

## Impact of Legal Regulation and Credit Access on MSME Competitiveness with NIB Ownership Mediation

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### Abstract

This study investigates the role of the Company Identification Number (NIB) as a mediating factor in the relationship between business legality, access to credit, and the competitiveness of Micro, Small, and Medium-Sized Enterprises (MSMEs). Data were collected through structured questionnaires from 95 MSME owners in the Gayungan District of Surabaya and analyzed using Structural Equation Modeling–Partial Least Squares. The findings show that business legality and access to credit positively influence the likelihood of MSMEs obtaining an NIB. In turn, NIB ownership enhances competitiveness and mediates the effect of legality and credit access on competitive advantage. These results underscore the strategic importance of business formalization in strengthening market position and expanding access to financial services. The study suggests that local governments should simplify the NIB registration process, while financial institutions need to implement more inclusive lending schemes. Strengthening both legal compliance and financial access can foster a supportive environment for sustainable MSME growth and competitiveness.

**Keywords:** Business Legality; Credit Access; NIB Ownership; MSME Competitiveness; SEM-PLS

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### INTRODUCTION

Micro, Small, and Medium-Sized Enterprises (MSMEs) play a major role in supporting the Indonesian economy. In 2023, over 97% of the workforce was employed in this sector, contributing around 61% of the country's GDP, with more than 67 million business units actively driving both local and national economic growth (Afrini Fauziah et al., 2024). Despite this significant role, low competitiveness remains a persistent challenge for many MSMEs. Numerous enterprises still struggle to obtain formal financing and lack essential business legality, such as a Business Identification Number (NIB). The government has responded by introducing the Online Single Submission (OSS) system and the NIB policy since 2020, aiming to simplify legalization procedures, improve

financial literacy, and expand access to business development services. Evidence from Padang Sidempuan shows that OSS-based NIB issuance significantly facilitated MSMEs in legalizing their operations, thereby strengthening legitimacy and access to formal support mechanisms (Nasution et al., 2024). Similarly, Lubis & Syahbudi (2022) demonstrated that access to People's Business Credit (KUR) contributes positively to MSME growth and competitiveness by providing working capital and expanding capacity, although limited mentoring and low financial literacy still hinder optimal outcomes.

Recent studies also reinforce the importance of business legality and NIB ownership for enhancing MSME competitiveness. For instance, Arin et al. (2025) found that guidance on creating NIB and improving legal awareness among MSMEs in Kedungjaya Village significantly strengthened competitiveness by enhancing legitimacy and access to formal support services. In a broader context, Rahmat & Istianingsih (2024) highlighted that a clear legal framework and sound financial management are critical for MSMEs in Brunei Darussalam to comply with regulations and maximize access to financing and market opportunities. Similarly, Silalahi et al. (2025) emphasized that business law, including formal legality and legal protection, fosters innovation among MSMEs in Medan City, thereby positioning legality not only as an administrative requirement but also as a driver of competitiveness and growth. Although many studies have confirmed the importance of legality and financing for MSMEs, research has generally focused on their direct effects at the national or regional level, often overlooking the mechanisms that connect them to competitiveness. In particular, the role of NIB ownership as a mediator has not been thoroughly examined, especially in local contexts such as Gayungan District, where legality and credit policies have been implemented, but their effectiveness remains underexplored. This creates a research gap in understanding how MSMEs actually leverage legality and financing to build competitiveness.

This study seeks to address that gap by investigating the mediating role of NIB ownership in the relationship between business legal regulations, access to credit, and MSME competitiveness. The novelty of this research lies in positioning NIB not merely as an administrative requirement but as a strategic bridge that transforms legal compliance and financing opportunities into tangible competitive advantages. By doing so, this study contributes to the literature by highlighting that competitiveness is not only determined by capital or legality in isolation but by the synergy between financing access and formal recognition through NIB, which together reinforce MSMEs' credibility, market access, and long-term sustainability.

The direct effects of finance availability and business legality on MSME performance and competitiveness have been thoroughly studied in the past. The majority of this study, however, has been done at the regional or national level, ignoring the mediating function of ownership of a Business Identification Number (NIB). There is still a lack of research on localized contexts like Gayungan District, which raises questions about how financing and legalization initiatives would actually result in competitive advantages. This study offers a fresh viewpoint by presenting NIB ownership as a strategic intermediary that connects financial access and legal compliance to MSME competitiveness, rather than just as an administrative need. This research emphasizes the synergistic function of NIB in converting regulatory adherence and financial availability into improved credibility, market access, and sustainability at the local level, in contrast to previous studies that looked at legality and finance separately. By examining the mediating function of NIB ownership in the connection between MSME competitiveness, credit availability, and company legality, this study aims to close that gap. This research is new because it views NIB as a strategic link that converts financial opportunities and regulatory compliance into real competitive advantages, rather than just an administrative need. By highlighting that MSME competitiveness arises not only from legality and funding but also from their synergy through NIB ownership, which together strengthen credibility, market access, and sustainability, this study adds to the body of literature.

## LITERATURE REVIEW

### Business Legality

A key component of sustaining entrepreneurs' long-term viability and competitiveness is business legality. Assenova & Sorenson (2017) state that legality reflects the legal and social identity of a business entity that has been formally recognized. In line with this, Ertanti et al. (2022a) emphasize that the principle of legality in a business context requires that all business activities obtain official authorization before being carried out, in accordance with the legal principle *nullum delictum sine lege*. From a conceptual perspective, business legality encompasses several fundamental dimensions, namely legal status, operational permits, regulatory compliance, and ease of access to licensing procedures. This is further highlighted in Government Regulation No. 5 of 2021 on Risk-Based Business Licensing, which states that legality is a formal governmental recognition of a business's existence that gives it public legitimacy and legal protection, rather than just being an administrative need. Furthermore, business legality plays a strategic role in enabling access to wider markets, facilitating access to formal financing, and integrating with government empowerment programs. Syukur et al. (2025) highlight that officially licensed entrepreneurs are more likely to benefit from financial assistance and business development support. The simplification of business licensing under Presidential Regulation No. 98 of 2014 marks a critical step in promoting micro-business formalization, allowing micro-enterprises to obtain a one-page license issued

within a single day. This policy provides four key benefits to business actors: formal legal status, access to capital, business mentoring, and eligibility for government empowerment initiatives. H<sub>1</sub>: Write the formulated hypothesis.

