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## Article

# The role of capital in microfinance financial performance and cultural sustainability

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# The role of capital in microfinance financial performance and cultural sustainability

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## ABSTRACT

This study seeks to understand the role of intellectual capital and capital structure in maintaining the financial performance and cultural sustainability of village credit unions in Bali, locally known as *lembaga perkreditan desa* (LPD), which is crucial in the funding of cultural and religious activities of traditional villages. Intellectual capital is measured using value-added intellectual capital coefficient (VAIC) and partially analysed by human capital, structural capital, and capital employed efficiency. This study uses panel data samples of 307 LPD representing all nine regencies in Bali from 2020 to 2022. The analysis was performed using multiple linear regression, with findings that intellectual capital has a positive impact on financial performance and cultural sustainability, while capital structure shows insignificant impact. Furthermore, the control variables suggest that age and financial health have a positive impact on financial performance, whereas size has an insignificant impact. The results suggest that the LPD would need to improve its intellectual capital efficiency to achieve the desired financial performance and maintaining the cultural sustainability of the traditional village. It implicates that intellectual capital within its intangible nature has more impact than inherent practices of capital composition associated with microfinance.

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## 1. Introduction

Microfinance institutions have been the pillar of economic development, especially in developing countries, where conventional banking is yet to access the entire population and the ease of obtaining loans and simpler administration compared to conventional banking has made it more popular in rural area (Tripathi, 2014). Historically, microfinance institutions are aimed towards alleviating poverties and to promote economic development (Buera et al., 2012). As in any organisation, microfinance institution relies its growth on its performance, and in line with its objectives, the sustainability of the institution is important for its stakeholders. As a lending institution, microfinance performance would rely on capital. Traditionally, capital would be measured as the financial capacity in order to generate return on lending products. However, with the rapid transformation of businesses due to knowledge-based economy, intellectual capital has become one of the key determinants of growth and competitiveness (Hashim et al., 2018). The importance of intellectual capital and financial capital as microfinance growth and competitiveness capacities are depicted as intangible and tangible forces for the cause.

The economy has been transformed by information and communication technologies, thus organisational processes and management largely dependent on intensive use of knowledge (Jordão & de Almeida, 2017). The intensive use of knowledge requires organisation to maintain and develop human capital in order to sustain growth. Intellectual capital as more comprehensive measure of human capital, has been researched

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extensively in microfinance and other financial institution, both using primary data by Hashim et al. (2018), Hashim et al. (2020), Kabuye et al. (2021), Kamukama et al. (2010a, Kamukama et al., 2010b), Kamukama (2013), Kamukama and Sulait (2017), Putra et al. (2020), Putra et al. (2022), and secondary data by Githaiga et al. (2023), Jordão and de Almeida (2017), Le and Nguyen (2020), Tran and Vo (2020). The overall results of intellectual capital effect on microfinance other type of financial institution have been consistent to be positive, however there is inconsistency in individual effect which form intellectual capital such as human, structural and relational capital, which was also highlighted in previous research by Bontis and Serenko (2009).

The capital structure concept has been strengthened by Modigliani and Miller (1958) research that in the absence of other economic variables, the firm value is unaffected by how the firm is financed. However, in the case financial institution that generate their capital through third party funding, capital structure poses risk that may affected the firm's going concern (Dabi et al., 2023). In stricter regulated banking industry, most jurisdiction would impose risk-weighted capital structure regulation (Devianto & Dwiasnati, 2018), in microfinance where the regulation tends to be less stringent, such measure is only used to measure financial performance.

An optimum capital structure is crucial to reduce the cost of capital in order to maximize the project or entity's value. For financial institutions, capital structure is as crucial as a cushion against risk. Broadly, the Basel Committee on Banking Supervision requires banks to have a minimum capital of 8 percent capital based on risk-weighted assets (Bank for International Settlement, 2023). As a buffer for credit and liquidity risk, capital structure also determines financial institutions' performance, including profitability. The entity must maintain a debt and equity balance, which determines the cost of funding against revenue. There is extensive research on capital structure relationship to performance and sustainability on microfinance and financial institution with conflicting results of positive effect; Parvin et al. (2020), and negative effect on performance; Sekabira (2013), Bogan (2012), Tchuigoua (2014), Tchuigoua (2015), and Dabi et al. (2023).

Research findings inconsistencies on intellectual capital components and capital structure to microfinance performance and sustainability has motivated this study, aiming to analyse the impact of intellectual capital and capital structure in maintaining the financial sustainability of *lembaga perkreditan desa* (LPD), a microfinance institution owned by almost every traditional village in Bali, Indonesia. LPD is a very popular source of financing for local villager to due to the ease of obtaining loan. LPD has enjoyed significant growth in the past three decades since it was first introduced. LPD growth and financial sustainability is crucial for the funding of cultural activities of traditional villages. This research specifically focused on intellectual capital and capital structure to serve both intangible and tangible capital components.

