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## Article

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# The influence of financial bootstrapping and digital transformation on financial performance: evidence from MSMEs in the culinary sector in Indonesia

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## ABSTRACT

To reduce dependence on external funding, financial bootstrapping can be an alternative low-cost funding solution for MSMEs. Cost efficiency can also be achieved by carrying out digital transformation in business operational activities. Furthermore, cost efficiency will lead to improved financial performance of MSMEs. This research investigates the influence of financial bootstrapping and digital transformation on the financial performance of MSMEs. Data collection was carried out through a field survey involving several enumerators and 180 respondents. The respondents of this research were female MSME entrepreneurs in the culinary sector in Central Java Province, Indonesia. The data was analyzed using the Partial Least Squares-Structural Equation Modeling (PLS-SEM) method. The research results revealed that financial bootstrapping and digital transformation have a significant positive effect on the financial performance of MSMEs. Furthermore, this study offers recommendations to improve the financial performance of MSMEs. Entrepreneurs must be creative in utilizing cheap internal funding sources and willing to adopt digital technology to increase operational efficiency and customer satisfaction.

**Fields:** entrepreneurship and small firm management; business, management and accounting; entrepreneurial finance

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## 1. Introduction

Various literature regarding the existence of MSMEs in various countries emphasizes their vital role in the national economy. The massive number compared to large-scale businesses has an impact on high levels of labor creation and absorption (Rocha, 2012), and a significant contribution to the gross domestic product (Yoshino & Taghizadeh-Hesary, 2015). In addition, MSMEs also play a role in strengthening the local or household economy (Ali et al., 2023; Pradana et al., 2023). However, with the COVID-19 pandemic, many MSMEs were unable to survive because they experienced a significant decline in revenue. In the midst of this situation, there is an interesting fact that MSMEs in the culinary sector still existed during the pandemic, and they even provided extensive job opportunities during the pandemic (Pusung et al., 2023). Considering their crucial role, identifying the factors that are thought to influence the performance of MSMEs in the culinary sector is interesting to explore further.

To ensure the performance and sustainability of MSMEs in the culinary sector, adequate funding is a crucial factor. Therefore, business actors are required to be able to meet sufficient business capital which reflects financial resource capabilities (Prakash & Thamilselvan, 2023). However, in general, MSME entrepreneurs face problems in fulfilling their funding due to their inability to access external funding as a result of information asymmetry regarding business prospects and instability in the company's financial condition (Athaide & Pradhan, 2020). Apart from that, there are discouraged borrowers, namely the

behavior of entrepreneurs who are reluctant to apply for loans because they are afraid that their applications will be rejected, even though in fact they need the funds (Kon & Storey, 2003).

The existence of external funding constraints has the potential to encourage the creativity of MSME entrepreneurs to generate internal funding resources or what is known as financial bootstrapping. Financial bootstrapping can be done by utilizing personal assets, seeking loans from family members, and/or utilizing profits to support operational activities (Daniel et al., 2015; Jayawarna et al., 2015). This strategy is carried out to meet working capital limitations by reducing dependence on external funding, so that capital costs can be reduced (Fitzsimons et al., 2023). However, financial bootstrapping was chosen as funding for MSMEs not merely due to external funding constraints but the preference of the MSME actors concerned is probably due to not wanting to be burdened with debt and not wanting to bother fulfilling the requirements for applying for external funding. Financial bootstrapping is necessary to maintain sufficient working capital needed for sales activities which are a source of business profit. Thus, it is reasonable to assume that the ability of entrepreneurs to provide sufficient internal funds (Al Issa, 2020; Li & Alvarado, 2021; Mabonga, 2020) is one of the factors that influences the financial performance of culinary MSMEs.

Based on a literature search, evidence was found that financial bootstrapping has a significant effect on the performance of start-ups (Jones & Jayawarna, 2010) and software development companies (Harrison et al., 2004). However, this research took England as a developed country for the research object. Therefore, it is interesting to investigate further whether a similar phenomenon will also be found in developing countries with different characteristics (Fitzsimons et al., 2023), such as Indonesia, where the business landscape in this country is dominated by micro-scale businesses with business management that is still conventional. In addition, considering that the research was carried out quite a long time ago, it needs to be updated so that the relevance of the current conditions can be known.

Besides the involvement of financial resources in the form of financial bootstrapping, the financial performance of MSMEs is also made possible by the existence of non-financial resources, especially the ability of culinary MSME actors to do digital transformation. Even though MSMEs are categorized as lagging behind large companies in digitalization practices (Eller et al., 2020), it cannot be denied that digitalization plays an important role in business growth (Berman et al., 2023). In line with the development of the digital ecosystem, culinary MSMEs are required to take advantage of technological developments so that they can respond to the demands of customers who want things that are fast and practical. Currently, culinary MSMEs have a choice of various e-commerce platforms, social media, and digital payments that can shift some or even all of their operations to a digital-based format to maintain their operations in times of crisis (Maulini et al., 2022), and are useful for expanding markets and improving business performance (Subriadi & Wardhani, 2022).

