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Network reliance and entrepreneurial performance, the role of external networking behaviour and entrepreneurial orientation: the case of rural farmer-entrepreneurs

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Abstract

Purpose – The purpose of this study is to specifically look at the relationship between reliable network reliance and entrepreneurial performance.

Design/methodology/approach – To help achieve the study objective, 450 rural farmer-entrepreneurs from Jiangsu, Anhui, Guangxi and Zhejiang Provinces were randomly selected. The study concentrated mainly on entrepreneurs who have engaged in entrepreneurial activities the past five or more years.

Findings – This study's findings show that network reliance has direct and indirect effects on entrepreneurial performance through external networking behaviour. The result further shows that external networking behaviour partially mediates the relationship between network reliance and entrepreneurial performance. On the moderation effect on entrepreneurial orientation (EO), the result reveals that it strengthens the relationship between external networking behaviour and entrepreneurial performance. The result shows that EO has a direct effect on entrepreneurial performance. The paper introduces behavioural component of network to entrepreneurial performance. The study concludes that external networking behaviour of entrepreneurs is key in entrepreneurship as it improves relationships among actors and thereby translating into an improved performance.

Originality/value – The paper brings to light the need to reconsider extension education by including elements of networking to enable rural entrepreneurs derive full benefits of their entrepreneurial ventures.

Keywords External networking behaviour, Network reliance, Entrepreneurial orientation, Entrepreneurial performance

Paper type Research paper



1. Introduction

Networking has played a key role in the growth of start-ups. Through networks, relationships are developed, which inure to the benefits of firm owners. Through networking relationships, entrepreneurs are able to innovatively handle issues relating to their enterprises by relying on networks, and through internal resource usage, they discover innovative means of combining resources (Gulati & Singh, 1998). Network reliance is a mean to survive competition and stay competitive; as a result, rural farmers are encouraged to adapt to entrepreneurial and innovative capabilities by relying on networks (Mcelwee & Bosworth, 2010).

The theory of dynamic capability is the foothold of this research. The resource-based view of an enterprise as proposed by (Barney, 1986, 1991) and (Amit & Schoemaker, 1993) argues that resource base of an enterprise is what gives enterprise owners a competitive edge over others. The competitive edge of an entrepreneur is from valuable, scarce, inimitable and irreplaceable and capabilities. The concept dynamic capability by (Priem & Butler, 2001) and (Teece & Pisano, 1994) consist of the defects and extends the connotations of resource-based view. Dynamic capability is defined to include the ability to integrate, establish and reset both internal and external resources to adapt to the changing environment.

Dynamic capability stresses the need for enterprises to utilize resources and abilities in order to cope with the external environment to limit the effect of binding constraint and boost performance. There is the need to take advantage of resources and capabilities to achieve maximum profit and performance in line with changing market that corresponds with the objective of dynamic capability. The competitive advantage of an enterprise is attributed to its dynamic capability (Eisenhardt & Martin, 2000, King & Tucci, 2002, Song, Droge, Hanvanich, & Calantone, 2005, Danneels, 2008, Teece, Pisano, & Shuen, 1997).

Networks have been suggested to be essential elements that help farmers identify and take advantage of prevailing and emerging opportunities (De Rosa, Mcelwee, & Smith, 2019). Farmers rely on their networks for information on market needs and to design new products or improve upon the existing products to meet market demands (Phillipson, Gorton, Raley, & Moxey, 2004). Farmers' network ranges from colleague farmers, relative to neighbours depending on prevailing circumstances (Darr & Pretzsch, 2008). Network reliance is expected to positively impact on learning (Darr and Pretzsch, 2008, Pratiwi and Suzuki, 2017), innovation (Spielman, Davis, Negash, & Ayele, 2011) and farm performance (Thuong *et al.*, 2013). Studies on network mostly focus on network structure and relations without incorporating the behavioural and mechanisms through which network reliance impacts on performance.

In line with the resource-based view as proposed by (Barney, 1986, 1991), this study argues that the network reliance, external networking behaviour and entrepreneurial orientation (EO) constitute the elements form and abilities of rural farmer-entrepreneurs and hence influence entrepreneurial performance. Coping with the changing environment using resources and capabilities is the main content of rural farmer-entrepreneur dynamic capability. Considering the nature of rural farmer-entrepreneurs, it is argued that the ability to cope with the changing environment through the resources and capabilities is embedded in market strain capability, integration of resources as proposed by (Teece, 2000, 2007; Teece, 2000).

According to Hoang and Antoncic (2003) and (Slotte-Kock, 2009), networking improves entrepreneurial performance by providing entrepreneurs with access to a variety of important resources. There is however divergent views about entrepreneurial networking. Rauch, Rosenbusch, Unger, and Frese (2016) and (Jack, 2010) noted the negative side of entrepreneurial networking, which they attributed to opportunity costs and governance problems. As a result, there no consensus on how and conditions under which entrepreneurial networking influences performance (Stam, Arzlanian, & Elfring, 2014). This

paper contributes to this discussion by looking at the behavioural component of networking, thus external networking behaviour to establish its mediation in the relationship between network reliance and performance.

1.1 Background and hypothesis development

Entrepreneurship is mainly about value creation and opportunity identification in the business environment (Baron, 2006). The literature has recognized that opportunity measures a future situation that is desirable to attain as a key element in entrepreneurship (Shane, 2000; Shane & Venkataraman, 2000; Stevenson & Jarillo, 2007). An entrepreneur is identified as an individual who pursues and seizes opportunities by creating novel products or services (Bygrave & Hofer, 1992) and with the goal of promoting business growth (Stevenson & Jarillo, 2007). The actions of an entrepreneur are completely different from a manager as he/she goes beyond current resource levels by seizing and pursuing emerging opportunities (Shane, 2000; Kaish & Gilad, 1991; Shane & Venkataraman, 2000). Entrepreneurial-oriented farmers are able to adjust to changes in the environment by being alert to emerging opportunities, creative and innovative (Stevenson & Gumpert, 1985).