Several studies on LPD intellectual capital have been conducted with the involvement of direct participants, such as Putra et al. (2020) and Trarintya et al. (2021) while this research aimed to use financial information to measure the value of intellectual capital, thus enabling larger sample collection across different time frames. Research by Ozkan et al. (2017) and Arslan and Kızıl (2019) uses the value-added intellectual capital coefficient (VAIC) to measure banks' financial and market performance, respectively. The VAIC uses indicators such as human capital efficiency (HCE), structural capital efficiency (SCE), and capital employed efficiency (CEE). VAIC has been criticized for not including relational factors that are considered to have a significant impact; (Saddam & Jaafar, 2021) thus, some researchers consequently measure relational capital using marketing expenses and define the term modified value-added intellectual capital coefficient (M-VAIC). This study uses VAIC as the LPD scope of operation only within its own traditional village; thus, marketing expenses would not be significant, if any, at all.

This study seeks to contribute to the topic's literature in several ways. Firstly, to analyse the relationship of intellectual capital, capital structure, financial performance and sustainability in fully profit oriented microfinance setting, with social development purposes. Secondly, this study uses secondary data gathered from microfinance financial statements with larger sampling opportunity and generalised results. Thirdly, sustainability in this study is measured using regulated profit contribution of LPD as opposed to operating self-sufficiency (OSS) used in previous research. Lastly, to analyse the effect individual components of intellectual capital to performance and sustainability.

## 2. Background

A village credit union, locally known as *lembaga perkreditan desa* (LPD), is a microfinance institution owned and operated by traditional villages in Bali, Indonesia. Traditional villages have different forms of

administration from conventional village administrations, which are controlled directly by the local government. Traditional villages were formed because of the villager's duty to maintain and worship the village's temple; thus, traditional villages are more related to the community's social and religious activities. The LPD was first formed in 1984 by Bali's governor at that time, with the aim of providing financing to stimulate the local economy and eventually to financially sustain the village's social, cultural, and religious activities. Before formal formation, few villages already have an informal organization that provides financing for agricultural and trade activities. This type of organization was also present in some parts of Indonesia, with the aim of promoting village growth and improving welfare.

The LPD is financially significant for social, cultural, and religious activities within traditional villages. Based on the Province of Bali Regulation No. 3 of 2017 on *Lembaga Perkreditan Desa*, 20 percent of the LPD profit is allocated for traditional village development, and 5 percent is allocated to social, cultural, and religious activities, or otherwise agreed upon the traditional village forum. The vision to form LPD in every traditional village has actually created an assurance on the financing sources of social, cultural, and religious activities. The financial performance of the LPD, especially its profitability, reflects the cultural sustainability of the traditional village as it largely determines the village budget for cultural activities. During the Covid-19 pandemic the LPD's financial performance slowed down, creating a strain on the traditional village budget (Nopiyan et al., 2021), where economic downturn and uncertainty limit cultural and religious activities, along with health-related restrictions imposed by the government.

The tourism sector has been developing in Bali since the colonial era and has replaced agriculture as the main source of the region's revenue in the 1990s. With Bali's economic growth mainly coming from the tourism sector, agricultural revenue, which has traditionally been the source of social, cultural, and religious activities, was replaced by the growth of other informal sectors fuelled by tourism growth.

LPD has grown rapidly, as of 2020 there are 1,436 LPD (active and inactive) amongst 1,493 traditional villages in Bali (LP-LPD, 2023), or more than 96 percent villages owns one. From a financial system point of view, the role of LPD as an inclusive financial service is significant, considering that no other financial service entity has such a rooted presence on the entire island. The combined value of LPD asset in 2020 has reached Rp. 24.25 trillion, more than the asset value of other microfinance entities, such as credit cooperatives and micro banking (Suarmanayasa, 2019).

Microfinance institutions, including LPD, are not regulated as strict as the banking industry in Indonesia. The general regulation issued by the Province of Bali government and governor, although regulated, is not as strictly enforced as the banking regulation by the Indonesian Financial Service Authority (OJK). Only recently has the Bali government encouraged traditional villages to create their own individual regulations to create standard operating procedures within the LPD. Although not strictly regulated, the LPD in Bali has found its way for rapid growth and owes its relatively low credit risk due to its cultural role; that is, the debtor is obliged to fulfil its obligation to avoid being named in the periodical village's forum. In a community financing scene LPD is taking part on, where there is close relationship between the lender and debtor, Arifin et al. (2023) suggests that there will be risk reduction in non-performing financing which in turn also would reduce liquidity problem. Research by Hosna et al. (2009), Boahene et al. (2012), and Million et al. (2015) has found that lower credit risk improves the finance sector's profitability in its respective countries. Less stringent regulation and supervision makes the LPD prone to higher credit risk, which could impact its profitability, however, the LPD has shown that its growth is unaffected, as shown in Table A1 (Appendix). In recent years, corporate sustainability practises in Indonesia have been growingly important, visible by the passing of Law No. 40 in 2007, which mandated the disclosure of environmental and social information in annual reports (Tran et al., 2021). LPD itself have been influenced by general corporate awareness and practises, and is recommended to report its financial contribution for village social, cultural and religious purposes in the financial statements.

