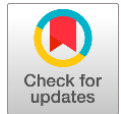


What factors influence SMEs' equity financing: A systematic literature review and future agendas



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Abstract Accessing financing sources is crucial for the survival of SMEs. While ample studies have been conducted on enterprise equity financing, the research focus on the small and medium enterprises (SMEs) segment remains limited. Due to the unique characteristics of SMEs, such as small scale, irregular operations, and poor risk resistance, equity financing is a challenging task for them. This study aims to explore what factors influence SMEs financing. To achieve this, we employ the systematic review method: PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses) and content analysis, utilizing databases of Web of Science and Scopus. In the research, eight research dimensions of SMEs equity financing are pooled from 114 related papers. In this study, we identified key research dimensions and factors in SMEs equity financing, providing a framework for future studies on corporate equity funding. These dimensions include financial performance, external environment, innovation, human factors, corporate heterogeneity, information disclosure, strategy, and sustainability. By conducting a thorough analysis of influencing factors, we propose future research agendas and offer future research questions addressing emerging trends in SME financing studies, including social media in reducing information asymmetry and the potential use of AI in assisting investment decisions for SMEs financing. These insights provide valuable guidance for SMEs accessing funding, investors' decision-making, and policymakers shaping supportive environments for SMEs.

Keywords: SMEs, equity finance, meta-analysis, emerging issues

1. Introduction

Small and medium-sized enterprises (SMEs) have been significantly impacted by COVID-19 (Chen et al., 2024). A restrictive credit environment, the tightening of monetary policy, and the rising cost of financing have constrained SMEs' access to financing (OECD, 2024). Compared with large enterprises, SMEs have more financing restrictions because of their lower bank credit, smaller scale, irregular operation, and poor risk resistance (Jie, 2019). Access to financing is critical for the survival of enterprises and is one of the greatest obstacles to limiting SME development (Amadasun & Mutezo, 2023). Internal and external financing are the two main sources of business capital; retained earnings and depreciation are included in the former, whereas debt and equity financing are included in the latter (Jianzhong & Jundan, 2015). According to pecking order theory (Myers & Majluf, 1984), companies mostly rely on internal financing as their primary source of funding, turning to external financing only if internal funds have been depleted. Then, their preferred financing source comes from debt, followed by equity financing. Nevertheless, owing to the constrained financial resources of most start-ups, companies frequently require external funding to maintain their operations (Kuma & Yosuff, 2020), and external debt and equity financing are most commonly used (Sakala & Hapompwe, 2023). Owing to the characteristics of SMEs, debt financing is more discouraged than equity financing. This is because debt financiers require collateral, demand interest payments, and hold priority in claims when the borrower's business goes bankrupt. Unlike debt financing, equity financing requires investors to share risks and profits without paying back (Harwood & Konidaris, 2015). Therefore, equity financing provides more flexibility in financial management for SMEs. Companies actively seeking outside funding grew less financially limited over time (Bańkowska et al., 2020).

External equity financing includes angel investment, venture capital, private equity, crowdfunding, and public equity financing (Berger & Udell, 2006). Angel investment is usually provided by wealthy individual investors in the early stage of company development, demanding a sizeable stake in the company (Abbasi et al., 2017; Stefanelli et al., 2022). Venture capital (VC) constitutes a part of private equity (PE). PE is focused on the stages in which firms seek operational stability and further development (Montchaud, 2014). VC usually occurs in the first two or three stages of company development and targets firms with creative concepts for goods or services (Matisone & Lace, 2019). Equity crowdfunding is a funding mechanism in which a group of people invests money in return for firm ownership (Milosević et al., 2020). Public equity financing aims to attract investment in a larger scope in the stock exchange market, known for its high cost but effectiveness in accelerating firm growth



(Cao et al., 2023). Different modes of equity financing have different features. However, they all share the same characteristic. That is, all equity financial resources are offered to enterprises in return for dividends, and the firm's success entirely determines the investment return. Investors can sell their company shares, or they may obtain a share of the proceeds if the firm is sold. Therefore, the increase in equity financing reflects the increase in the attractiveness of the firm to investors to some extent.

Ample reviews related to equity financing have been conducted. These prior studies provide firm strategy-makers with invaluable information on the most recent developments and patterns in financing, assisting them in making wise strategic choices. For instance, Drover et al. (2017) reviewed different types of equity financing, including venture capital, angel investment, crowdfunding, and accelerators, and pointed out the future research direction of equity financing. Unlike Drover, Tykiová (2018) focus mainly on the use of venture capital and private equity in the literature and formulate a future agenda. Bueno et al. (2019) study the application of private equity in the SME domain and offer recommendations for firms seeking alternative financing instead of traditional bank financing. Signal theory and equity financing are of interest to scholars. On the basis of signal theory, Svetek (2022) classify corporate signal senders and investor signal recipients and summarize which types of investors are more sensitive to which signals. However, this paper does not carry out statistics and analyses on what factors affect the equity financing of enterprises, and the research focused on venture capital and overlooked other forms of equity investment, such as crown funding and private equity. Moreover, performance and equity financing are key research domains. Gatauwa (2022) focus on whether private equity financing can improve firms' performance and find that firms with private equity support have better financial performance. Zhang et al. (2023) comprehensively analyze firms' equity financing in early-stage development, but the study is merely dependent on a single database (WOS), which might result in data omissions. According to a summary of the literature review above, the research focus of equity financing is whether firms with a certain equity financing source outperform those without. Some literature reviews focus on selected equity financing sources, and the research scope is broad, covering all types of firms instead of the segment of SMEs. Owing to the size limitation of SMEs, their equity financing ability is very different from that of large enterprises, representing an area for further research. Therefore, we believe that some limitations exist in the current literature review and must be addressed.

