# Influence of human capital and social capital on MSME access to finance: assessing the mediating role of financial literacy

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## Abstract

**Purpose** – The authors investigate the role of financial literacy in influencing the relationship between human capital and social capital, with access to finance of micro, small and medium enterprises (MSMEs).

**Design/methodology/approach** – Data were gathered from 337 MSMEs in Brunei Darussalam, and analysis on the data was carried out using a number of statistical methods. The relationships between human capital, social capital, financial literacy and access to finance were analyzed using PLS-SEM.

**Findings** – The results show that human capital does influence access to finance but contrary to previous studies, the influence is negative. Financial literacy is an important element in the relationship between human capital, social capital and access to finance, although it plays a greater role in the relationship between social capital and access to finance. Further analysis shows that financial knowledge is significant in moderating the relationships between human and social capital with access to finance. Financial skills is found to only moderate the relationship between social capital and access to finance.

**Originality/value** – To the authors' knowledge, this study is the first that integrates the human capital, social capital, financial literacy and access to finance in a single model. The authors also highlight the importance of enhancing the financial literacy of MSMEs so that the problem of access to finance can be alleviated, especially in developing countries.

**Keywords** Human capital, Social capital, Access to finance, Financial literacy, Financial knowledge, Financial skills

**Paper type** Research paper

## 1. Introduction

Access to finance of micro, small and medium enterprises (MSMEs) around the world has received considerable attention over the years. Financial literacy has been identified as a major reason for the difficulties MSMEs have faced when trying to access financing for their business. Specifically, MSME owners lack financial knowledge (Akudugu *et al.*, 2009; Beck, 2007; Kalaieesan, 2021; Lusardi and Tufano, 2015) and financial skills that are essential to their financing applications. According to the knowledge-based view (KBV) of a firm, knowledge is a critical resource for firms to obtain competitive advantage (Grant, 1996), thus financial literacy is a critical resource for MSMEs to improve their access to finance. A number of studies have shown that the acquisition of human and social capital could improve financial literacy (Anshika *et al.*, 2021; Fatoki, 2015; Migiro and Wallis, 2006; Pangeran, 2015; Seghers *et al.*, 2012). Human capital theory by Becker (1964) posits that individuals can increase knowledge and skills through education, experience, and training, thus financial literacy can be improved through the acquisition of human capital. The relationship between social capital and financial literacy is best explained by Granovett's (1985) social capital theory that emphasizes on the ability of actors to obtain benefits such as information from their social structures, networks, and affiliations (Granovetter, 1985), and Bandura's (1986) social learning theory, which explains the impact of social capital on financial abilities through the "peer effect" that is present in social networks.

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Links have been established in previous studies between human capital and access to finance (Chowdhury and Alam, 2017; Colombo and Grilli, 2005, 2010; Colombo and Grilli, 2007; Colombo *et al.*, 2004; Matshekga and Urban, 2013; Pandula, 2011; Slavec and Prodan, 2012), social capital and access to finance (Boohene, 2018; Talavera *et al.*, 2012), financial literacy and access to finance (Adomako *et al.*, 2016; Okello Candiya Bongomin *et al.*, 2017; Hakim *et al.*, 2018; Hussain *et al.*, 2018; Nkundabanyanga *et al.*, 2014; Ye and Kulathunga, 2019) and human and social capital and financial literacy (Anshika *et al.*, 2021; Fatoki, 2015; Migiro and Wallis, 2006; Pangeran, 2015; Seghers *et al.*, 2012). International scholars have studied the issue focusing on the relationship between human capital and social capital and access to finance; in addition to knowledge of financial alternatives. However, although most studies emphasize on the positive associations between these four concepts, there have been arguments for insignificant and even negative associations. We revisit the links between these four concepts to examine the possible relationships. In addition, so far to our knowledge no study has considered an integrated model of these four concepts. We contribute to literature on access to finance of MSMEs by suggesting that financial literacy acts as a mediator between human and social capital, and access to finance. We argue that as human and social capital can influence financial literacy, and financial literacy has influence on the access to finance of MSMEs, financial literacy can play a mediating role in the human and social capital – access to finance link, i.e. in order for human and social capital to influence access to finance, they need to influence financial literacy first which will then improve access to finance. We utilize four theories that link these four concepts–human capital theory, social capital theory, social learning theory and the knowledge-based view – in our integrated model.

Our aim is thus to investigate the mediating role of financial literacy in the relationship between human and social capital with access to finance. We gathered a total of 337 useable responses through questionnaires distributed to MSMEs operating in the Brunei-Muara district of Brunei and tested the relationships between human capital, social capital, financial literacy and access to finance using Partial Least Squares Structural Equation Modeling (PLS-SEM). We found that financial literacy has significant influence on access to finance. Human capital is found to be significant in influencing MSME's access to finance but social capital is not. Interestingly, contrary to the results in previous studies, we find that the influence of both human and social capital on access to finance is negative. However, when financial literacy is included as a mediating variable in the relationship, the coefficients are found to be positive. There is also clear evidence that financial literacy mediates the relationship between human capital, social capital, and MSME access to finance, indicating that the acquisition of human capital and social capital has positive impacts on financial literacy which then improves the access to finance of MSMEs. We conducted further analysis on the components of financial literacy – financial knowledge and financial skills. We found that financial knowledge plays a greater role in gaining access to external financing and acting as a mediator to the relationship between human capital, social capital and access to finance. Financial skills only mediate the relationship between social capital and access to finance.

We discuss the relationships between the variables of interest in the next section, which contributes towards the development of the hypotheses for this study. We then provide a discussion of the data collection procedure and the research methodology employed in this study. This is then followed by a section discussing the analysis of the data used in this study. Discussion of the results of the data analysis then follows, and the final section concludes our study.

## 2. Theoretical foundations and hypotheses development

To date, a number of theories have been applied to comprehend the underlying determinants of access to finance. These include the Resource Based theory (Adomako *et al.*, 2016;

Boohene, 2018; Hussain *et al.*, 2018), and the Relational View of the Resource Based Theory (RVRB) (Wasiuzzaman *et al.*, 2020a, b). In general, existing empirical studies have been able to build multiple models by considering different sets of enterprises to explain access to funding (Matshekga and Urban, 2013). The mediating effect of financial literacy on the relationship between human capital and access to finance, as well as the relationship between social capital and access to finance, can be explained in a number of ways. Thus, the four major theories that serve as the foundation for the study's framework are: knowledge-based view (KBV), human capital theory, social capital theory and social learning theory.

### *2.1 Human capital and access to finance*

Human capital theory posits that entrepreneurs with greater human capital will be more successful than those with less (Schultz, 1961). Previous literature suggests a positive relationship between human capital and access to finance (Matshekga and Urban, 2013). Entrepreneurs with greater human capital are found to be more aware of the importance of information generated by financial statements, which serves as the basis for financial decision-making by financial institutions (Maris *et al.*, 2022). They are also aware of available financing options and, as a result, develop more intricate and tailored financial strategies for their business and personal needs (Van Auken, 2005). Because human capital is one of the most important criteria investors consider when analyzing credit applications, it helps the business owner gain financial resources (Fatoki, 2015). The quality of human capital is likely to make it easier for banks to interact and promote negotiations (Pandula, 2011). Management competencies developed through formal education, experience, and business knowledge – all different concepts of human capital – are among the selection criteria that venture capitalists search for (Matshekga and Urban, 2013).

In this study, human capital is measured through the level of education of the MSME owner/manager (Cetindamar *et al.*, 2012), therefore the discussion that follows relates the level of education, as a measure of human capital, to access to finance. The educational background of the entrepreneur may indicate superior human capital (Cassar, 2004). A number of empirical studies have found positive relationship between education and access to finance (Kira, 2013; Matshekga and Urban, 2013; Pandula, 2011; Slavec and Prodan, 2012; Kunoviku-Demiri *et al.*, 2021), however Vos *et al.* (2007) find that human capital can have negative consequences for access to finance.

New MSME owners/managers with higher education levels understand funding options better thus MSME owners/managers with better educational backgrounds are more likely to choose external sources of funding, primarily debt, in order to maximize firm value (Fatoki, 2015). Additionally, firms with educated owners/managers are more likely to obtain credit, presumably due to their knowledge of the loan application process and financial management, as well as their ability to streamline complicated loan application procedures by presenting favorable financial information (Pandula, 2011). Educated owners/managers have the abilities necessary to manage the firm's tasks such as finance, marketing, and human resources, and these skills result in high performance, which eases the firm's ability to obtain financing (Kumar and Francisco, 2005). In addition, because a higher educational degree may imply greater human capital, lenders may consider entrepreneurs with higher educational degrees to be less risky. Therefore, lenders will be more inclined to provide financial resources to people with a higher level of education (Slavec and Prodan, 2012). Accordingly, Kira (2013) finds that owners/managers with vocational education or higher are more likely to be preferred by banks when it comes to granting credit. Although this Irwin and Scott (2010) agree with this finding, they caution that education actually has very little effect on financial sources. In contrast, Vos *et al.* (2007) find that lenders do not favor smarter and older owners, instead they prefer to offer loans to younger, less educated owners thus human capital can have negative consequences for access to credit. Based on the discussions above, we hypothesize that:

*H1*. An MSME's human capital has a significant influence on its ability to access to finance.