Financial performance is a subjective measure of how efficiently an entity can use its assets to generate income. It is a reflection of economic health, how well the entity is managed, and most importantly, to support the going-concern assumption. Research by Dissanayake (2012) has found that the financial performance of microfinance firms affects their profit distribution. Improved financial performance in financial services improves profitability (Yusuf & Surjaatmadja, 2018).

Cultural sustainability in this research represents the profit distribution of the LPD for social, cultural, and religious activities, where the broader term is the interpretation of financial sustainability. It can be defined as an entity's ability to maintain profitability to achieve its mission and to serve stakeholders continuously (Adams et al., 2012). Also known as the base concept of going concern, strong financial sustainability enables entities to create value for shareholders. Financial sustainability provides long-term value creation with opportunities and risk management as a result of economic, environmental, and social growth (León, 2001). Specific to microfinances, financial sustainability along with social mission, are the key goals of its existence (Tehulu, 2022), the combination of these key goals is represented by cultural sustainability. The implementation of sustainable finance in the financial sector is an effort to embody sustainable development goals or SDG (Henry Ntarmah et al., 2019). Sustainability can be broadly defined, and academic research has focused on several aspects of sustainability, including social, environmental, and financial (Salimath & Jones, 2011), depending on the research question and purpose.

### 3. Theoretical literature review

#### 3.1. Stakeholder theory

The word 'stakeholder' first appeared in 1963 in an internal memorandum at the Stanford Research Institute (Parmar et al., 2010). Within an organization, there will be several parties that have an interest in the organization's sustainability and without whose support, the organisation would cease to exist. In businesses, stakeholders include shareholders, managers, employees, customers, suppliers, creditors, regulators, and the community in general, with either financial or social interest in the organization. The relationship between an entity and its stakeholders is crucial in the value creation process, as in the long term; it is the interest of the stakeholders to be valued the most. While the Milton Friedman doctrine stated that the only social responsibility of business is to increase its profit in the free enterprise system (Friedman, 1970), in today's socio-economic climate, stakeholders would also determine the sustainability of a business. While profit is still the bottom line, a myriad of other factors can affect sustainability in the long term. In determining performance and sustainability in the value creation process, the concept reverts back to the perspective of *with* and *for whom* value is being created (Freudenreich et al., 2020).

*Lembaga perkreditan desa* (LPD) is purposely created to improve traditional village welfare and growth through accessible loan and deposit. It is a unique microfinance institution which are owned and operated by its stakeholders, the villagers themselves. All villagers have an interest in the performance that leading to the sustainability of the LPD, due to financial contribution LPD would make to social and religious activities within the traditional village. LPD is unique in way that it operates in tight-knit society where every decision made needs to be approved in the village forum, thus only primary stakeholders are existed.

#### 3.2. Resource-based view

The resource-based view is a framework used to analyse strategic resources that an entity can utilize to achieve sustainable competitive advantage. In the concept of strategic planning, Barney (1991) discuss firm resources and sustained competitive advantage pioneered the concept of a resource-based view. The article combined the organisation's internal analysis, which is the source of the resource-based model, with external analysis, which is the environmental model of competitive advantage. The capability, to link organisation's internal and external analysis, is seen as an intangible asset, which are often unique to the organisation and difficult to delineate (Murale et al., 2010). Intellectual capital is an entity's intangible resource for gaining competitive advantage. Intellectual capital is an integral part of value creation process in the knowledge economy, a transformation from the previous old economy, where value only measured in the creation of tangible wealth. Research by Kamaluddin and Rahman (2013) has found that resource uniqueness strongly embeds structural capital in firms. Firm's ability to manage its capital resources is also an integral part of value creation process, especially in financial service industry, where the cost of capital is inherently high due to the nature of the external fundings (Baker & Wurgler, 2015).