Several studies have documented that digital transformation in MSMEs has shown to have a positive impact on business performance. MSMEs in the manufacturing sector that have utilized digital marketing have had increased performance in their companies (Kawira et al., 2019), experienced reduced costs, and had increased innovation and business performance resulting from digital transformation (Zheng et al., 2023). Furthermore, studies on SMEs in the trade, service, and manufacturing sectors reveal that digital transformation has an impact on financial performance, although it is only small (Valdez-Juárez et al., 2024) and increases sales turnover in the culinary sector from digital marketing (Purnama et al., 2022). Referring to the literature above, it appears that digital transformation for culinary MSMEs is still limited and specific to the marketing aspect, whereas this study will also cover digital payments. This raises the question of whether these findings also apply to the culinary sector, even though the theoretical assumptions as stated previously make it possible to produce the same findings.

This study aims to investigate the effects of financial bootstrapping and digital transformation on the financial performance of MSMEs in the culinary sector in Indonesia. The sample for this research is 180 female entrepreneurs in culinary businesses of an MSME scale spread across three cities in Indonesia. Based on the existing research gaps, this study is expected to enrich the literature in the field of entrepreneurial finance by combining financial and non-financial resources as determinants of MSME financial performance. It is also hoped that these findings can be considered by MSME actors and policymakers in encouraging MSME financial performance by expanding access to funding, supporting the MSME digital ecosystem, and designing empowerment programs for female entrepreneurs.

This paper is presented in five sessions: introduction, literature review and hypothesis development, research methods, results and discussion, and ending with the conclusion.

## 2. Literature review and hypothesis development

### 2.1. Literature review

This section presents the definitions and types of financial bootstrapping and digital transformation. Next, the researcher formulated hypotheses that describe the influence of financial bootstrapping and digital transformation on the financial performance of culinary MSMEs managed by female entrepreneurs.

#### 2.1.1. Financial bootstrapping

The term financial bootstrapping was introduced by Bhidé, (1992) as a set of creative practices available to entrepreneurs to help reduce operational costs and improve cash flow management. Therefore, efforts are needed to (a) minimize external sources and (b) utilize resources owned by others at little or no cost (Winborg & Landström, 1997, 2001). Bootstrapping offers an ideal strategic path to break out of the vicious cycle of limited resources (Venkataraman, 2003); develop existing financial resources without using debt; involve venture capitalists or other external means (Schofield, 2015); increase liquidity and strengthen the cash flow (Fatoki, 2014); and finance businesses when other traditional sources are absent (Zwane & Nyide, 2016).

For MSMEs, bootstrapping is a relevant source of financing considering that they often face limited financing (Bui & Long, 2021; Ruiz-Palomo et al., 2022) as a result of not being able to fulfill the requirements for applying for bank credit (Chimucheka, 2013; Khan, 2022; Zwane & Nyide, 2016), financial limitations (Hussain et al., 2018; Widyastuti & Hermanto, 2022), or a reluctance to apply for bank credit for fear of being rejected (discouraged borrower) (Kon & Storey, 2003). In addition, bootstrapping is in line with the view of the Pecking Order Theory (Myers, 1984) that internal financing is a source of funds with the lowest capital costs compared to external financing sources.

There are various bootstrapping techniques. Winborg and Landström (1997) categorized four bootstrapping options: (1) bootstrapping product development, for example utilizing relationships with suppliers to meet raw material needs in the context of product development; (2) bootstrapping business development, using personal savings or credit cards to avoid business debt; (3) bootstrapping to reduce capital requirements, for example using leasing equipment instead of buying and hiring part-time staff; and (4) bootstrapping to meet capital needs, for example: selling or pledging receivables. In addition, Leach and Melicher (2020) proposed four categories: 1) supplier-related bootstrapping by relying on delayed debt payment times and discounts from suppliers; (2) bootstrapping related to customers, taken by utilizing financing from customers in the form of advances and accelerated repayment of receivables; (3) owner-related bootstrapping, prioritizing sources of financing from the owner, such as utilizing personal assets and funds and allocating profits for business development; and (4) Joint use assets, using business premises or fixed assets simultaneously. Furthermore, the five types of bootstrapping offered by Mittal and Raman (2021) are as follows: (1) delaying payments, (2) relationship resources, (3) limiting investments, (4) owner loans, and (5) client financing. From the various groupings of options above, in simple terms, bootstrapping is actually related to two sides of financial management. In terms of financing decisions, MSMEs try to get cheap sources of financing by relying more on personal finances and efficient working capital management. In terms of investment decisions, MSMEs try to reduce cash flow for the purposes of investing in fixed assets.