*2.2 Social capital and access to finance*

Social capital theory relates to the ability of actors to benefit from their social structures, networks, and memberships (Granovetter, 1985). A high amount of social capital in the form of interpersonal relationships helps entrepreneurs get information that are often unavailable or expensive to obtain (Granovetter, 1985). Most prior literature suggest a positive relationship between social capital and access to finance (Boohene, 2018; Chowdhury and Alam, 2017; Okten and Osili, 2004; Talavera *et al*., 2012; Shao and Sun, 2021; David, 2022). Social capital is important in facilitating entrepreneurs' access to bank finance (Talavera *et al*., 2012) as ties decrease knowledge gaps for potential investors and improve funding contributions (Shane and Cable, 2002). A firm's desire to keep unfavorable information hidden produces information asymmetry, which can be mitigated by maintaining relationships with other firms (Chowdhury and Alam, 2017).

Prior studies generally agree that social capital such as direct and indirect ties between financial communities effectively improve an entrepreneur's knowledge of finance sources (Jenssen and Koening, 2002; Pangeran, 2015; Seghers *et al*., 2012; Shane and Cable, 2002). Some entrepreneurs obtain knowledge of external sources of finance through their relatives and friends (Migiro and Wallis, 2006). Networks produce information, facilitate transactions, and lower the cost of financial services (Woolcock, 1999). Social networks, such as trust, shared vision, and ties to family, community, and association memberships help entrepreneurs obtain external capital (Okten and Osili, 2004).

Lending institutions also consider the importance of social capital when developing credit products, since this information contributes to the reduction of information asymmetry between credit institutions and small businesses (Boohene, 2018). Because banks tackle asymmetric information problems by analyzing data and determining loan contract conditions such as interest rates and collateral requirements, the borrower-bank relationship may play a key role in gathering data and setting loan contract terms (Berger and Udell, 1995). Banks may collect private information about their customers during the course of the relationships they develop with their borrowers and use that information to help them improve the conditions they offer to borrowers (Berger and Udell, 1995). Thus, links to networks significantly reduce the degree of financial constraints experienced by firms operating in environments with undeveloped or immature financial markets (Boohene, 2018). Borrowers that have longer associations with their banks get more favorable loan terms in the form of lower rates and fewer collateral requirements. Thus, businesses have turned to social capital to increase their credit availability, as social capital reduces uncertainty, transaction costs, and default risk.

MSME owners/managers leverage on networking to receive critical information, learn about new opportunities and challenges, and gain access to or have a better understanding of financing sources. Businesses with strong networks are more likely to be able to secure bank financing than those without such networks as the networks can aid private firms with loan applications, for example, by recommending reputable enterprises to banks in order to reduce the efficiency losses associated with information asymmetry, which can be beneficial to both parties (Talavera *et al*., 2012). In a study on women entrepreneurs in Nigeria, Metu and Nwogwugwu (2022) find that the inability to get guarantors and information asymmetry were some of the critical challenged by these entrepreneurs when attempting to access microcredit. These challenges may be mitigated by the existence of strong social networks.

Professional and institutional networks help entrepreneurs get economic resources (Hernández-Carrión *et al.*, 2016). It is critical for entrepreneurs to assess the partnerships they should keep, consolidate, or invest in to acquire the necessary resources and competencies. Entrepreneurs can obtain funds through their personal networks, especially if they are extensive and interconnected. They can improve their technological and commercial capabilities by strengthening interactions with market agents, especially suppliers and customers, and by joining associations and professional networks (Hernández-Carrión *et al.*, 2016). MSME associations can actively aid MSMEs in obtaining bank financing and banks should work with these organizations to find creditworthy MSME clients (Pandula, 2011).

However, social capital can negatively impact access to capital, especially for MSMEs. Strong ties can help enterprises accumulate resources, hence a greater strong-tie network minimizes the need for debt financing. Small businesses prefer internal financing since payback conditions for internal sources are more flexible, and it is far less expensive than external financing (Slavec and Prodan, 2012). As a result of this, firms may lack credit history, making it difficult for them to obtain financing in the future. Carter *et al.* (2003) find no correlation between a diverse network of supporters and loans, equity financing, or bootstrapping. Only the use of personal resources was associated with the variety of an entrepreneur's network.

Based on the various arguments presented above, we propose that:

*H2*. An MSME's social capital has a significant influence on its ability to access to finance.

### *2.3 Financial literacy and access to finance*

The ability to integrate and use knowledge impacts the link between organizational knowledge and competitive advantage (Matusik and Hill, 1998). The KBV recommends the use of collective and tacit knowledge as critical resources for enterprises to obtain competitive advantage and improve performance (Spender, 1994; Grant, 1996). Financial literacy refers to the information and skills required to manage funds and make sound financial decisions (Adomako *et al.*, 2016). It also refers to the ability of an individual to make educated judgments and take appropriate decisions regarding the use and management of money. According to the Knowledge-based View (KBV), financial literacy contributes to the sustainability of MSMEs (Ye and Kulathunga, 2019) thus it is essential for business owners (Nkundabanyanga *et al.*, 2014). Financial literacy helps an organization's knowledge base, enabling it to adapt to, and profit from, changes in the business environment (Grant, 1996).

Financial literacy is relevant to a firm's ability to identify and secure adequate funding sources (Ye and Kulathunga, 2019; Hasan *et al.*, 2021), to obtain the necessary financial information to develop business plans, establish savings plans, and make strategic investment decisions (Okello Candiya Bongomin *et al.*, 2017). Hussain *et al.* (2018) find that inadequate financial management skills negatively influence a firm's access to financing, impairing its capacity to acquire appropriate debt and equity, which may result in bankruptcy. Financial illiteracy may deter MSMEs from accepting increasingly complex financial products such as insurance due to the uncertainty of buying a product whose utility is not completely understood. Stiglitz and Weiss (1981) argue that MSMEs delay requesting loans because they do not understand why they are subjected to terms such as interest rates, repayment periods, and other restrictions such as collateral. Thus, financially literate managers of MSMEs can make the right financial decisions and choose the right financial products without fear (Okello Candiya Bongomin *et al.*, 2017).

Increased financial literacy results in a better understanding of debt management, which guarantees that a good credit history is sustained (Hakim *et al.*, 2018). Metu and Nwogwugwu (2022) find that the fear of default is one of the main reasons the female micro entrepreneurs choose not to access microcredit facilities. Financial literacy prepares MSME owners/managers during difficult financial times by emphasizing risk mitigation methods such as avoiding excessive debt (Mabula and Ping, 2018). MSME owners/managers who are more aware of their financial situation are better equipped to prepare for the future and hence make more educated financial decisions, increasing their level of financial access.

Financial literacy is also linked to the knowledge of various funding sources and the capacity to find appropriate funding sources for a firm (Ye and Kulathunga, 2019; Hasan *et al.*, 2021). Having knowledge of the various sources from which one can borrow boosts one's chances of borrowing successfully (Akudugu *et al.*, 2009) as it will enable them to be more proactive in selecting the best possible financing choices by examining the benefits, costs and risks of the various funding sources (Mabula and Ping, 2018; Addo *et al.*, 2022; Siddik *et al.*, 2023). This demonstrates the importance of financial literacy for MSMEs in an attempt to eliminate the "equity gap," i.e. when compared to larger firms, they pay more interest and require additional collateral when borrowing. Thus, financial literacy skills empower and educate MSME owners and managers to analyze financial products and make educated decisions, and appropriate debt management enhances potential borrowers' credit worthiness. We therefore hypothesize that:

*H3.* Financial literacy has a significant positive influence on an MSME's access to finance.

### *2.4 Financial literacy as a mediator between human capital and access to finance*

The relationship between human capital and access to finance through financial literacy is explained via the knowledge-based view (KBV). The KBV provides a guide for how businesses can become more competitive and improve their performance (Grant, 1996), hence firms with more knowledge-based resources are more likely to succeed than their competitors. It asserts that collective and tacit knowledge are important resources for increasing organizational performance because the firm's ability to integrate individual— and firm-level knowledge of its product and services is critical to improving organizational performance (Spender, 1994).

Studies have found that human capital factors positively influence financial literacy levels (Fatoki, 2015; Pangeran, 2015; Seghers *et al.*, 2012). Education has been identified as one of the elements of human capital that can help individuals become more financially literate (Hakim *et al.*, 2018). According to Seghers *et al.* (2012), business education is likely to provide entrepreneurs with a set of financial decision-making capabilities. Financial education minimizes information asymmetry and enhances capital flows (Hussain and Matlay, 2007). Financially literate MSMEs are willing to take risks thus they are more likely to take advantage of highly profitable business opportunities (Goswami *et al.*, 2017; Ye and Kulathunga, 2019). Financial education enables MSME owners/managers to evaluate financial solutions (Fatoki, 2015; Seghers *et al.*, 2012). Therefore, education increases MSME owners'/managers' managerial talents and skills, improving overall management and financial management performance (Fernandes, 2015; Karadag, 2017). As financial literacy is improved through the acquisition of human capital, MSME's are able to improve their access to finance. Based on the arguments above, we hypothesize that:

*H4.* Financial literacy mediates the relationship between an MSME's human capital and its access to finance.