2. Theoretical Background

Increasing equity financing tends to increase investor confidence, although equity financing often implies risk. Investment in SME equity is high because of SMEs' inefficient operation management practices, high reliance on debt, and immature risk management (Syravá & Špička, 2022). Despite these challenges, investors continue to allocate capital to SMEs, accepting the associated risks. This phenomenon raises a critical question for investigation: Given the significant risks inherent in SME investments, what motivates investors to continue funding these enterprises? At the firm level, the factors influencing SME financing are a research topic worth exploring. According to signaling theory, businesses can provide investors with important information by using signals, minimizing information asymmetry, and improving market efficiency (Puspitaningtyas, 2019). Enterprises are signal senders who have business information and can send information to outsiders, and outsiders can benefit from this information. However, only when receivers actively seek out signals can they be effective (Connelly et al., 2011). Early in an enterprise's development, investors are inclined to pay attention to subjective signals, such as entrepreneurial passion and the trustworthiness of the founder team (Ciuchta et al., 2018). Furthermore, objective signals can be used to communicate with stakeholders (Svetek, 2022). Previous studies have shown that government subsidies granted to enterprises can be regarded as a public signal to attract equity investment (Stevenson et al., 2021). Additionally, firm performance is widely considered a crucial signal (Ghardallou, 2022). Research on the signal theory and equity financing of SMEs is relatively scattered and lacks systematic and continuous studies. Therefore, this paper systematically explores the literature and summarizes the factors influencing the equity financing of SMEs by synthesizing previous research findings. On the basis of the literature and discussion above, we believe there is much to be done, and questions remain to be answered. According to the analysis above, we propose the following research questions:

- RQ 1. What are the common research dimensions available in SME equity financing?
- RQ 2. What are the main factors influencing SMEs' equity financing, and how do these factors relate to equity financing?
- RQ 3. What is the future agenda of SME equity financing?

This paper aims to summarize the research dimensions of equity incentives by systematically searching the relevant literature, analyzing the factors affecting equity financing, and proposing future research suggestions. This study is meaningful and adds to the body of knowledge in the following aspects. First, the study may contribute to the evolving literature on SME equity financing. Current studies often focus on a wider range of enterprises and rarely highlight SMEs. Additionally, some studies focus only on one or two types of equity financing, such as venture capital or private equity financing. Second, by pooling research on SME equity and conducting in-depth analysis, we can identify the factors influencing SME equity financing. This, in turn, allows us to infer which factors investors consider before making investment decisions. The findings will be valuable for both business practitioners and investors. Finally, this study provides future research directions and specific

questions related to the latest trends, helping researchers expand further and deepening the relevant research on the basis of the existing foundation.

3. Methodology

To identify the relevant studies scientifically, this paper employed PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-analyses), a systematic review and meta-analysis methodology by Moher et al. (2010). This methodology combines the advantages of systematic reviews and meta-analyses, which can gather all relevant data for predetermined eligibility requirements to answer particular research issues and reduce bias, as well as assess pooled data from studies quantitatively (Harris et al., 2014). The PRISMA flowchart adopted in the research is shown in Figure 1.

