Impact of entrepreneurial characteristics, access to credit and product innovation on the coffee powder agroindustry business performance in rural areas

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Abstract. The competitiveness of rural coffee agroindustry needs to be designed to increase the income of coffee entrepreneurs in rural areas. The purpose of this study was to analyze the impacts of entrepreneurial characteristics, Access to Credit, and product innovation on the business performance of the coffee powder agroindustry. Data collection was carried out through field observations in-depth interviews. Key informants were all parties related to the development of the Robusta coffee agroindustry, and the research respondents were 49 coffee powder processors in coffee canters in Tanah Datar Regency. Data analysis was performed using descriptive methods and the Structural Equation Model (SEM) using smartPLS. Entrepreneurial characteristics have a significant effect on access credit, and then Access to Credit has a significant effect on business performance. The entrepreneurial characteristics also have a significant effect on the coffee powder agroindustry business performance.

Keywords: business performance, coffee powder, access credit, entrepreneurial characteristics, product innovation

1. Introduction

The Robusta coffee agroindustry in Indonesia originates from smallholder plantations in rural areas, which have economic and social functions for farmers because it is a source of livelihood and income for family farmers, providers substantial employment opportunities, and a source of foreign exchange [1]. The Robusta coffee plantation is currently low in productivity; the plant is old. Coffee farmers lack the capital to replanting their plants, purchase production facilities, and maintain their coffee plants. Coffee cultivation is seen as a business that is less profitable and has low competitiveness [2].

The people's coffee agroindustry has the opportunity to be developed because it has excellent prospects in both domestic and international markets. Some of that problem that commonly occurs in the coffee agroindustry such as limited working capital and investment capital, difficulty in obtaining raw materials of good quality and affordable prices, limited technology, quality human resources, market, and marketing information.

Entrepreneurial characteristics affect business success. Entrepreneurial characteristics are significantly related to business success in business. Entrepreneurial characteristics include aspects of honesty, self-awareness, doing business for business, the ability to build networks, looking for
opportunities and information, and having creativity [2]. Characteristics that have a significant effect on the success of SMEs include self-confidence, network-building skills, business knowledge, and experience. The entrepreneurial characteristics of entrepreneurs are getting stronger, resulting in more excellent business performance [3].

Business capital is needed for investment and operational costs for entrepreneurs. The capital formation can be done by setting aside a portion of its income, or loans from banks or non-banks. Entrepreneurship is an innovator, with product innovation that will be able to improve its performance and business sustainability [4]. Tanah Datar Regency is one of the regions that have the most coffee processing businesses in West Sumatra. Nagari Koto Tuo is a coffee processing business center in Tanah Datar Regency. The purpose of this study was to analyze the impact of entrepreneurial characteristics, access to credit, and product innovation on the coffee powder agroindustry business performance in the Tanah Datar Regency.

2. Materials and methods

The research was carried out using a survey method. The survey was conducted by direct interviews with respondents using a questionnaire. The number of respondents was 49 processors of powder coffee. The data analysis technique was carried out with multivariate analysis using PLS-Structural Equation Model (SEM) analysis operated through SmartPLS 3. PLS-SEM can work with small sample sizes, complex models, no need to assume the underlying data, and easily measure reflective and formative models [7].

| No | Latent Variable | Manifest Variable / Indicator | Reference |
|----|----------------|------------------------------|-----------|
| 1  | Business Performance | Financial Perspective (FP) | Iyibildiren & Karasioglu, 2018 [8] |
|    |                 | Customer Perspective (CP) | Rafiq et al., 2020 [9] |
|    |                 | Internal Business Perspective (IBP) |           |
|    |                 | Growth and Development Perspective (GDP) |           |
| 2  | Entrepreneurship Characteristics | Instrumental Traits (IT) | Abdulwahab & Al-damen, 2015 [10]  |
|    |                 | Pretative Nature (PN) | Firmalista et al., 2020 [11] |
|    |                 | Social Flexibility (SF) |           |
|    |                 | Hard Work (HW) |           |
|    |                 | Self-Confidence (SCF) |           |
|    |                 | Risk Taking (RT) |           |
|    |                 | Self-Control (SCT) |           |
|    |                 | Innovative Traits (INT) |           |
|    |                 | Independent Trait (IDT) |           |
|    |                 | Leadership (L) |           |
|    |                 | Task and Results Oriented (TRT) |           |
|    |                 | Future Oriented (FO) |           |
| 3  | Access to Credit | (Terms (T)) | Chinonso & Zhen, 2016 [12] |
|    |                 | Time Period (TP) |           |
|    |                 | Interest Rate (IR) |           |
| 4  | Product Innovation | Product Line Expansion (PLB) | Al-Askari & Shakir, 2011 [13] |
|    |                 | Imitation Products (IP) | Pratami Wulan T. & Raharja, 2019 [14] |
|    |                 | New Product (NP) |           |
3. Results and discussion