### *2.5 Financial literacy as a mediator between social capital and access to finance*

The social capital theory explains the relationship between social capital and access to finance through financial literacy. Owners of MSMEs may be able to enhance financial literacy by gaining social capital from financial experts (Seghers *et al.*, 2012). Social capital functions as a resource that generates opportunities and facilitates social transactions that would otherwise be more expensive. Social capital helps to address issues such as "adverse selection" and "moral hazard" that arise when people attempt to obtain and use financial services (Okello Candiya Bongomin *et al.*, 2016). Social networks share knowledge based on network strength, where strong ties bring quality knowledge. Long-term and stable relationships can significantly minimize the cost of acquiring information, while strong links provide individuals with convergent information. With the founding and growth of businesses, weak ties assist entrepreneurs in gaining access to specialized information and knowledge that are unavailable in closed social networks. Weak ties allow opportunities to communicate with those who possess relevant knowledge, while mutual trust enhances the accurate interpretation of others' expertise (Ganguly *et al.*, 2019). Being a member of a financial community can help entrepreneurs, especially start-up businesses, overcome information challenges by allowing information about potential financing options and investor characteristics to be shared with them (Pangeran, 2015; Seghers *et al.*, 2012; Van Auken, 2005).

Funding decisions are influenced by the flow of information between individuals with close relationships to an organization (Shane and Cable, 2002). The establishment of many and consistent relationships with members of the financial community prior to the launch of a new business might help entrepreneurs avoid informational problems. Consequently, it provides information to entrepreneurs about other sources of financing for their businesses (Pangeran, 2015; Seghers *et al.*, 2012). This is crucial since successful financial judgments require understanding of financing alternatives (Seghers *et al.*, 2012). Therefore, new MSMEs with more social capital (direct and indirect relationships) know more about financing options (Fatoki, 2015).

Bandura's (1986) social learning theory emphasizes that people learn through seeing other people within the social system who they regard to be reliable and knowledgeable (Okello Candiya Bongomin *et al.*, 2016). Thus, individuals are influenced by their surrounding social environment. According to the social learning theory, social capital can improve financial skills in two ways. First, peer influence exists within social networks by encouraging good behavior and learning from one another (Gioia, 2017). Individuals typically copy and learn from the conduct of others in their social network, and the greater the individual's social network, the more passive and active financial information it receives. The greater the likelihood of acquiring financial skills, the larger the impact of social networks on investors' incentive to gain financial skills and their propensity to invest (Xia *et al.*, 2014). Second, there is an instance of the "Matthew effect" in social networks. When financial events occur, people use the logic and analytical skills of financially literate social networkers to establish their own perspectives (Gao *et al.*, 2019). Thus, the social networks of MSME owners/managers are able to improve their financial literacy which then results in improved access to finance. We hypothesize that:

*H5.* Financial literacy mediates the relationship between an MSME's social capital and its access to finance.

## 3. Data and methodology

### *3.1 Data collection procedure*

To achieve the aim of this study, we distributed questionnaires to MSMEs in Brunei Darussalam. Similar to other countries in the ASEAN region, MSMEs make up a big portion of the total enterprises in Brunei (almost 97%) yet they have only contributed 44% to employment and 35% to the Gross Domestic Product (GDP) of Brunei. Access to finance has been identified as one of the top three hurdles faced by these MSMEs (Sani, 2018; Musa *et al.*, 2020). MSMEs in the Asian region rely greatly on banks for external financing as the financial systems and capital markets in the region are not well developed (Beck *et al.*, 2008; Yoshino and Taghizadeh-Hesary, 2015), therefore access to finance is an important ongoing issue. In the case of Brunei, MSME's access to bank financing is found to be very low despite the various assistance and facilities offered by the Brunei government to improve MSME access to financing (Asian Development Bank, 2020). According to the Asian Development Bank (2020), the total number of MSMEs in Brunei has increased over the years however MSME loans to total loans outstanding in Brunei was just 0.15% in year 2019. Although Brunei has a credit information system, a secured transaction law system, a specialized bank for MSMEs, and direct lending, the country still struggles to help MSMEs gain access to financial resources (Asian Development Bank, 2020). Polsaram *et al.* (2011) found that 76% of MSMEs in Brunei have difficulty accessing financing, and the majority obtain loans from internal sources such as friends and family, while only 18% obtain financing from local banks and 5.4% from foreign banks. MSMEs in Brunei prefer to borrow money from family and friends rather than from the bank as the MSMEs are not able to fulfill bank requirements (Musa *et al.*, 2020).

The sampling unit in this study is firms in the micro, small, and medium (MSMEs) categories from all industries. We only considered firms from the Brunei-Muara district as the district accounts for around 82.5% of all MSMEs in Brunei, according to most recent statistics provided by the Department of Economic Planning and Statistics Brunei. We obtained the list of firms from a variety of public websites, articles, social media platforms, MSME festivals and consumer fairs. We then obtained various contact details of these firms such as telephone numbers, email addresses, WhatsApp contact numbers and social media profiles. We distributed the questionnaire to all the firms that were still active in business. Respondents were the Finance Officers or persons responsible for the finance function in the MSMEs. However, as some MSMEs are operated by a single person (usually the owner) who handles all the functions, we also distributed the questionnaire to the owners.

We prepared the questionnaire using Google Forms and sent the link via email or Instagram. To encourage participation in the survey, we also sent WhatsApp messages in cases where WhatsApp contact details were available. In some cases, firm representatives requested that the survey be sent by email to the management, who were responsible for reviewing the survey; after which they asked the finance department to respond to the survey. Following the distribution of the questionnaire, we sent pre-notifications and reminders via texts and emails on a periodic basis. Some respondents stated their refusal to participate due to issues such as confidentiality of their financial information, disinterest in participating in the survey and company rules regarding survey participation. Some respondents were not able to complete the survey as they had received a large number of survey questionnaires.

Prior to distributing the questionnaires, we carried out face validation with three academics, representatives from a private bank, and two MSMEs before we distributed the survey. This was done to ensure that the questions asked were relevant to the MSMEs. We asked the specialists for comments and suggestions, and improvements were made as a result. Out of the 2,639 MSMEs approached for the survey, 390 responses and/or answers were received within a six-month period, which resulted in a response rate of 14.77%. Such low rate of response is not unusual for studies on MSMEs, especially in developing countries and those in relation to their financing issues. A study by Čalopa (2017) on SME business owner and manager's attitudes towards financial decision-making and strategic planning had a responses rate of 14% which is quite similar to this study. Out of the 390 responses received, we could only use 337 because 53 of them were deemed unusable due to various reasons, including missing values (1), unreliable answers (51) and ineligibility to participate in the survey as the respondent was the owner or manager of a large company (1).

Table 1 provides the demographic profiles of the MSMEs, which includes the firm's legal status, character, size, the industry in which the MSME in operating. The industry



| | Freq | % |
|---|---|---|
| *Legal status* | | |
| Sole proprietorship | 210 | 62.3 |
| Partnership | 38 | 11.3 |
| Private limited company | 75 | 22.3 |
| Not registered under ROCBN | 14 | 4.2 |
| *Firm size* | | |
| Micro | 197 | 58.5 |
| Small | 102 | 30.3 |
| Medium | 38 | 11.3 |
| *Firm characteristic* | | |
| Non-profit enterprise | 28 | 8.3 |
| Subsidiary and branch | 19 | 5.6 |
| Profit oriented | 233 | 69.1 |
| Informal business | 57 | 16.9 |
| *Industry* | | |
| Agriculture, forestry and fishery | 21 | 6.2 |
| Mining and quarrying | 1 | 0.3 |
| Manufacturing | 39 | 11.6 |
| Electricity, gas, water supply and other industrial activities | 12 | 3.6 |
| Construction | 53 | 15.7 |
| Wholesale and retail trade | 58 | 17.2 |
| Accommodation and food service activities | 71 | 21.1 |
| Transportation and storage | 5 | 1.5 |
| Information and communication | 6 | 1.8 |
| Real estate activities | 3 | 0.9 |
| Professional, technical, administrative and support services | 13 | 3.9 |
| Education | 11 | 3.3 |
| Human health and social work activities | 8 | 2.4 |
| Others | 36 | 10.7 |
| *Education level* | | |
| No formal education | 2 | 0.6 |
| Primary and/or secondary education | 64 | 19.0 |
| A-level & diploma | 92 | 27.3 |
| Bachelor's degree and professional qualifications | 131 | 38.9 |
| Master & PhD | 48 | 14.2 |
| *Education (Major)* | | |
| Accounting and finance | 65 | 19.3 |
| Business studies | 55 | 16.3 |
| Economics | 32 | 9.5 |
| Mathematics | 74 | 22.0 |
| Not applicable | 64 | 19.0 |
| Others | 47 | 13.9 |

**Source(s):** Authors' own creation

**Table 1.**
Demographic profile of respondents

classifications are based on Department of Economic Planning and Statistics, 2019 Annual Census of Enterprises (ACE). The demographic profile also includes the human capital profile of the respondents, i.e. their highest level of education and their academic qualifications. The profile shows that a majority of the MSMEs are micro firms (58.5%), with small firms making up 30.3% of the respondents while 11.3% are medium-sized firms. The MSMEs are for-profit enterprises (69.1%) with a majority being sole proprietorships (62.3%). The MSMEs are from a range of industries such as accommodation and food service activities (21.1%), wholesale and retail commerce (17.2%), and construction (15.7%), among others. The respondents answering the questionnaire mostly have post-secondary education (80.4%), with 53.1% having qualifications at the Bachelor's degree and/or professional qualifications level. Around 22% have educational backgrounds in the field of mathematics, 19.3% in accounting and finance, 16.3% in business studies and 9.5% in economics.