#### 2.1.2. Digital transformation

There are three different terms in this technological evolution: digitization, digitalization, and digital transformation which are currently used in the business world. In simple terms, digitization changes analog information into a digital format, while digitalization includes the use of digital technology to improve business processes, then digital transformation refers to strategic changes in a business by exploiting the potential of digital technology to create added value (Verhoef et al., 2021). The forms of digital transformation that are usually carried out by MSMEs, especially those operating in the culinary sector in Indonesia, include: online delivery applications (Go-food/Grab-food), digital wallets (Go-pay, Ovo, Dana), QRIS (Quick Response) payments Code Indonesian Standard), social media for marketing (YouTube, TikTok, Instagram, Twitter, Facebook, WhatsApp), and applications for financial transactions and inventory recording.

Digital transformation differs from information technology in that it involves redefining a company's value proposition, aiming to change the organization's identity, and driving new business strategies. Meanwhile, information technology only strives to support existing strategies (Gertzen et al., 2022). Specifically, Libert et al. (2016) stated that digital transformation refers to changes in internal operations, client relationships, and value creation based on digital technologies. Technological advances have shifted various aspects of business operations (Fitzgerald et al., 2013; Mykhailo, 2020), including accounting processes (Al-Hattami et al., 2024).

Digital transformation was demonstrated to have an important role as a business strategy for MSMEs during the COVID-19 pandemic (Setyoko & Kurniasih, 2022). However, Mandviwalla and Flanagan (2021) emphasized that digital transformation remains relevant both during the pandemic and after the COVID-19 pandemic for the sustainability of MSMEs. With digital transformation, MSMEs can integrate into global markets and have access to resources, including finance (e.g. peer-to-peer loans), training, and recruitment channels, such as government services that are increasingly available online (OECD, 2021). Digital transformation is also the answer to consumer demands who need fast and smooth service (Proksch et al., 2024). However, MSMEs tend to lack the confidence to carry out digital transformation if they do not receive assistance from external parties, including financial assistance in the form of subsidies and tax incentives from the government, technology, and an increase in human resource capacity (Rupeika-Apoga et al., 2022). A similar perspective was also stated by Ulas (2019) that MSME entrepreneurs sometimes do not have a high commitment to invest in information technology and communication, so that external support is needed to integrate digital transformation into the company's strategy. Therefore, Chen et al. (2022) recommended that the government should collaborate with educational institutions to create educational programs, do training, and use the Internet as a source of knowledge for MSMEs.

## **2.2. Hypothesis development**

### **2.2.1. Financial bootstrapping and financial performance**

Entrepreneurship is synonymous with the activities of analyzing opportunities, gathering resources, and creating value to develop a business (Lans, 2020). To realize this opportunity, MSME entrepreneurs need a certain amount of funds, both from internal and external sources. Banks are often considered the main providers of external funds for MSME entrepreneurs (Berger & Udell, 2006). However, ironically, MSMEs often have difficulty accessing external financing due to problems with information asymmetry between entrepreneurs and funders regarding business prospects and the company's financial instability, especially for female entrepreneurs (Arshad, 2023). In fact, in many cases female entrepreneurs are given stricter credit requirements, guarantees, and higher interest rates than male entrepreneurs (Malmström et al., 2017; Naegels et al., 2018). Businesses managed by male entrepreneurs are considered more bankable because male entrepreneurs are considered more ambitious and have better entrepreneurial skills compared to female entrepreneurs (Kanze et al., 2018). In addition, female entrepreneurs often do not want to take risks, so they tend to rely on safer financing (Ginesti et al., 2018). This is reinforced by several studies showing that female entrepreneurs are less likely to apply for credit than male-owned MSMEs (Galli et al., 2020; Moro et al., 2017). In examining the obstacles to banking access and the reluctance to access banking by female entrepreneurs above, it conveys that financial bootstrapping is important for female MSME entrepreneurs. Even during times of crisis when sales decline, female entrepreneurs can rely on financial bootstrapping to meet their capital needs (Neeley & Van Auken, 2010).

(Mou et al., 2020) explained that financial bootstrapping is an effective and efficient MSME financing strategy. Financial bootstrapping can prevent entrepreneurs from relying on financing in the form of debt, venture capital, or other forms of external financing, thereby reducing their capital costs (Fatoki, 2014; Mittal & Raman, 2021). Thus, bootstrapping will not only be a source of cheap financing for MSME operational activities, but it will also have an impact on sustainability and improve business performance (Jones & Jayawarna, 2010). Several previous studies also revealed that financial bootstrapping has a positive effect on financial performance (Al Issa, 2020; Rita et al., 2021). Therefore, female entrepreneurs who practice financial bootstrapping can ensure the smooth running of business operations (for example: the procurement of materials and the fulfillment of other short-term obligations), so they are thought to be



able to improve their financial performance. Based on the explanation above, the first hypothesis is formulated as follows:

H1: Financial bootstrapping has a significant positive effect on financial performance among female MSME entrepreneurs.