3.1. Measurement Model

Testing the measurement model has the aim of assessing the reliability and validity of the indicators that form the latent variables in the study. Conceptually, the model of all variables in this study was measured by reflective indicators. The measurement of reliability and validity (outer model) with reflective variables is done by looking at the values of (1) Indicator reliability with a loading factor value > 0.6, (2) Internal consistency reliability with composite reliability > 0.7, (3) Convergent validity with Average Variance Extracted (AVE) > 0.5, (4) Discriminant validity with the square root of AVE > correlation between constructs. The validity process can be seen from the outer loading value of each indicator with the PLS software.

![Diagram of Confirmatory-Last Factor Analysis](image)

**Figure 1.** Confirmatory-Last Factor Analysis
The final loading factor values, composite reliability, and Average Variance Extracted (AVE) can be seen in Table 2 below. In Table 2, it can be seen that all variables forming indicators are valid by having a loading factor value above 0.6, the AVE value for each variable is > 0.5 so that it meets the convergent validity criteria. Likewise, the Composite Reliability value generated by each variable is > 0.7 so that it meets the internal consistency reliability. Furthermore, for discriminant validity, another way to measure discriminant validity is to compare the correlation value of the indicator with its latent variable through cross-loading output. Cross-loading indicator variables must be of more excellent value to other latent variables. The cross-loading correlation value can be seen in Table 3.

Table 2. Final stage loading factor values, composite reliability, and Average Variance Extract (AVE).

| No | Latent Variable        | Manifest Variable / Indicator          | Loading Factor | Composite Reliability | AVE   |
|----|------------------------|----------------------------------------|----------------|-----------------------|-------|
| 1  | Business Performance   | Financial Perspective (FP)             | 0.789          | 0.819                 | 0.534 |
|    |                        | Customer Perspective (CP)              | 0.629          |                       |       |
|    |                        | Internal Business Perspective (IBP)    | 0.648          |                       |       |
|    |                        | Growth & Development Perspective (GDP)| 0.836          |                       |       |
|    |                        | Pretative Nature (PN)                  | 0.732          |                       |       |
|    |                        | Hard Work (HW)                         | 0.717          |                       |       |
| 2  | Entrepreneurship       | Self-Confidence (SCF)                  | 0.825          |                       |       |
|    | Characteristics        | Risk Taking (RT)                       | 0.698          |                       |       |
|    |                        | Self-Control (SCT)                     | 0.664          |                       |       |
|    |                        | Terms (T)                              | 0.684          | 0.819                 | 0.604 |
| 3  | Access to Credit       | Time Period (TP)                       | 0.855          |                       |       |
|    |                        | Interest Rate (IR)                     | 0.782          |                       |       |
|    |                        | Product Line Expansion (PLB)           | 0.69           | 0.853                 | 0.662 |
| 4  | Product Innovation     | Imitation Products (IP)                | 0.848          |                       |       |
|    |                        | New Product (NP)                       | 0.889          |                       |       |

