Business network and balanced scorecard: an analysis of small and medium enterprises in Malaysia

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Abstract

Purpose – The aim of this paper is to characterise the association between business network and the balanced scorecard used by Malaysian small and medium enterprises (SMEs) as a method for assessing firm efficiency. The business network takes into account both the dimensions of stability and efficiency. The business network can help SMEs, with fewer resources to remain competitive. By having a secure business network, the performance of SMEs in Malaysia can be further improved. A business network can facilitate swift coordination amongst distant geographies to create new competitive advantages by accessing market segments, resources as well as building strategic business alliances.

Design/methodology/approach – A total of 404 sets of data collected by using stratified random sampling and structured questionnaire as an instrument. The list of SMEs collected from the Malaysia Foreign Trade Growth Corporate Directory (MATRADE) directories. Structural equation modelling (SEM) was utilised to analyse the data.

Findings – The findings show that the business network plays a role in the balanced scorecard (BSC) outcomes of Malaysian SMEs.

Originality/value – This article provides the owners and managers with an awareness to rapidly achieve the company's efficiency. Finally, the new article often has some consequences for decision-makers and regulators.

Keywords Business network, Balanced scorecard, Malaysia, Small and medium enterprises (SMEs)

Paper type Research paper

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1. Introduction

The purpose of this study is to define the nature of the connection that exists between business networks and the balanced scorecard, which is utilised by Malaysian small and medium enterprises (SMEs) as a means of determining the degree to which a company is performing. The stability and efficiency of a business network are covered. Small and medium enterprises (SMEs) rendered the most relevant economic contribution in Malaysia. The recently published Economic Census conducted in 2016 by the Malaysian Department of Statistics, showed there are 907,065 SMEs in Malaysia, comprising 98.5% of the country's total company establishments. Actually, the government of Malaysia has played several vital roles in the past to encourage SMEs, but Malaysian SMEs should further boost their results. If part of the company network involved with these companies is better known, it may be more advanced. To obtain the best market share, an aspect such as the increased necessity to share knowledge quickly amongst SMEs via the business network (Maskell and Malmberg, 1999; Yeung, 2000; Glasmeier, 1999; Rajapakse, Azam, & Khatibi, 2022) is also necessary.

Kulmala and Uusi-Rauva (2005) stated that an enterprise's network comprises a type of social activity, while the Business Network continues this same collective behaviour. Bilge Armatli-Köroğlu (2004) also stated that the network was defined as a socialisation mechanism in the theories of network growth, in which actors and institutions are linked for mutual gains and synergies. In addition to regional networks, Bilge also demonstrated that an increasingly creative and efficient capability needs an inter-regional network. Given this competitive environment, the business network has been identified as a significant factor that rules the success and competitiveness of SMEs, which are well connected through networks and keep up to date with global developments in terms of internationalisation by adopting quickly before larger firms respond to the same effect. For this research, networks of SMEs are identified as personal affiliations between the "external participants" and the SME owner (Birley, 1985; Aldrich & Auster, 1986; Johannisson, 1986, 1988). An apparent gap in the available research material within Malaysia in this context was observed; however, this research will provide some practical understandings concerning empirically and theoretically.

2. Literature review

2.1 Malaysian context

SMEs comprise all firms and corporations but omitting big organisations since, by judgemental logic, most companies worldwide may be classified as small businesses. However, this term is often placed from the viewpoint of Malaysia. Historically, there was no definitive description of small business in Malaysia until the establishment of the National SME Development Council (NSDC) in June 2004. Hence, depending on their requirements, numerous organisations have characterised and described small companies, relying more on individual full-time workers and annual revenue turnover. On 11 July 2013, a revised concept was accepted where an organisation that has a revenue turnover below RM30 million and/or fulltime staff below 200 people in the manufacturing sector is deemed to be a SME (SME Corporation Malaysia, 2013).

Various scholars have established the importance of the use of business networks by SMEs. Empirically, a business network refers to the degree in which an enterprise shares the characteristic of openness that can conclude if that enterprise is successfully networked or otherwise. It means a collaboration which facilitates sharing of information or "information dissemination" amongst "networked" enterprises. It is also essential to make sure these "networked" enterprises are functioning correctly. Accordingly, researchers also observed that networked firms are growth-oriented, well-motivated and moving to openness and industrial advancement. Besides presenting the balanced scorecard, this study considers the dimensions of the business network, which will be applied in this research. They are Stability and Efficiency, which are elaborated below.

2.2 Network theory

The network theory infers that relationships are investments and in this manner contends for a more profound thought of a firm's networks. The term "network" insinuates an arrangement of nodes and the business associations or connections that are related to them (Fombrun, 1982, Johanson and Vahlne, 2003a, b). The firms are embedded in more than one network through the relationship of their suppliers, contractors, customers and other market players (Wright, Westhead, & Ucbasaran, 2007). Firms do not compete on an individual level; they compete on the network level, including domestic or foreign suppliers and client and their clients and their suppliers (Johanson & Mattsson, 1988).