### 2.2.2. Digital transformation and financial performance

The use of information technology can facilitate the physical activities of MSME entrepreneurs by changing manual transactions into digital transactions, so that business processes become more effective and efficient. Digitalization helps and at the same time facilitates search and purchase activities for raw materials, marketing, payment transactions, access to financing, product/service innovations, and monitoring of business financial conditions for business development. Apart from that, digital transformation can also reduce costs by optimizing internal processes through job automation, reducing the use of physical documents by switching to electronic documents, etc. Technology is an inseparable part of the development of knowledge, tools, techniques, and systems within a company to produce, manufacture, and distribute goods and services appropriately to customers (Cannas, 2023). Thus, the digitalization of MSMEs can greatly facilitate the overall business activities.

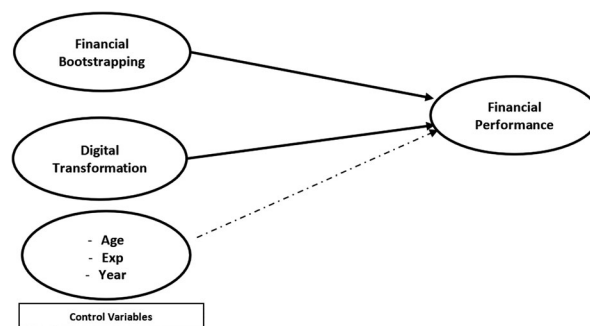
Digitalization can certainly improve financial performance (i.e. growth in turnover, profits, and operational efficiency) (Ezeokoli et al., 2016), and productivity (Mubarak et al., 2019). Referring to the benefits of applying information technology for business development as revealed by previous research, MSME entrepreneurs (including female entrepreneurs) need to do digital transformation. The use of information and communication technology can support and facilitate daily business operations for female entrepreneurs (Anggraini et al., 2023).

However, empirical facts indicate that there is still a gender gap in digital transformation (Buyannemekh & Chen, 2021). Digital gender-based division was defined by Abu-Shanab and Al-Jamal (2015) as inequality in opportunities to use and access digital technology between male and female. Females are considered to have significant privacy risks when sharing information, leading to reluctance to adopt digital transformation (Lin & Wang, 2020). Besides that, it is also more difficult for female to make changes unless there is encouragement from the family (Chaudhary & Dutt, 2022). Thus, female entrepreneurs who engage in digital transformation have higher competitiveness compared to other female entrepreneurs.

Fauzi et al. (2021) found that female entrepreneurs who digitally developed their businesses were able to survive longer than their competitors who did not conduct digital transformation. Mangifera and Mawardi (2022) also backed the findings of the positive impact of digital transformation on the financial performance of culinary MSMEs, in that the use of Internet technology could boost sales and profits during the pandemic. Based on the explanation above and supported by previous research, the second hypothesis is put forth as follows:

H2: Digital transformation has a significant positive effect on financial performance among female MSME entrepreneurs.

The causality path between the independent and dependent variables is shown in Figure 1. This research places financial bootstrapping (FB) and digital transformation (DT) as independent variables and



**Figure 1.** Conceptual model.  
Source: Self-constructed (2023).

financial performance (FP) as the dependent variable. To filter the influence of other independent variables that can influence financial performance, the research controls entrepreneurial characteristics and business characteristics consisting of entrepreneurial age (Age), entrepreneurial experience (Exp), and business age (Year), in reference to Fasci and Valdez (1998) and Inmyxai and Takahashi (2010).

### 3. Research methodology

#### 3.1. Sample retrieval and data collection

This research sample consists of culinary MSMEs which are managed by female in Surakarta, Salatiga, and Semarang, Indonesia. Based on the results of initial visits to the field in the three cities selected as research locations, the majority of MSME owners in the culinary sector are managed by female who still face obstacles in funding and adopting digital technology. As for considerations in choosing the cities, apart from being widely known as culinary tourism destinations in Indonesia, Semarang and Surakarta have been determined by the Ministry of Tourism and Creative Economy as culinary tourism destinations. In addition, the city of Salatiga was chosen as a City of Gastronomy in Central Java by UNESCO so it is hoped that it can show the development of the culinary businesses in Indonesia. Culinary businesses were chosen because of their ability to sustain themselves and develop during the COVID-19 pandemic. Based on initial observations made by researchers that females are predominately MSME owners in the culinary sector in these three cities and considering that female entrepreneurs still face tougher challenges in running their businesses (Arshad, 2023; Asiedu et al., 2013; Yudiastuti et al., 2021) than their counterparts, this research aspires to focus on female entrepreneurs. The targeted sample size was 60 MSMEs in each city. Purposive sampling was used with inclusion criteria: (1) the business owner was female, (2) the business had been operating for at least two years before the COVID-19 pandemic, and (3) the business was the main source of income.

