in Table II. The Cronbach alphas for all variables except age of entrepreneur and network size are above 0.70 as recommended by Hair et al. (2010) and Sekaran (2003). Hence, the variables were considered reliable.

Table II: Reliability Assessment for the Variable Understudy

| **Variables** | **Cronbach Alpha (α)** |
|---|---|
| 1. Age of entrepreneur | - |
| 2. Network size | - |
| 3. Network centrality | .714 |
| 4. Financial business performance | .877 |
| 5. Non-financial business performance | .720 |

## IV. FINDINGS

### 4.1 Descriptive Analyses

The profile of the firms is presented in Table III. The table indicates that most of the firms operated in Western region (31.4%), followed by Southern region (25.3%), Northern region (20%), Central region (18.5%) and Eastern region (4.8%). Meanwhile, majority of businesses (60.6%) in this study came from the food and beverage sector, followed by wood-based product (15.9%), textiles, apparel and leather (9.3%), rubber-based

product (2.7%), plastic products (2.2%), electric and electronic (1.8%) and paper and printing (0.4%). Approximately 7.1 percent of the respondents indicated their firms were in other sectors, representing a combination of businesses in wood, iron and metal-based industries. It was found that, half of the firms had been in operation for 6 to 8 years, 41.6 percent have been in operation for more than 11 years whereas another 8.4 percent had been in operation for 9 to 11 years. The nonexistence of firms operated for less than 6 years in this study is due to the lack of a comprehensive up-to-date database of manufacturing SMEs. This problem often cited by other researcher (Ahmad, 2007).

Table III: Characteristics of Firms

| Characteristics | Number of Firms | Percentage |
|---|---|---|
| **Location** | | |
| Western region | 71 | 31.4 |
| Southern region | 57 | 25.3 |
| Northern region | 45 | 20 |
| Central | 42 | 18.5 |
| Eastern region | 11 | 4.8 |
| **Business Sectors** | | |
| Food and beverage | 137 | 60.6 |
| Wood-based products | 36 | 15.9 |
| Textiles, apparel and leather | 21 | 9.3 |
| Rubber-based products | 6 | 2.7 |
| Plastic products | 5 | 2.2 |
| Electric and electronic | 4 | 1.8 |
| Paper and printing | 1 | 0.4 |
| Others | 16 | 7.1 |
| **Year Operated** | | |
| 6-8 | 113 | 50 |
| 9-11 | 19 | 8.4 |
| More than 11 | 94 | 41.6 |

Table IV presents the means, standard deviations and correlations of the variables understudy. The distribution of the network size is skewed, therefore we applied logarithm method to normalise the data since the parametric statistics require the normal distribution among the sample (Coakes and Steed, 2007). This method also was practiced by prior scholars in social network-based research (Greve and Salaff, 2003; Ostgaard and Birley, 1996).

Table IV: Means, Standard Deviation and Correlation

| | Mean | S.D | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|
| 1. Age of entrepreneur | 40 | 1.26 | | | | |
| 2. Network size[a] | 0.6 | 0.32 | -.053 | | | |
| 3. Network centrality | 3.9 | .48 | -.107 | .078 | | |
| 4. Financial business performance | 3.6 | .58 | -.045 | .108 | .160* | |
| 5. Non-financial business performance | 3.7 | 0.44 | -.104 | .050 | .240** | .315 |

Note: [a] Natural logarithm of the network size
* Correlation is significant at .05 level (1-tailed)
** Correlation is significant at .01 level (1-tailed)

This study employs hierarchical moderated regression to test the hypotheses. We run separately the analyses for financial (model 1) and non-financial business performance (model 2). The 3-step hierarchical moderated regression was applied as suggested by Turker and Selcuk (2008) and also the stepwise procedure.

Table V portrays hierarchical moderated regression results on financial business performance. Upon examining the effect of control variables, only parental history is positively related to financial business performance in the all steps ($p < .05$). It does appear that the direct effect of network centrality on the financial

business performance in the second step (β = .187, p < .01). Therefore, the result supports Hypothesis 2a. In the third step, the result shows the moderating effect of gender on the relationship between network size and financial business performance (β = .170, p < .05). Therefore, Hypothesis 4a is supported.