In reality, being related with others will allow a firm to pick up knowledge of business abroad, access required resources and capacities, and in this manner, the firm's performance may rely upon cooperative networks. In the view of numerous scholars, many firms from developing nations particularly Asia will look for sustainable networks to help them to perform in the international market. The network theory perspective is seen to be very appropriate in describing the internationalisation of SMEs, particularly those that internationalise rapidly (Sharma & Blomstermo, 2003). Several types of research have suggested the effects of networks in driving and empowering the international advancement of SMEs, including access to resources abroad, exchange of data and information, provision of moral support, foundation of legitimacy and formation of opportunities (Chetty and Holm, 2000). Being a participant of the network is an essential component because the network can build up these business facilities despite foregoing drawbacks.

2.3 Business network

Business network can provide a number of benefits to a firm, such as expanded knowledge and learning capabilities development (Moaniba, Lee, & Su, 2020), which are helpful for superior BSC. The business network creates and manages inter-firm relationships, provides an atmosphere of trust and friendship. To achieve this, Kleinaltenkamp, Karpen, Plewa, Jaakkola, and Conduit (2019) suggested the importance of business network relations. As discussed by Bilge Armatli-Köroğlu (2004), in the network development theories, the network was identified as a path of socialisation where actors and organisations are associated for common advantages and synergies. Alternatively, network relations are an essential aspect of the institutional build-up and are often embedded in the regional boundaries. Bilge also demonstrated that an increasingly innovative and competitive capacity necessitates an interregional network in addition to local networks. Inevitable globalisation continues, and rapid improvements in information technology, especially on the internet as a communication media would force the regions and firms in considering opening their closed-door practices and to join together with global networks. In this competing atmosphere, SMEs claim an upper hand due to its flexible and innovative capacities.

SMEs have to compete in a progressively complicated situation mainly because of the escalating global competition, technology evolution as well as newly founded flexible structures. Given this competitive environment, the network has been identified as a significant factor that controls success and competitiveness of Malaysian SMEs, which are well connected through networks and which keep up to date with global developments in terms of internationalisation by adopting quickly before larger firms responding to the same effect (Ipiranga and Aguiar, 2014).

Based on the above explanation, therefore the hypothesis between business network and balanced scorecard is as follows.

H1. The business network is positively related to the balanced scorecard.

This empirical review section discusses about the dimensions of business networks was applied in this research. They are Efficiency and Stability, which are elaborated as below.

2.4 Efficiency

Efficiency helps SMEs to integrate their capital in the company network to boost their strategic edge (Farinda, Kamarulzaman, Abdullah, & Ahmad, 2009) with a balanced scorecard in mind. Studies by Battistella, De Toni, De Zan, and Pessot (2017) and Liu and Yang (2019) suggest that the firm needs to develop efficiency to gain resources and knowledge from partnerships in the network. Oliver (1990) has defined productivity as the ability to reduce product expense, maximise asset returns, and eliminate wastage and downtime. Due to the collective bargaining leverage provided by the organisation network, transaction expenses caused the enterprise network to step off to the next stage. It is anticipated that companies can dramatically increase their long-term productivity by investing in networks. Productivity has also been described as an entity's success by comparing, in the presence of quality, the ratio between organisational input and output. Performance is an organisation's function in controlling the input-output operations (Katz and Kahn, 1978). Oliver (1990) proposed reasons that are unique to the individual influence performance. It is possible for SMEs to "think big" with the development of corporate processes and transaction costs, where they depend on values of transitional deals, then to the general market and internal of the entity. Oliver (1990) often stressed on the increased performance of business network members because of its capacity to mediate transaction costs more successfully in the industry, thereby enforcing companies to operate in the Business Network rather than performing market operations. Any scholars have made negative findings of this since the company network is perceived as supporting it. Therefore, businesses are required to boost their BSC by engaging in networks, representing their success within a comparatively smaller period, which is also reported as an increase in performance, earnings, customer loyalty along with sales. Business networks working in a collaborative form will often contribute to decreased risk levels, development rates, flexibility and expertise levels for members (Lin & Zhang, 2005).

Therefore, the hypothesis is formulated as below.

H2. Efficiency is positively related to the balanced scorecard

2.5 Stability

Network reliability applies to the condition of being intact or the continuity of the networks and the entities linked to the same network. Networks are composed of entities connected by ties signalling interaction and interdependence (Carpenter, Li, & Jiang, 2012). Networks affect many facets such as business network (Bailey, Cao, Kuchler, Stroebel, & Wong, 2018). The capability of SMEs to cooperate with business networks such as suppliers, distributors is crucial (Aguirre, Azcoitia, & Marcos, 2019; Duan, Ansari, & Toy, 2016). Four structural characteristics of business relationships are to enhance the consistency of a business network, like continuity, sophistication, informality and symmetry. The greater the interaction continues, the greater the network remains secure. The relative uncertainty inherent in the associations between the companies in the network is the difficulty. The less complicated systems are found more robust than, the more complex models. In the context of business network and balanced scorecard, symmetry is the consistency of knowledge sharing or equitable access to data for any organisation within the network. A high degree of regularity assures the network a high degree of reliability. Informality relates to the subjective degree of absence, which is called ceremonial, informal institutions and other elements. Researchers have shown that over the long term, the