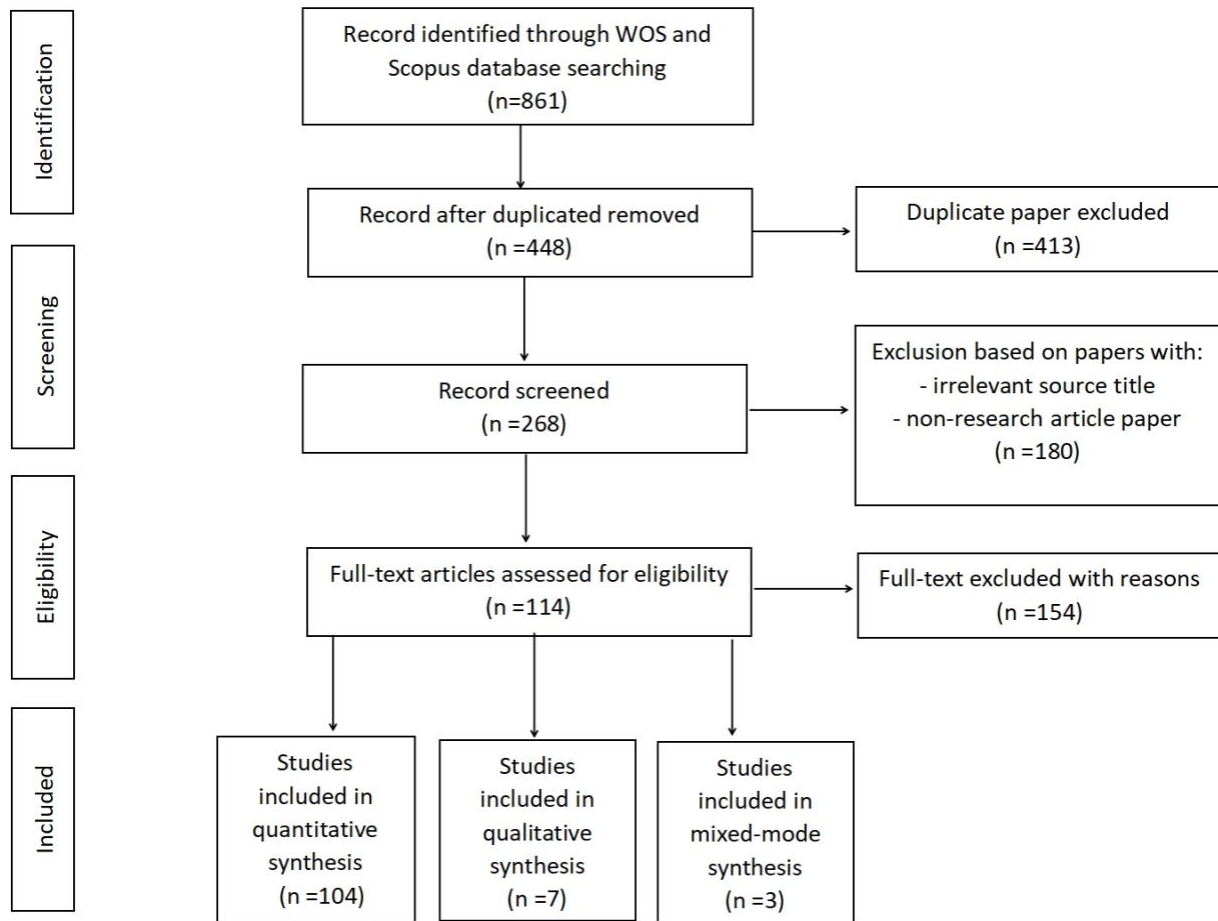


Figure 1 PRISMA flowchart adopted in the research.

We use Web of Science (WOS) and Scopus as databases. Both databases are reputable and trustworthy global citation databases, the core collection content is uniquely selective, and its indexing is consistent. In the first stage of PRISMA, the identification process, synonyms, related terms, and variations in the main keywords are identified to search the selected databases, which can produce more papers to review. Keywords are set on the basis of the development of the research question. Since the research subject focuses on SMEs, the synonyms start-ups and SMEs are used in the keyword search. Furthermore, the research focus is what affects equity financing. The keywords “factors influencing equity financing” and “determinants affecting equity financing” are used. Moreover, the fact that people are willing to invest in SME equity indicates that these firms attract investment (Mason & Stark, 2004). Therefore, “equity investment attractiveness” was used in this research. The keywords mentioned above are combined when searching for papers, and the title, abstract, and keywords are used in the search. With respect to the time span, a scientific systematic literature review should cover at least a bare minimum of a decade (Rialp et al., 2005). Therefore, the time span of the research was confirmed from January 2013--August 2024.

In the initial search, there were 861 papers. After deleting duplicates, 448 remained. An excessive number of duplicate papers appeared because the WOS search system is different from Scopus. In Scopus, the title, keywords, and abstract can be searched by using assigned words in one step, but in WOS, they are searched separately for each field. Second, in the screening stage, the inclusion and exclusion criteria were set as shown in Table 1 to ensure that the literature was closely related to the research topic. By reading the title, abstract, and document types, articles that did not fit the criteria were deleted, leaving 268



articles. Next, the full paper will be read, and articles with irrelevant content, unclear methodology, and manuscripts without clear graphs will be eliminated. Finally, 114 articles met the criteria.

Table 1 Insert text: Inclusion and exclusion criteria.

Inclusion Criteria	Exclusion Criteria
IC1: English Studies	EC1: non-English Studies
IC2: Document types include indexed journals, book chapters, proceeding papers of conferences, reports from industry	EC2: Nonindexed journals, articles in magazines, note, erratum.
IC3: Studies focus on SME equity financing	EC3: Studies related to non-SMEs and non-equity financing

Content analysis is applied to the data analysis process. Content analysis refers to a type of document analysis method. Through open coding, the document information is coded with keywords and then categorized into several dimensions, allowing researchers to obtain an overview of the research domain clearly and providing fresh insights and a representation of the facts (Krippendorff, 2018). In the research, the focal research keywords are extracted during the full paper reading, and then, similar keywords are pooled together to determine the research dimensions related to SME equity financing and prepare for the next stage: determining the factors influencing SME equity financing. In the categorizing process, to avoid repetition, the same keyword is marked only once, even if it appears in different articles.

4. Results and Discussion

4.1. Research dimensions related to sme equity financing

By analyzing the content of the literature, eight common research dimensions are found (Table 2), and 118 relevant keywords are identified. The percentages for each dimension are rounded to two decimal places. Financial performance is the dimension of most studies related to SMEs' equity financing, with 28 keywords pooled from studies, accounting for 23.73%. The next highest number of pooled keywords is the external environment (22.03%). This is followed by technology and innovation (15.25%), human factors (14.41%) and corporate heterogeneity (11.01%), followed by information disclosure (7.63%), strategy (3.40%), and sustainability (2.54%).

Table 2 Pooling of SME equity financing research dimensions.

Rank	Keywords pooled from individual research	Reference	NO.of keyword	Proposed pooled dimension
1	Profitability of Small and Middle-Sized Enterprises; Return on Asset (ROA); Return on Equity (ROE); Turnover; Financial Performance; Financial Return; SMEs Performance; Enterprise Growth; Profitability; Growth Rate of SMEs; Firm's Growth Prospects; Bank Loan Size; SME Profitability and Growth; SME Performance; Firm's Financial Returns; Company's Value; SME Enterprises Growth; SME Growth Opportunity; Return on Assets; Return on Equity; Return on Sales; Uncertainty About Returns; Loan Repayment; Sales Margin; Total Asset Turnover; Current Ratio; Total Asset Growth; Asset-Liability Ratio	(Christian & Airativich, 2020; Jha & Mittal, 2024; Rizk & Sassine, 2023; Salerno, 2019; Power, 2021; Ali et al., 2024; Su & Zhu, 2020; Amoa-Gyarteng & Dhliwayo, 2024; Liu & Song, 2019; Ghalke et al., 2022; Wu & Xu, 2020; Forte et al., 2013; Xiang & Worthington, 2015; Silver et al., 2016; Alperovych & Hübner, 2013; Stefanovic & Barjaktarovic, 2019; Xiang et al., 2015; Contell et al., 2014; Eldridge et al., 2021; Mendoza, 2015; Barg et al., 2021; Rossi et al., 2017; Jia, 2015; Rubanov et al., 2020; Zhou et al., 2023; Xing, 2016)	28	Financial Performance
2	Bank Characteristics; Market Structure; Variations of Interest Rate; Subsidies; Industrial Policy; COVID-19; Regulatory Framework; Income Tax Law; National Culture; Laws and Policies; Institutional Trust and Interpersonal Trust; Intrinsic Structural Problems of Stock Market; Notional Interest Deduction; Institutional and International Factors; Financial Crisis; Demand Uncertainty Reduction; Economic Factors in Particular Country;	(Godke Veiga & McCahery, 2019; Chiappini et al., 2022; Alayrac & Thyrdard, 2024; Yang, 2022; Gupta et al., 2024; Egea, 2022; Koch et al., 2022; Abdeldayem & Aldulaimi, 2023; Sun et al., 2024; Dowling et al., 2019; Macaulay, 2019; van Campenhout & van Caneghem, 2013; Montchaud, 2014; Abdullah & Oseni, 2017; Fatoki, 2014; Casey &	26	External Environment