### **Credit Access**

Credit access serves as a fundamental pillar in fostering the growth of Micro, Small, and Medium Enterprises (MSMEs), particularly in strengthening capital and ensuring business sustainability. According to Saleh et al. (2025) access to credit is defined as the ease with which financing can be obtained from formal financial institutions, influenced by various factors including banking regulations, financial management, administrative requirements, and the availability of collateral. Although the loan application process is often complex and requires significant collateral, sound financial management has been proven to enhance the likelihood of MSMEs securing funding. From a macro policy standpoint, the Coordinating Ministry for Economic Affairs (2022) highlighted that access to credit via the People's Business Credit (KUR) program functions as an instrument for economic empowerment and a means of mitigating post-pandemic risks. In 2022, the KUR financing ceiling was raised to IDR 373.17 trillion, accompanied by a low interest rate of 3%, to foster economic recovery and encourage MSME development in productive sectors.

Empirical studies across various regions also highlight the significant role of credit access in improving MSME performance. Research by Purnomo et al. (2024) in Ternate City revealed that financing access positively influences MSME financial performance. Similar findings were reported by Lubis and Syahbudi (2022), who emphasized the importance of legality, collateral, and legal processes (requirements & collateral) in facilitating fair access to credit. Moreover, Purnomo et al. (2024) noted that credit availability is a critical factor within the MSME financing ecosystem. In a broader context, Pradnyani et al. (2024) identified that simplified administrative procedures and the digitalization of credit application processes (accessibility) can improve service convenience and efficiency in financial institutions. Equally important, the level of financial literacy and the quality of MSME financial reporting significantly influence financial institutions' perceptions of creditworthiness. Lastly, the proper utilization of credit funds has been shown to increase output and enhance business competitiveness.

### **Business Identification Number (NIB)**

The Business Identification Number (NIB), which is granted via the Online Single Submission (OSS) system, is a company's official legal identification in Indonesian regulatory contexts. The NIB facilitates customs clearance for export and import operations by serving as proof of business legitimacy and registration and acting as both an Importer Identification Number (API) and a Company Registration Certificate (TDP) (Siti Fatimah et al., 2025) NIB not only reinforces legal status but also streamlines licensing procedures through an integrated digital platform. Notably, Elok Faiqotul Hikmah et al. (2023) report that support and facilitation of NIB acquisition via OSS significantly enhance business legitimacy and digitization among UMKM communities. This is supported by research conducted in Tanggamus, Lampung, which demonstrates how OSS-based web services effectively simplify NIB acquisition for MSMEs, enabling them to gain legal recognition, access financing, and enjoy government protections and opportunities for business growth (Khumaidi et al., 2022).

### **The Relationship between Business Legality and NIB Ownership**

Legitimacy Theory states that formal legitimacy, which is provided by company legality, increases government, financial, and consumer trust. MSME owners are more likely to receive a Business Identification Number (NIB) as official documentation of their company's existence when they have this legitimacy.

H<sub>1</sub>: NIB ownership benefits from business legitimacy.

### **The Connection between NIB Ownership and Credit Access**

According to the Resource-Based View (RBV), one of the most important financial resources for MSMEs is credit availability. However, before making a loan, financial companies frequently need official legal evidence, like an NIB. As a result, MSMEs looking for funding are more likely to receive NIB to formalize their operations. H<sub>2</sub>: NIB ownership is positively impacted by credit availability.

### **The Connection between MSME Competitiveness and Business Legality**

Business legality enhances possibilities to engage in government programs, broadens market access, and boosts credibility within the framework of Legitimacy Theory. Therefore, it is anticipated that MSMEs with greater legitimacy will become more competitive.

H<sub>3</sub>: MSME competitiveness is positively impacted by business legality.

### **The Connection between MSME Competitiveness and Credit Access**

The Resource-Based View (RBV) holds that financial capital acquired through credit availability is a strategic asset that improves market penetration, innovation, and manufacturing capacity. Therefore, it is anticipated that loan availability will boost MSME competitiveness.

H<sub>4</sub>: MSME competitiveness is positively impacted by credit availability.

### **The Association of MSME Competitiveness with NIB Ownership**

NIB ownership formalizes corporate legitimacy, boosts credibility in the eyes of financial institutions and consumers, and expands market access, according to Legitimacy Theory. NIB ownership, hence, helps to increase MSME competitiveness.

H<sub>5</sub>: MSME competitiveness benefits from NIB ownership.

### **The Function of NIB Ownership in Mediating the Relationship between MSME Competitiveness and Business Lawfulness**

Although business legality serves as the basis for official recognition, MSMEs' advantages become more apparent when they have an NIB as official documentation of their legitimacy. As a result, the NIB mediates the relationship between MSME competitiveness and company legality.

H<sub>6</sub>: The relationship between MSME competitiveness and business legality is mediated by NIB ownership.

### **The Function of NIB Ownership in Mediating the Relationship between MSME Competitiveness and Credit Access**

According to the RBV, financial resources can only improve competitiveness if they are used efficiently through formal channels. MSMEs gain legitimacy through NIB ownership, which makes it easier for them to get and effectively manage credit, hence increasing their competitiveness.

H<sub>7</sub>: The impact of credit availability on MSME competitiveness is mediated by NIB ownership.