fewer hierarchical systems are, the more robust they are than their equivalents. Companies seem to be related by relationships that last long, broad, reasonably casual and balanced. Hence, individually, the extent of every attribute is anticipated to indicate the relative durability of every given business network. The reliability of market networks is logically required to lead to the attainment of a right BSC and efficiency. A secure network is marketed as a technique to deal with instability by predicting to absorb the consequences of danger to anticipate the distribution of capital in an ordered fashion (Pennings, 1981). Network members manage different campaign obligations independently, which strengthens the balanced scorecard. It is anticipated that the reliability of the market network would contribute to better BSC (Coviello & Munro, 1995).

Based on this argument, the following hypothesis is formulated.

H3. Stability is positively related to the balanced scorecard.

2.6 Balanced scorecard

In this research, the Balanced Scorecard (Kaplan and Norton, 1992) is employed as a means of measuring the SME's performance. Performance as a dependent variable is a commonly used construct in management science (Richard, Devinney, Yip, & Johnson, 2009; Lambovska, Rajnoha, & Dobrovic, 2019), and also a multi-dimensional definition (Dess and Robinson, 1984; Rauch, Wiklund, Lumpkin, & Frese, 2009; Lambovska, 2018). Nevertheless, scholars have not decided on a useful success metric (Mahmood and Hanafi, 2013) and as a result, there is no widely recognised and sufficient collection of metrics for assessing market performance (Akinboade, 2015; Falshaw, Glaister, & Tatoglu, 2006). Therefore in their study, numerous researchers have used various success standards.

According to Mowen, Hansen, Sands, Winata, and Su (2015), the BSC is considered a "strategic-based responsibility accounting system" which provides four different perspectives for reporting the firm performance (Ferreira, Azevedo, Fernandes, & Raposo, 2014; Zizlavsky, 2014). Firstly, the financial perspective allows shareholders a way to evaluate the firm regarding how well the strategy and operations contribute to the firm's financial health (Hoque and James, 2000). Next, the customer perspective allows customers to evaluate the firm, describes how the firm adds value to its customers and will be able to find out if the firm is meeting its customers' expectations (Chia, Goh, & Hum, 2009). Then, the internal process perspective allows the firm to understand what processes it must excel at to deliver customer and finance-related objectives (Martinsons, Davison, & Tse, 1999). It is evident that the balanced scorecard is a non-single dimensional theoretical construct. It is also not likely to be characterised by a one operational measure (Richard *et al.*, 2009). Haber and Reichel (2005) supported this and mentioned that it is very vital to carry out a multiple of tests to measure performance criteria in order to clarify the performance of an enterprise. Therefore, when the measurement of business network is concerned for BSC, the SME may scratch on the two dimensions of business network for BSC. Moreover, the business network still posts a genuine concern in academia for the performance of the firm.

2.7 Research framework

From the literature and relevant support, the conceptual framework for this research can be developed as in Figure 1.

The proposed hypothesised model is derived from the relationships above, theoretical background in the previous sections as well as from the literature review. Three hypotheses are constructed as follows, based on the above conceptual framework and to meet the research objectives.

H1: The business network is positively related to the balanced scorecard.

H2: Efficiency is positively related to the balanced scorecard.

H3: Stability is positively related to the balanced scorecard.

3. Research methodology

Since the survey method aims to calculate the overall population from which the sample is chosen, hence the survey method is the most suitable data collection method. The system of survey polling also contributes to precision and comparatively cost-effective research results (Azam *et al.*, 2021). This methodology can be developed in a short time and it is possible to gather data from a vast number of respondents. On top of that, the organisation itself is the research unit in this study, whereas the respondents are enterprise owners, managers as well as entrepreneurs who will serve the respective SMEs. This analysis uses the sampling system that includes the internationalisation practising SMEs collected from the Malaysia Foreign Trade Growth Corporate Directory (MATRADE) directories. SMEs would be picked from a population-representing sampling frame and are classified into two distinct criteria.

(1) The chosen enterprises must follow the SMEs requirements in either the manufacturing or service sector.

(2) The respondents included company owners, top management and founders who will take part in this report. These classes of individuals are selected because they are informed about the market process, including the company's internationalisation component, the business network and the company success aspect. The employee should be interested in decision-making, firm preparation and execution relevant to market networks.

This research evaluates the responses from SMEs owners, entrepreneurs and managers; therefore, mail survey and face-to-face technique were selected as the primary method for data collection. The role of an enumerator is very important in this part of the data collection process, whereby for the mail survey method, the enumerators pursued with telephone calls as a follow-up, and to make plans with the respondents on how to collect the data. On top of that, the enumerators can visit the companies to increase the response rate. As for the "face-to-face" technique, which was also employed, the enumerator personally met the respondents to interview and collect the data. Moreover, the data collection process took approximately six (6) months. Subsequently, due to huge costs and certain time constraints that are identified for this study and the attendants' difficulties to get the required respondents as they are scattered in many areas in Malaysia, this study will only consider the business owners, managers and entrepreneurs of SMEs.