Based on Table 3, it is known that the cross-loading value between the latent variable and its indicator is greater than the correlation value of other latent variables with the variable's indicator. The cross-loading value of the entrepreneurial characteristic's variable with the SP indicator, value is 0.732, greater than the correlation value with the Product Innovation variable, the value is 0.100, greater than the correlation value with the Access to Credit variable, the value is 0.271, greater than the correlation value with the business performance variable with a value of 0.391. Likewise, with other variables where the cross-loading value between the latent variable and the indicator is greater than the correlation value between other latent variables and the variable's indicator, which means that the variables in this study have good discriminant validity.
| Indicator                  | Characteristics of Entrepreneurship | Product Innovation | Credit | Business Performance |
|---------------------------|------------------------------------|--------------------|--------|----------------------|
| Innovative Traits (INT)   | 0.653                              | 0.290              | 0.361  | 0.352                |
| Self-Confidence (SCF)     | 0.825                              | 0.171              | 0.416  | 0.441                |
| Hard Work (HW)            | 0.717                              | 0.010              | 0.478  | 0.507                |
| Risk Taking (RT)          | 0.698                              | 0.250              | 0.323  | 0.531                |
| Pretative Nature (PN)     | 0.732                              | 0.100              | 0.271  | 0.391                |
| Self-Control (SCT)        | 0.664                              | -0.011             | 0.098  | 0.424                |
| New Product (NP)          | 0.188                              | 0.889              | 0.297  | 0.347                |
| Imitation Products (IP)   | 0.177                              | 0.848              | 0.218  | 0.232                |
| Product Line Expansion (PLB)| 0.097                      | 0.690              | 0.154  | 0.141                |
| Time Period (TP)          | 0.407                              | 0.098              | 0.855  | 0.491                |
| Interest Rate (IR)        | 0.435                              | 0.308              | 0.782  | 0.437                |
| Terms (T)                 | 0.246                              | 0.302              | 0.684  | 0.354                |
| Internal Business Perspective (IBP)| 0.382                  | 0.111              | 0.382  | 0.648                |
| Financial Perspective (FP)| 0.609                              | 0.233              | 0.283  | 0.789                |
| Growth & Development Perspective (GDP)| 0.513              | 0.332              | 0.508  | 0.836                |
| Customer Perspective (CP) | 0.279                              | 0.217              | 0.556  | 0.629                |

3.2. Structural Model Testing

The evaluation of the structural model (inner model) aims to see the relationship between latent variables. The model suitability test is based on defined criteria which being called the Goodness of Fit. The Goodness of Fit of the Inner Model is measured using the R-square of the dependent latent variable with the same interpretation as the regression; Q-Square predictive relevance for structural models, measures how well the observed value is generated by the model and also its parameter estimates. Q-square value > 0 indicates the model has predictive relevance; conversely, if the value of Q-Square ≤ 0 indicates that the model lacks predictive relevance.

| Indicator | R-Square | R Square Adjusted |
|-----------|----------|-------------------|
| IP (Y3)   | 0.040    | 0.019             |
| K (Y1)    | 0.230    | 0.213             |
| KU (Y3)   | 0.493    | 0.459             |

Calculation of Q-Square is done with the formula:

\[
Q^2 = 1 - (1 - R_{12})(1 - R_{22})(1 - R_{p2})
\]

The quantity of Q2 has a value with a range of 0 < Q2 < 1, where the closer to 1 means that the model is getting better. A large Q-square > 0 indicates the model has predictive relevance, meaning
that the model results of the analysis can explain 60 percent of the phenomenon being studied, and the remaining 70% is influenced by other variables outside of this research model. This shows that the characteristics of entrepreneurship, credit, and product innovation affect business performance, and the rest is influenced by other factors that are not included in the model.

3.4. Hypothesis testing

This hypothesis test is a causality analysis conducted to determine the relationship between variables. Causality analysis can be used to determine the effect that occurs between exogenous and endogenous variables. Exogenous variables are stated to have a significant effect on endogenous variables if the p-value (probability) is <0.05. The results of hypothesis testing are presented in Table 5.

| Description Path                                      | P-value |
|-------------------------------------------------------|---------|
| Entrepreneurship Characteristics => Access to Credit  | 0.000   |
| Access to Credit => Business Performance              | 0.046   |
| Entrepreneurship Characteristics => Business Performance | 0.001   |
| Product Innovation => Business Performance            | 0.196   |
| Entrepreneurship Characteristics => Product Innovation => Business Performance | 0.155   |
| Entrepreneurship Characteristics => Product Innovation | 0.414   |
| Entrepreneurship Characteristics => Access to Credit => Business Performance | 0.102   |

Based on Table 5, it can be seen that Entrepreneurial Characteristics have a significant effect on Access to Credit, Access to Credit has a significant effect on Business Performance, and Entrepreneurial Characteristics have a significant effect on Business Performance. In line with the statement of [15] that there is a significant influence on Entrepreneurial Characteristics variables and Access to Credit on Business Performance. Meanwhile, Entrepreneurial Characteristics have no significant effect on Business Performance and Product Innovation. Through the mediating variables of Product Innovation and Access to Credit, Entrepreneurial Characteristics does not have a significant effect on Business Performance.

4. Conclusion

Based on data analysis and discussion it can be concluded that entrepreneurial characteristics have a significant effect on access credit, and then Access to Credit has a significant effect on business performance. The characteristics of entrepreneurship also have a significant effect on the coffee powder agroindustry business performance.

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