### **Mediation of NIB Ownership between Legal Regulation and Credit Access on MSME Competitiveness**

The relationship between legal regulation, loan availability, and MSME competitiveness is significantly mediated by NIB ownership. Business legality offers official legitimacy, but when formalized through NIB, its effect on competition frequently becomes more apparent. Having an NIB gives MSMEs the chance to improve their competitive position by signaling legitimacy and enhancing credibility in the eyes of financial institutions, governments, and customers. Similarly, obtaining an NIB strengthens MSMEs' market credibility and growth potential by improving their access to funding and assistance programs, according to Kasyir et al. (2024a). When NIB ownership acts as a mediator, credit availability indirectly boosts competitiveness from a financial standpoint.

MSMEs are encouraged to obtain an NIB to be eligible for financing, as banks and other financial institutions typically require proof of legality. Because of this circumstance, NIB is positioned to act as a bridge that transforms funding opportunities into strategic advantages like sustainable development and market expansion (Oktavianti & Hakim, 2017; Wicaksono et al., 2020). This mechanism is also supported by international literature: While de Mel et al. (2013) highlighted that the advantages of formalization and credit are more effective when backed by legitimacy and complementary resources, Rand & Torm (2012) showed that formalization in Vietnam enhanced small enterprises' investment capacity. Theoretically, this is consistent with the resource-based view (RBV), which views financing and legality as strategic resources that need to be combined to create competitive advantage, and legitimacy theory, which holds that organizational legitimacy increases stakeholder confidence. In this way, NIB ownership turns financial availability and legal regulation into a complementary basis for MSME competitiveness. Based on the above discussion, the following hypotheses are proposed:

H<sub>6</sub>: NIB ownership mediates the relationship between business legal regulation and MSME competitiveness.

H<sub>7</sub>: NIB ownership mediates the relationship between credit access and MSME competitiveness.

## **METHOD**

The impact of business legal restrictions and financing availability on MSME competitiveness is investigated in this study using a quantitative methodology and a causal-associative design, with possession of a Business Identification Number (NIB) acting as a mediating variable. The study was carried out in East Java's Gayungan District of Surabaya City. Following the recommendation of Hair et al. (2022), which suggests a sample size of five to 10 times the number of indicators analyzed, the model's minimum sample size, which includes 19 indicators, is  $5 \times 19 = 95$  respondents. The Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis can be applied with this sample size.

A structured questionnaire that was modified from earlier validated studies was used to gather data (Lubis & Syahbudi, 2022; Wahyu Ertanti et al., 2022b). The four primary components of the instrument were MSME

Competitiveness, NIB Ownership (mediator), Access to Credit, and Business Legal Regulation. A five-point Likert scale, with 1 denoting "strongly disagree" and 5 denoting "strongly agree," was used to score each item. To ensure clarity and dependability, a pilot test of the research instrument was conducted before the main analysis. Internal consistency was confirmed by the findings, which indicated that all constructs had Cronbach's alpha values over 0.70 (Hair et al., 2022). Additionally, the main analysis confirmed the validity and reliability of the indicators with composite reliability (CR)  $\geq 0.70$  and outer loading values  $\geq 0.70$ . Using SmartPLS version 3.0, the PLS-SEM technique was used for data analysis. In addition to supporting smaller sample sizes, this program was chosen for its predictive relevance (Q2), robustness against non-normal data distributions, and suitability for testing intricate mediation models. Path coefficients ( $\beta$ ) and t-statistics obtained from the bootstrapping process were used to test hypotheses, while convergent validity, discriminant validity, and coefficient of determination ( $R^2$ ) were used to evaluate the model.

## RESULT

The demographics of the 95 respondents showed that there was a fairly balanced gender distribution among MSME actors, with men making up the majority (53.7%) and women making up 46.3%. With 26.3% of respondents between the ages of 31 and 40 and 22.1% between the ages of 41 and 50, the majority of respondents were in the productive middle age groups. These were followed by those between the ages of 21 and 30 (17.9%) and those over 50 (17.9%). Those under 20 years old made up the smallest category (15.8%), indicating that older entrepreneurs, not younger ones, typically held MSME ownership. In terms of years in business, the majority of respondents (25.3%) had been in business for 7–10 years, followed by newly started businesses (22.1%) that had been in business for less than a year, and those that had been in business for more than 10 years. This distribution shows that there is a mix of both new and existing firms in the study region.

**Table 1.** Characteristics of Respondents

Demographics	Frequency	Percentage
<b>Gender</b>		
Male	51	53,7
Female	44	46,3
<b>Age</b>		
< 20 Years	15	15,8
21-30 Years	17	17,9
31-40 Years	25	26,3
41-50 Years	21	22,1
> 50 Year	17	17,9
<b>Years in Business</b>		
< 1 Year	21	22,1
1-3 Years	10	10,5
4-6 Years	19	20,0
7-10 Years	24	25,3
> 10 Years	21	22,1
<b>NIB Status</b>		
Already	41	43,2
Not yet	54	56,8
<b>Turnover</b>		
< 5 Million	23	24,2
5-10 Million	37	38,9
10-25 Million	19	20,0
25-50 Million	11	11,6
> 50 Million	5	5,3

More than half of MSMEs continue to function informally without official registration, as evidenced by the fact that 43.2% of respondents had already obtained a Business Identification Number (NIB) and 56.8% had not. The majority of respondents reported monthly turnovers of between Rp5 and Rp10 million (38.9%) and less than Rp5 million (24.2%), whilst 20% reported profits of Rp10 to Rp25 million, 11.6% reported revenues of Rp25 to Rp50 million, and just 5.3% reported earnings over Rp50 million. This demonstrates that the vast majority of MSMEs in Gayungan District are classified as micro and small businesses, having comparatively low business

performance and little financial resources. Overall, the demographic profile shows that although many MSMEs are run by entrepreneurs with a range of experience and in their prime, a sizable portion still do not comply with the law and have low employee turnover, highlighting the significance of policies that support business formalization and better access to financing.