	Industry-Level Risk; Market Attractiveness; Social Networks in the County; Tax Policy; Competitive Changes; Law; Macro-Economic and Institutional Factors; Economic Crisis; Regional Effects	O'Toole, 2014; Khan, 2022; Deng et al., 2024; Matisone & Lace, 2019; Vaznyte & Andries, 2019; Tyebjee & Bruno, 2022; Dudley, 2021; D'andria, 2018; Mason, 2021; Brown et al., 2020; Kit, 2021; Pasli & Sonmez, 2021; Bongini et al., 2021; Balios et al., 2016; Butzbach & Sarno, 2019)	18	Technology/innovation
3	SMEs' Innovation; Blockchain Technology; Digital Finance; Product Innovation; Digital Inclusive Finance; R&D; Market Innovations; Patent; Innovation Performance; Innovation Incentive Effect; Independent Innovation; Innovation; Product Differentiation; Patent Portfolio; Uncertainty About Returns; Technological Changes; Innovation Capability; Fintech Finance	(Ström et al., 2023; Merugula et al., 2021; Boutbhirt & Adaskou, 2023; Hui & Yaxun, 2021; Du et al., 2024; Shin & Kim, 2014; Eisele & Nowak, 2018; Hua et al., 2016; Eldridge et al., 2021; Zhang et al., 2024; Wei, 2013; Giakoumelou et al., 2023; Tyebjee & Bruno, 2022; Caviggioli et al., 2020; Tagliatalata & Mina, 2024; Jia, 2015; Hua et al., 2016; Ewens & Farre-Mensa, 2022; Zhou et al., 2023; Xiang et al., 2021)	17	Human
4	Employment; Participants' Risk Aversion Level; Negative Attitude of SMEs Toward the Bourse; Managers' Decision-Making Process; Executive Replacement Frequency; Human Resource Measure; Number of Employees; Human Resources (e.g. Job Satisfaction, Skills Development); Attitudes of the Owners/Managers; Managerial Capabilities; Angel Investors; Investor Background; Investor; Entrepreneurial Inventors; Board Secretary's Financial Experience, Overconfidence; Investor Personal Preferences; Investment Decision Size; Firm Age; State Ownership; Capital Structure Decisions of SMEs; Equity Structure; Foreign Ownership; Capital Structure; External Environment; Capital Structure Dynamics;	(Wang et al., 2023; Rizk & Sassine, 2023; He et al., 2024; Semenya & Dhliwayo, 2020; Kraus et al., 2017; Du & Deng, 2018; Xiang & Worthington, 2015; Xiang et al., 2015; Zunckel & Nyide, 2019; Daskalakis et al., 2013; Tyebjee & Bruno, 2022; Ghosh, 2021; Riar et al., 2021; Schuh & Hamm, 2022; Honjo, 2021; Owen et al., 2019; Rubanov et al., 2020; Fajarini et al., 2021; Wasiuzzaman et al., 2022)	13	Corporate Heterogeneity
5	Corporate Governance; Intangible Assets; Lack of Collateral and Trading; Governance Structure	(Chalençon & Marion, 2024; Liu & Xu, 2022; Kukuk, 2022; Chen et al., 2014; Forte et al., 2013; Corsi & Principe, 2017; Alperovych & Hübner, 2013; Yazdanfar & Öhman, 2016; Guo & Zhao, 2019; Nyide & Zunckel, 2019; Li et al., 2014; Zunckel & Nyide, 2019; Le et al., 2024; Ya & Li, 2013)	9	Information disclosure
6	Information Asymmetry; Information Sharing; Industry and Regulatory Standards of Reporting; Transparency of Online Crowdfunding Platforms; Asymmetric Information; Attractiveness of Information Posted; We-Media Information Disclosure; Information Disclosures; Information Transparency;	(Wangmo & Islam, 2021; Song et al., 2016; Brogan & Teasdale, 2014; Srivastava, 2016; Zunckel & Nyide, 2019; Caviggioli et al., 2020; Tagliatalata & Mina, 2024; Jia, 2015; Robb & Seamans, 2014; Rubanov et al., 2020; Huang et al., 2022; Ochianawata et al., 2021; Senalasar et al., 2019)	4	Corporate Strategy
7	Internationalization Strategy; Export Strategy; Business strategy; Portfolio Financing Strategy	(Kraus et al., 2017; St-Pierre et al., 2018; Xiang et al., 2015; Hyun & Lee, 2022)	3	Sustainability
8	Environmental Governance; Sustainability; Sustainable risk	(Zhang et al., 2021; Lingnau et al., 2022; Wan et al., 2017)		