### *3.2 Measurement of variables*

The dependent variable in this study is access to finance. Claessens (2006) defines access to finance (AF) using a number of variables, including availability, accessibility, sufficiency, cost, range, quality, flexibility, and recurrence of financing. We use the measurement developed by Wasiuzzaman *et al.* (2020a, b) from the definition by Claessens (2006) to measure access to finance.

The independent variables in this study are human capital and social capital. Following Cetindamar *et al.* (2012), we measure human capital (HC) via the level of education of the respondent. Respondents are asked to state their highest level of education: (1) uneducated but literate, (2) primary and/or secondary education, (3) higher education up to A-levels or Diploma, (4) university degree and/or professional certifications, and (5) postgraduate degree–Masters and doctorate.

We measure social capital (SC) based on the network ties between the entrepreneur and finance experts. Following Seghers *et al.* (2012), we use direct and indirect ties as indicators of social capital. The term "direct ties" refers to a personal relationship between a decision-maker and the party whose interests are being considered (Shane and Cable, 2002). An indirect tie is a relationship between two people who are not directly related but can be linked through their direct ties (Shane and Cable, 2002). Due to the significance of ties in influencing access to capital, organizational researchers and practitioners alike have investigated this form of social capital.

The mediating variable is financial literacy (FL). We measure the level of FL of the MSME owner/manager by their financial knowledge (FK) and financial skills (FS). The indicators utilized to measure financial knowledge (FK01 to FK03) are adapted from Ye and Kulathunga (2019), while the rest are from Nkundabanyanga *et al.* (2014). For financial skills, we adopt the measurements used by Ye and Kulathunga (2019).

We introduce the age and size of the companies in the model as control variables in order to control for the varying features of the companies. The measurement for both these variables are adapted from Adomako *et al.* (2016). The age of the firm is measured as the number of years since the business was first registered or formed, whichever came first. Respondents are asked to indicate the year their company was first registered or formed. We calculate the age of the firm by subtracting the year indicated from year 2021, the time this study was conducted. The size of the firm is measured based on the definition of MSME by the Ministry of Finance and Economy Brunei. The respondents were asked to indicate both their annual sales revenue and the total number of full-time employees in the firm. However, due to unreliability of the data provided with respect to the annual sales revenue, we determined size of the company based on the number of full-time employees. Depending on the responses provided, the companies are classified as micro (1–4 employees), small (5–19 employees) and medium (20–99 employees).

All indicators pertaining to the constructs of AF, SC, and FL are standardized on a five-point Likert scale ranging from (1) strongly disagree to (5) strongly agree in order to provide sufficient response choice without increasing respondent burden (Sekaran and Bougie, 2010). The indicators are checked for reliability using the Cronbach's alpha. Exploratory factor analysis (EFA) is then carried out on each individual construct in order to identify the measurements for access to finance, financial literacy, and social capital. This is necessary as studies relating to financial literacy are relatively limited in number and are of an exploratory nature. There are 16 indicators in the survey that measure the concept of FL out of which 8 each measure FK and FS, 6 indicators that measure SC and 8 indicators that measure AF. Table 2 presents the finalized indicators for each variable, the source from which the indicators are adopted/adapted, the Kaiser-Meyer-Olkin (KMO) measure of sample adequacy (Kaiser, 1970), the Bartlett's test of sphericity (Bartlett, 1954) and the Cronbach Alpha for each variable. For all the variables, Bartlett's test values are significant ($p$-value 0.05), KMO results are more than 0.6 (Tabachnick and Fidell, 1996) and Cronbach's alpha values are greater than 0.80, which indicates good to excellent internal consistency of the constructs.

## 4. Analysis of data and discussion of results

### *4.1 Preliminary analysis*

We calculated the average values for each multi-item construct for each respondent before carrying out any preliminary analyses of the variables. Descriptive statistics and means comparison analyses were first carried out for the constructs AF, FL, FK, FS, and SC. Descriptive statistics include the mean, minimum, maximum, standard deviation, skewness, and kurtosis values. Table 3 Panel A presents the descriptive statistics of the five variables. In addition, since the respondents are owners/managers of MSMEs with varying features, we carried out Kruskal–Wallis K-independent samples means comparison test to assess possible differences in the means based on the legal status, business orientation, and size of the firms. The results for the tests are presented in Table 3, Panels B, C, and D.

The descriptive statistics in Table 3 Panel A shows that on average, AF values are low (mean = 2.9444), indicating that most MSMEs did not agree that they have easy access to financing for their business. The average FL score of 3.5269 indicates that most respondents considered themselves to be financially literate. The MSMEs participating in the study seemed to be aware of and were able to choose the best financing options. Similarly, the average FK score of 3.5211 indicates that the MSMEs owners and managers knew how to manage their finances and were familiar with the products of the financial institutions in Brunei. The average FS score of 3.5326 indicates that most respondents had average financial skills. The average for social capital is found to be 3.1454, which indicates that on average the respondents were neutral on their perception of their social capital.

Kruskal–Wallis test on the comparison of means based on legal status (in Panel B) indicates that there is no significant difference in the mean AF ($p = 0.145$) of MSMEs based on their legal status; however, there are significant differences in the mean AF for FL ($p = 0.001$), FK ($p = 0.003$), FS ($p = 0.003$), and SC ($p = 0.000$) with partnerships having the highest FL (mean = 3.7747). Further analysis of the components of FL shows that partnerships also had the highest levels of FK (mean = 3.7525) and FS (mean = 3.7993). Private limited SMEs had greater SC (mean = 3.5244) than partnerships (mean = 3.4035), indicating that SC is increased with more owners.

Panel C shows the mean for each variable by business orientation. Profit-oriented MSMEs had the greatest FL (3.6124) with non-profit-oriented MSMEs having the lowest (3.2076). Profit-oriented are also found to have the greatest levels of FK (mean = 3.6116) and FS (mean = 3.6132). Financial literacy enhances financial management and lowers errors, boosting sustainability (Lusardi and Mitchell, 2014) and these are important aspects for a

| Item code | Survey indicators | Average | Source | KMO | Bartlett's | Cronbach's alpha |
|---|---|---|---|---|---|---|
| *Access to Finance (AF)* | | | | | | |
| ATF01 | Financial services are easily available to us when needed/desired | 2.85 | Wasiuzzaman *et al.* (2020a, b); Claessens (2006) | 0.907 | 0 | 0.901 |
| ATF02 | Financial services are easily accessible to us | 2.92 | | | | |
| ATF03 | The size of loan available is sufficient to meet the needs of our company | 2.99 | | | | |
| ATF04 | The total cost of accessing financial services is low | 3.02 | | | | |
| ATF05 | There is a wide range of financial services available to us | 2.93 | | | | |
| ATF06 | The quality of financial services offered to us is very good | 2.91 | | | | |
| ATF07 | Our company can access finance repeatedly | 2.93 | | | | |
| ATF08 | The financial products available/offered are tailored to the needs of our company | 3.00 | | | | |
| *Social Capital (SC)* | | | | | | |
| SC01 | Before the start of the company, I already had a professional relationship with at least one person who knows to finance | 3.05 | Seghers *et al.* (2012) | 0.875 | 0 | 0.854 |
| SC02 | Before the start of the company, one of my counselors knew at least one person with knowledge of financing | 3.06 | | | | |
| SC03 | Before the start of the company, I already had informal social contacts with at least one person who knows to finance | 3.22 | | | | |
| SC04 | Even before the start of the company, I came into contact with third parties through my social network with knowledge of financing | 3.03 | | | | |
| SC05 | Before the start of the business, I had at least one personal friend with knowledge of financing | 3.37 | | | | |
| SC06 | Through friends, I already had contact before the start of the company with third parties with knowledge of finance | 3.14 | | | | |

(*continued*)