**Table 2.** List of Statements

Variable	Questionnaire items
X1	The process of obtaining a business license through the OSS system is relatively easy and does not take much time.
	I am aware that business legality is very important for the smooth operation and sustainability of my business.
	My business always complies with applicable legal provisions and administrative requirements.
	I feel that my business is legally protected because it possesses official legal documents.
X2	I am aware of the availability of formal credit facilities that my business can access.
	I find it easy to obtain working capital through the available credit facilities.
	My business has the opportunity to utilize low-interest credit schemes or government assistance, such as KUR.
	I understand the procedures and requirements necessary to apply for business credit.
	Collateral requirements and administrative procedures for credit do not place a burden on my business.
Z	I feel that having an official NIB issued through the OSS system strengthens the legitimacy of my business.
	I understand that NIB is important for the legality and sustainability of my business.
	I use my NIB fully to meet the legal requirements of my business.
	I received assistance that facilitated the online registration process for NIB.
	I utilize various facilities available after obtaining an NIB.
Y	My business routinely develops new technology-based ideas to improve products or services.
	I understand how to manage my business finances with the help of applications or digital systems.
	I have a network of relationships that supports the development of ideas and business innovation.
	I always seek new opportunities and utilize capital to create business innovations.
	Current government policies support the development and sustainability of my business.

**Table 3.** Variable Measurement

	Credit Access (X2)	Business Legality (X1)	MSME Competitiveness (Y)	NIB Ownership (Z)
X1.1		0.747		
X1.2		0.801		
X1.3		0.749		
X1.4		0.763		
X2.1	0.720			
X2.2	0.706			
X2.3	0.833			
X2.4	0.748			
X2.5	0.735			
Y.1			0.745	
Y.2			0.731	
Y.3			0.703	
Y.4			0.744	
Y.5			0.707	
Z.1				0.725
Z.2				0.781
Z.3				0.704
Z.4				0.779
Z.5				0.721

The Outer Model was assessed using three main criteria in the SmartPLS data analysis: composite reliability, discriminant validity, and convergent validity. Tables and figures should be numbered independently (e.g., Table 2, Table 3; Figure 1) and have a full title that accurately describes their contents. Mention a trustworthy source

beneath each table and image. Examining the relationship between item scores or components calculated using PLS software allowed for the assessment of convergent validity. A reflective indicator is considered to have high validity if its correlation with the associated construct exceeds 0.70. However, during the early stages of scale development, loading values ranging from 0.50 to 0.60 may still be acceptable. In this study, a minimum loading factor threshold of 0.60 was set as the criterion for indicator validity. Based on the data processing results obtained using SmartPLS, as shown in Table 1, the outer model values representing the correlations between constructs and their respective indicators have met the criteria for convergent validity, as evidenced by loading factor values exceeding 0.70. This finding implies that the constructs for all variables are valid and can be used for the current study and for further analysis.

**Table 4.** Discriminant Validity Value

	Credit Access (X2)	Business Legality (X1)	MSME Competitiveness (Y)	NIB Ownership (Z)
Credit Access (X2)	0.750			
Business Legality (X1)	0.684	0.765		
MSME Competitiveness (Y)	0.590	0.561	0.726	
NIB Ownership (Z)	0.724	0.694	0.675	0.743

Using the Fornell-Larcker criterion, discriminant validity was evaluated by comparing the square root of each construct's Average Variance Extracted (AVE) with the correlations between that construct and other constructs. If a construct's square root of AVE is higher than its correlations with other constructs, it is said to have good discriminant validity. This means that the construct shares more variance with its own indicators than it does with other constructs. The correlations between the latent variables are displayed in Table 2, and the AVE values are displayed in Table 3. The square roots of the AVE for each build are shown by the diagonal values in Table 2. Satisfactory discriminant validity is confirmed by the diagonal values being greater than the off-diagonal correlations between constructs. These findings show high discriminant validity, with each concept sharing more variation with its own indicators than with other constructs. Therefore, it can be said that the constructs employed in this research are unique and suitably assessed by the indicators that correspond to them.

**Table 5.** Reliability and Average Variance Extracted (AVE) Value

Variable	Average Variance Extracted (AVE)
Credit Access (X2)	0.562
Business Legality (X1)	0.586
MSME Competitiveness (Y)	0.527
NIB Ownership (Z)	0.551

The Composite Reliability and Average Variance Extracted (AVE) values of a concept can also be used to evaluate its validity and reliability. When a construct's AVE and composite reliability are both above 0.60, it is said to have strong reliability. Additionally, in order to verify internal consistency, Composite Reliability ratings greater than 0.60 are typically regarded as acceptable. The Average Variance Extracted (AVE) values for the constructs in this investigation fall between 0.527 and 0.586, which is somewhat below the optimal cutoff of 0.60, according to Table 3. However, as each construct's Composite Reliability (CR) values reach or above the minimal acceptable threshold of 0.70, these AVE values can still be regarded as sufficient. To put it another way, even if the AVE values fall just short of the optimal threshold, the constructs show enough convergent validity for this investigation, particularly when backed by high CR values and criterion-compliant indicator outer loadings.

**Table 6.** Composite Reliability

Variable	Composite Reliability
Credit Access (X2)	0.865
Business Legality (X1)	0.850
MSME Competitiveness (Y)	0.848
NIB Ownership (Z)	0.860

Composite Reliability (CR) was also used to evaluate the constructions' dependability. Strong reliability and good internal consistency are typically indicated by a CR rating greater than 0.70. Nonetheless, CR values in the range of 0.60 to 0.70 are regarded as appropriate, particularly in complicated social research or in the early phases of instrument development. A very high degree of dependability and confirmation that the indicators consistently measure their respective constructs were shown by the fact that all of the constructs in this study had CR values over 0.84.