The data was collected through a field survey using a questionnaire which was divided into two main parts. The first section focused on the demographic details of the respondents, including their age, work experience, and education. The second part discussed the dependent variable—financial performance—and the independent variables—financial bootstrapping and digital transformation. Next, six enumerators were involved in the field data collection process. Prior to the study, all enumerators underwent training to ensure a clear understanding of the research objectives, questionnaires, field conditions, and effective data collection methods. The field research took two weeks, where each enumerator's task was to interview 30 respondents in certain cities to meet the allocated timeframe, with a total target of 180 SMEs. However, eight questionnaires were deemed inadequate regarding the consistency and completeness of responses and were therefore excluded from the analysis. Consequently, this study used data from 172 SMEs. This sample size met the minimum requirements as recommended by Hair et al. (2014). They suggested that a minimum of 100 samples is required for a Structural Equation Model with  $\leq 5$  constructs, each consisting of  $> 3$  items with communality values  $\geq 0.6$ . Table 1 presents the detailed profile of the respondents. The majority of the respondents fell into the 30-50 years age group (40.7%). Regarding their entrepreneurial experience, 36.6% had more than a decade of such experience, and 47.1% of the respondents had a high school diploma or a vocational school degree.

#### 3.2. Ethical considerations

Prior to the survey, the researchers have received approval from the Ethics Committee of the Directorate of Research and Community Service of Universitas Kristen Satya Wacana in May 2023 to conduct the study. The selected respondents were given an introduction about the research through a field survey letter and an informed consent form before answering the research questionnaire. This letter is included at the beginning of the research questionnaire and states the respondent's willingness to complete the research questionnaire and voluntarily provide additional information according to the actual conditions. The letter of consent also mentions that the obtained data only will be used for research and scientific publication purposes. The personal data (the respondent's name or company) will not be included or



**Table 1.** Description of the sample.

Socio-demographic characteristics	N (%)
Entrepreneur's age	
Up to 30years old	44 (25.6 %)
More than 30 - 50years old	70 (40.7%)
More than 50years old	58 (33.7%)
Σ	172 (100%)
Entrepreneurial experience	
Up to 5 years	61 (35.5%)
More than 5–10 years	48 (27.9%)
More than 10 years	63 (36.6%)
Σ	172 (100%)
Last education	
Elementary school	24 (14.0%)
Middle school	22 (12.7%)
High school/ vocational high school	81 (47.1%)
Higher education	45 (26.6%)
Σ	172 (100%)
<b>Business Age</b>	
Up to 5 years	63 (36.6%)
More than 5–10 years	47 (27.4%)
More than 10 years	62 (36.0%)
Σ	172 (100%)
<b>Average Turnover/Day</b>	
Before the COVID-19 pandemic	Rp 1,187,314
During the COVID-19 pandemic	Rp 520,250

shared with a third party. The selected respondents have the option (yes or no) to become participants in this research.

### 3.3. Variable measurements

The conceptual framework in this research consisted of three constructs, each of which was proxied by several items based on previous research. The responses were measured using a 7-point Likert scale (from 1 'Strongly Disagree' to 7 'Strongly Agree'). The first construct, financial bootstrapping is defined as a method of financing a business without relying completely on long-term external sources of financing, and it was measured using four items modified by Winborg and Landström (2001) and Wing (2010). The second construct, digital transformation, refers to utilizing digital technology to support business operations and provide customer service, which was proxied by four items developed by the researcher. For the third construct, considering that most MSMEs do not have financial reports that can be used to track financial performance data, this research relies on subjective assessments from MSME actors. For the purposes of measuring financial performance, it is defined as the achievement of operational results measured in monetary terms which are proxied by four items modified from Purwanto et al. (2022). The empirical indicators for each construct are listed in Table 2.

To ensure the quality of the measurements, a pre-test involving 63 respondents was carried out before the field research. The results revealed that all the indicators are valid and reliable, with loadings exceeding 0.70 and Cronbach's alpha (CA) values exceeding 0.70. However, feedback from the pre-test suggested that certain questions had to be rephrased to make them simpler and easier to understand.