However, the thinking of market has been perfectly competitive, and rural farmer being price takers whose produce are non-differentiated make them less competitive and have weak bargaining power (Kahan, 2013; Mcelwee & Bosworth, 2010). Second, rural farmers lack economies of scale as they mostly produce on smaller scale (Hazell, Poulton, Wiggins, & Dorward, 2010). Third, rural farmers are often faced with higher transactional cost. Resource constraint has limited rural farmers' ability to meet quality, quantity traceability requirements by the market (Hazell, Poulton, Wiggins, & Dorward, 2010).

Nevertheless, rural farmers stand to benefit by being linked to modern markets. When sourcing from rural farmers is seen as the best option for buyers, some buyers go into contractual agreements with farmers and support farmers with farm inputs, technical assistance and financial assistance to enable farmers meet quality, quantity and reliability requirements (Reardon, Timmer, & Berdegué, 2005). With these kinds of arrangement, rural farmers stand to be at greater advantage by linking to modern markets by having secure outlets for their products and learning innovations. Even though limited resources are at the disposal of rural farmers, they have an ability to adapt as they are noted to be efficient resource users (Wiggins, 2000; Hazell *et al.*, 2010).

Linking to networks is recommended as the best approach to help farmers overcome their disadvantages at individual level and enhance their ability in identifying and pursuing opportunities (De Rosa *et al.*, 2019). Farmers who are linked to networks that are more heterogeneous may access more resources, such as social capital and social embeddedness. Network reliance facilitates the acquisition of resources, which could have been extremely difficult to access in the absence of networking relationship. Network reliance is one of the key elements of strong ties. It has been emphasized that social networking plays a key role in the in the entrepreneurial performance (Hoang & Antoncic, 2003). Social networks have gained prominence in the success of businesses (Johannisson, 1990). This implies that entrepreneurs who are more involved in social networks gain access to resources that are required for their business activities. Entrepreneurial activities are normally hindered by information asymmetry. Network reliance is a means through which entrepreneurs get access to information (Tsai & Ghoshal, 1998). Entrepreneurs who behave trustworthily and in a consistent manner win the heart of angel investors (Maxwell & Lévesque, 2014). Time-consuming activities are achieved within the shortest possible time through network reliance once the trust is established (Dyer & Singh, 1998). However, the effect of network reliance on entrepreneurial performance through the mediating effect of external networking behaviour in the rural farmers setting has not received

attention. The study also seeks to look at how EO of an entrepreneur moderates the relationship external networking behaviour and entrepreneurial performance, respectively. The paper introduces the behavioural component, as a means through which network reliance influences entrepreneurial performance. The issues of external networking among rural entrepreneurs have not received much attention. The study seeks to establish the role network reliance plays in entrepreneurial performance. To guide the researcher in achieving the objectives of the study, the research model in Figure 1 is therefore formulated to serve as a guide in the formulation of hypothesis.

1.1.1 Network reliance and performance. The success of every business is based on gathering of business opportunities and market intelligence (Lechner, Dowling, & Welpel, 2006). These are effectively achieved through creating and reliance on business networks. Through network reliance, information on existing opportunities is share at no cost (Boso, Story, & Cadogan, 2013). Network reliance offers opportunity for learning, resource sharing and core information about the market (Li & Zhou, 2010). Network reliance builds the capabilities of rural farmer-entrepreneurs to adapt appropriately to the changes (Jantunen, Puumalainen, Saarenketo, & Kyläheiko, 2005).

Network reliance is an essential element in the promotion of strong ties. Information asymmetry is the major challenge that many entrepreneurs are confronted with in their daily operations (Song, Min, Lee, & Seo, 2017). The challenge of information asymmetry can be carefully dealt with if entrepreneurs and their resource suppliers are well connected, since people are more likely to volunteer information with those they trust (Tsai & Ghoshal, 1998). Behaving in a trustworthy manner towards investors will enable entrepreneurs to obtain capital from angel investors (Maxwell & Lévesque, 2014). Time is effectively managed through network reliance, as an entrepreneur will not invest much time in bargaining and cross-checking because of the trust that is already established through network reliance (Dyer & Singh, 1998).

This study adopts Ganesan (1994) definition of network reliance, thus the preparedness of an entrepreneur to rely on and trust other partners' expertise, purpose and motives. There is an emerging new paradigm in agriculture that is completely different in economic, ethical and social foundations. The old paradigm dealt so much on the concept of rivalry between firms (Porter, 2000), but the new paradigm has its foundation on strategic alliance, on the ability of firms to network and maintain stable relationships that create a relational advantage. Rural development and for that matter the performance of rural farmer-entrepreneurs will largely depend on how effectively the players in the various agricultural sectors are be able to interact. The new era of agricultural paradigm means new agricultural governance that revolves around dialogue, agreement, inclusion, participation, involvement, cooperation, networking, coordination, multi-sector and responsibility (Gurrieri, Lorizio, & Stramaglia, 2014). Through this, agriculture becomes a "system," which is able to strive in the midst of disagreements, and reinforces its stand in the supply chain. Despite disagreements, it is able to prevail and reinforce its status in the supply chain. For rural farmer-entrepreneurs, engaging in networking provides them with opportunities to predict market trends, and together with suppliers or buyers, farmers can anticipate the upcoming market demands.

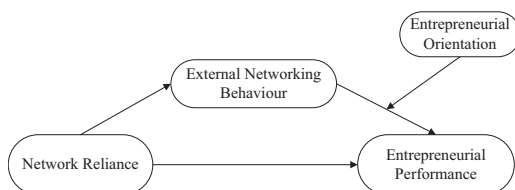


Figure 1.
Research model

Through network reliance, entrepreneurial ecosystem is created leading it to a situation where actors cooperate and compete with each other in a more friendly environment devoid of bickering. To ensure that network reliance lead to a situation where entrepreneurs cooperate and compete in a friendlier environment, the behavioural elements that relate with the entrepreneur are key in ensuring that parties in the relationship put aside opportunistic behaviours that have potentials to hamper their business relationships. Entrepreneurs who put up right behaviour stand to profit from their relationships and will experience an improved performance compared to entrepreneurs whose behaviour are geared towards rent seeking at the expenses of other actors.