Table V: Model 1 of Hierarchical Moderated Regression for Financial Business Performance

| Variables | First step | Second step | Third step |
|---|---|---|---|
| **Control variables** | | | |
| Firm age | .12 | .034 | .031 |
| Firm size | .086 | .123 | .119 |
| Parental history | .174* | .200* | .197** |
| **Direct effect** | | | |
| Network size | | .123 | -.084 |
| Network centrality | | .187** | .156* |
| **Moderating effect** | | | |
| Age of entrepreneurs x network size | .047 | .049 | -.110 |
| Age of entrepreneurs x network centrality | .030 | -.054 | -.034 |
| Gender x network size | .199 | .170 | .170* |
| Gender x network centrality | .229 | .181 | .113 |
| R | .174 | .254 | .305 |
| R2 | .030 | .065 | .093 |
| R2 change | .030 | .034 | .028 |
| F value | 6.230 | 6.856 | 6.720 |
| Significant F change | .013 | .008 | .014 |

Note: * refers to p< .05
** refers to p< .01

Fig. 1 depicts an interaction between network size and financial business performance for female entrepreneurs. It shows that female entrepreneur reached higher level of financial business performance than male entrepreneur. In other words, the impact of gender on financial business performance is greater for female entrepreneur rather than male entrepreneur.

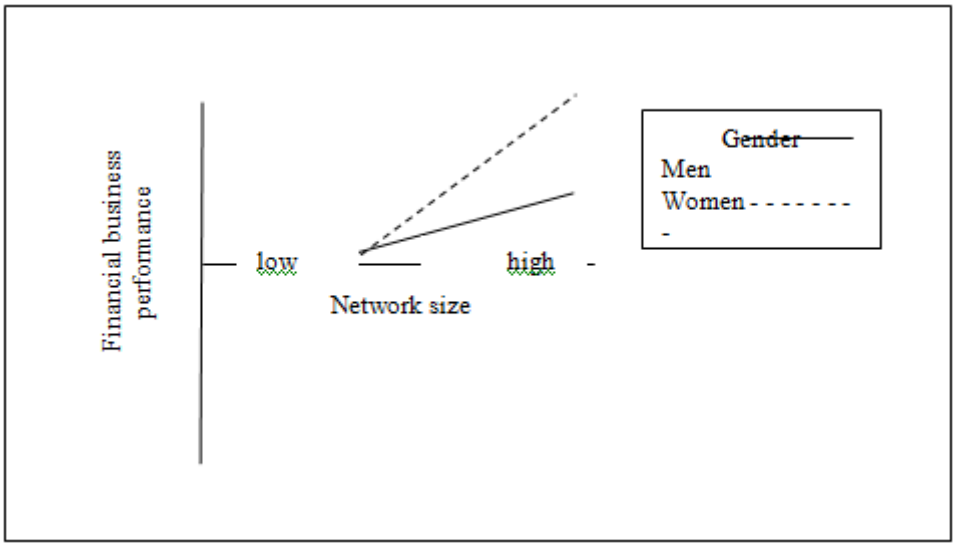


Figure 1: Moderating impact of gender on the relationship between network size and financial business performance

Table VI presents hierarchical moderated regression results on non-financial business performance. Using stepwise procedure, there are only two steps involve. In the first step, the significant effect postulates the direct effect of network centrality on non-financial business performance (β = .240, p = < .01), thus supports the Hypothesis 2b.

Table V1: Model 2 of hierarchical moderated regression for non-financial business performance

| Variables | First step | Second step |
|---|---|---|
| **Control variables** | | |
| Firm age | .070 | .107 |
| Firm size | .035 | .024 |
| Parental history | -.100 | -.081 |
| | | |
| **Direct effect** | | |
| Network size | .036 | .025 |
| Network centrality | .240** | .300** |
| | | |
| **Moderating effect** | | |
| Age of entrepreneurs x network size | -.025 | .030 |
| Age of entrepreneurs x network centrality | -.155 | -.155* |
| Gender x network size | .030 | .015 |
| Gender x network centrality | .010 | .019 |
| R | .240 | .279 |
| R2 | .058 | .078 |
| R2 change | .058 | .020 |
| F value | 12.168 | 8.374 |
| Significant F change | .001 | .038 |

Note: * refers to p< .05
** refers to p< .01

In the second step, the result supports the moderating effect of entrepreneurs' age on the network centrality with non-financial business performance relationship. The significant negative effect reveals that the relationship between network centrality and non-financial business performance is more positive when the entrepreneurs have low age level. Therefore, Hypothesis 3d is supported.