In this current research, however, 581 questionnaires were returned with the response rate being 38.7%, which is approximately 40% out of 1500 distributed questionnaires. From the

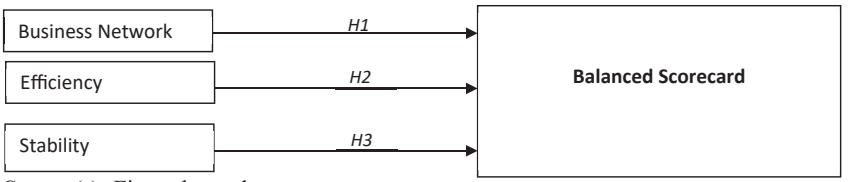

Figure 1.
Conceptual framework

Source(s): Figure by authors

581 responses, 177 were omitted, 73 of which owing to extreme missing values (more than 25%) and the rest 104 to the non-fulfilment of the requirement to be used as samples, such as perceived response bias, correct responses amongst the different questionnaires, etc. Following the guideline by the scholars (Azam *et al.*, 2021), this has resulted in a final sample size of 404 (perfectly useable for further analyses) and the adjusted response rate of about 26.9%.

This study used a seven-point Likert scale by placing expectations to things recognised in previous researches. The seven-point Likert scale also asks respondents to include a comparative appraisal of several questionnaire claims on a spectrum varying from "very strongly disagree" to "very strongly agree" that are very widely used in scientific studies to gather primary data (Azam *et al.*, 2021). Stratified sampling technique is used in this study to accomplish the research objective. Azam, Khan, & Qadri (2016) suggested that stratified random sampling requires a stratification or segregation process, accompanied by random collection from each stratum of subjects.

Besides, questionnaires were only provided to respondents who fulfilled the parameters set out above. Therefore, since this analysis uses Structural Equation Modelling (SEM), the problem of adequacy of sample size is a primary issue in the implementation of SEM tools. The final sample size of the current analysis was a sample of 404 results. SEM for statistical data analysis to examine the interrelationships between numerous variables in a model (Zainudin, 2012) is used in this study. Also, SEM techniques for the use of a quantitative method have been significant in verifying theoretical models. This study, therefore, considers SEM in determining these conditions, as an effective method for interpreting quantitative data in research advancement.

4. Findings

This segment shows the respondents' gender, age, race, level of education and designation of the respondents in their respective enterprise. Table 1 shows this demographic information.

Table 1 above indicates male and female participants are in substantial proportions. For 404 respondents, 231 were male, and 173 were female, indicating that the ratios of male and female respondents were 57.2% and 42.8%, respectively. Table 1 also reveals that the age group of 41-50 years is 46.8% which has the highest frequency at 189, and 31-40 years is 43.8%, with the second highest frequency of 177 out of 404. In comparison, the of 21-30 years age group of 38 respondents consists of 9.4%. There is also the variety of races participating in SMEs, where the participation of Malays is 27.6%, Chinese is 59.4% and Indians is 13.6%. Of 404 respondents, 38 respondents (9.4%) passed high school, 120 respondents (29.7%) have a certificate, 185 respondents (45.8%) have a bachelor's degree, and just 61 respondents (15.1%) have a master's degree. Of these, 160 respondents (39.6%) are administrators, 137 respondents (33.9%) are traders, and of the 404 respondents, 107 respondents (26.5%) are shareholders. Apart from demographic information, the details also outline the enterprises' history of the business. The enterprise details reveal five essential items that include market forms, number of employees, ownership, geographic area and internationalisation operation. The details about the firms surveyed in the analysis are provided in Table 2.

Table 2 shows the figures of the service and manufacturing sectors which are 85.1% and 14.9%, respectively, where 60 firms engaged in manufacturing operations, and 344 companies are involved in the service industry. There are 233 companies, or 57.7% with 6-30 workers, 109 businesses, or 27% with 31-75 employees, 47 firms, or 11.6% with 76-200 employees, and 15 firms, or 3.7% with just 0-5 employees. Also, it is noticed that 100% of the companies are SMEs operated by Malaysia. As far as the geographical field is concerned, most businesses interact with the region of South East Asia, which comprises of 294 enterprises, or 72.8%; the second-highest region in the part of Asia, with 52 enterprises, or

Demographic variable	Frequency	Percentage
Gender		
Male	231	57.2
Female	173	42.8
Total	404	100.0
Age		
≤20	0	0
21-30	38	9.4
31-40	177	43.8
41-50	189	46.8
≥50	0	0
Total	404	100.0
Race		
Malay	109	27.6
Chinese	240	59.4
Indian	55	13.6
Total	404	100.0
Level of Education		
Primary School	0	0
Secondary School	38	9.4
Diploma	120	29.7
Bachelor	185	45.8
Masters Degree	61	15.1
Total	404	100.0
Designation		
Entrepreneur	137	33.9
Owner	107	26.5
Manager	160	39.6
Total	404	100.0

Source(s): Table by authors

Table 1. Demographic information of the research participants

12.9%. The majority of the areas that Malaysian SMEs have interacted with such as Europe, Oceania, Middle East and America, form the rest of the geographical regions.