4.2. Factors influencing SME equity financing

4.2.1. Financial performance

The results show that firm financial performance is the most studied research dimension. According to Table 2, financial performance is the most studied dimension. Most studies examine whether the choice of equity financing can affect SMEs' financial performance. Several studies have shown that equity financing positively influences firms' financial performance. The focal financial indicators are firms' growth rate and profitability. Equity financing positively impacts sales in corporate growth (Rizk & Sassine, 2023). With respect to different modes of equity financing, Eldridge et al. (2019) reported a significant favorable association between crowdfunding and small businesses' ability to grow. Similar results were also shown in the study of Liu and Song (2019) concerning private equity financing and the SME growth rate. However, their research further noted that a firm's growth varies across industries and that the benefits are substantial for sectors such as public utilities, industry, materials, energy, daily use, and optional consumption. With respect to the profitability of SMEs, equity financing has a positive effect on return on equity (ROE) and is more significant than short-term debt financing is (Ghardallou, 2022). Furthermore, compared with debt and donation financing, microfinance institutions' financial sustainability is enhanced positively by equity and deposit financing (Dirse & Japee, 2024). This might be because equity financing links investors' interests and firms' development together, which might lead to investors' reinvestment behavior to increase profit. However, some researchers have reported contrary findings. For example, Kim and Cho (2020) studied listed firms in Korea from 2011 to 2016 and reported that SMEs' internal and institutional finances have a beneficial effect on firm performance, whereas other capital types have a negative effect. The view that equity financing harms the financial performance of enterprises mostly exists when SMEs choose public offerings. In India, Ghalke et al. (2022) reported that following SME IPO, firm profitability and sales declined, and debt decreased. There is an implication that firms use the money raised from the stock market to pay back debt rather than for growth financing.

Overall, the influence of equity financing on SME firms' financial performance differs from country to industry, and the results vary from adopting different modes of equity financing. Interestingly, most of the previous literature studies how equity financing affects financial performance. However, few studies explain how financial performance stimulates investors' willingness and to what extent financial indicators can affect financing, and future studies need to address this point.

4.2.2. External environment

The external environment is complex and changeable, so it inevitably affects enterprise survival and development. Numerous factors in the external environment affect SMEs' financing. The development of SME financing depends on the institutional and international trajectory, which requires adequate public policies and relies on economic factors, such as foreign investments, dynamism in entrepreneurship, economic growth, and national laws and policies (Montchaud, 2014). Furthermore, government policies to support SMEs during the COVID-19 pandemic have also been a hot-debated research topic. Chen et al. (2024) demonstrated that in the face of a public crisis such as the COVID-19 pandemic, tax incentives alleviate financing restrictions, and government financial subsidies mitigate financing difficulties. Additionally, subsidy policies from governments and authorities are also an important area of study. Subsidies from the government can promote the development of enterprises and help enterprises expand equity financing channels (Hu et al., 2022; Wang & Sun, 2022). However, some scholars are opposed to this view, showing no evidence that obtaining subsidies promotes equity financing (Chiappini et al., 2022; Mulier & Samarin, 2021). In addition, social and cultural factors can affect investors' investment intentions, affecting corporate equity financing. The positive attitudes of SMEs regarding equity funding are influenced by institutional and interpersonal trust in the country. Trust comes from formal institutional and cultural origins, which differ across countries (Dowling et al., 2019). The industrial environment also affects SMEs' equity financing. Industry-level risk is one of the important factors that must be considered. The relationship between equity finance and entrepreneurial orientation (EO) is tempered by industry-level risk. Start-ups with high EO levels are able to acquire more equity financing, even in the presence of industry-level risk (Vaznyte & Andries, 2019).

4.4.3. Technology

Corporations' innovation ability is a major factor in the long-term success of economies, and SMEs contribute to technical development by introducing groundbreaking innovations to the market (Czarnitzki & Delanote, 2015). Innovation development cannot be separated from financial support. Thus, it is important to obtain financing sources.

Prior studies have shown evidence that equity financing positively impacts SME innovation and eases financing constraints. In European nations, SMEs that depend heavily on equity financing are thought to be more innovative, and product innovations rely largely on equity financing (Ström et al., 2023). Equity financing significantly influences innovations, especially for start-ups. Higher R&D intensity positively correlates with a larger equity ratio since start-ups face difficulty in bank financing and rely on owners' investment (Wei, 2013). Moreover, innovation is significantly related to equity financing and the growth of enterprises. Technological innovation competence has a positive mediating effect on the influence of equity financing on

the growth of technology-based SMEs (Zhou et al., 2023). Companies with greater growth opportunities are less likely to turn to debt financing because shareholders might risk transferring benefits to creditors (Jensen & Meckling, 1976). Thus, equity financing is more favorable for innovative firms than debt financing is (Xiang et al., 2014). Corporate innovation also has an impact on financing. Iterative updates of technology are conducive to corporate equity financing, making financing more convenient and transparent. Blockchain technology mentors the purchases made by SMEs, entrepreneurs, and shareholders and can optimize the exchange of cash payments and equity (Merugula et al., 2021). However, Eldridge et al. (2019) reported that crowdfunding does not significantly influence innovation in small firms, which contradicts the findings of previous research. In recent years, the frugal innovation has been a hotly debated issue. Rahman and Shi (2022) demonstrated that venture capital (VC), equity financing and debt financing served as moderators in the relationship between frugal innovation and firm performance. However, the moderating effect has a negative influence on firm performance.

The above research on innovation mainly verifies the correlations between enterprise innovation and equity financing and whether it positively or negatively impacts equity financing. Most research has shown that adopting equity financing is positively related to innovation.