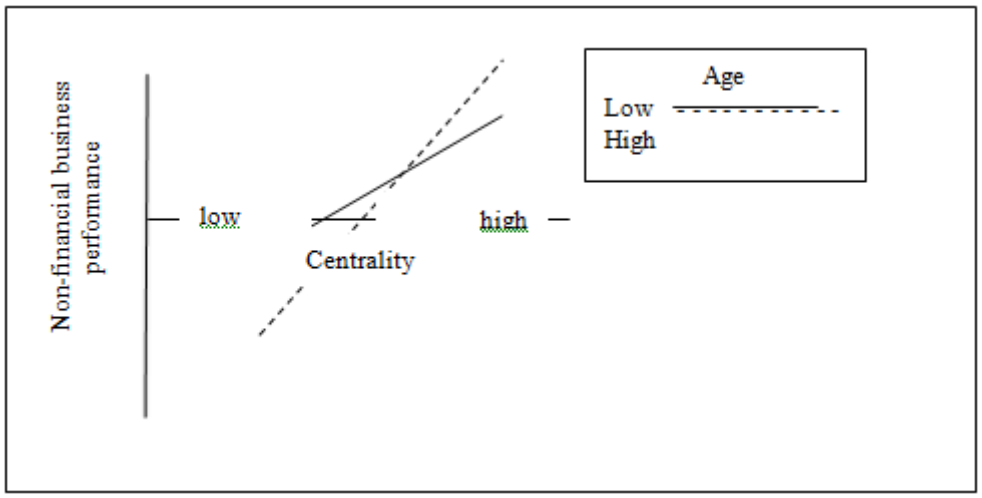


Figure 2: Moderating impact of age of entrepreneurs on the relationship between network centrality and non-financial business performance

Fig. 2 portrays the interaction between network centrality and non-financial business performance for low age level. The interactions show that when the entrepreneur has low age level reached higher level of non-

financial business performance than ones who has high age level. In other words, the impact of age of entrepreneur on non-financial business performance is greater for entrepreneur who has low age level.

Table V1 also presents no significant direct effect of network size on non-financial business performance in the first step. The result fails to support Hypothesis 1b (β = .036, p = not significant). For the second step, no significant moderating effect is obtained for the case of gender on the relationship between network size (β = .015, p = not significant) and network centrality (β = .019, p = not significant) with financial business performance. Thus, Hypothesis 4b and Hypothesis 4d are not supported. The moderating effect of entrepreneurs' age on the relationship between network size and non-financial business performance is also do not appear in the second step (β = .030, p = not significant). Therefore, Hypothesis 3b is also not supported.

## V. CONCLUSIONS

The objectives of this study are two-fold. First, the study investigates the effect of business network on business performance (Hypotheses 1a-2b). Second, the study desires to examine the moderating effect of human capital on the relationship between business network and business performance (Hypotheses 3a-4d).

First, the study identifies a non-significant impact of network size on both financial and non-financial aspects of business performance. Therefore the results do not confirm that network size has a big impact on business performance, a finding that contrasts with past empirical studies (Batjargal, Hitt, Webb, Arregle and Miller, 2009; Madurapperuma, 2010). SMEs entrepreneurs must concern on selected quality alters to obtain the important resources instead of having more alters in the network (Fortner, 2006).

The study also reveals a significant direct effect of network centrality on both financial and non-financial aspects of business performance. The findings provide a support for the argument that more central the entrepreneur is in the network, the more it will affect the business performance (Cantner and Joel, 2011; Tsai, 2001).

Second, the study find that entrepreneurs' age moderates the relationship between network centrality and non-financial business performance. The finding suggests that SMEs entrepreneurs whose businesses are handled by the younger are more able benefit due to their position in the network. In addition, the younger entrepreneurs are more inclined to take risks, more creative and innovative, are future orientated and also possess the ability to accept and deal with challenges in the business (Amran and Ahmad, 2010; Manaf, Omar and Yee, 2012).

Another finding revealed that gender moderates the relationship between network size and financial business performance. This is surprising result from the study where literatures always discussed the weaknesses of female entrepreneurs in several aspects such as the number of sales, income, start-up capital, business size, business experience (Fairlie and Robb, 2009). Female SMEs entrepreneurs with more alters in the social network were more able to achieve better business performance compared to male entrepreneurs. A larger network allows the exchange of valuable resources and increase the opportunities recognition (Greve and Salaff, 2003).

## VI. IMPLICATIONS

### 6.1 Theoretical Implications

This research extends the work of prior researchers by incorporating both the financial and non-financial measures of business performance. The incorporation of both measures conforms to the suggestions of Wiklund (1999). Despite the separation of both measures in the factor analysis, this research utilises both measures and provides a holistic view of business performance.