**Table 2.** Measurement indicators

| Item code | Survey indicators | Average | Source | KMO | Bartlett's | Cronbach's alpha |
|---|---|---|---|---|---|---|
| *Financial Literacy (FL)* | | | | *0.939* | *0* | *0.964* |
| *Financial Knowledge (FK)* | | | | | | |
| FK01 | I am aware of the documents needed to get a loan from a bank in order to fulfill our financial needs | 3.56 | Ye and Kulathunga (2019) | 0.877 | 0 | 0.933 |
| FK02 | I am aware of the costs and benefits of accessing credit | 3.53 | | | | |
| FK03 | I have basic accounting knowledge | 3.56 | | | | |
| FK04 | I am able to manage the finances of the company | 3.73 | Nkundabanyanga *et al.* (2014) | | | |
| FK05 | I am aware of financial products and services provided by commercial banks | 3.44 | | | | |
| FK06 | I know the different sources from which my company can borrow from | 3.42 | | | | |
| FK07 | I am able to make effective financial choices for my company | 3.60 | | | | |
| FK08 | I have a working knowledge of financial institutions | 3.34 | | | | |
| *Financial Skills (FS)* | | | | | | |
| FS01 | I have the required skills to ascertain the financial trends of the firm | 3.49 | Ye and Kulathunga (2019) | 0.924 | 0 | 0.955 |
| FS02 | I am able to analyze the financial performance of my firm periodically | 3.67 | | | | |
| FS03 | I am able to prepare the monthly income statements of the firm | 3.68 | | | | |
| FS04 | I am able to compute the cost of my firm's loan capital | 3.46 | | | | |
| FS05 | I am able to prepare my firm's basic accounting books | 3.56 | | | | |
| FS06 | I am able to calculate interest rates and loan payments correctly | 3.34 | | | | |
| FS07 | I am able to assess the financial outlook for the company | 3.51 | | | | |
| FS08 | I am able to minimize the financial losses of the company by minimizing bad debts | 3.55 | | | | |

**Source(s):** Authors' own creation

**Table 2.**

| | N | AF | FL | FK | FS | SC |
|---|---|---|---|---|---|---|
| Panel A: Descriptive statistics of overall sample | | | | | | |
| Mean | 337 | 2.9444 | 3.5269 | 3.5211 | 3.5326 | 3.1454 |
| Minimum | 337 | 1 | 1 | 1 | 1 | 1 |
| Maximum | 337 | 5 | 5 | 5 | 5 | 5 |
| Std. Dev | 337 | 0.75824 | 0.68214 | 0.72038 | 0.73183 | 1.04161 |
| Skewness | 337 | 0.002 | −0.348 | −0.295 | −0.278 | −0.396 |
| Kurtosis | 337 | 0.706 | 1.205 | 0.663 | 0.999 | −0.686 |
| Panel B: Comparison of mean by legal status | | | | | | |
| Sole proprietorship | 210 | 2.931 | 3.4679 | 3.4726 | 3.4631 | 3.0175 |
| Partnership | 38 | 2.9441 | 3.7747 | 3.75 | 3.7993 | 3.4035 |
| Private Limited Company | 75 | 2.9183 | 3.6217 | 3.6183 | 3.625 | 3.5244 |
| Not registered under ROCBN | 14 | 3.2857 | 3.2321 | 3.1071 | 3.3571 | 2.3333 |
| Kruskal–Wallis test (sig) | | 0.145 | 0.001 | 0.003 | 0.003 | 0 |
| Panel C: Comparison of mean by firm orientation | | | | | | |
| Non-profit enterprise | 28 | 2.7098 | 3.2076 | 3.1295 | 3.2857 | 3.0238 |
| Subsidiary and branch | 19 | 3.0132 | 3.4901 | 3.5329 | 3.4474 | 3.1842 |
| Profit-oriented business | 233 | 2.9641 | 3.6124 | 3.6116 | 3.6132 | 3.2482 |
| Informal business | 57 | 2.9561 | 3.3465 | 3.3399 | 3.3531 | 2.7719 |
| Kruskal–Wallis test (sig) | | 0.262 | 0.004 | 0.002 | 0.017 | 0.016 |
| Panel D: Comparison of mean by size | | | | | | |
| Micro | 197 | 2.9118 | 3.4365 | 3.4289 | 3.4442 | 3.0245 |
| Small | 102 | 2.9363 | 3.6642 | 3.6532 | 3.6752 | 3.2386 |
| Medium | 38 | 3.1349 | 3.6266 | 3.6447 | 3.6086 | 3.5219 |
| Kruskal–Wallis test (sig) | | 0.162 | 0.006 | 0.011 | 0.013 | 0.018 |

**Note(s):** AF: Access to finance, FK: Financial knowledge, FL: Financial literacy, FS: Financial skills, SC: Social capital
**Source(s):** Authors' own creation

**Table 3.** Descriptive statistics and means comparison tests

profit-oriented business. Profit-oriented MSMEs also had greater SC (mean = 3.248) because better connected MSMEs have higher sales and value-added services (Fafchamps and Minten, 2000). Profit-oriented MSMEs would therefore benefit from improving their social network capital.

Panel D shows each variable's mean by firm size. The Kruskal–Wallis test shows size-dependent variations in the means of FL ($p$ = 0.006), FK ($p$ = 0.011), FS ($p$ = 0.013), and SC ($p$ = 0.018) for MSMEs. Small-sized MSMEs have the highest FL (mean = 3.6642), FK (3.6532) and FS (3.6752) while medium-sized MSMEs have greater SC (mean = 3.5219).

We then carried out crosstabs analysis to compare human capital levels by legal status, business orientation, and size because MSME owner/manager education is measured on an ordinal scale. Table 4 presents the results of the crosstabs analysis by legal status (Panel A), business orientation (Panel B), and size of the firm (Panel C), along with the Pearson Chi-Squared statistics.

Significant difference in HC was found between the different legal status of the firms, business orientation and size. Private limited MSMEs had the greatest HC while unregistered MSMEs had the lowest HC, whereby only 71.42% had primary and secondary education. Profit-oriented MSMEs had the greatest HC ($p$ = 0.000) while non-profit MSMEs (78.56%) and informal businesses (64.90%) had the lowest HC, with most having either secondary school or Diploma qualifications. HC was highest in small and medium-sized MSMEs, while micro-sized MSMEs had the lowest HC, with 53.79% of the respondent owners/managers possessing post-secondary or Diploma qualifications.

| Category | N | No formal education | Primary and/or secondary education | A-level & Diploma | Bachelor's degree and professional certification | Master & PhD |
|---|---|---|---|---|---|---|
| Panel A: Association between legal status and human capital (HC) | | | | | | |
| Sole proprietorship | 210 | 0.95 (%) | 22.8% | 27.14% | 33.80% | 15.23% |
| Partnership | 38 | 0% | 13.15% | 28.94% | 36.84% | 21.05% |
| Private limited company | 75 | 0% | 6.66% | 26.66% | 56% | 10.66% |
| Not registered under ROCBN | 14 | 0% | 42.85% | 28.57% | 28.57% | 0% |
| Total | | *2* | *64* | *92* | *131* | *48* |
| Pearson chi-squared | 0.013 | | | | | |
| Panel B: Association between business orientation and human capital (HC) | | | | | | |
| Non-profit enterprise | 28 | 3.57% | 42.85% | 32.14% | 17.85% | 3.57% |
| Subsidiary and branch | 19 | 5.26% | 5.26% | 31.57% | 47.36% | 10.52% |
| Profit oriented | 233 | 0% | 14.16% | 24.89% | 44.63% | 16.30% |
| Informal business | 57 | 0% | 31.57% | 33.33% | 22.80% | 12.28% |
| Total | | *2* | *64* | *92* | *131* | *48* |
| Pearson chi-squared | 0.000 | | | | | |
| Panel C: Association between size and human capital (HC) | | | | | | |
| Micro | 197 | 0.50% | 25.38% | 27.91% | 30.96% | 15.22% |
| Small | 102 | 0.98% | 9.80% | 26.47% | 47.05% | 15.68% |
| Medium | 38 | 0% | 10.52% | 26.31% | 57.89% | 5.26% |
| Total | | *2* | *64* | *92* | *131* | *48* |
| Pearson chi-squared | 0.006 | | | | | |