Despite the enormous benefits on network reliance to entrepreneurs, research on the behavioural component of networking and mechanisms through which it influences entrepreneurial performance has not received the needed attention, especially at the level of rural economy. This therefore calls for more academic deliberation on the effect of network reliance, especially the behavioural component on performance.

Following the above exposition, the researcher therefore puts forward the following hypothesis:

- H1.* Network reliance by the rural farmer-entrepreneurs has a direct positive effect on entrepreneurial performance.

1.1.2 External networking behaviour and performance. The continuous increase in the complexity of the working of management has called for urgent attention for the study of networking. Since agencies no longer act independently but network with others in an attempt to improve their performance. Earlier works on networking conflates network (structure) with networking (behaviour). The behavioural dimension of cooperation among actors has received little attention compared to the network (structure), which has been extensively explored.

Previous studies have offered reasons to explain why networking is important. Networking offers opportunity for entrepreneurs to meet their resource requirement. Through networking, entrepreneurs gain access to technical and commercial resources they could not obtained individually (Ahuja, 2000). Commercial competence of a firm will let others be motivated to network with it since networking has a potential of propelling growth. There are, however, limitations to networking formation especially between highly technical and commercial competence firms and the least ones. Highly technical and commercial competence firms are less likely to go into a networking relationship with the least competent firms (Ahuja, 2000).

Networking is found to be more beneficial to established firms and entrepreneurs. Entrepreneurial initiatives are enhanced through networking (Baum, Calabrese, & Silverman, 2000). The networking relationships enable actors to gain access to a variety of resources held by other agents. Networking provides emotional support for entrepreneurial risk-taking, and this in turn is thought to enhance persistence to remain in business (Hoang and Antoncic, 2003).

According to Birley (1985) and (Smeltzer, van Hook, & Hutt, 1991), successful entrepreneurs consistently use networks to obtain ideas and gather information and advice. According to Freeman (1999), networking with venture capitalists and professional service organizations provides opportunity for tapping into key talent and market information (Freeman, 1999). Networking enables firms to have access to resources, particularly when time is of the essence (Baum, Calabrese, & Silverman, 2000). Through networking, small business owners are able to link into research and development (R&D) that is contracted out by larger firms, to engage in joint R&D ventures and to set-up marketing and manufacturing relationships (Rothwell &

Dodgson, 1991). Early performance of start-ups is enhanced through networking (Baum *et al.*, 2000). The study adapted external networking behaviour measures from (Wolff & Moser, 2006) to measure the external networking behaviour of rural farmer-entrepreneurs. The main components of external networking behaviour being explored in this study are maintaining contact and utilization of contacts.

External networking behaviour of an entrepreneur is a key factor in the sustainability of business relationships. It helps the entrepreneurs in co-opetition relationship as they co-create values and compete with each other without malice. Network behaviour perspective adds to the understanding of how network reliance influences performance. The behavioural elements mediate the relationship between network reliance and entrepreneurial performance as it keeps the actors active in the relationship by reducing rent seeking tendencies. The external behaviour of an entrepreneur will either keep partners and potential competitors in a relationship or scare them away depending on the behaviour the entrepreneur puts up. The usual argument has always been that network reliance leads to an improved performance without looking at the behavioural elements, which help in keeping business relationships. It is therefore argued in this study that the behaviour individuals put up in their networks has an influence in the relationship between network reliance and performance.

Based on above discussion, the following hypothesis is proposed:

- H2. External networking behaviour positively mediates the relationship between rural farmer-entrepreneurs' network reliance and entrepreneurial performance.

1.1.3 Entrepreneurial orientation from the perspective external networking behaviour and performance. Literature on EO can be traced back to the seminal work of (Miller, 1983). EO encompasses the methods such as disposition, practices and a decision-making style an entrepreneur adopts to act entrepreneurially. It shows how the entrepreneur reacts explicitly and implicitly when trying to seize an emerging opportunity (Wales, 2016). There are ambiguities and inconsistencies among researchers on the operationalization of EO (Covin & Miles, 1999). The problem is partly attributed to the absence of tentative theory on entrepreneurial processes (Mishra & Zachary, 2015). Different researchers conceptualized EO differently, but the most noticeable and widely used conceptualization is the one by (Miller, 2011), which consists of innovation, proactiveness and aggressive risk-taking.

According to Wales, Gupta, & Mousa (2013), innovativeness, proactiveness and risk-taking are the main dimensions of EO. The greater the entrepreneur is endowed with these attributes relative to his/her competitor, the more likely the entrepreneur is to achieve competitive advantage. Entrepreneurial incentives help to create and sustain the entrepreneurs' EO and nurture entrepreneurial culture in the organization (Mishra, 2017). Proactiveness is taking of initiatives in an attempt to influence ones' environment to take advantage of opportunities (Lumpkin & Dess, 1996). Risk-taking is the degree to which an entrepreneur is willing to commit his/her resources to an activity that has a chance of reasonably costly failure (Miller & Friesen, 1978). Innovativeness is the tendency of an entrepreneur to engage in and support new ideas, novelty, experimentation and creative processes that may result in new products, services or technological processes (Lumpkin & Dess, 1996).