### 3.4. Data analysis

To test the causality between the variables empirically, this research applied the following estimation model:

$$FP = \beta_1 FB + \beta_2 DT + \delta_1 \quad (1)$$

$$FP = \beta_3 FB + \beta_4 DT + \beta_5 Age + \beta_6 exp + \beta_7 Year + \delta_2 \quad (2)$$

**Table 2.** Variable measurements.

Developed	Source	Item
Financial bootstrapping	Winborg and Landström (2001); Wing (2010)	I prioritize personal assets for business operational purposes rather than purchase new ones; I use profits to increase business capital; I will prioritize personal funds or family funds when I need additional financing; I optimize existing funds for operational needs.
Digital transformation	Developed by the researcher	I have been using digital technology longer than other similar businesses; I have used digital technology for various operational activities; I have used digital technology to improve customer service; I have made intensive use of digital technology.
Financial performance	Purwanto et al. (2022)	Currently, there has been an increase in sales; currently, there has been an increase in profits; currently, there has been an increase in cash; currently, there has been an increase in assets.

**Table 3.** Descriptive statistics.

Variable	Mean <sup>a</sup>	Correlation					
		FB	DT	FP	Age	Exp	Year
Financial bootstrapping	5.738	1	0.142	0.257	0.000	−0.089	−0.053
Digital transformation	5.063	0.142	1	0.282	−0.200	−0.062	−0.490
Financial performance	5.558	0.257	0.282	1	−0.031	−0.124	−0.111
Age	42.913	0.000	−0.200	−0.031	1	0.592	0.422
Exp	11.741	−0.089	−0.062	−0.124	0.592	1	0.784
Year	11.128	−0.053	−0.490	−0.111	0.422	0.784	1

<sup>a</sup>The category levels for each construct are as follows: average score 1-3=low; > 3-5=medium; > 5-7=high.

Where:

*FP* = Financial Performance

*FB* = Financial Bootstrapping

*DT* = Digital Transformation

*Age* = Entrepreneur Age

*Exp* = Entrepreneurial Duration

*Year* = Business Age

The data analysis used the Partial Least Squares-Structural Equation Modeling (PLS-SEM) technique, which started from testing the outer model, fulfilling the goodness of fit model, and the inner model which empirically tested causality between the variables.

## 4. Results and discussion

### 4.1. Descriptive statistics

Table 3 displays descriptive statistics, including the mean values and correlations. The construction of financial bootstrapping, digital transformation, and financial performance are in the high category. This research also includes three control variables: entrepreneur age (Age), amount of entrepreneurial experience (Exp), and business age (Year).

The financial bootstrapping construct scored an average of 5.738, placing it in the high category. This indicates that female entrepreneurs in culinary MSMEs have utilized financial bootstrapping to overcome funding challenges, especially during the pandemic. The main internal funding sources include profits and existing funds to maintain their operations. Next, the digital transformation construct is also in the high category with an average score of 5.063. The most prominent transformation among these female entrepreneurs involves consistent and more advanced use of digital technology compared to their peers in the industry. Finally, the financial performance construct scored 5.558, which is also included in the high category. This shows that female entrepreneurs are likely to see an increase in sales, profits, cash flow, and assets in their businesses compared to the early stages of the pandemic. As an additional context, the average age of the respondents is 42 years, indicating that they are still in the productive age group, with the average entrepreneurial experience and business age exceeding 10 years.

**Table 4.** Validity and reliability testing.

Latent variable	Item	Loading	Average Variance Extracted (AVE)	Composite Reliability Coefficient (CR)	Full Collinearity VIF
Financial bootstrapping	FB1	0.711	0.540	0.823	1.218
	FB2	0.828			1.564
	FB3	0.706			1.369
	FB4	0.686			1.506
Digital transformation	DT1	0.751	0.724	0.894	1.780
	DT2	0.893			2.630
	DT3	0.883			2.684
	DT4	0.872			2.526
Financial performance	FP1	0.900	0.680	0.861	5.088
	FP2	0.912			5.638
	FP3	0.847			1.928
	FP4	0.693			1.217

**Table 5.** Goodness of fit.

Criteria	Parameter	Practical rule
Standard Root Mean Square Residual (SRMR)	0.080	SRMR < 0.1
R-Square	0.157	R <sup>2</sup> > 0.1
Q-Square	0.089	Q <sup>2</sup> > 0

## 4.2. Instrument testing

Validity and reliability tests were first carried out to assess the feasibility of the research instrument before testing the inner model. Table 4 summarizes the results of the validity and reliability tests, utilizing outer loading values, Average Variance Extracted (AVE), Composite Reliability Coefficient (CR), and Full Collinearity VIF (Hair et al., 2017).