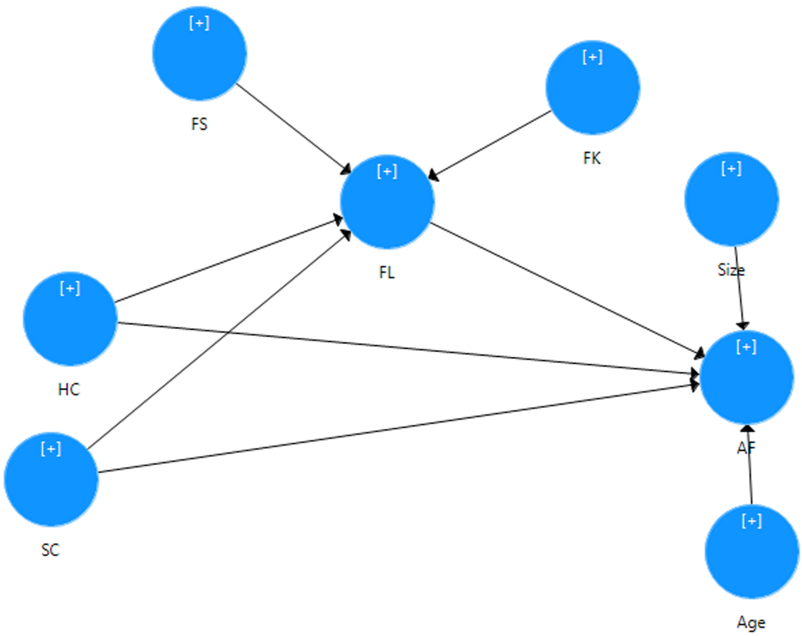
**Source(s):** Authors' own creation

**Table 4.**
Cross-tabs analysis

*4.2 Structural equation modeling*

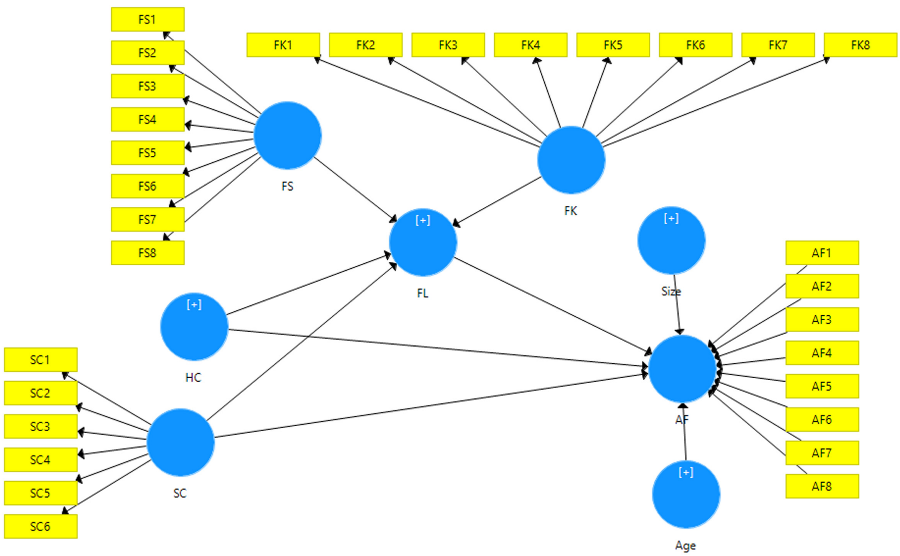
We utilized the SmartPLS software to carry out the Partial Least Squares–Structural Equation Modeling (PLS-SEM) to determine the indicators to retain in the final model and examine the association between HC, SC and AF, with FL as the mediating variable. We treated SC as reflective measurement models since the indicators may correlate with one another and we may have missed certain elements. We treated FL as a multidimensional second-order formative construct, with FK and FS as two first-order sub-constructs that are dimensions of FL (Håvold *et al.*, 2021). Following Wasiuzzaman *et al.* (2020a, b), we treated AF as a formative measurement model. Figure 1 presents the second-order conceptual model with independent, mediating, and dependent variables and Figure 2 presents the second-order measurement model with the indicators for each construct. The indicators for FL are all the indicators for FS and FK and are not shown in Figure 2 due to space constraint.

We evaluated the reflective measurement model's internal consistency, indicator reliability, convergent validity, and discriminant validity. Internal consistency evaluation using composite reliability (also known as Dhillon-Goldstein Rho) found that all constructs were sufficiently reliable, since the values range between 0.948 and 1. Cronbach's Alpha, composite reliability and Average Variance Explained (AVE) values for all variables were more than 0.50, suggesting satisfactory composite reliability and validity (Bagozzi and Youjae, 1988). Table 5




**Note(s):** AF: Access to finance, FK: Financial knowledge, FL: Financial literacy, FS: Financial skills, SC: Social capital
**Source(s):** Authors' own creation

**Figure 1.** Second-order model depicting relationship between human capital, social capital, financial literacy and access to finance




**Note(s):** AF: Access to finance, FK: Financial knowledge, FL: Financial literacy, FS: Financial skills, SC: Social capital
**Source(s):** Authors' own creation

**Figure 2.** Second-order model depicting relationship between human capital, social capital, financial literacy and access to finance

presents the results of these evaluations. Outer loadings (shown in Table 6) which range between 0.697 and 1, were greater than 0.4, indicating sufficient reliability (Hulland, 1999).



| Construct | Composite reliability | Cronbach's alpha | AVE |
|---|---|---|---|
| FL | 0.955 | 0.950 | 0.574 |
| FK | 0.924 | 0.906 | 0.603 |
| FS | 0.945 | 0.933 | 0.683 |
| SC | 0.948 | 0.934 | 0.752 |

**Note(s):** FK: Financial knowledge, FL: Financial literacy, FS: Financial skills, SC: Social capital
**Source(s):** Authors' own creation

**Table 5.**
Composite reliability and validity

| Item/Construct | FK | FL | FS | SC |
|---|---|---|---|---|
| FK1 | | 0.672 | | |
| FK1 | 0.761 | | | |
| FK2 | | 0.693 | | |
| FK2 | 0.790 | | | |
| FK3 | | 0.717 | | |
| FK3 | 0.742 | | | |
| FK4 | | 0.826 | | |
| FK4 | 0.794 | | | |
| FK5 | | 0.705 | | |
| FK5 | 0.807 | | | |
| FK6 | | 0.684 | | |
| FK6 | 0.781 | | | |
| FK7 | | 0.737 | | |
| FK7 | 0.759 | | | |
| FK8 | | 0.772 | | |
| FK8 | 0.774 | | | |
| FS1 | | 0.797 | | |
| FS1 | | | 0.807 | |
| FS2 | | 0.795 | | |
| FS2 | | | 0.833 | |
| FS3 | | 0.829 | | |
| FS3 | | | 0.858 | |
| FS4 | | 0.804 | | |
| FS4 | | | 0.853 | |
| FS5 | | 0.752 | | |
| FS5 | | | 0.809 | |
| FS6 | | 0.802 | | |
| FS6 | | | 0.834 | |
| FS7 | | 0.749 | | |
| FS7 | | | 0.796 | |
| FS8 | | 0.760 | | |
| FS8 | | | 0.817 | |
| SC1 | | | | 0.840 |
| SC2 | | | | 0.900 |
| SC3 | | | | 0.891 |
| SC4 | | | | 0.860 |
| SC5 | | | | 0.858 |
| SC6 | | | | 0.851 |

**Note(s):** FK: Financial knowledge, FL: Financial literacy, FS: Financial skills, SC: Social capital
**Source(s):** Authors' own creation

**Table 6.**
Outer loadings

Discriminant validity was evaluated using the Fornell-Larcker criterion analysis. Discriminant validity was achieved as the diagonal elements (square roots of AVEs) in any particular row or column are larger than the off-diagonal components in that row or column. We also checked the heterotrait-monotrait correlation ratios (HTMT) and found that all values are less than 0.90, confirming the model's discriminant validity. It should however be noted that since the model is of a second-order form, the HTMT ratios between FL and FK, and FL and FS are greater than 1. Collinearity among constructs was examined using the Variance Inflation Factor (VIF). The VIF values for each construct was found to be less than 3.0, confirming that there were no issues of multicollinearity. The results for the Fornell-Larcker criterion and VIF values of the constructs FL, HC and SC are provided in Table 7.

As is the case for second-order constructs, FL is perfectly explained by its first-order constructs, FK and FS, and this swamps out potential explanation for the variance in FL by the other constructs (HC and SC). Hence, we used the latent variable scores for each of our second-order constructs to create a new model with HC and SC as the independent variables, FL as the mediating variable, AF as the dependent variable and; SIZE and AGE as the control variables. We applied the bootstrapping method using samples of 5,000 to this model to explore the relationship between the variables. Both the direct and indirect relationships were evaluated and the results of the analysis and model fit statistics are provided in Table 8.

| Construct | AF | AGE | FK | FL | FS | HC | SC | SIZE |
|---|---|---|---|---|---|---|---|---|
| AF | | | | | | | | |
| AGE | 0.054 | 1.000 | | | | | | |
| FK | 0.301 | 0.071 | 0.776 | | | | | |
| FL | 0.281 | 0.057 | 0.939 | 0.757 | | | | |
| FS | 0.233 | 0.038 | 0.789 | 0.952 | 0.826 | | | |
| HC | −0.047 | 0.005 | 0.183 | 0.159 | 0.120 | 1.000 | | |
| SC | 0.084 | 0.094 | 0.326 | 0.354 | 0.342 | 0.077 | 0.867 | |
| SIZE | 0.143 | 0.369 | 0.133 | 0.139 | 0.130 | 0.192 | 0.157 | 1.000 |

**Note(s):** AF: Access to finance, FK: Financial knowledge, FL: Financial literacy, FS: Financial skills, HC: Human capital, SC: Social capital
**Source(s):** Authors' own creation

**Table 7.** Discriminant validity and multicollinearity

| Direct paths | Path coefficient | *t*-value | 95% CI LL | 95% CI UL | *P*-value | $f^2$ | $R^2$ | SRMR |
|---|---|---|---|---|---|---|---|---|
| FL → AF | 0.292 | 4.048*** | 0.152 | 0.424 | 0.000 | 0.081 | 0.103 | 0.060 |
| HC → AF | −0.116 | 1.999** | −0.219 | 0.006 | 0.046 | 0.014 | | |
| SC → AF | −0.031 | 0.503 | −0.142 | 0.103 | 0.615 | 0.001 | | |
| SIZE → AF | 0.132 | 2.440** | 0.026 | 0.229 | 0.015 | 0.016 | | |
| AGE → AF | −0.008 | 0.139 | −0.112 | 0.109 | 0.889 | 0.000 | | |
| HC → FL | 0.132 | 2.205** | 0.022 | 0.263 | 0.028 | 0.020 | 0.143 | |
| SC → FL | 0.344 | 6.528*** | 0.231 | 0.435 | 0.000 | 0.137 | | |
| Indirect paths | | | | | | | | |
| SC → FL → AF | 0.100 | 3.477*** | 0.048 | 0.158 | 0.001 | | | |
| HC → FL → AF | 0.039 | 2.095** | 0.008 | 0.086 | 0.037 | | | |