Entrepreneurs' ability to acquire resources outside his/her immediate environment is a serious entrepreneurial task, which can be achieved through ones' network reliance (Kim, Steensma, & Park, 2017). The theoretical argument supporting this assertion is based on a network approach that emphasizes motivation–opportunity–ability reasoning, indicating that a lack of any of these three reasons may undermine social capital generation and utilization (Siemsen, Roth, & Balasubramanian, 2008). The willingness of an entrepreneur to

act constitutes motivation (Siemsen, Roth, & Balasubramanian, 2008). The ability of an entrepreneur represents the competencies at the nodes of the network (Adler & Kwon, 2002). Opportunity is the environmental or contextual mechanisms that enable entrepreneurs' action (Siemsen *et al.*, 2008).

According to Wales, Gupta, & Mousa (2013) in respect of motivation argument, high EO entrepreneurs often conceive and identify more opportunities. Therefore, they know the urgent need for resources which they work to acquire to pursue these opportunities (Teng, 2007). Identification of the resources will motivate the entrepreneur to act in proactive and risk-taking manner to acquire the resources (Wilson & Appiah-Kubi, 2002).

Entrepreneurs high in EO are more likely to be granted opportunity by other network operators to access their resources because they are perceived as people of better quality and to have higher potential than low EO entrepreneurs (Burt, 2009). That is, a high EO serves as a positive signal that may make network partners feel more confident to collaborate in business with them (Smith & Lohrke, 2008). Thus, entrepreneurs with higher EO may have access to golden opportunities to access resources within the network (Li, Liu, & Liu, 2011).

The ability of an entrepreneur is essential in the acquisition of resources as it is a risky venture and requires complementary skills (Winborg & Landström, 2001). In this regard, an entrepreneur high in EO is likely to act more proactively and eagerly contact potential network partners to make them aware of cooperation benefits and design an attractive cooperation plan.

The three components of EO (risk-taking, proactiveness and innovativeness) will also enhance the degree of network resource acquisition. The innovativeness aspect of EO would encourage exploratory learning behaviours, which lead to more proactive network searching activities (Kollmann & Stöckmann, 2014). To respond to the demand for innovativeness, entrepreneurs are more likely to exploit shared perceptions and communication with network actors to acquire needed resources. The risky nature of external resource acquisition calls for substantial expenditures and effort (Wiklund & Shepherd, 2003). The risk-taking is likely to play a role in network reliance because of the entrepreneurs' willingness to collaborate in an uncertain environment. A proactive entrepreneur acts quicker rather than waiting and contemplating. This leads to the proactive entrepreneurs being known for "step-ahead" tactics (Morgan & Strong, 2003) and taking first-mover advantages (Lumpkin & Dess, 1996), helping the firm to be among the first to leverage surrounding resource acquisition opportunities. Collectively, the higher EO disposition of an entrepreneur is, the more resource the entrepreneur is likely to achieve, which intends influences on entrepreneurial performance.

Even though the performance implication of EO is acknowledged in the literature (Veidal & Korneliussen, 2013; Merlo & Auh, 2009), there are still arguments as to how it influences performance. The study by (Zahra & Covin, 1995; Wiklund & Shepherd, 2005) found that EO leads to an improved performance. The study by (Lee, Lee, & Pennings, 2001) however found a weak relationship between EO and performance, whilst (Slater & Narver, 2000) found no relationship between EO business profitability. The study by Wiklund & Shepherd (2003) concluded that EO enhances the relationship between a firm's knowledge-based resources and its performance, and (Naman & Slevin, 1993) emphasize its fit with organizational structure and strategy. We argue that the literature is silent on the particular role EO plays in the relationship the between the behavioural component of networking (external networking behaviour) and entrepreneurial performance. We therefore propose the following hypothesis:

- H3.* EO strengthens the positive relationship between external networking behaviour and entrepreneurial performance.

1.1.4 Mediation of external networking behaviour between network reliance and entrepreneurial performance. External networking behaviour is the deliberate initiatives of the actors to develop the process of interaction either directly or indirectly (Ford & Mouzas, 2013). External network behaviour entails a sequential process of actions, reactions and re-reactions by the actors involved in the network. Actors are embedded in the network where they constantly interact with each other (Thornton, Henneberg, & Naudé, 2013). An entrepreneur's external networking behaviour has a higher probability of identifying, developing and maintaining effective ties with the rich, powerful, and people in authority have non-redundant relationships with other persons within the network (Batjargal, 2010). It implies that external networking behaviour helps the entrepreneur to achieve a strategic position in the network, which translates into improved performance when well coordinated. Networking is a craft that is developed over time by relying on diverse networks of people (Blass, Brouer, Perrewé, & Ferris, 2007).

Networking skills of an entrepreneur are reported to have a great influence on the network structure measured using structural hole (Batjargal, 2010, Cova, Mazet, & Salle, 1994). Wolff & Moser (2006) note that external networking of individuals can considerably influence the network structure of the entrepreneur. The essence of external networking is to the large extent to be able to influence personal and non-personal networks within, which the entrepreneur is embedded. As much as these studies are important, the research has not examined how external networking behaviour of an entrepreneur affects performance, thus mediating the relationship between network reliance and performance. It is therefore argued in this study that the behaviour of individuals in the network is crucial if networks are to have the desired effect on entrepreneurial performance. However, this dimension has not received attention among researchers. We therefore assert the following hypotheses:

- H4. External networking behaviour mediates the positive relationship between network reliance and entrepreneurial performance.
- H5. External networking behaviour is positively associated with entrepreneurial performance.
- H6. An entrepreneur's network reliance is positively associated with external networking behaviour.

1.1.6 Performance. Entrepreneurial performance represents the ability of entrepreneurs to turn resources into useful outcomes. The outcomes can be in the form of innovation activities carried out by farmers (i.e. innovative performance), increase in sales, revenue etc. The essence of innovation is to improve upon performance to meet the demands of the market (Etriya, Scholtenb, Wubbena, & Omtaa, 2019).

It is argued that entrepreneurial performance is a function of network reliance, external networking behaviour and EO. Entrepreneurs who have extensive networks are well linked to resources and privileged information compared to those who are not linked. In this study, network reliance is seen as a necessary condition for entrepreneurial performance but not sufficient to guarantee entrepreneurial performance (Udimal, Jincai, & Gumah, 2019). Behavioural elements such as the external networking behaviour and EO are factors that improve the relationship between network reliance and entrepreneurial performance.