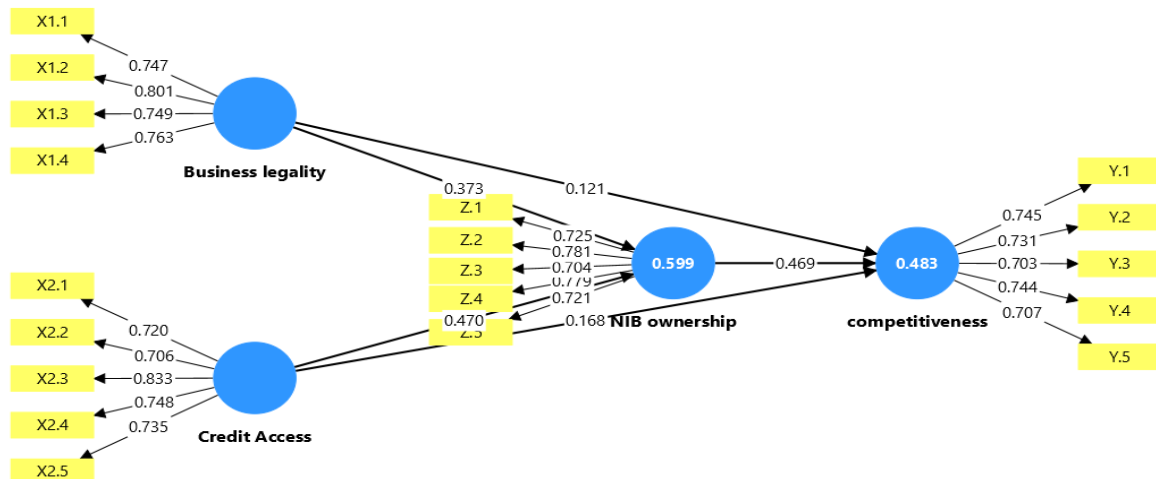
**Table 7.** Cronbach Alpha Value

Variabel	Cronbach's Alpha
Credit Access (X2)	0.804
Business Legality (X1)	0.766
MSME Competitiveness (Y)	0.776
NIB Ownership (Z)	0.796

Examining Cronbach's Alpha coefficients, which are typically thought to indicate adequate reliability with a value over 0.70, might supplement the composite reliability assessment of reliability. It is evident from the data in Table 5 that each study variable's Cronbach's Alpha values have reached the acceptable dependability criterion. Consequently, it may be said that every variable exhibits a high degree of internal consistency and dependability..

**Evaluation of the Inner Model (Structural Model)**

In evaluating the structural (inner) model, the primary focus is on determining how much of the variation in the dependent, or endogenous, constructs can be accounted for by the model. This reflects not only the model's predictive accuracy but also its overall explanatory capacity. The analysis in this study is centered on three key aspects: the interpretation of path coefficients, the testing of hypotheses, and the examination of model fit (goodness of fit). Path coefficients reveal both the strength and the direction of influence that independent (exogenous) variables exert on dependent variables. Meanwhile, the coefficient of determination ( $R^2$ ) serves as an indicator of how much variance in the endogenous variables can be explained by the exogenous ones. In essence, it measures how well the model's predictors capture the patterns in the data. Within the context of structural models, an  $R^2$  value of 0.67 or higher is generally considered evidence of a strong explanatory effect. Scores between 0.33 and 0.67 point to a moderate level of influence, whereas values from 0.19 to 0.33 suggest a relatively limited ability of the exogenous variables to account for variations in the endogenous constructs.



**Figure 1.** Structural Model (Path Diagram)

Based on the inner model diagram presented in Figure 1, the strongest relationship is observed in the effect of NIB ownership on competitiveness, with a path coefficient of 0.469. This value falls within the moderate category and represents the most substantial influence among all relationships in the model. The second strongest relationship is the effect of credit access on competitiveness, with a path coefficient of 0.470, which is also categorized as a moderate influence. The effect of business legality on NIB ownership shows a path coefficient of 0.373, which also belongs to the moderate category but is relatively lower than the others. Meanwhile, the effect of credit access on competitiveness has a value of 0.168, which falls under the category of a weak influence. Lastly, the effect of business legality on competitiveness, with a coefficient of 0.121, is also classified as a weak influence and represents the weakest relationship in the model. From the explanation above and as shown in Figure 2, it can be concluded that most variables in the path coefficient model demonstrate a positive direction of influence. This indicates that an increase in the value of one independent variable tends to increase the associated dependent variable. In other words, the relationships among the variables are direct and consistent, supporting the proposed hypotheses of the study.

## Hypothesis Test

T-statistics and p-values obtained from the structural (inner) model were used to test hypotheses based on the data analysis. At the 5% level ( $\alpha = 0.05$ ), a hypothesis is considered supported if the t-statistic is more than 1.96 and the p-value is less than 0.05. The structural (inner) model presents the path coefficients between latent variables, reflecting both the strength and direction of the proposed relationships. The hypothesis testing results are illustrated in the inner model diagram (see Figure 1), where each path coefficient represents the magnitude of influence one construct exerts on another. This evaluation enables researchers to identify which hypotheses are accepted or rejected based on empirical evidence, while also assessing the model's overall capacity to explain the causal relationships among the studied constructs.