Regarding the activity of internationalisation, the most common operation amongst SMEs in Malaysia is exports, which accounted for 86.1% or 348 enterprises. Import activity is the second most common with 9.2% or 37 enterprises. The majority are active in licencing, franchising and joint partnership operations.

According to Hair, Black, Babin, and Anderson (2010), data simplification can be seen as the underlying purpose of this subsequent study. EFA (Exploratory Component Analysis) is a mathematical analysis commonly utilised in science. EFA is carried out to establish interrelationships between collections of variables (Pallant, 2007). This analysis also considered the KMO and Barlett's Sphericity Worth Test (Pallant, 2007). With a meaningful amount of 0.000, the KMO value obtained in this analysis is 0.822. Table 3 displays the effects of the experiments below.

The first iteration for Business Network started with 25 items. Due to cross-loading and split-loading, there are altogether five iterations that took place for Business Network. At the same way, Balanced Scorecard started with 23 items, and three iterations stabilised the factor analysis. Besides that, Table 4 represents the factor analysis results reporting altogether for the constructs of Business Network (BN) and Balanced Scorecard (BSC).

General information	Frequency	Percentage
Types of business		
Manufacturing	60	14.9
Service	344	85.1
Total	404	100.0
Number of employees		
0–5	15	3.7
6–30	233	57.7
31–75	109	27.0
76–200	47	11.6
>201	0	0
Total	404	100.0
Ownership		
Malaysian	404	100.0
Total	404	100.0
Regional area		
South-East Asia	294	72.8
Asia	52	12.9
America	7	1.7
Europe	38	9.4
Oceania	10	2.5
Middle East	3	0.7
Others	0	0
Total	404	100.0
Internationalisation activity		
Export	348	86.1
Import	37	9.2
Licencing	8	2.0
Franchising	9	2.2
Joint Venture	2	0.5
Others	0	0
Total	404	100.0

Source(s): Table by authors

Table 2. General information of the companies surveyed

Kaiser-Meyer-Olkin measure of sampling adequacy		0.822
Bartlett's Test of Sphericity	Approx. Chi-Square	3.172E3
	df	91
	Sig	0.000

Source(s): Table by authors

Table 3. KMO and Bartlett's test

After that, Equation Modelling (SEM) was used to run the primary model. To discover whether there is a relationship between Business Network and BSC is one of the objectives of this study. To observe the relationship, SEM uses a certain way to run the analysis. The findings on a business network and the balanced scorecard of this study are presented and discussed henceforward. The discussion will seek out whether business network carries weight in determining the performance of the SMEs by using the balanced scorecard as the measuring tool. The summary of the findings on the hypotheses in this conceptual framework is shown in Table 5 below.

Construct	Item	Statement	Factor loading	Cronbach's alpha	CR*	AVE**
Business Network (BN)	EFF1	We can find ways to improve input in our enterprise from each other in the group	0.95	0.778	0.835	0.504
	EFF2	We can get ways to improve assets utilisation in our enterprise from each other in the group	0.55			
	EFF3	We can find ideas to reduce cost in our enterprise from each other in the group	0.91			
	EFF4	We can find ways to improve economies of scale in our enterprise from each other in the group	0.69			
	STB1	We are secured as a group than as an individual for future uncertainties	0.83			
	STB2	We can make a better forecast as a group than as an individual about the future	0.82			
	STB3	We can do co-sponsoring of events/ activities as a group, than as an individual	0.83			
	STB4	We can do co-branding of our business as a group than as an individual	0.8			
	STB5	We can do co-production of our output as a group, than as an individual to reduce cost and improve economies of scale	0.77			
Balanced Scorecard (BSC)	FP1	Our enterprise achieves an increase in total revenue	0.99	0.781	0.833	0.515
	FP2	Our enterprise achieves an increase in profit margin	0.58			
	FP3	Our enterprise achieves an increase in market share	0.67			
	FP4	Our enterprise achieves a higher level of cost reduction	0.94			
	LGP1	Our enterprise achieves an increase in the number of employees	0.61			
	LGP2	Our enterprise achieves a lower absenteeism rate amongst employees	0.62			
	LGP3	Our enterprise achieves a lower turnover of employees	0.7			
	LGP4	Our enterprise achieves improved technical skill amongst the employees	0.84			
	LGP5	Our enterprise achieves more frequent employee training and development programmes	0.73			
	IBP1	Our enterprise introduces a higher quality of products/services	0.74			
	IBP2	Our enterprise introduces improved and innovative production processes	0.76			
	IBP3	Our enterprise achieves better product/ service cycle time	0.83			
	IBP4	Our enterprise achieves lesser defects of product/service	0.76			
	IBP5	Our enterprise achieves lesser machine breakdowns	0.76			

Note(s): *CR = Composite Reliability
**AVE = Average Variance Explained
The values of CR and AVE were calculated based on formulae suggested by Raykov (1997)
Source(s): Table by authors

Table 4.
The factor analysis results reporting

Table 5 shows the maximum likelihood estimates of hypothesis testing that represent a few parameters. However, Table 6 shows the standardised regression weights for the default model, showing the relationships of variables with predicted values. The "Estimate" column correctly shows the path coefficient amongst variables as fit indexes and parameter estimates of the hypothesised model.