Table 4 shows that all the external loading scores are above 0.60, ranging from the lowest at 0.686 to the highest at 0.912. All the AVE scores are above 0.50, indicating that the convergent validity criteria are met. In addition, the composite reliability score is above 0.60, indicating that the three constructs have achieved internal consistency reliability. In addition, all VIF values are less than 10, indicating the absence of multicollinearity problems in the model. This is reinforced by the results of the correlation test as shown in Table 3, which depicts a low correlation value between the constructs.

Meanwhile, the SRMR, R-Square, and Q-Square values were used in the research to assess the adequacy of the estimation model. The values of all the model adequacy criteria in Table 5 (SRMR = 0.080 < 0.1; R<sup>2</sup> = 0.157 > 0.1; Q<sup>2</sup> = 0.089 > 0) indicate that the estimation model derived from this study is valid.

After the outer model testing met the acceptable criteria, the inner model testing (the causal relationships between the constructs) was carried out (Table 5). Table 6 and Figure 2 reveal that H1 (FB → FP,  $\beta = 0.260$ ,  $p = 0.000$ ) and H2 (DT → FP,  $\beta = 0.246$ ,  $p = 0.001$ ) is accepted. These findings remained robust when the control variables (age, exp, and year) were introduced into the model. H1 (FB → FP,  $\beta = 0.246$ ,  $p = 0.000$ ) and H2 (DT → FP,  $\beta = 0.258$ ,  $p = 0.001$ ) are still accepted. These results clarify that financial bootstrapping and digital transformation have a significant positive influence on financial performance. Although the addition of control variables in the estimation model causes changes in the regression coefficients of financial bootstrapping and digital transformation, all the control variables do not show a significant impact on financial performance. These findings reaffirm that financial bootstrapping and digital transformation carried out by female entrepreneurs in the culinary MSME sector are determinants of financial performance.

## 4.3. Discussion and research results

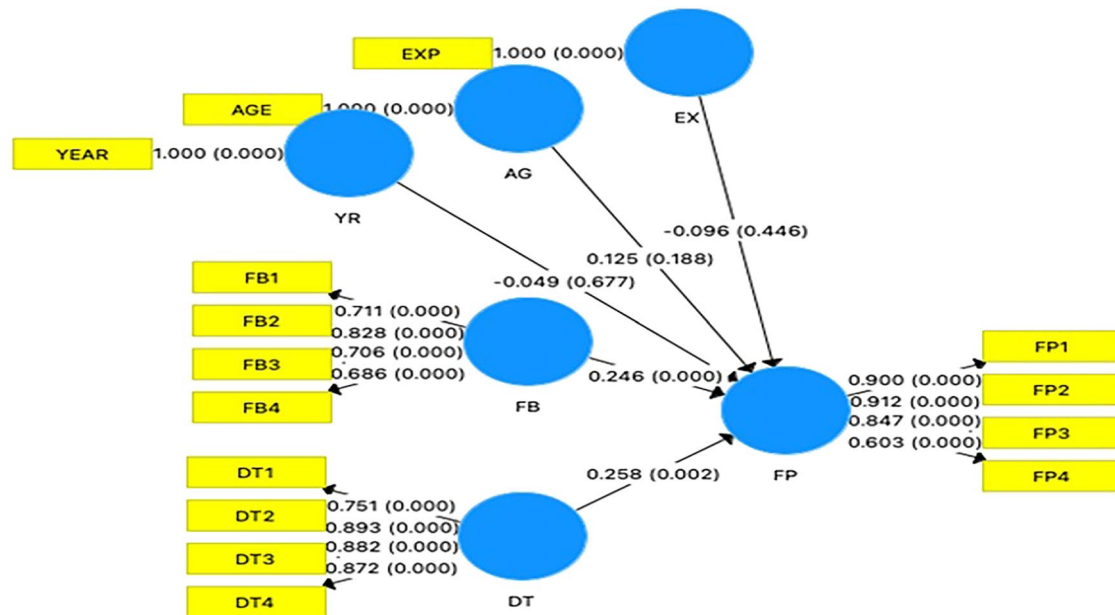
### 4.3.1. Financial bootstrapping has a positive influence on financial performance

This study reveals that financial bootstrapping has a positive impact on financial performance. Despite the various challenges faced by female entrepreneurs in accessing formal funding, financial bootstrapping has been proven to improve business performance. Female entrepreneurs have attained financial bootstrapping by leveraging their personal assets, seeking loans from family members, or reinvesting profits to facilitate operational activities at minimal or zero costs. This finding is in line with previous

**Table 6.** Hypothesis Testing Results.

	Model 1 (without a control variable)	Model 2 (with a control variable)
FB → FP	0.260***	0.246***
DT → FP	0.246***	0.258***
Age → FP		0.125
Exp → FP		-0.096
Year → FP		-0.049

Notes: FB: Financial Bootstrapping; DT: Digital Transformation; FP: Financial Performance; Age: Entrepreneur Age; Exp: amount of entrepreneurial experience; Year: Business Age.  
Significant at  $\alpha$  1%.