Performance as a construct in marketing is multidimensional (Olson, Slater, & Hult, 2005). Performance encompasses both financial and non-financial goals that are crucial to the entrepreneur (Ittner, Larcker, & Rajan, 1997). Different researchers have used varied financial and non-financial goals of a firm to measure performance. The extant literature has shown that there is a positive correlation between objective and subjective measure of performance (Morgan, Kaleka, & Katsikeas, 2004). In this study, we relied mainly on the subjective measure of

entrepreneurial performance. This is measured by comparing various performance measures of entrepreneurs with competitors.

2. Methodology

2.1 Data and method

The data for analysis were obtained from rural farmer-entrepreneurs from four provinces in China. The provinces include Guanxi, Jiangsu Anhui and Zhejiang. The study concentrated mainly on rural farmer-entrepreneurs who have being in entrepreneurial activities for five years or more. This is because it takes time for one to develop a social network for his/her business. Hence, the inclusion of entrepreneurs who are beginners would have defeated the essence of the study, which is mainly on social network.

Rural farmer-entrepreneurs were purposively selected for the study since they are the subject for the research. Because the population of rural farmer-entrepreneurs is unknown to the researcher, a confidence level of 1.96 for 95% and confidence interval of ± 0.045 were used to calculate the sample size for the study. There are no prior expectations, so the probability of success and failure was assigned equal values of (0.5). An approximated sample size of 480 was arrived. The random sampling technique was then used to select the required sample size. A questionnaire was designed in English and translated into Chinese to facilitate data collection since enumerators and interviewees were Chinese. It was pre-tested to ensure that anomalies were corrected before the actual data collection. Actually, data collection started in May 2018 and completed in November 2018. In total, 450 rural farmer-entrepreneurs answered the questionnaires. Even though the researchers initially anticipated a sample size of 120 rural farmer-entrepreneurs from each province, 450 questionnaires were used in the actual analysis. This was due to the incompleteness of some of the questionnaire. A total of 30questionnaires were not completed in full; as a result, they were excluded from the analysis.

2.2 Measures of constructs

The measurement items for various constructs were adapted from previous studies. [Ganesan \(1994\)](#); [\(Choi, Park, Jung, & Lee, 2013\)](#) rationale for measurement of an entrepreneur's network reliance was adapted for the study. Rural farmer-entrepreneurs were asked to rate how much they relied on their business networks on the five-point Likert scale of 1– “strongly disagree” to 5 –“strongly agree.” The questions included “If our relationship was discontinued with these business networks, there would be difficulties which would impact future growth”, “We are dependent on knowledge gained from our business networks” and “Our business network is trustworthy.”

[Covin & Slevin \(1989\)](#) measuring scale for EO was adapted for the study. Scholars such as [\(Sadler-Smith, Spicer, & Chaston, 2001\)](#); [Chaston, 2008](#); [Jogarathnam & Ching-Yick Tse, 2006](#)) attested to the validity and reliability of the measurement scales. They were measured using Likert scale of 1–5 with 1– strongly disagree and 5 – strongly agree.

This study has therefore adapted the subjective measure of performance due to the nature of activities of the entrepreneur, especially rural farmer-entrepreneurs, which will be extremely difficult to quantify if not impossible. Some of the observed indicators for entrepreneurial performance are as follows: “Compared to our competitors, our company's market share is very high, Compared to your competitors, the growth of our company is very high and A number of new products have been developed by our company over the past three years”. The responses were based on a five-point Likert scale with 1– “strongly disagree” and 5 – “strongly agree”.

The study adapted external networking behaviour measures from [\(Wolff & Moser, 2006\)](#) to reflect external networking behaviour of rural farmer-entrepreneurs. The main components of external networking behaviour being explored in this study are building

contacts, maintaining contact and utilization of contacts. The responses were based on a five-point Likert scale with 1– “strongly disagree” and 5 – “strongly agree”.

The measurement items for the constructs are captured in [Appendix 2](#).

3. Results

3.1 Measurement model result

The model quality was determined using various quality criteria. [Table 1](#) below presents the result on reliability and validity of the constructs used for the study. The internal reliability test tells how strong the measuring items are holding together in measuring the respective construct. All the constructs met the minimum requirement criteria for their inclusion. For the Cronbach’s alpha, a minimum value of 0.70 is required, but for our constructs, they all met the criteria. The composite reliability for constructs is supposed to be > 0.6 to justify their inclusion. In this study, composite reliability for all the constructs are > 0.6 meaning all the measurement items are holding strongly together for their respective constructs. It is required that average variance extracted (AVE) of a construct should meet a standard of > 0.5 before its measurement items can be described as holding together.

[Table 2](#) below presents the result on the discriminant analysis. Discriminant validity indicates the measurement model of a construct is free from redundant items. The result shows that the square root of all AVE values is greater than their respective latent construct correlations. This implies that all the constructs satisfied the discriminant validity criteria. The result on the various items loading on the constructs is presented in [Table A1](#) the appendix.

[Table 3](#) below shows the result on R^2 measuring the structural model. The value for R^2 ranges from 0 to 1 with a higher value indicating a higher level of predictive accuracy ([Hair, Ringle, & Sarstedt, 2011](#)). The values of 0.75, 0.50 and 0.25 describe the level of accuracy measure thus substantial, moderate and weak, respectively. It measures the predictive accuracy of the model. The R^2 tells the combined effect of the endogenous latent variables and the proportion of variance in the endogenous latent variable explained by the exogenous variables linked to it ([Hair, Ringle, & Sarstedt, 2013](#)).