Three hypotheses are produced to test the linkages amongst the variables in order to achieve the research objective. Table 5 and Table 6 provide the evidence where conclusion can be made following the hypotheses set earlier. The study supports all the hypotheses as seen in Table 5, where Significant Ratio (C.R.) is 2.102, 7.558 and 8.163, and p-value is highly significant. This means the regression weight for Stability, Efficiency and overall Business Network (BN) towards BSC at 0.05 level (two-tailed) is significantly different from zero. Table 6 also shows the parameter estimates that support the sufficiency of the model where the path coefficient between Stability, Efficiency and Business Network (BN) towards Balanced Scorecard (BSC) are 0.525, 0.315 and 0.328, which are statistically significant. The results indicate that Stability, Efficiency and overall Business Network are significantly persuaded on Balanced Scorecard in the SMEs in Malaysia. Furthermore, Table 7 provides a summary of the main findings of the study.

5. Discussion and conclusion

The balanced scorecard is efficiency metric, demonstrated by profitability and competitiveness because of its reflection about how effectively the business will convert the consumer demands into profit-making goods. In previous reports, this has been cited to assess the impact of efficacy on company networking. This study aims to examine the business network's partnership with BSC as a measurement instrument for Malaysian SMEs'

Table 5. Hypothesis testing (maximum likelihood estimates)

Variable	Relationship	Variable	Estimate	S.E.	C.R.	P
Balanced Scorecard	←	Business Network	0.124	0.059	2.102	***
Stability	←	Business Network	0.584	0.077	7.558	***
Efficiency	←	Business Network	0.568	0.070	8.163	***

Source(s): Table by authors

Table 6. Standardised regression weights (Default model)

Variable	Relationship	Variable	Estimate
Balanced Scorecard	←	Business Network	0.525
Stability	←	Business Network	0.315
Efficiency	←	Business Network	0.328

Source(s): Table by authors

Table 7. Summary of the main findings of the study

H(x)	Hypothesis	Finding
H1	The business network is positively related to the balanced scorecard	Accepted
H2	Efficiency is positively related to the balanced scorecard	Accepted
H3	Stability is positively related to the balanced scorecard	Accepted

Source(s): Table by authors

firm results. The business network enables a businessperson to learn about the opportunities available in other regions apart from his area. With information technology, this has reduced the "tyranny of distance" (Freel, 2003). SMEs with lesser access to resources, less investment in research and development and who have sufficient presence of uncertainties create multiple obstacles to join into more secure knowledge networks. This indicates that the fact of networks is more beneficial for SMEs than otherwise thought. However, according to the findings, the business network is considered to work in Malaysia. Many previous forms of literature are confirmed by the results identified from the Malaysian evidence (Pollack, Forster, Johnson, Coy, & Molden, 2015; Camagni & Capello, 1999; Staber, 1997) in small enterprises. The hypothesised argument is then endorsed, stating that the market network has a good partnership with BSC, which is also valid for Malaysia. This study used a clear and accurate tool to quantify the hypothesis of Malaysian SMEs. It hence made a critical stimulus to the methodological growth of Malaysian SMEs. This will improve the success of every corporation, as well as for small businesses in Malaysia, which will be the ultimate target for business success. Linking to the Network Theory, this study supports the arguments of Chetty and Holm (2000), Fombrun (1982) and Johanson and Vahlne (2003a, b). This study also supports the opinion of Wright *et al.* (2007) where they argued that the firms are embedded in more than one network through the relationship of their suppliers, contractors, customers and other market players.

References

Aguirre, F. H., Azcoitia, S. A., & Marcos, C. S. (2019). Disrupting telco business through SDN/NFV. Available from: https://www2.deloitte.com/es/es/pages/technology-media-and-telecommunications/articles/disrupting-telco-business-through-SDN-NFV.html# (accessed 6 March 2023).

Akinboade, O. A. (2015). Determinants of SMEs growth and performance in Cameroon's central and littoral provinces' manufacturing and retail sectors. *African Journal of Economic and Management Studies*, *6*(2), 183–196.

Aldrich, H.E., & Auster, E.R. (1986). Even dwarfs started small: Liabilities of age and size and their strategic implications. *Research in Organizational Behavior*, *8*, 165–198.