**Note(s):** AF: Access to finance, FL: Financial literacy, HC: Human capital, SC: Social capital. ***, **, * indicate two-tailed test significance at 1%, 5% and 10% levels, respectively
**Source(s):** Authors' own creation

**Table 8.** Relationship between HC, SC, FL and AF

Evaluation of the model fit indicates that the model adequately represented the measurement model with the saturated model's Standardized Root Mean Squared Residual (SRMR) being 0.060. The $R^2$ value of the link between the independent variables (HC and SC) and the mediating variable (FL) is 0.143, but the $R^2$ value of the relationship between FL and the endogenous latent variable (AF) is only 0.103. The effect sizes for all the relationships are found to be small. The effect size of the FL, HC and SC constructs on AF is found to be small, with the link between FL and AF having the highest $f^2$ value of 0.081. The effect size of SC on FL is higher than that of HC on FL with $f^2$ for SC being 0.137 while that of HC is 0.020, suggesting the relative importance of social capital when evaluating financial knowledge and skills.

In terms of the significance of the relationships studied, the results in Table 8 indicate that FL has a highly significant positive influence on AF at the 1% level ($p$-value = 0.010), thus supporting hypothesis H3. The significant positive influence of FL on AF is in line with the findings of Okello Candiya Bongomin *et al.*, 2017, Hussain *et al.* (2018), Nkundabanyanga *et al.* (2014) and Ye and Kulathunga (2019). Our finding supports the knowledge-based view (KBV) that financial literacy helps MSMEs gain competitive advantage in the form of better access to finance (Ye and Kulathunga, 2019). It improves an organization's ability to respond to and profit from changes in the business environment by increasing its knowledge base (Grant, 1996) and it helps firms find and secure capital due to their knowledge of financing alternatives (Akudugu *et al.*, 2009; Ye and Kulathunga, 2019). It enables MSME owners/managers to acquire the required financial information to construct business goals, set savings plans, and make smart investment decisions (Okello Candiya Bongomin *et al.*, 2017). It prepares MSME owners for hard times by reducing risk and preventing over-indebtedness (Siekei *et al.*, 2013). Financial literacy also empowers MSMEs managers to make informed financial judgments and choices about complex financial products without fear (Okello Candiya Bongomin *et al.*, 2017). Importantly, improved financial literacy can help MSMEs in emerging economies generate timely, relevant, and accurate financial statements for financing, hence reducing funding shortages which helps MSMEs establish a stable capital structure, decreasing capital costs and boosting sustainability (Ye and Kulathunga, 2019).

We find that the relationship between HC and AF is significant at the 5% level, supporting hypothesis H1. However, contrary to findings in most previous studies, the relationship is found to be negative. Human capital theory posits that a high level of human capital allows easy access to finance. In contrast, we find that higher human capital reduces the demand for access to financial resources. The negative relationship is however consistent with Vos *et al.* (2007), who note that educated MSMEs are less likely to need external finance. Less-educated SME owners use external funding more frequently despite the fact that a higher level of education lessens loan rejection anxiety.

We hypothesized a positive significant relationship between social capital and access to finance (H2) based on the social capital theory, which posits that social capital in the form of relationships helps entrepreneurs gain access to valuable tangible and intangible resources. We find an insignificant negative relationship between the two, which contradicts the findings of most studies. The insignificant negative relationship between social capital and access to finance in this study supports the findings of Carter *et al.* (2003), Shane and Cable (2002), and Slavec and Prodan (2012), who find that a greater network of relationships reduces the likelihood of using external money. Social capital is a less important factor contributing to the use of external finance because external financing is more expensive than internal financing, therefore organizations with greater social capital are more likely to finance themselves internally (Slavec and Prodan, 2012). We find that the social capital theory is still able to explain this relationship from the point of view that social capital provides entrepreneurs with access to other financing alternatives, which reduces their dependence on external financing specifically from banks.

The link between HC and FL is found to be highly significant at the 5% level. This finding is consistent with Hakim *et al.* (2018) and Nkundabanyanga *et al.* (2014). SC is also shown to have a positive significant link with FL, indicating that having relationships with people who have financial knowledge and/or experience may improve the financial literacy of MSME owners/managers, thereby reducing the information problems that entrepreneurs face as they allow the transfer of information to entrepreneurs about potential financing alternatives. This outcome is consistent with the findings of Seghers *et al.* (2012). Investigation into the indirect effect of HC and SC on AF shows that FL significantly mediates the impact of both HC and SC on AF, although the impact has greater significance for SC (at 1% level) compared to HC (at 5% level). Hence both Hypotheses H4 and H5 are supported. Therefore, it can be concluded that while HC can both directly and indirectly influence AF, SC is only able to influence AF if FL is improved.

The influence of human capital on access to finance through financial literacy can be explained via the human capital theory. Human capital theory states that entrepreneurs with greater human capital perform better and can affect financial literacy through education (Anshika *et al.*, 2021; Fatoki, 2015; Pangeran, 2015; Seghers *et al.*, 2012). In particular, business education helps entrepreneurs make financial decisions as they become aware of different financial sources (Seghers *et al.*, 2012). Financial education reduces information inequality and boosts capital flows (Hussain and Matlay, 2007) and helps MSMEs evaluate financial options (Fatoki, 2015; Seghers *et al.*, 2012). As financial literacy is improved through the acquisition of human capital, MSMEs are able to improve their access to finance. Thus improved human capital may assist in increasing financial literacy among MSMEs in Brunei which can then improve the MSME's access to finance.

The influence of social capital on access to finance through financial literacy can be explained via the social capital theory. Networks with people who have financial knowledge and/or experience such as financial professionals may increase the financial literacy of MSME owners/managers, reducing the information difficulties that entrepreneurs encounter as these networks enable the transfer of information about prospective funding options (Seghers *et al.*, 2012). Knowledge of financing options is linked to a strong financial network (Fatoki, 2015; Pangeran, 2015; Seghers *et al.*, 2012). As a member of a financial community, entrepreneurs have greater awareness of conventional and innovative financing choices and can share information about potential financing options and investor characteristics (Pangeran, 2015; Seghers *et al.*, 2012; Van Auken, 2005). Thus, social networks are able to enhance their financial literacy, which results in greater access to capital.

### *4.3 Further analysis*

We conducted further analysis of the relationships, in particular with regards to the mediating effect of financial literacy, by decomposing financial literacy into its two dimensions – financial knowledge (FK) and financial skills (FS). Therefore, we investigated the mediating role of FK and FS in separate models to assess their role in influencing AF. As per requirement of PLS-SEM, we assessed model fit statistics for both models and found that all requirements are fulfilled. We do not provide these statistics here for brevity. The results of the analyses for FK and FS using bootstrapping method with samples of 5,000 are presented in Tables 9 and 10.

The findings in Table 9 are similar to that presented in Table 8, i.e. both FK and HC have significant influences on AF ($p$-value for FK = 0.000 while for HC = 0.015). However, while FK positively influences AF, the impact of HC on AF is negative. SC and the control variables are not statistically significant in influencing AF. The positive relationship found between financial knowledge and access to finance is consistent with Nkundabanyanga *et al.* (2014) and Ye and Kulathunga (2019) who find that financial knowledge is essential for increasing

| Direct paths | Path coefficient | *t*-value | 95% CI LL | 95% CI UL | *P*-value | $f^2$ | $R^2$ | SRMR |
|---|---|---|---|---|---|---|---|---|
| FK → AF | 0.316 | 4.740*** | 0.171 | 0.434 | 0.000 | 0.097 | 0.109 | 0.054 |
| HC → AF | −0.147 | 2.430** | −0.262 | −0.023 | 0.015 | 0.022 | | |
| SC → AF | −0.008 | 0.122 | −0.147 | 0.108 | 0.903 | 0.000 | | |
| SIZE → AF | 0.077 | 1.316 | −0.040 | 0.188 | 0.189 | 0.005 | | |
| AGE → AF | −0.021 | 0.393 | −0.120 | 0.080 | 0.694 | 0.000 | | |
| HC → FK | 0.163 | 2.547** | 0.034 | 0.276 | 0.011 | 0.030 | 0.134 | |
| SC → FK | 0.316 | 6.224*** | 0.219 | 0.410 | 0.000 | 0.115 | | |
| Indirect paths | | | | | | | | |
| SC → FK → AF | 0.100 | 3.706*** | 0.051 | 0.147 | 0.000 | | | |
| HC → FK → AF | 0.051 | 2.284** | 0.009 | 0.096 | 0.023 | | | |