The blindfolding was to cross-validate the model’s relevance for individual endogenous constructs. In this study, Q^2 values range from 0.005 to 0.649 an indication of small, medium and large effect sizes. All the Q^2 values are > 0 establishing that partial least squares (PLS) structural model has a predictive relevance ([Hair, Ringle, & Sarstedt, 2013](#)).

[Table 4](#) below shows f^2 effect size. It tells the changes that occur in R^2 when specified exogenous variables are omitted from the model ([Hair et al., 2013](#)). The study shows that the effect size of exogenous constructs on endogenous constructs ranges from medium to large.

Constructs	Cronbach’s alpha	rho_A	CR	AVE
ENB	0.856	0.859	0.897	0.635
ENBM	0.727	0.728	0.880	0.786
ENBU	0.748	0.752	0.856	0.665
EO	0.846	0.791	0.770	0.793
EOI	0.832	0.834	0.888	0.666
EOP	0.738	0.786	0.848	0.651
NR	0.807	0.813	0.873	0.632
PERF	0.839	0.852	0.884	0.605

Source(s): Author’s calculation: ENB = External networking behaviour, ENBM = External networking behaviour maintaining, PERF = Performance, NR = Network reliance, EOP = Entrepreneurial orientation proactiveness, EOI = Entrepreneurial orientation innovativeness and EO = Entrepreneurial orientation

Table 1.
Construct reliability
and validity

3.2 Structural model result

Figure 2 below presents the result on the relationship between network reliance, external networking behaviour and entrepreneurial performance. The study also looked at the moderation role of EO in the relationship between external networking behaviour and entrepreneurial performance. The result shows that network reliance by rural farmer-entrepreneurs has a direct significant positive relationship with entrepreneurial performance($t=2.447, p < 0.05$). There exists a significant positive indirect relationship between rural farmer-entrepreneurs' network reliance and entrepreneurial performance through external networking behaviour. To account for the how much of the direct path is absorbed, variance accounted for (VAF) was calculated. External networking behaviour has the VAF value of 0.80, which satisfies the condition for partial mediation (if $0.20 < \text{VAF} < 0.80$) (Hair *et al.*, 2013). Even though network reliance has a direct effect on entrepreneurial performance, about 80% of the total effect of network reliance on entrepreneurial performance is explained by an indirect effect, thus the behavioural components (external networking behaviour). The result shows that external networking behaviour of rural farmer-entrepreneurs plays a partial mediation role in the relationship between network reliance and entrepreneurial performance ($t = 9.875, p < 0.001$). This finding calls for rural farmer-entrepreneurs to pay attention to the behavioural component of networking by maintaining and utilization of contacts as it plays an essential role in the entrepreneurial performance. The results in Tables A3 and A4 in appendix show the indirect effect and mediation effect, respectively. There exists a positive significant direct relationship between external networking behaviour and entrepreneurial performance

Table 2.
Latent construct
correlations

Constructs	ENB	ENBM	ENBU	EO	EOI	EOP	NR	PERF
ENB	0.797							
ENBM	0.428	0.887						
ENBU	0.356	0.777	0.815					
EO	0.254	0.313	0.589	0.891				
EOI	0.383	0.234	0.21	0.670	0.816			
EOP	0.039	0.060	0.018	0.278	0.033	0.807		
NR	0.094	0.089	0.089	0.180	0.095	0.361	0.795	
PERF	0.130	0.153	0.099	0.196	0.141	0.245	0.231	0.778

Source(s): Author's calculation

Table 3.
Result of R^2 and Q^2

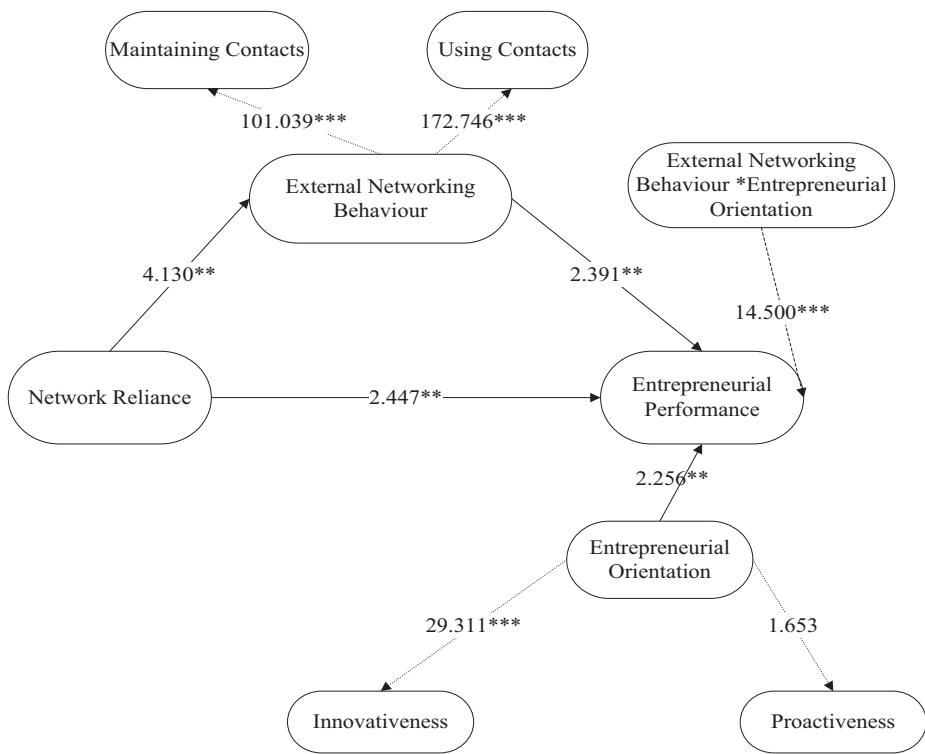
Constructs	R square	R square adjusted	Q^2	Effect size
ENB	0.009	0.007	0.005	Small
ENBM	0.861	0.860	0.649	Large
ENBU	0.914	0.913	0.577	Large
EOI	0.939	0.939	0.590	Large
EOP	0.077	0.075	0.046	Small
PERF	0.098	0.092	0.049	Small