**Figure 2.** Full model output (with the control variable).

research by Al Issa (2020) and Vanacker et al. (2011), who emphasized that the availability of internal funds mobilized by entrepreneurs can streamline business operations and subsequently achieve financial performance without relying on external funding sources.

#### 4.3.2. Digital transformation has a positive influence on financial performance

Furthermore, the second finding reveals that digital transformation has a positive impact on financial performance. Female entrepreneurs have also responded to demands for adaptation by digitalizing some or even all of their operational activities to survive during the COVID-19 pandemic. As a result, female entrepreneurs who have embraced digital transformation have demonstrated higher competitiveness compared to their peers. These results reinforce previous research involving female entrepreneurs in MSMEs, such as studies by Sultan and Sultan (2020) and Ughetto et al. (2020), who stated that female entrepreneurs who have chosen digital transformation in their business processes have managed to survive and even launch new businesses amidst the crisis caused by the pandemic. Additionally, their businesses have grown and survived longer than their competitors who have not undergone digital transformation (Fauzi et al., 2021).

## 5. Conclusion

This research aimed to examine the influence of financial bootstrapping and digital transformation on the financial performance of culinary MSMEs managed by female entrepreneurs in Indonesia after the COVID-19 pandemic. The majority of female entrepreneurs who participated in this research were between 30-50 years old (40.7%), had more than 10 years of entrepreneurial experience (36.6%), and had completed high school/vocational school education (47.1%).

### 5.1. Implications

This research theoretically contributes to filling the research gap regarding the factors that influence the financial performance of MSMEs in the culinary sector. The first factor is financial bootstrapping which refers to the ability of business actors not to rely on debt as a source of funding. In this way, business actors will, among other things, utilize internal funding sources, carry out various efficiency measures, and do work capital management. Thus, financial bootstrapping as introduced by Bhidé (1992) is a set of creative practices available to entrepreneurs to help reduce operational costs and improve cash flow management. The second factor is that digital transformation, both related to digital marketing and digital payments, contributes to financial performance. Culinary MSMEs that pay attention to digital transformation as demonstrated by adopting technology early on and using it in various business operations and operationalized continuously will have better financial performance than culinary MSMEs that pay less attention to digital transformation. These two factors can be considered to be a combination of financial and non-financial resources.

Considering that MSMEs managed by women not only support the family economy but also contribute to the national economy, this study proposes several recommendations. First, the Indonesian government, both at the central and regional levels, must be more serious in implementing various empowerment programs targeting women to increase their ability to access and control economic resources. Second, Indonesian banking institutions must uphold the principle of gender equality. Businesswomen seeking bank loans should not be required to get their husbands' approval.

This study also offers managerial insights aimed at female entrepreneurs in MSMEs. First, the findings show that financial bootstrapping has a positive effect on financial performance. Therefore, female entrepreneurs must be creative in exploring cheap sources of internal funding. This can include allocating a certain percentage of profits, leveraging financial support from social networks to access low- or no-interest loans, and leveraging existing personal assets to supplement important fixed assets rather than purchasing new ones. Second, this study reveals a positive correlation between digital transformation and financial performance. Therefore, female entrepreneurs must keep up with advances in digital technology and adopt them to operate their businesses efficiently, expand their market reach, and meet customer demand for practical and fast customer service. Third, field observations show that many female entrepreneurs are hesitant to participate in government-led women's empowerment programs, for various reasons. In addition to their independent efforts to expand their knowledge of business developments, particularly regarding financial bootstrapping and digital technology, female entrepreneurs should dedicate their time to join empowerment programs like this as it can broaden their perspectives and build their business networks.

### 5.2. Limitations and suggestions for future research

This study is not without limitations. One constraint is its narrow focus on the culinary sector, limiting the generalizability of the findings solely to this specific industry. Consequently, future studies could broaden the scope to other sectors within MSMEs predominantly managed by female entrepreneurs. Furthermore, this study did not differentiate between the scales of businesses (micro, small, or medium) due to most of the respondents falling into the micro-scale category. Various findings could emerge if the model testing is conducted after segregating the sample into subgroups based on their business scales. This could be a promising area for future research, particularly when the observed business scales exhibit heterogeneity.

### Researcher contributions

Maria Rio Rita contributed to the design and implementation of the research. Pambayun Kinasih Yekti Nastiti processed the data and performed the analysis. Both authors contributed to the final version of the manuscript. All authors agree to be accountable for all aspects of the work.

### Disclosure statement

No potential conflict of interest was reported by the author(s).

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## Data availability statement

The data that support the findings of this work are available from the corresponding author, [MRR], upon reasonable request.

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