### 6.2 Managerial Implications

It is acknowledged that the idiosyncrasies of the business network have to be understood to secure valuable resources but what is of vital importance is the significance of the business network to the entrepreneur. Entrepreneurs must ensure that only the reliable alters are included in the business network as a bigger network size does not necessarily guarantee that quality resources will be acquired. However, as suggested by Reese (1992), conducting interference in the group to which they belong is most encouraged. Furthermore, the empirical evidence supports the contention that the network centrality affects both the financial and non-financial measure of business performance.

Notably, most of the hypotheses revealed the insignificant moderating effect of human capital variables on the relationship between business network and business performance variables. Consequently, focusing on,

analysing and managing human capital is critical if entrepreneurs wish to enhance their human capital in order to positively impact business performance.

## REFERENCES

[1] H. Hoang, and B. Antoncic, Network-based research in entrepreneurship: A critical review, *Journal of Business Venturing, 18(2),* 2003, 165-187.
[2] S. Birley, The role of networks in the entrepreneurial process, *Journal of Business Venturing, 1(1),* 1985, 107-117.
[3] B. Brown, and J. E. Butler, Competitors as allies: A study of entrepreneurial networks in the U.S. wine industry, *Journal of Small Business Management, 33(3),* 1995, 57-66.
[4] T. K. Das, and B. S Teng, Time and entrepreneurial risk behaviour. *Entrepreneurship: Theory & Practice, 22(2),* 1997, 69-88.
[5] S. Premaratne, Networks, resources, and small business growth: The experience in Sri Lanka, *Journal of Small Business Management, 39(4),* 2001, 363-371.
[6] J. Sequeira, S. L. Mueller, and J. E. McGee, The influence of social ties and self-efficacy in forming entrepreneurial intentions and motivating nascent behaviour, *Journal of Developmental Entrepreneurship, 12(3),* 2007, 275-293.
[7] E. Nybakk, B. Vennesland, E. Hansen, and A. Lunnan, Networking, innovation, and performance in Norwegian nature-based tourism. *Journal of Forest Products Business Research, 5(4),* 2008, 1-26.
[8] F. Sepulveda, and M. Gabrielsson. Network development and firm growth: A resource-based study of B2B born globals. *Industrial Marketing Management, 42(5),* 2013, 792–804.
[9] J. I. Jenssen, and H. F. Koenig, The effect of social networks on resource access and business start-ups. *European Planning Studies, 10(8),* 2002, 1039-1046.
[10] W. Madurapperuma, Social network of entrepreneurs and its impact of small business growth, *Proc. International Council for Small Business (ICSB),* Washington, 2010, 1-32.
[11] E. Nybakk, A. Lunnan, J. I. Jenssen, and P. Crespel, The importance of social networks in the Norwegian firewood industry. *Biomass and Bioenergy, 57,* 2013, 48-56.
[12] T. Mazzarol, T. Volery, N. Doss, and V. Thein, Factors influencing small business start ups. *International Journal of Entrepreneurial Behaviour and Research, 5(2),* 1999, 48-63.
[13] P. Rosa, S. Carter, and D. Hamilton, Gender as a determinant of small business performance: Insights from a British study. *Small Business Economics, 8,* 1996, 463-478.
[14] M. Granovetter, The strength of weak ties. *American Journal of Sociology. 78(6),* 1973, 1360-1380.
[15] H. Aldrich, and J. Pfeffer, Environments of organizations. *Annual Review of Sociology, 2,* 1976, 79-105.
[16] J. Pfeffer, and G. R. Salancik, *The external control of organizations: A resource dependence perspective* (New York: Harper and Row, 1978).
[17] P. Bourdieu (1980) cited in M. Siisiainen, Two concepts of social capital: Bourdieu vs. Putnam. *Proc. ISTR Fourth International Conference "The third sector: For what and for whom?,* Dublin., 2000.
[18] R. S. Burt, *Structural holes: The social structure of competition* (Massachusetts: Harvard University Press, 1992).
[19] Coleman, J. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94,* 95-120.
[20] R. D. Putnam, *Bowling alone: The collapse and the revival of American community* (New York: Simon and Schuster, 2000).
[21] T. A. Chin, A. B. A. Hamid, A. Rasli and H. H. Tat. A literature analysis on the relationship between external integration, environmental uncertainty and firm performance in Malaysian SMEs. *Procedia-Social and Behavioral Sciences,* 130(May), 2014, 75-84.
[22] S. Tehseen, Z. H. Qureshi and T. Ramayah, Impact of network competence on firm's performances among Chinese and Indian Entrepreneurs: A multigroup analysis, *International Journal of Entrepreneurship*, 22(2), 2018, 1-14.
[23] A. Sengupta, Network strategy and access to business finance: Indian entrepreneurs in the information and communication technology industry. *Journal of Entrepreneurship, 20(1),* 2011, 103-126.
[24] U. Cantner, and K. Joel, Network position, absorptive capacity and firm success. *IUP Journal of Knowledge Management, 9(1),* 2011, 57-83.