4.2.4. Human factors

Human capital variables influence businesses, which has been proven in practice, and entrepreneurs' past experience is a significant factor (Grežo & Hanák, 2024). The characteristics of managers and financing tendencies are frequently debated in the study of corporate human resources and equity financing. The evidence shows that confident, experienced, and competent executives are more likely to choose external financing (Wang et al., 2020). This phenomenon is particularly pronounced in financially unconstrained and well-governed companies (Choo et al., 2020). Equity-based incentive schemes for enterprises, which can align with the interests of managers and owners, also influence equity financing. Li et al. (2014) reported that when PE-funded companies implement incentive schemes, CEOs and managers are inclined to invest in the firms they are working for, which increases SMEs' equity financing to some extent. Lui et al. (2016) also demonstrated that companies pay lower equity costs if their CEOs receive greater incentive-based compensation. This is because incentive plans can align the interests of employees and the company. In contrast, Xiang et al. (2014) reported that human resource focus does not affect SMEs' debt or equity financing options, such as job satisfaction and skills development. However, in this study, the author does not specify whether the human resource factor influences the increase in financing opportunities. In addition, equity financing has an impact on the employment of a company. The research of Rizk and Sassine (2023) shows that equity financing positively influences employment growth in the country in the long term. However, some equity financing behaviors of a company affect the composition of employees. Evidence shows that a company's initial public offerings (IPOs) encourage it to have more highly skilled employees, which threatens low-skilled employees because they risk being eliminated (Kim et al., 2024).

4.2.5. Corporate heterogeneity

Corporate heterogeneity affects equity financing, such as size, age, and corporate governance (Chalençon & Marion, 2024; Zunckel & Nyide, 2019). The structure is also considered an important factor. The ownership structure involves the allocation of ownership among different stakeholders, whereas the capital structure refers to how a business finances itself by using a mix of debt and equity (Maesaroh, 2018). Both belong to corporate structures, and their correlation with firms' equity financing has been studied in this paper. In the early stages of SMEs, they often rely on equity capital, and as firms age, their equity financing levels rise. This differs from short-term debt, which is initially high and then reduced (Yazdanfar & Öhman, 2016). Companies with strong growth drivers and greater funding needs prefer to issue debt, whereas less mature businesses with lesser funding needs prefer to issue equity (Kukk, 2022). Moreover, Chen et al. (2014) reported that the ownership structure is related to SME financing and that foreign ownership can positively influence debt financing for SMEs and thereafter serve as a signal to increase the confidence of equity investors and help firms obtain equity financing. The link between capital structure and profitability has been studied: using an equity financing ratio increases business profitability (Corsi & Prencipe, 2017). Equity financing, in turn, can also affect the ownership structure of a company. Li et al. (2014) further indicated that private equity financing can improve a business's ownership structure, property rights, incentive system standardization, and decision-making process. In summary, the corporate structure of SMEs affects their equity financing, and the characteristics and performance of SMEs also influence their financing choices.

4.2.6. Information disclosure and equity financing

Rational investors prefer to invest in public firms rather than unlisted SMEs. This is largely because SMEs lack a perfect internal governance mechanism to provide information to society. Investors' decision-making depends on enterprise public information disclosure (Deméré, 2023). Transparent information sharing can increase the availability of equity investment in SMEs and ease financing constraints (Song et al., 2016). Thus, transparent information disclosure that adheres to international financial, industry, and regulatory reporting and accountability standards should be provided for investors (Brogan, 2014). Furthermore, SMEs' financial reporting is influenced by ownership structure. The financial reporting system adopted by

different private enterprises is heterogeneous, such as ownership types such as ownership by employees, the government, and families. Crowdfunding raises interesting social, regulatory, and policy issues that impact financial reporting unexpectedly (Hope & Vyas, 2017). Moreover, the attractiveness of information is an important factor in attracting investors (Rubanov et al., 2019). Social media can be effectively applied to interact with potential investors. The above studies focus on the importance of information disclosure and equity financing and the factors influencing information disclosure. However, how external investors weight the importance of both financial and nonfinancial reporting information has not been clarified. This domain remains largely unexplored and needs further investigation since this topic is related to investor investment decisions.

4.2.7. Corporate strategy and equity financing

SMEs' strategies affect their financing behavior. Xiang et al. (2014) divide SME business strategies into 5 focuses—financial, cost, operation, quality, and innovation—and find that larger firms with higher growth chances in the innovation process and financial or cost-focused business strategies are more inclined to seek equity financing. In terms of other strategies, the portfolio financing strategy makes it easier for SMEs to raise capital because it caters to the preferences and needs of different investors (Hyun & Lee, 2022). The dividend strategy is considered an important factor influencing equity financing, which impacts public equity financing in the stock market (Hyun & Lee, 2022). The market-to-book and Tobin's Q ratios have a strong positive connection with cash dividend payments, suggesting a positive association with market valuations (Njoku & Lee, 2024). Compared with debt financing, equity financing can better drive the success of internationalization (Kraus et al., 2016). When SMEs emphasize exports, when they utilize a domestic cooperation strategy with domestic customers, suppliers, and research organizations, their export intensity can be enhanced positively, thereby increasing their ability to obtain outside funding indirectly (St-Pierre et al., 2018).

4.2.8. Sustainability and equity financing

The development of a green and sustainable economy is the social responsibility of enterprises, and it is crucial for their sustainable development. Under the interaction of externalities, corporate environmental performance and external financing choices, environmental management influences financial decisions. According to Zhang et al. (2021), environmental governance moderates the relationship between external financing and economic performance. Sustainability is associated with equity financing. Wan et al. (2023) noted that for certain types of industry, such as marine ranching, sustainable risk is the most influential factor for equity financing. Therefore, sustainable risk should be avoided. Lingnau et al. (2022) show that improved sustainability may not pay off in terms of attractiveness to investors. However, investors tend to avoid investing in environmentally unsustainable firms.