**Table 8.** T-Statistics values and P-values

Hypothesis	Influence	T-stat	P-value	Result
H <sub>1</sub>	Business Legality > Competitiveness	1.105	0.270	Rejected
H <sub>2</sub>	Business Legality > NIB Ownership	3.614	0.000	Accepted
H <sub>3</sub>	Credit Access > Competitiveness	1.217	0.224	Rejected
H <sub>4</sub>	Credit Access > NIB Ownership	4.244	0.000	Accepted
H <sub>5</sub>	NIB Ownership > Competitiveness	3.162	0.002	Accepted
H <sub>6</sub>	Business Legality > NIB Ownership > Competitiveness	2.421	0.016	Accepted
H <sub>7</sub>	Credit Access > NIB Ownership > Competitiveness	2.426	0.016	Accepted

According to the results of the hypothesis testing, business legality and loan availability do not significantly affect MSME competitiveness directly (H1 and H3 were rejected), suggesting that their impact on competitiveness would not be as great in the absence of an intervening factor. Nonetheless, NIB ownership is significantly positively impacted by both business legality and financial availability (H2 and H4 approved), suggesting that MSMEs with these factors are more likely to receive official business registration (NIB). Furthermore, NIB ownership has a significant positive impact on MSME competitiveness (H5 accepted), suggesting that formal business registration strengthens the market position of MSMEs. Finally, this finding is supported by Kusmayati & Aldieniyah (2020), who argue that a good budget participation system supports managerial performance in MSMEs, which ultimately strengthens business competitiveness. This underscores the important role of regulation and access to financial resources in MSME development. The mediation tests confirm that the effect of business legality and access to credit on competitiveness is significantly mediated by NIB ownership (H6 and H7 accepted). This indicates that the influence of legal status and credit access on competitiveness is more substantial when channeled through the formal recognition provided by NIB.

## Mediation Test

This study examines the mediating role of NIB ownership in the relationships between (1) Business Legality and Competitiveness, and (2) Credit Access and Competitiveness. The mediation analysis was conducted using path coefficients to compare direct and indirect effects. Mediating Role of NIB Ownership in the Relationship Between Business Legality and Competitiveness. The direct path coefficient from business legality to MSME competitiveness is 0.121, indicating a weak but positive direct effect. When NIB ownership is included as a mediator, the indirect effect is calculated by multiplying the path coefficient from business legality to NIB ownership (0.373) by the coefficient from NIB ownership to competitiveness (0.469), resulting in an indirect effect of 0.175. Since the indirect effect (0.175) is greater than the direct effect (0.121), NIB ownership partially mediates the relationship. This suggests that formalizing business legality enhances competitiveness primarily through the acquisition of an NIB. NIB Ownership as a Mediator in the Relationship Between Credit Access and Competitiveness. The direct effect of credit access on MSME competitiveness is 0.168, showing a moderate positive influence. The indirect effect is the product of the path coefficient from credit access to NIB ownership (0.470) and from NIB ownership to competitiveness (0.469), yielding 0.221. The indirect effect (0.221) exceeds the direct effect (0.168), indicating that NIB ownership significantly mediates the effect of credit access on competitiveness. This means improved access to credit contributes more to competitiveness when businesses also obtain their NIB. Overall, these findings confirm that NIB ownership acts as a significant mediator in both relationships, amplifying the positive impacts of business legality and credit access on MSME competitiveness. Formal registration through NIB thus strengthens the benefits of legality and credit access in enhancing MSME market performance.

According to the R-square study, the variable NIB Ownership had an R-square value of 0.599, meaning that Business Legality and Credit Access account for 59.9% of its variance. In contrast, the Competitiveness variable has an R-square value of 0.483, which indicates that NIB Ownership, Business Legality, and Credit Access

account for 48.3% of its variance. The Stone-Geisser Q-square (Q<sup>2</sup>) value was computed using the following formula to evaluate the overall model fit and predictive relevance:

$$\begin{aligned} Q^2 &= 1 - [(1 - R^2_1) \times (1 - R^2_2)] \\ &= 1 - [(1 - 0.599) \times (1 - 0.483)] \\ &= 1 - (0.401 \times 0.517) \\ &= 1 - 0.207 \\ &= 0.793 \end{aligned}$$

**Table 9.** R- Square Value

Variable	R- Square
Competitiveness (Y)	0.483
NIB Ownership	0.599

The Q-square value of 0.793 indicates that approximately 79.3% of the variance in the research data can be predicted by the variables included in the model, while the remaining 20.7% is attributed to other factors outside the scope of this study. This result demonstrates strong predictive relevance and suggests that the model fits the data well.

## DISCUSSION

### The Influence of Business Legality on Competitiveness

The results of this study reveal that business legality does not exhibit a discernible direct impact on MSME competitiveness in Gayungan District. This suggests that enhanced competitiveness does not automatically follow from obtaining official legal status, such as a Business Identification Number (NIB). These findings differ from several previous studies. For instance, Didi Sukardi et al. (2023) showed that legality and halal certification play an important role in enhancing product competitiveness, thereby improving MSME performance. Likewise, Hasan (2021) emphasized the urgency of legality in supporting the sustainability and competitiveness of small industries. From these perspectives, legality is generally seen as a strategic asset that builds credibility, facilitates access to finance, and expands market reach.

However, the rejection of this hypothesis in the current study can be attributed to the local characteristics of MSMEs in Gayungan. Many business actors pursue legality mainly to meet administrative requirements, rather than using it as a means to strengthen marketing, innovation, or operational efficiency. This aligns with Purnawan and Adillah (2020), who noted that although the Online Single Submission (OSS) system simplifies licensing procedures, limited socialization and low levels of business literacy prevent MSMEs from fully leveraging legality to enhance their competitiveness. Similarly, experimental evidence from de Mel et al (2013) suggests that legal registration alone does not guarantee improvements in firm performance, highlighting that the benefits of legality depend on complementary factors such as managerial capacity, financial literacy, and market access. From a theoretical standpoint, these results enrich institutional theory by showing that legal compliance, in isolation, may not suffice to generate competitive advantage unless accompanied by supportive institutional frameworks and entrepreneurial capabilities. Practically, the findings underline the need for local governments not only to simplify licensing procedures but also to intensify mentoring, training, and awareness programs so that MSMEs can translate legal status into real strategic benefits. Without such complementary efforts, legality risks being perceived merely as administrative paperwork rather than a driver of competitiveness.