[25] W. Tsai, Knowledge transfer in intraorganizational networks: Effects of network position and absorptive capacity on business unit innovation and performance. *The Academy of Management Journal, 44(5),* 2001, 996-1004.

[26] J. Watson, Modeling the relationship between networking and firm performance. *Journal of Business Venturing, 22(6),* 2007, 852-874.

[27] O. E. Williamson, *Economic organization. Firms, markets, and policy control* (New York: New York University Press., 1986).

[28] S. S. Thrikawala, Impact of strategic networks for the success of SMEs in Sri Lanka. *World Journal of Social Sciences, 1(2),* 2011, 108 – 119.

[29] S. Coleman, The role of human and financial capital in the profitability and growth of women-owned small firms. *Journal of Small Business Management, 45(3),* 2007, 303-319.

[30] P. Davidsson, and B. Honig, The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing,18(3),* 2003, 301-331.

[31] S. Haber, and A. Reichel, The cumulative nature of the entrepreneurial process: The contribution of human capital, planning and environment resources to small venture performance. *Journal of Business Venturing, 22(1),* 2007, 119-145.

[32] S. A. Alvarez, and L. W. Busenitz, The entrepreneurship of resource-based theory. *Journal of Management, 27,* 2004, 755-775.

[33] J. Barney, Firm resources and sustained competitive advantage. *Journal of Management, 17(1),* 1991, 99-120.

[34] R. M. Grant, The resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review, 33(3),* 1991, 114-135.

[35] N. Chiliya and N. M. Lombard, Impact of level of education and experience on profitability of small grocery shops in South Africa, *International Journal of Business Management and Economic Research, 3(1),* 2012, 462-470.

[36] A. Jagongo and C. Kinyua, The social media and entrepreneurship growth: A new business communication paradigm among SMEs in Nairobi. *International Journal of Humanities and Social Sciences, 3(10),*2013, 213-227.

[37] L. Kamaruddin, A. S. Arshad, C. A. Osman and S. Z. Buyong. An exploratory study of Malaysian Women entrepreneurs: What drives them into business. *ASEAN Entrepreneurship Journal, 4(2),* 2018, 84-96.

[38] A. Greve, and J. W. Salaff, Social networks and entrepreneurship. *Entrepreneurship: Theory & Practice, 28(1),* 2003, 1-22.

[39] Y. Liu, and M. Ipe, How do they become nodes? Revisiting team member network centrality, *Journal of Psychology,144(3),* 2010, 243-258.

[40] E. F. Surin and I. A. Wahab, The effect of social network on business performance in established manufacturing Small and Medium Enterprises (SMEs) in Malaysia, *Proceedings paper in 4th International Conference on Business, Economics and Tourism Management,* 2013, Jeju, Island, South Korea.

[41] K. S. Cook, and R. M. Emerson, Power, equity and commitment in exchange networks. *American Sociological Review, 43(5),* 1978, 721-739.

[42] A. Mehra, M. Kilduff, and D. J. Brass, The social networks of high and low self-monitors: Implications for workplace performance. *Administrative Science Quarterly, 46(1),* 2001, 121-146.

[43] M. Granovetter, The strength of weak ties. *American Journal of Sociology. 78(6),* 1973, 1360-1380.

[44] R. T. Sparrowe, R. C. Liden, S. J. Wayne, and M. L. Kraimer, Social networks and the performance of individual and groups. *Academy of Management Journal, 44(2),* 2001, 316-325.

[45] U. Cantner and M. Stuetzer, *The use and effect of social capital in new venture creation - Solo entrepreneurs vs. new venture teams,* Jena Economic Research Papers, 2010, Jena , Germany.

[46] M. N. I, Naala, A. H. Gorondutse, S. S. Abdullah and V. I. Okwudilis, Exploring the effect of entrepreneurial social network on human capital and the performance of small and medium enterprises, *International Journal of Business and Technopreneurship, 9(1),* 2019, 1-14.