Armatli-Köroğlu, B. İ. L. G. E. (2004). SME networks as new engines of economic development and innovativeness. Unpublished Ph. D. Dissertation. Ankara: Department of City and Regional Planning, Middle East Technical University.

Azam, S., Khan, M.M., & Qadri, M.A. (2016). Barriers to SMEs in developing countries: Evidence from Pakistan. *Journal of Innovation and Entrepreneurship*, *5*(1), 1–22.

Azam, S. M. F., Yajid, M. S., Tham, J., Hamid, J. A., Khatibi, A., Johar, M. G. M., & Ariffin, I. A. (2021). *Research methodology: Building research skills* (1st ed.). Malaysia Sdn. Bhd: McGraw-Hill Education.

Bailey, M., Cao, R., Kuchler, T., Stroebel, J., & Wong, A. (2018). Social connectedness: Measurement, determinants, and effects. *Journal of Economic Perspectives*, *32*(3), 259–280.

Battistella, C., De Toni, A. F., De Zan, G., & Pessot, E. (2017). Cultivating business model agility through focused capabilities: A multiple case study. *Journal of Business Research*, *73*, 65–82.

Birley, S. (1985). The role of networks in the entrepreneurial process. *Journal of Business Venturing*, *1*(1), 107–117.

Camagni, R., & Capello, R. (1999). Innovation and performance of SMEs in Italy: The relevance of spatial aspects. *Innovation, networks and localities* (pp. 181–214). Berlin, Heidelberg: Springer.

Carpenter, M., Li, M., & Jiang, H. (2012). Social network research in organizational contexts. *Journal of Management*, *38*(4), 1328–1361.

Chetty, S., & Holm, D. B. (2000). Internationalisation of small to medium-sized manufacturing firms: A network approach. *International Business Review*, *9*(1), 77–93.

Chia, A., Goh, M., & Hum, S. H. (2009). Performance measurement in supply chain entities: Balanced scorecard perspective. *Benchmarking: An International Journal*, *16*(5), 605–620.

Coviello, N. E., & Munro, H. J. (1995). Growing the entrepreneurial firm: A network for international market development. *European Journal of Marketing*, *29*(7), 49–61.

Dess, G. G., & Robinson, R. B. (1984). Measuring organisational performance in the absence of objective measures: The case of the privately-held firm and conglomerate business unit. *Strategic Management Journal*, *5*(3), 265–273.

Duan, Q., Ansari, N., & Toy, M. (2016). Software-defined network virtualization: An architectural framework for integrating SDN and NFV for service provisioning in future networks. *IEEE Network*, *30*(5), 10–16.

Falshaw, G., Glaister, K.W., & Tatoglu, E. (2006). An exploratory study of the motives behind outward foreign direct investment from firms based in a least developed country. *International Business Review*, *15*(3), 294–312.

Farinda, A. G., Kamarulzaman, Y., Abdullah, A., & Ahmad, S. Z. (2009). Building a business network: A proposed framework for Malaysian SMEs. *International Review of Business Research Papers*, *5*(2), 151–160.

Ferreira, J., Azevedo, G., Fernandes, C.I., & Raposo, M. (2014). Motivations and obstacles to internationalize: A study in Portuguese small and medium-sized enterprises. *Journal of Business Economics and Management*, *15*(3), 491–507.

Fombrun, C. J. (1982). Strategies for network research in organizations. *Academy of Management Review*, *7*(2), 280–291.

Freel, M. S. (2003). Sectoral patterns of small firm innovation, network and proximity. *Research Policy*, *32*(5), 751–770.

Glasmeier, A. K. (1999). Territory-based regional development policy and planning in a learning economy: The case of 'real service centres' in industrial districts. *European Urban and Regional Studies*, *6*(1), 73–84.

Haber, S., & Reichel, A. (2005). Identifying performance measures of small ventures—the case of the tourism industry. *Journal of Small Business Management*, *43*(3), 257–286.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). New York: Pearson.

Hoque, Z., & James, W. (2000). Linking balanced scorecard measures to size and market factors: Impact on organisational performance. *Journal of Management Accounting Research*, *12*(1), 1–17.

Ipiranga, A. S. R., & Aguiar, M. M. S. (2014). Life, work and sustainable learning practices: A study on a small business network. *BAR-Brazilian Administration Review*, *11*(2), 145–163.

Johannisson, B. (1986). Network strategies: Management technology for entrepreneurship and change. *International Small Business Journal*, *5*(1), 19–30.

Johannisson, B. (1988). Business formation—a network approach. *Scandinavian Journal of Management*, *4*(3-4), 83–99.

Johanson, J., & Mattsson, L.G. (1988). Internationalization in industrial systems: A network approach. In Hood, N., & Vahlne, J.-E. (Eds.), *Strategies in Global Competition* (pp. 287–314). Croom Helm.

Johanson, J., & Vahlne, J. -E. (2003a). Building a model of firm internationalisation. In A. Blomstermo, & D. D. Sharma (Eds.), *Learning in the Internationalisation Process of Firms, New Horizons in International Business*. Edward Elgar.