**Note(s):** AF: Access to finance, FK: Financial knowledge, HC: Human capital, SC: Social capital. ***, **, * indicate two-tailed test significance at 1%, 5% and 10% levels, respectively
**Source(s):** Authors' own creation

**Table 9.** Relationship between HC, SC, FK and AF

| Direct paths | Path coefficient | t-value | 95% CI LL | 95% CI UL | *P*-value | $f^2$ | $R^2$ | SRMR |
|---|---|---|---|---|---|---|---|---|
| FS → AF | 0.176 | 2.192** | 0.003 | 0.316 | 0.029 | 0.029 | 0.051 | 0.048 |
| HC → AF | −0.114 | 1.887* | −0.221 | 0.009 | 0.060 | 0.013 | | |
| SC → AF | 0.032 | 0.422 | −0.123 | 0.174 | 0.673 | 0.001 | | |
| SIZE → AF | 1.459 | 1.459 | −0.030 | 0.192 | 0.145 | 0.006 | | |
| AGE → AF | −0.012 | 0.202 | −0.126 | 0.090 | 0.840 | 0.000 | | |
| HC → FS | 0.078 | 1.299 | −0.029 | 0.203 | 0.194 | 0.007 | 0.110 | |
| SC → FS | 0.316 | 6.060*** | 0.195 | 0.404 | 0.000 | 0.111 | | |
| Indirect paths | | | | | | | | |
| SC → FS → AF | 0.055 | 1.979** | 0.003 | 0.115 | 0.048 | | | |
| HC → FS → AF | 0.014 | 1.045 | −0.004 | 0.052 | 0.297 | | | |

**Note(s):** AF: Access to finance, FS: Financial skills, HC: Human capital, SC: Social capital. ***, **, * indicate two-tailed test significance at 1%, 5% and 10% levels, respectively
**Source(s):** Authors' own creation

**Table 10.** Relationship between HC, SC, FS and AF

access to loans. Both HC and SC have significant positive influences on FK, indicating that the acquisition of human capital and the strength of an MSME owner's/manager's social network improves the financial knowledge of the MSME owner/manager. In terms of the indirect relationship, the relationship between HC and AF is significant at the 5% level ($p = 0.023$) when the mediating variable FK is introduced. A similar result is observed for the relationship between SC and AF, with FK as the mediating variable ($p = 0.000$). Thus, FK mediates the relationship between HC and SC with AF. The significant mediating role of FK on the relationship between HC and SC, with AF implies that MSME owners/managers with higher education and wider social networks have greater financial knowledge, which improves their comprehension of the loan application process as well as their ability to streamline complicated loan application procedures (Pandula, 2011). This will then increase their likelihood of obtaining credit.

According to the findings in Table 10, FS is found to have a significant positive influence on AF ($p$-value = 0.029). Hence, MSME owners/managers with the necessary financial skills are able to understand and assess the costs, benefits and risks of various financial products (Mabula and Ping, 2018; Addo *et al.*, 2022; Siddik *et al.*, 2023), calculate interest rates and repayment periods, enabling them to make well-informed decisions regarding the need for financing, the amount of financing needed and select the best possible financial options (Okello Candiya Bongomin *et al.*, 2017). The MSME owner/manager will also be able to prepare the necessary documents required by banks to make their assessment of loan applications, thereby increasing their level of financial access. In terms of the relationship between HC and FS, both the direct and indirect relationships are found to be insignificant. This may be because the measurement of human capital that we considered in this study was solely based on the general education of the MSME owner/manager. Education in our case is the level of general education of the MSME owner/manager instead of the extent of specialized financial education. Education can improve an individual's knowledge but does not necessarily equip the individual with specific skills such as those related to finance. On the other hand, both the direct and indirect relationships between SC and FS are found to be positive and highly significant at the 5% level, indicating that MSME owners/managers with wider social networks are able to improve their financial skills which can then influence their access to finance. The results confirm the application of the social learning theory in this case, suggesting that MSME owners/managers copy and learn from the conduct of others in their social network, and are able to acquire financial skills (Xia *et al.*, 2014) that help improve their access to finance.

## 5. Conclusion

We investigate the mediating role of financial literacy in the relationships human capital and social capital have with access to finance of MSMEs in Brunei. We distributed questionnaires to MSMEs in the Brunei-Muara district of Brunei from which we received 337 useable responses for analysis. Using PLS-SEM, we find significant influence of financial literacy on MSME access to finance. In terms of human and social capital, we find that only human capital is significant in influencing access to finance of MSMEs in Brunei while social capital is not. Investigation into the mediating effect of financial literacy shows that it mediates the relationship between human capital and social capital, and access to finance. Further investigation is conducted by analyzing the components of financial literacy – financial knowledge and financial skills. We find that while financial knowledge continues to play a significant mediating role in the relationship, financial skills has significant moderating influence only on the relationship between social capital and access to finance. Our results show that, on its own, human capital reduces the access to finance of MSMEs but when human capital translates to financial literacy, this then improves access to finance. On the other hand, social capital is not significant in helping MSMEs improve their access to finance, but it is important for improving financial literacy, both in terms of financial knowledge and financial skills, which can then benefit the MSME owner/manager in the form of better access to finance.

We provide both MSMEs and regulators with evidence of the importance of financial literacy in order to improve MSME access to finance, particularly in developing countries such as Brunei where financial literacy levels are low and companies rely greatly on banks for external financing. Policymakers in Brunei have tried to improve the access to finance of MSMEs though the provision of several schemes and assistance. Despite these efforts, the problem of access to finance for MSMEs in Brunei persists. This study shows that for MSMEs to effectively obtain financing from financial institutions, financial literacy programmes for MSME owners that give greater focus to their knowledge of finance and financial alternatives should be introduced. Instead of providing financial assistance to MSMEs through the implementation of various loan programs, policymakers could consider promoting financial literacy through the development and provision of appropriate training programs that are tailored to the needs of the MSMEs. In addition, policymakers should encourage entrepreneurs to take personal initiative in learning and enhancing their level of financial literacy through building human and social capital, as this can assist MSMEs in improving their financial knowledge and skills, which can make it easier for them to obtain financing.

This study is beneficial to banks and other financial institutions as they are the providers of capital to MSMEs. When banks get MSMEs as clients, both parties would benefit. Therefore, banks can do more to ensure that the MSMEs have adequate financial knowledge, allowing them to fulfill the standards that banks desire in order to provide better access to finance. Creating an awareness-raising program for MSMEs is one strategy to improve their financial literacy. Financial institutions should provide more detailed descriptions of the products and services they offer to MSMEs so that they are can be understood.

Financial literacy would facilitate an MSME's access to formal sources of financing, allowing them to avoid costly informal sources. MSMEs should therefore develop their financial knowledge and skills through participation in financial literacy programs which provide the knowledge and skills they need to ensure that they are able to provide the necessary documentations needed to assess their applications. Consequently, MSMEs can eliminate the "equity gap" issue by utilizing the most suitable source of financing. Moreover, participation in financial literacy training programs not only improves their expertise in financial information, but it also helps to expand their social networks, particularly the ties they have with other experts in the financial markets. With greater financial literacy, MSMEs may be able to take advantage of financial opportunities, enabling them to appreciate the importance of capital and corporate growth which will lead to an improvement in firm performance.

Our study contributes to literature on access to finance of MSMEs, in particular with respect to the issue of human capital, social capital and financial literacy. We confirm the applicability of the knowledge-based view to MSME access to finance as we show that MSMEs with strategic resources, in this case financial literacy, can obtain strategic advantages in the form of better access to external financing. We show that the human capital theory can be applied to an MSME's access to finance both directly and indirectly. We highlight that while human capital and social capital are important in developing the financial knowledge of an MSME owner/manager, only social capital is important in developing financial skills. We therefore confirm the applicability of the social learning theory in the context of social capital and how it influences the development of financial skills. However, we emphasize that our result on the impact of human capital on financial skills may be because we considered only the level of education of an MSME owner/managers. We also contribute to the social capital theory by highlighting the importance of social capital as a source of knowledge and skills which can either encourage or discourage access to external finance.

Our study has some limitations, which we suggest be considered by future researchers investigating this issue. First, it should be noted that the insignificant result we found for the relationship between human capital and financial skills could be because this study focuses only on the level of education, whereas previous studies have highlighted the importance of considering both general and specialized education, such as finance and accounting. In addition, we did not consider training and experience as measures of human capital therefore, the implications of the results of this study to human capital theory may be limited by these issues. Future studies could consider different forms of human capital or combinations of human capital when evaluating the relationship with access to finance. Future studies could also evaluate the different relationships that may exist between different forms of human capital and access to finance. Second, we did not consider the social relationships that MSMEs form with banks and other financial institutions, as inclusion of this relationship presented problems for model fit. MSME proprietors with banking contacts are able to address their individual financial needs with bankers and the relationship reduces information asymmetries. Additionally, our focus on social capital was mainly on networks such as ties, while other studies emphasize the relationships of networks, which include family ties, informal relationships, trust, and the perspectives of the many parties within the network. Therefore, future studies could consider the different forms and measures of social relationships between MSMEs and financial institutions as a measure of social capital.



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