[47] S. Bhagavatula, Managing networks for entrepreneurial success: Academic perspective. *IIMB Management Review (Indian Institute of Management Bangalore)*, *21(1)*, 2009, 52-58.

[48] S. Gates and P. Langevin, Human capital measures, strategy and performance: HR managers' perceptions. *Accounting, Auditing and Accountability Journal*, *23(1)*, 2010, 111-132.

[49] S. Samad, Assessing the contribution of human capital on business performance. *International Journal of Trade, Economics and Finance*, *4(6)*, 2013, 393-397.

[50] C. S. Long, and W. K. Wan Ismail, The vital roles of human resource professional: A study on the manufacturing companies in Malaysia. *The Journal of International Management Studies*, *3(2)*, 2008, 114-125.

[51] R. Krejcie, and D. Morgan, Determining sample size for research activities. *Educational and Psychological Measurement*, *30(3)*, 1970, 607-610.

[52] N. Ismail, N. A. Ishak, N. A. Karim, and N. Ismail, Redefining critical capabilities for business performance of Malaysia manufacturing SMEs. *Journal of Business and Entrepreneurship*, *15(2)*, 2010, 57-74.

[53] F. Mat Nor, K. Ibrahim, R. Haron, I. Ibrahim, and M. A. Alias, Practices of capital structure decisions: Malaysia Survey Evidence. *International Review of Business Research Papers*, *8(1)*, 2012, 33-63.

[54] A. Greve, Networks and entrepreneurship - An analysis of social relations, occupational background, and use of contacts during the establishment process. *Scandinavian Journal of Management*, *11(1)*, 1995, 1-24.

[55] B. J. Frazier, The *influence of network characteristics on information access, marketing competence and perceptions of performance in small rural businesses*, doctoral diss., Michigan State University, 2000.

[56] N. H. Ahmad, (2007). *A cross cultural study on entrepreneurial competencies and entrepreneurial success in SMEs in Australia and Malaysia,* doctoral diss., University of Adelaide, 2007.

[57] F. H. Lee, and F. Z. Lee, The relationships between HRM practices, leadership style, competitive strategy and business performance in Taiwanese steel industry, *Proc. The 13th Asia Pacific Management Conference*, Melbourne, 2007, 953-971.

[58] S. K. Majumdar, The impact of size and age on firm-level performance: Some evidence from India. *Review of Industrial Organization*, *12(2)*, 1997, 231-241.

[59] J. F. Hair, W. C. Black, B. J. Babin, and R. E. Anderson, *Multivariate data analysis: A global perspective* (New Jersey: Pearson Education Inc., 2010).

[60] H. F. Kaiser, An index of factorial simplicity. *Psychometrika*, *39*, 1974, 31-36.

[61] J. C. Nunnally, *Introduction to psychological measurement (*New York: McGraw-Hill, 1970).

[62] U. Sekaran, *Research methods in business: A skill building approach* (New York: John Wiley & Sons Inc., 2003).

[63] D. Turker, and S. S. Selcuk, Which Factors Affect Entrepreneurial Intention of University Students. *Journal of European Industrial Training*, *33(2)*, 2008, 142-159.

[64] B. Batjargal, M. Hitt, J. Webb, J. L. Arregle, and T. Miller, Women and men entrepreneurs' social networks and new venture performance across cultures, *Pro. The Annual Meeting of the Academy of Management*, Chicago, 2009, 1-6.

[65] M. L. Fortner, *Entrepreneurs and their social networks: Motivations, expectations and outcomes*, doctoral diss., The George Washington University, 2006.

[66] N. A. Amran, and A. C. Ahmad, Family succession and firm performance among Malaysian companies. *International Journal of Business and Social Science*, *1(2)*, 2010, 193-203.

[67] A. A. Manaf, N. H. Omar, and L. K. Yee, L. K. Faktor kritikal kejayaan usahawan dalam perniagaan. *Journal of Social Science and Humanities*, *7(1)*, 2012, 34-45.

[68] R. W. Fairlie, and A. M. Robb, Gender differences in business performance: Evidence from the characteristics of business owners survey. *Small Business Economics*, *33(4)*, 2009, 375-395.

[69] J. Wiklund, The sustainability of the entrepreneurial orientation-performance relationship. *Entrepreneurship: Theory & Practice, 24(1)*, 1999, 39-50.

[70] P. R. Reese, *Entrepreneurial networks and resource acquisition: Does gender make a difference*? Doctoral diss., The University of North Carolina, 1992.