### The Influence of Business Legality on NIB Ownership

The findings of this study indicate that NIB ownership is positively influenced by business legality. In other words, MSMEs are more likely to secure an official Business Identification Number (NIB) when they comply with regulatory requirements and take steps to formalize their operations. This result aligns with Purnawan and Adillah (2020), who emphasized that the Online Single Submission (OSS) system has simplified the licensing process, thereby motivating small businesses to legalize their enterprises. Similarly, Sarwoko and Nurfarida (2024) observed that mentoring on business legality encouraged small businesses to register for NIB, demonstrating that formal recognition not only clarifies business status but also raises entrepreneurs' awareness of the benefits of legality. Najiyah et al. (2025) further highlighted that technical assistance and socialization programs strengthen both legality and long-term sustainability by encouraging MSMEs to obtain their NIB.

However, some studies have shown that business legality alone does not always guarantee formalization. For example, Purwaningsih et al (2023) reported that many MSMEs in Indonesia still perceive legality as a mere administrative formality, which limits their effectiveness in driving competitiveness. This contrast suggests that in contexts where entrepreneurs lack financial literacy or see limited immediate benefits, the impact of legality on NIB ownership may be weaker. The results of this study, therefore, confirm that legal compliance plays a strategic role in motivating MSMEs to secure NIB ownership, particularly in Gayungan District, where the local

government has actively promoted OSS-based registration. From a theoretical perspective, the findings contribute to institutional theory by showing that regulatory compliance can be a driver of formalization when coupled with accessible procedures and support mechanisms. From a practical standpoint, the results suggest that policymakers should not only simplify licensing but also provide continuous mentoring and socialization programs to ensure that MSMEs recognize the tangible benefits of legality. Hence, business legality is not merely about fulfilling administrative obligations but serves as a gateway to enhanced credibility, improved access to credit, and stronger competitiveness in formal markets.

### **The Influence of Credit Access on MSME Competitiveness**

The findings of this study reveal that credit access does not exert a direct influence on MSME competitiveness in Gayungan District. This suggests that while MSMEs may have opportunities to secure financing, such access does not automatically translate into improved competitiveness in the market. These results differ from the study by Wicaksono et al (2020), who found that access to credit significantly increased MSME income by enhancing production capacity, improving efficiency, and expanding market reach, all of which are closely tied to competitiveness. A possible explanation for this contrast lies in the local context. In Gayungan, many MSMEs face challenges related to financial literacy and administrative capacity, which limit their ability to fully utilize credit for business development. This is consistent with Oktavianti & Hakim (2017), who emphasized that financial literacy and credit requirements are key determinants of formal credit access among MSMEs in Surabaya. When entrepreneurs lack sufficient knowledge or encounter complicated procedures, loans are often directed toward short-term consumption or urgent needs rather than strategic growth investments. Furthermore, experimental evidence by de Mel et al. (2013) also indicates that providing access to credit or encouraging formalization does not uniformly improve firm performance, particularly when enterprises lack the managerial skills or market linkages needed to leverage external financing. This reinforces the notion that credit access alone is insufficient to enhance competitiveness. From a theoretical perspective, the findings contribute to financial intermediation theory by underscoring that the benefits of credit are contingent on complementary capabilities such as literacy, fund management, and institutional support. Practically, the results imply that government programs like KUR should not only expand loan availability but also integrate financial training and mentoring components, ensuring that MSMEs can allocate credit toward innovation, market expansion, and operational efficiency. Without these enabling conditions, the potential of credit to enhance competitiveness will remain underutilized.

### **The Influence of Credit Access on NIB Ownership**

The study demonstrates that access to credit positively influences NIB ownership, indicating that MSMEs in need of financing are more inclined to formalize their businesses since banks and financial institutions typically require legal documentation such as an NIB. Previous research supports this relationship. Wicaksono, Chrispur, and Hartanto (2020) found that credit facilities enhanced MSME income and growth, thereby motivating firms to strengthen their formal identity. Oktavianti and Hakim (2017) also emphasized that financial literacy and lending requirements shape MSMEs' ability to access credit, with legal compliance often being a prerequisite. Similarly, Apriliana et al. (2023) highlighted the role of literacy and risk perception in influencing MSMEs' adoption of lending platforms, while Wibowo et al. (2020) showed that banking credit procedures are closely linked to formal business documentation. Collectively, these findings affirm that credit access and business legality are interdependent. Financing not only supplies the capital needed for growth but also encourages MSMEs to obtain NIB as a strategic step to ensure eligibility, enhance credibility, and build long-term sustainability.

Nevertheless, some studies caution that credit access does not automatically lead to formalization, particularly when MSMEs face collateral barriers, perceive limited benefits from legality, or rely on informal financing networks (de Mel et al., 2013). These findings imply that credit requirements may incentivize formality only when institutional support and financial literacy are sufficiently strong. From a theoretical perspective, the present findings reinforce institutional and financial intermediation theories, showing that formalization is not only a legal compliance issue but also a response to credit market incentives. Practically, the results suggest that policymakers should strengthen credit programs like KUR by simplifying collateral requirements and linking them with socialization on NIB benefits. Financial institutions, in turn, need to provide mentoring and flexible products that encourage small firms to see legality as an enabler rather than a burden.

### **The Influence of NIB Ownership on MSME Competitiveness**

The study's findings suggest that NIB ownership significantly and favourably affects MSMEs' ability to compete in Gayungan District. This result demonstrates that MSMEs are more competitive in the market the more they formalize their operations through NIB registration. This is consistent with Sarwoko & Nurfarida (2024), who emphasized that NIB ownership strengthens consumer trust and opens access to government programs and partnerships. Similarly, Kasyir et al. (2024b) argued that obtaining an NIB provides legal protection, facilitates access to financing, and enhances credibility in the eyes of both customers and government institutions.