Source(s): Author's calculation: Small: $0.0 < Q^2$ effect size < 0.15 ; medium: $0.15 < Q^2$ effect size < 0.35 ; large: Q^2 effect size > 0.35

Constructs	ENB	ENBM	ENBU	EO	EOI	EOP	NR	PERF	Network reliance
ENB		6.179	10.571					0.023	
ENBM									
ENBU									
EO					15.479	0.084		0.037	
EOI									
EOP									
NR	0.009							0.026	
PERF									

Source(s): Author’s calculation: Small: 0.0 < *f* 2 effect size <0.15; medium: 0.15 < *f* 2 effect size <0.35; large: *f* 2 effect size> 0.35

Table 4.
Result of *f*²



Source: Author’s Calculation

Figure 2.
Output model

(*t* = 2.391**, *p* < 0.05). On the moderation effect, the result shows that EO has a significant positive moderating effect on the relationship between external networking behaviour of rural farmer-entrepreneurs and entrepreneurial performance(*t*=14.500,*p* < 0.001). The results further show that EO of rural farmer entrepreneurs has a significant positive direct

relationship with entrepreneurial performance ($t = 2.256^{**}$, $p < 0.05$). The result on path analysis is shown in [Table A2](#), in the appendix.

4. Discussion

This study adds to knowledge stock on antecedents to entrepreneurial performance by looking at the rural farmer-entrepreneurs in China. Prior research studies concentrated so much on the external networking behaviour without due consideration to its antecedent. Based on this, we proposed that reliable network reliance is an antecedent to external networking behaviour, which consequently influences directly on entrepreneurial performance.

The result shows that network reliance has a significant positive relationship on the relationship involving external networking behaviour and entrepreneurial performance. This finding corroborates the finding by [Hoang & Antoncic \(2003\)](#) which indicates that social network of an entrepreneur is very essential to his/her entrepreneurial activities. The external networking behaviour of an entrepreneur mediates the relationship between network reliance and entrepreneurial performance. The result also shows that the relationship between external networking behaviour and entrepreneurial performance is moderated (strengthened) by EO. The EO of rural farmer-entrepreneurs strengthens the relationship that exists between external networking behaviour and performance.

The essence of external networking in entrepreneurial process and performance has been acknowledged by several researchers ([Stam, 2010](#)). The theory of entrepreneurship emphasize that the essence of entrepreneurship is the ability to detect, readiness to pursue and exploit opportunities in the marketplace ([Shane & Venkataraman, 2000](#)). However, most entrepreneurs and most especially rural farmer-entrepreneurs lack the resources required for the exploitation of opportunities in the marketplace, hence the need for external networking. Entrepreneurs with good external networking behaviour, thus maintaining and using contacts are able to exploit opportunities that are embedded in their external environment, obtain knowledge, learn from the best experiences in the field and benefit from the synergy of pooled resources ([Giudici, 2013](#)). This study therefore affirms that external networking behaviour of an entrepreneur contributes to performance since entrepreneurship is much of networking activity. The maintaining and using of external contacts (external networking behaviour) places an entrepreneur on a level, which gives him/her advantage over competitors in the industry.

The relationship between EO and performance is a prominent issue in entrepreneurship literature. The finding from this study confirms the assertion that EO of an entrepreneur is an essential element in the entrepreneurial environment and networking behaviour of an organization ([Merlo & Auh, 2009](#); [Veidal & Korneliusson, 2013](#)). Even though external networking behaviour of an entrepreneur enhances entrepreneurial performance, the result further shows that the relationship is strengthened when EO of the entrepreneurs is high. This means individuals who are more entrepreneurial oriented to take advantage of opportunities that external environment presents. This findings also confirm the long held view that the effect of EO on performance is contextual and that the interactions between EO and the external environment are key in entrepreneurial performance ([Lumpkin & Dess, 1996](#)).

This outcome corroborates the studies by ([Wiklund & Shepherd, 2005](#); [Zahra & Covin, 1995](#); [Rauch, Wiklund, Lumpkin, & Frese, 2009](#)), which found a positive relationship between EO and performance. This finding is in sharp contrast to the study by [Naudé, Zaefarian, Tavani, Neghabi, & Zaefarian \(2014\)](#) who find no relationship between EO and performance. The relationship can be attributed to the ability of people with high EO to act upon early signals that internal and external environment presents ([Lumpkin & Dess, 1996](#)).

5. Conclusion

This study through the theory of dynamic capability looked at how network reliance by rural farmer-entrepreneurs through external networking behaviour impact positively on entrepreneurial performance. The result has managerial implications for the rural farmer-entrepreneurs. The study adds to our understanding on how networks reliance leads to an improved performance and the mechanism through the relationship is established. Conscious effort should be made to build the network base of rural farmers. The study argues that network reliance is key in the performance of rural farmer-entrepreneurs. Network reliance is shown to have a positive effect on external networking behaviour of rural-farmer-entrepreneurs. This calls for more investment in building social networks of rural farmer-entrepreneurs so as to improve their external networking behaviour to enable them enjoy the full benefits of networking. This relationship was moderated by EO. It has been established that apart from the direct effect of EO on performance, it also moderates the relationship that exists between external networking behaviour of an entrepreneur and performance. This shows the importance of EO in every facet of entrepreneurial activities.

The study contributes both managerially and theoretically to the exiting literature. Theoretically, the study introduces the behavioural elements to the study of influence of network reliance on entrepreneurial performance. This contributes to the existing literature by looking at the behaviour component of external environment and how it influences performance. Even though the extant literature acknowledges the importance of external environment in entrepreneurial activities, the behavioural component in relation to performance has not received much attention.

Managerially, the study provides new insights for policymakers and managers in their quest to enhancing entrepreneurship and performance. Extension education should aim at improving the external networking of rural entrepreneurs to enable them to build appropriate social capital to realize the full benefit of network reliance.