5. Future Agenda

On the basis of the above results and discussions, we propose future agendas for SME equity finance. These agendas include five research trends, focusing on areas that have not been adequately addressed or comprehensively explored in current research, which will be further elaborated upon in the following sections. Table 3 presents these future research trends and the corresponding research questions.

5.1. Future research agenda 1: Firm performance, investors' decisions, and equity financing

Many studies address the relationship between equity financing and SME performance, especially firm financial performance. However, how firm performance interacts with investors' decision-making remains a "black box" for researchers and business practitioners. Investors' psychological factors, such as optimism, confidence, loss aversion, and herding behavior, impact their investment decisions (Iqbal, 2020). However, mental factors are among the factors influencing investment behavior. On the basis of expected utility theory, individuals optimize their decision-making using all information (Bloomfield, 2010). Firm performance is an important factor in encouraging people to invest. Firm performance can be roughly divided into financial performance, such as sales, return on assets, and nonfinancial performance, such as environmental performance and intellectual capital (Firmasari et al., 2021). SMEs' performance, both financial and nonfinancial, might influence investor reactions (Minakh et al., 2021). How investors perceive the two performance factors and how they are weighted in the decision-making process should be explored.

5.2. Future research agenda 2: Human resources, agent theory, motivation, and equity financing.

SMEs face serious issues with high employee turnover and a lack of incentive systems (Ketkaew et al., 2020). An equity-based incentives (EBI) scheme for employees can better increase the stability of human resources and enhance their motivation. According to agency theory, the agent and owner are in conflict, but EBI links the two parties together by turning employees into shareholders (Sun & Xia, 2022). Proof has shown that the quality and quantity of innovation output can be enhanced by EBI and executives' psychological capital (Yu & Hu, 2023). However, there is no evidence showing that EBI can influence equity financing. Previous research has shown that venture capitalists and angel investors are concerned with

investees' financial issues and emphasize the entrepreneurial team and market characteristics (Mason & Stark, 2004). However, EBI is a certain type of strategy related to human resources, and its relationship with SME equity financing needs to be studied in the future.

5.3. Future research agenda 3: New technology, signal theory and investor confidence

One of the reasons for SMEs' financing difficulties is information asymmetry. Investors' choices are based on macro (market-wide information) and micro information (Glasserman & Mamaysky, 2023). They are reluctant to make investments if they do not have enough information about the enterprises. With the development of technology, this constraint can be alleviated. The application of social media can enhance communication among consumers, society, and the public and yield more information related to the news, products, and executive personnel changes of enterprises (Ali Qalati et al., 2020). More information about investees influences their confidence and behaviors. The information released from the social media enterprise will transmit signals to investors and might further influence the equity financing of SMEs. Future research can focus on whether social media sites can affect investment outcomes (Srivastava, 2022). Furthermore, on the basis of the literature review, current studies on new technology and SMEs are approached from an enterprise perspective, focusing on how the application of technology affects equity. Very few studies focus on how technology promotes investment from the perspective of investors. For example, research has shown that artificial intelligence (AI) can filter information to assist decision-making (Stone et al., 2020) and provide robo-advisory services (Shanmuganathan, 2020). However, whether AI-assisted decision-making can increase investor confidence and further influence SME equity financing remains unknown.

5.4. Future research agenda 4: External environment, government policy, and investor characteristics across countries

In the face of complex and changing international situations and market challenges, SMEs need more policy support from the government because of their weaker anti-risk ability and adaptability. Subsidy policies are economic stimulus policies commonly used by the government, and different subsidy policies have different impacts on enterprises. The existing studies focus mainly on how a specific policy can help the development of SMEs, whereas few studies classify government subsidies and analyze their impact on corporate financing. Wang and Sun (2022) divided government subsidies into R&D and production types and reported that both types of subsidies can positively influence total factor productivity, further expanding external financial channels. However, their studies focused only on manufacturing sectors. Future studies should expand the sample to a broader scope, discover more types of government subsidies, and determine what can better help SMEs across different industries. Government subsidies can be further divided into environmental subsidies, producer subsidies, consumer subsidies, social welfare subsidies, etc. (Lee & Yoon, 2022).

The social culture of different countries creates different characteristics of investors, which leads to their different investment intentions and behaviors. A previous study (Borgers et al., 2015) showed that social norms and values can affect investors. A study further revealed that investors' financial risk tolerance, financial overconfidence, and personality traits can influence their investment behavior in India (Iqbal, 2020). However, those studies focus on a country, so a cross-country study needs to be performed (Akhtar & Das, 2020). For example, which countries' investors are more risk-hating, and which countries' investors are bolder toward investing in SMEs?

5.5. Future research agenda 5: Corporate structure optimization and risk management

Equity financing bears the risk of diluting owners' shares and losing company control. Therefore, an equity financing strategy cannot be formulated blindly; it needs to be carefully designed and planned. Corporate structure optimization and risk management need to be considered in equity financing. Capital structure optimization can improve financial management efficiency and, hence, improve firm performance (Petrovskaya et al., 2016). Different equity financings cover different risks. However, there is no doubt that equity financing beyond a certain level can jeopardize a company's control. Therefore, the threshold method should be adopted in future research as an effective way to study financial risk management (Figini et al., 2010). Furthermore, considering different characteristics of equity financing, a cross-comparison study should be conducted by researching SMEs with different modes of equity financing, such as angel investment, venture capital, and public initial offering, and testing which type is risky for SMEs.