Johanson, J., & Vahlne, J. E. (2003b). Business relationship learning and commitment in the internationalization process. *Journal of International Entrepreneurship*, *1*, 83–101.

Kaplan, R. S., & Norton, D. P. (1992). The balanced scorecard – measures that drive performance. *Harvard Business Review*, *70*(1), 71–79.

Katz, D., & Kahn, R. L. (1978). *The social psychology of organisations* (Vol. 2, pp. 528). New York: Wiley.

Kleinaltenkamp, M., Karpen, I. O., Plewa, C., Jaakkola, E., & Conduit, J. (2019). Collective engagement in organizational settings. *Industrial Marketing Management*, *80*, 11–23.

Kulmala, H. I., & Uusi-Rauva, E. (2005). A network as a business environment: Experiences from the software industry. *Supply Chain Management: An International Journal*, *10*(3), 169–178.

Lambovska, M. (2018). A fuzzy model for team control and its application. *Management and Production Engineering Review*, *9*(3), 108–119.

Lambovska, M., Rajnoha, R., & Dobrovic, J. (2019). From quality to quantity and vice versa: How to evaluate performance in the budgetary control process. *Journal of Competitiveness*, *11*(1), 53–69.

Lin, C. Y. Y., & Zhang, J. (2005). Changing Structures of SME Networks: Lessons from the Publishing Industry in Taiwan. *Long Range Planning*, *38*(2), 145–162.

Liu, H. M., & Yang, H. F. (2019). Network resources meet organizational agility: Creating an idiosyncratic competitive advantage for SMEs. *Management Decision*, *58*(1), 58–75.

Mahmood, R., & Hanafi, N. (2013). Entrepreneurial orientation and business performance of women-owned small and medium enterprises in Malaysia: Competitive advantage as a mediator. *International Journal of Business and Social Science*, *4*(1), 1–12.

Martinsons, M., Davison, R., & Tse, D. (1999). The balanced scorecard: A foundation for the strategic management of information systems. *Decision Support Systems*, *25*(1), 71–88.

Maskell, P., & Malmberg, A. (1999). Localised learning and industrial competitiveness. *Cambridge Journal of Economics*, *23*(2), 167–185.

Moaniba, I. M., Lee, P. C., & Su, H. N. (2020). How does external knowledge sourcing enhance product development? Evidence from drug commercialization. *Technology in Society*, *63*(April), 101414.

Mowen, M. M., Hansen, D. R., Sands, J., Winata, L., & Su, S. (2015). *Managerial accounting: Asia pacific edition*. Cengage Learning Australia.

Oliver, C. (1990). Determinants of inter-organisational relationships: Integration and future directions. *Academy of Management Review*, *15*(2), 241–265.

Pallant, J. (2007). *SPSS survival manual— a step by step guide to data analysis using SPSS for windows* (3rd ed.). Maidenhead: Open University Press.

Pennings, J. M. (1981). Strategically interdependent organisations. In *Handbook of organisational design* (Vol. 1, pp. 433–455).

Pollack, J. M., Forster, W. R., Johnson, P. D., Coy, A., & Molden, D. C. (2015). Promotion and prevention-focused network and its consequences for entrepreneurial success. *Social Psychological and Personality Science*, *6*(1), 3–12.

Rajapakse, R. M. D. A. P., Azam, S. M. F., & Khatibi, A. (2022). Towards green credentials of SMEs: Qualitative insights on barriers to green responsiveness from a developing economy. *International Journal of Applied Economics, Finance and Accounting*, *17*(1), 15–24.

Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, *33*(3), 761–787.

Raykov, T. (1997). Estimation of composite reliability for congeneric measures. *Applied Psychological Measurement*, *21*(2), 173–184.

Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring organisational performance: Towards methodological best practice. *Journal of Management*, *35*(3), 718–804.

Sharma, D.D., & Blomstermo, A. (2003). The internationalization process of born globals: A network view. *International Business Review*, *12*(6), 739–753.

SME Corporation Malaysia (2013). Annual Report 2013. Available from: https://www.smecorp.gov.my/index.php/en/resources/sme-statistics

Staber, U. (1997). An ecological perspective on entrepreneurship in industrial districts. *Entrepreneurship and Regional Development*, *9*(1), 45–64.

Wright, M., Westhead, P., & Ucbasaran, D. (2007). Internationalization of small and medium-sized enterprises (SMEs) and international entrepreneurship: A critique and policy implications. *Regional Studies*, *41*(7), 1013–1030.

Yeung, H. W. C. (2000). Organising 'the firm'in modern geography I: Networks, institutions and regional development. *Progress in Human Geography*, *24*(2), 301–315.

Zainudin, A. (2012). *A handbook on SEM: Structural equation model- ling using AMOS graphics* (4th ed.). Kelantan: University Technology MARA Press.

Zizlavsky, O. (2014). The balanced scorecard: Innovative performance measurement and management control system. *Journal of Technology Management and Innovation*, *9*(3), 210–222.

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