These results show that EO should be aiming at improving an entrepreneur's external networking behaviour as a way to improve the overall performance of the firm. This study contributes to our understanding on antecedents to entrepreneurial performance. The external environment of an entrepreneur is key to the success of his/her entrepreneurial activities. We therefore recommend for deliberate policies geared towards the strengthening of behavioural elements in the entrepreneurial networks be initiated to limit rent seeking behaviour to enhance performance.

The study is country specific, so researchers and practitioners are entreated to exercise great care in trying to generalize the outcome of the study. Future researchers should consider similar studies in different countries since there are cultural elements, which influence social networking and vary from country to country. Culture should be considered in future studies as a construct to see how it moderates the relationship between network reliance and entrepreneurial performance.

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Constructs	ENB	ENBM	ENBU	EO	EOI	EOP	NR	PERF
ENBM1		0.883						
ENBM1	0.810							
ENBM2		0.890						
ENBM2	0.834							
ENBU1			0.854					
ENBU1	0.825							
ENBU2			0.810					
ENBU2	0.776							
ENBU3			0.781					
ENBU3	0.735							
EOI1					0.821			
EOI1				0.802				
EOI2					0.836			
EOI2				0.817				
EOI3					0.836			
EOI3				0.800				
EOI4					0.770			
EOI4				0.743				
EOP1						0.869		
EOP1				0.780				
EOP2						0.796		
EOP2				0.720				
EOP3						0.751		
EOP3				0.760				
NR1							0.820	
NR2							0.786	
NR3							0.802	
NR4							0.772	
PERF1								0.820
PERF2								0.743
PERF3								0.781
PERF4								0.819
PERF5								0.723

Source(s): Author’s calculation: ENB: external ntywking behaviour and EO: entrepreneurial orientation are second-order constructs

Table A1.
Factor loadings

Table A2.
Path analysis mean,
STDEV, *T*-values
and *p*-values

Path analysis	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	<i>T</i> -statistics (O/STDEV)	<i>p</i> - values
ENB → ENBM	0.928	0.928	0.009	101.039	0.000
ENB → ENBU	0.956	0.956	0.006	172.746	0.000
ENB → PERF	0.483	0.386	0.202	2.391	0.013
EO → EOI	0.970	0.954	0.033	29.311	0.000
EO → EOP	0.276	0.311	0.112	2.464	0.012
EO → PERF	0.652	0.447	0.289	2.256	0.025
EO_x_ENB → PERF	0.029	0.068	0.002	14.500	0.000
NR → ENB	0.095	0.098	0.023	4.130	0.010
NR → PERF	0.161	0.177	0.066	2.447	0.015

Table A3.
Indirect effect

Indirect effect	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	<i>T</i> -statistics (O/STDEV)	<i>p</i> - values
NR → ENB → ENBM	0.088	0.091	0.049	1.787	0.075
NR → ENB → ENBU	0.091	0.094	0.051	1.786	0.075
NR → ENB → PERF	0.046	0.040	0.005	9.875	0.000

Table A4.
Mediation analysis:
ENB as mediator

Exogenous variable	Direct effect	Indirect effect	Total effect	VAF	Mediation
NR	2.447	9.875	12.322	0.80	Partial
Note(s): Mediation variable: ENB; endogenous variable: PERF					

Network reliance (Choi, Park, Jeong & Lee, 2013; Ganesan, 1994)

Strongly disagree Disagree Neutral Agree Strongly agree

1. If our relationship was discontinued with these business networks, there would be difficulties which would impact future growth
2. The resources attained from business networking is crucial to our future performance
3. We are dependent on knowledge gained from our business networks
4. Resources acquired from business partners are important to our business
5. Resources gained through business networking are essential to development and advancement of business items
6. If our relationship is discontinued, we will face difficulties in replacing them
7. Our business network is trustworthy
8. Our business networks are reliable
9. We believe our business networks will not act in an opportunistic manner
10. Our business partners will not leak critical information generated from our business networking

Entrepreneurial orientation (Covin & Slevin, 1989; Miller, 1983)

Strongly disagree Disagree Neutral Agree Strongly agree

1. Innovation

- 1.1. R&D, technological leadership, and innovations are very important
- 1.2. I am willing to use unconventional strategies in order to increase competitiveness
- 1.3. I try to enhance business performance by introducing innovative management strategies
- 1.4. I strive to develop creative marketing methods
- 1.5. Original ideas are vital in the acquisition and utilization of resources
- 1.6. I utilize unreserved and horizontal conversation to bring about productive output

3. Pro-activeness

- 3.1. I am typically the first to take action, ahead of my competitors
- 3.2. I am typically an early adapter when it comes to implementing and accepting new ideas, rather than my competitors
- 3.3. I try to outpace my competitors in the development of new products
- 3.4. I am alert to seizing new opportunities in the market.

(continued)

Table A5

3.5. I provide strong incentives to employees who launch market-leading products/services					
External networking behaviours (Wolff & Moser, 2006)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
<i>Maintaining contacts</i>					
4. When I obtain informal information that might be of importance to acquaintances from other organizations, I pass it on to them					
5. I use my contacts outside my enterprise, to ask for business advice					
6. For business purposes, I keep in contact with former colleagues					
<i>Using contacts</i>					
7. If I meet acquaintances from other organizations, I approach them to catch up on news and changes in their professional lives					
8. I exchange professional tips and hints with acquaintances from other organizations					
<i>Performance</i>					
9. When I cannot solve a problem at work I call acquaintances from other organizations and ask for advice	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. Compared to our competitors, the overall performance of our company is very high					
2. Compared to our competitors, our company's market share is very high					
3. Compared to your competitors, the growth of our company is very high					
4. compared to your competitors, current profits of your company is high					
5. A number of new products have been developed by our company over the past three years					
6. The process flows being developed by our company in the past three years are very much compared to our competitors					

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