5.6. Environmental sustainability and equity financing

Environmental performance and economic performance are related, and the choice of corporate financing affects environmental performance (Zhang et al., 2021). Previous studies have focused on how green sustainability can attract equity financing (Chen, 2024) and how companies' green performance affects investors' confidence (Zeng et al., 2024). As the green economy gains more attention, polluting companies face pressure to transform into green-sustainable companies. Heavy polluters face the risk of closure and policy penalties. In the process of enterprises' green transformation, the interaction between financing and corporate sustainable development needs to be further discussed (Ding et al., 2022). At present, there are few studies on equity financing and sustainable development. Shad et al. (2020) shows that enterprises can reduce their

financing costs through sustainability disclosure reports. However, only the degree of disclosure was studied, and no further research was conducted on the quality of disclosure. In future studies, we can study the relationships between the disclosure of corporate sustainable development and the performance of heavily polluted environments and the willingness of investors. Wang et al. (2023) proved that the pilot reform of green finance produced certain incentives for green innovation and alleviated capital constraints, but the research samples focused mainly on green enterprises in China without discussing the specific effects of equity financing. Therefore, in future studies, transnational studies on the relationships among equity financing, corporate heterogeneity and green transformation can be conducted. In addition, in the process of green transformation, the economic rights and interests of shareholders and the long-term green development goals of companies often conflict, and how to balance the relationship between the two is a topic worthy of discussion.

On the basis of the discussion of the future agendas of SMEs, we propose the following future research questions (Table 3):

Table 3 Future research questions.

Research Dimension	Future Research Questions
Firm performance, investors’ decisions, and equity financing	<ol style="list-style-type: none"> 1.How does firm performance influence equity financing from the perspective of investors? 2.What decision-making processes do investors follow based on firm performance? 3. What financial performance factors influence investors' decisions, and how are these factors weighted in their decision-making process? 4.How do investors weigh financial performance and nonfinancial performance? 5. Which firm performance indicators demonstrate the strongest correlation with successful equity financing outcomes (in a comparison study)?
Human resources, agent theory, motivation, and equity financing	<ol style="list-style-type: none"> 1.Can implementing equity-based incentive serve as a signal to encourage external equity financing? 2.Can implementing equity-based incentives motivate employees to stay in the company and increase their willingness to invest in its shares? 3.Can implementing equity-based incentives influence firm performance and further encourage external equity financing?
New technology, signal theory, and Investors’ confidence	<ol style="list-style-type: none"> 1. What is the impact of new technology adoption on SMEs' ability to attract and secure equity financing? 2. To what extent does the application of AI in financial analysis influence investors' decision-making processes in SME equity financing?? 3.Does the use of social media enhance information disclosure and improve the transfer of information to investors? 4.How can social media ease information asymmetry in SME equity financing?
External environment, government policy, and investor characteristics across countries.	<ol style="list-style-type: none"> 1.What policies did the government implement to support SMEs during the COVID-19 pandemic, and how did these policies influence SMEs' equity financing? 2. How do various types of government subsidies impact SMEs' equity financing strategies and outcomes? 3.What type of investor is inclined to invest in SMEs? 4.What is the relationship between the investor's willingness to invest and the country's social culture? 5. How do cross-national differences in institutional environments affect investors' risk tolerance for SME equity investments?
Corporate structure optimization and risk management	<ol style="list-style-type: none"> 1. How do different ownership structures influence the risk of founders losing control in SMEs, and what are the implications for equity financing decisions? 2. In different stages of development, how should SMEs reduce management risks by adjusting and optimizing corporate structure?
Environmental sustainability and equity financing	<ol style="list-style-type: none"> 1.From polluting enterprises to environmentally friendly enterprises: How does equity financing influence the process of corporate green transformation? 2.Under different national backgrounds, does equity financing have a different effect on enterprises' green innovation motivation? 3.What is the relationship between equity financing, enterprises heterogeneity and green innovation incentives

6. Conclusion and Final Considerations



Equity financing is an important topic in management studies since finance is the key to an enterprise's survival. This systematic literature on SME equity financing reviews 114 articles and proposes 8 common research dimensions, which aligns with the first research question. The dimensions are financial performance, the external environment, innovation, human and corporate heterogeneity, information disclosure, strategy, and sustainability. Furthermore, the review analyzes the factors influencing SME equity financing in each dimension. The results reveal that financial performance is the most concerning aspect for investors, and among them, SMEs' growth indicator is the most important factor influencing equity financing. Finally, on the basis of the previous literature and analysis, we propose five future research agendas and corresponding research questions. This work offers three novel contributions from a theoretical perspective. First, this systematic literature review on SME equity financing contributes to the eight most common dimensions pooled from 118 focal research keywords. The eight research dimensions are crucial for future research to form a conceptual framework of equity financing. Second, this study reveals that the top three factors are related to SMEs' financial performance, the external environment and innovation. This implies that firms should put effort into improving their financial performance, enhancing innovation applications, and adjusting themselves according to the external environment. Third, the future research directions and problems proposed in this paper remain unsolved, providing a reference for future scholars to study this topic further. In terms of practical contributions, this review provides insight for the government, SMEs, and investors. For the government, the external environment is an important dimension affecting SMEs' financing. Therefore, the government can consider formulating policies that create an external environment conducive to SME financing. For SMEs, it is important to recognize the factors affecting corporate equity financing and that efforts are needed to improve aspects such as enhancing growth capacity, strengthening innovation, and improving employee incentive systems. This paper highlights the factors that SME investors should evaluate before investing, such as firm financial performance, innovation ability, human resources, and information transparency.

Given the limitations of the research, the literature review in this paper is based on historical research, resulting in certain time constraints. The review must be continuously updated to ensure the timeliness of the study. Second, only the WOS and SCOPUS databases were used in this study, and neglecting other data sources may affect data accuracy. Future studies should consider expanding the databases to include sources such as Google Scholar and EBSCO. Overall, this study pools eight research dimensions related to SME equity financing; future studies can discover the interrelations between the dimensions and consider the future agendas and research questions proposed in this paper.

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Ethical Considerations

Not applicable.

Conflict of Interest

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