International literature also supports these findings. Evidence from Vietnam shows that business formalization increases profits and investment capacity, suggesting that registration strengthens small firms' operational capabilities. However, meta-analyses and field experiments indicate that the benefits of formalization are context-dependent: without complementary supports such as financial literacy, market access, or mentoring, the impact of formalization may not be fully realized. Furthermore, Assenova & Sorenson (2017) highlighted that business registration provides legitimacy, which improves access to resources and enhances firms' credibility in the eyes of financial institutions and partners. Taken together, both local and international evidence confirm that NIB ownership is not merely an administrative requirement but a strategic instrument that provides legitimacy, opens financing opportunities, and strengthens the long-term competitiveness of MSMEs.

### **The Influence of Business Legality on Competitiveness Mediated by NIB Ownership**

The results of this study indicate that business legality does not have a significant direct effect on MSME competitiveness, but it becomes significant when mediated by NIB ownership. This finding suggests that having legal documents alone is not sufficient to strengthen competitiveness. Business legality generates real impact only when it is formalized through NIB, which serves as official proof recognized by the government. This is consistent with Sarwoko & Nurfarida (2024), who found that legal mentoring programs encouraged MSMEs to obtain NIB, which in turn opened access to government initiatives, business partners, and consumer trust. Likewise, Kasyir et al. (2024a) emphasized that NIB issuance provides legal protection and credibility, enabling MSMEs to strengthen their market. International studies also support this reasoning. Rand & Torm (2012) showed that business formalization in Vietnam improved profits and investment capacity, thereby enhancing competitiveness among small firms. However, meta-analyses and field experiments by de Mel et al. (2013) pointed out that the benefits of formalization are context-dependent and only materialize when accompanied by financial literacy, market access, or mentoring. Furthermore, Assenova & Sorenson (2017) highlighted that business registration provides legitimacy, which improves credibility in the eyes of consumers and financial institutions, and facilitates access to resources. From a theoretical perspective, these findings contribute to institutional theory by demonstrating that legality necessitates a formalized mechanism, such as NIB, to produce a competitive advantage. Practically, this implies that governments should not only enforce licensing regulations but also ensure that MSMEs are guided to obtain and utilize NIB to access resources and expand their market reach.

### **The Influence of Credit Access on MSME Competitiveness Mediated by NIB Ownership**

The results of this study indicate that credit access does not have a significant direct effect on MSME competitiveness in Gayungan District, but it becomes significant when mediated by NIB ownership. This finding suggests that while credit availability is essential as a source of financing, its impact on competitiveness only materializes when MSMEs formalize their businesses through NIB ownership. This is consistent with Wicaksono et al. (2020), who found that credit access improved MSME income and production capacity, but broader market expansion and consumer trust required formalization. Similarly, Oktavianti & Hakim (2017) emphasized that credit access is highly influenced by compliance with legal documentation, where NIB often serves as a key requirement for obtaining formal financing. International studies also support this explanation. De Mel et al. (2013) in a field experiment in Sri Lanka, demonstrated that business formalization is a crucial pathway for credit to effectively translate into improved firm performance. Likewise, Assenova & Sorenson (2017) highlighted that business registration provides legitimacy, which enhances credibility in the eyes of financial institutions and strengthens firms' bargaining power in the market. When combined, these results demonstrate that when NIB ownership acts as a mediator, credit access improves MSME competitiveness. Formal legality and financing together offer access to broader market opportunities, legitimacy, and trust in addition to operational capital. By demonstrating that credit needs a formalization method in order to convert into a competitive advantage, these findings theoretically support financial intermediation theory. Practically speaking, the results suggest that NIB mentoring and facilitation should be connected to lending programs like KUR so that MSMEs can use finance for long-term competitiveness as well as survival.

## **CONCLUSION**

Regarding how company legality, credit availability, and NIB ownership contribute to MSMEs' increased competitiveness in Gayungan District, this study offers a number of significant findings. The results indicate that formal registration is the primary way that legal compliance boosts competitiveness, since company legal laws have a favorable and large impact on NIB ownership, but do not directly affect MSME competitiveness. Similarly, while financial availability has no direct effect on competitiveness, it greatly raises the possibility that MSMEs may receive an NIB. These findings demonstrate how important NIB ownership is as a mediating factor because MSMEs with an NIB are officially recognized by the government, which makes it easier for them to obtain funding, business assistance programs, and expansion prospects. All things considered, this study demonstrates that boosting MSME competitiveness necessitates a dual approach: promoting business legalization via the Online Single Submission (OSS) system and increasing access to reasonably priced loan programs like the People's

Business loan (KUR). By doing this, MSMEs can obtain the resources and legitimacy required to improve their competitive advantage and long-term sustainability.

The study's conclusions have a number of significant policy ramifications for interested parties. In order to help businesses legalize through the Online Single Submission (OSS) system, local governments and pertinent agencies must step up their outreach and assistance initiatives. They should pay special attention to MSMEs that have not yet received a Business Identification Number (NIB). By stepping up these initiatives, formalization will happen more quickly, and more people will be able to access finance through official financial institutions. It is anticipated that financial institutions will broaden the scope of credit services by streamlining administrative procedures and improving entrepreneurs' financial literacy, which will raise their eligibility and preparedness for financing. At the same time, to guarantee a wider impact, low-interest financing programs like the People's Business Credit (KUR) should have their efficacy continuously increased. Immediate business legalization through NIB ownership is highly recommended from the standpoint of MSME actors in order to boost competitiveness, increase credibility, and obtain access to public and private support programs. As part of their growth goals, MSME owners should also actively look for information about relevant funding programs and training possibilities. In order to obtain a more thorough understanding of the factors influencing MSME competitiveness, it is advised that future researchers expand the study's scope by incorporating additional strategic variables like digital marketing, product innovation, or operational management, as well as by expanding the research area to include more regions.

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