## 4. Empirical literature review and hypotheses development

### 4.1. Intellectual capital, financial performance and cultural sustainability

Thomas Stewart popularized the term intellectual capital through his visionary book in the mid-1990s, and research on this topic has been popular since. This concept defines knowledge as an integral part of socioeconomic science. The business world has transformed into a digital age in which the requirement of physical labour needs to be led intellectually, in line with the use of technology (Ozkan et al., 2017). Considered an intangible asset, intellectual capital is considered the heart of a knowledge-based economy (Vidyarthi & Tiwari, 2020). Research by Ahamad et al. (2022) found that the three components of intellectual, namely human capital, structural capital, and capital employed, have a significant effect on the financial efficiency of microfinance. Intellectual capital also could improve firm's long-term financial performance (Castro et al., 2021; Olarewaju & Msomi, 2021). With the aforementioned findings, the following hypothesis is proposed:

H1: Intellectual capital has positive impact on financial performance of LPD

H1a: Human capital (HCE) has positive impact on financial performance of LPD

H1b: Structural capital (SCE) has positive impact on financial performance of LPD

H1c: Capital employed (CEE) has positive impact on financial performance of LPD

H2: Intellectual capital has positive impact on cultural sustainability of LPD

H2a: Human capital (HCE) has positive impact on cultural sustainability of LPD

H2b: Structural capital (SCE) has positive impact on cultural sustainability of LPD

H2c: Capital employed (CEE) has positive impact on cultural sustainability of LPD

### 4.2. Capital structure, financial performance and cultural sustainability

The capital structure of financial institutions is fundamental in determining liquidity, financial performance, and profitability (Patel et al., 2022). Specific to *lembaga perkreditan desa* (LPD), based on Governor of Bali Regulation No. 44 of 2017, LPD must maintain its capital adequacy against risk-weighted assets, represented by the capital adequacy ratio (CAR), as one of its financial health indicators (Province of Bali Government, 2017). In the financial sector, as third-party funds dominate asset composition, changes in interest rates would affect profitability, largely dependable on capital structure (N'Guessan & Hartarska, 2021; Tchuigoua, 2014). The inherent risk of third-party funds domination, would put financial institution in greater default risk, at the same time, it signifies that the institution is generating cash flow to meet the debt obligations. Research by Abrar and Javaid (2016) found that higher leverage ratio in microfinance due to higher deposit-taking practises lead to increased lending-capacity, resulting in improved profitability. With the aforementioned findings, the following hypothesis is proposed:

H3: Capital structure has positive impact on financial performance of LPD

H4: Capital structure has positive impact on cultural sustainability of LPD

## 5. Research design

### 5.1. Sample and data

The population of this study was 1,318 active LPD in Bali with a sample determined using the Slovin formula with 5 percent alpha. The sample was then selected using stratified random sampling to represent an aggregate proportion of 307 LPD representing all nine regencies in Bali. The panel data are gathered from the LPD financial statements from 2020 to 2022, with a total of 921 observations. Table 1 below summarises the stratified random sampling method from each regency in Bali:

**Table 1.** Stratified random sampling.

Population: 1,318 LPD			
Sample: $n = \frac{1,318}{1 + 1,318(0.05)^2} = 307 \text{LPD}$			
Regencies	Number of LPD	Percentage	Sample
1. Badung	113	8.57%	26
2. Bangli	154	11.68%	36
3. Buleleng	148	11.23%	34
4. Gianyar	249	18.89%	58
5. Jembrana	63	4.78%	15
6. Karangasem	174	13.20%	41
7. Klungkung	114	8.65%	27
8. Tabanan	268	20.33%	62
9. Denpasar	35	2.66%	8
TOTAL	1,318	100%	307

### 5.2. Dependent variable

- a. Financial performance: measured using return on asset (ROA)<sup>1</sup>.

<sup>1</sup>Return on asset: net profit/total asset

Cultural sustainability is measured using the regulated profit contribution of the LPD, which is 20 percent for traditional village development and 5 percent for social, cultural, and religious activities.

### 5.3. Independent variable

- a. Intellectual capital: This research uses value-added intellectual capital (VAIC™) measures developed by Pulic (2000), consisting of intellectual capital efficiency (ICE)<sup>1</sup> and capital employed efficiency (CEE)<sup>2</sup>.

<sup>1</sup>Intellectual capital efficiency: human capital efficiency (HCE) + structural capital efficiency (SCE)

\*HCE=value – added / labour – relatedcost

\*SCE=(value – added–labour – relatedcost) / value – added

\*Valueadded= operatingprofit + labour – relatedcost + depreciation + amortization

<sup>2</sup>Capital employed efficiency (CEE): value-added/total asset

- b. Capital structure: measured using debt ratio<sup>1</sup>

<sup>1</sup>Debt ratio: total liabilities/total asset

### 5.4. Control variable

This study uses three control variables that may have an impact on the financial performance of LPD, namely, size, age, and health. Size is measured by nominal asset value: larger financial resources enable financial institutions to generate larger returns. Research by Basuony et al. (2014), Hossain and Saif (2019), and Nur Iman et al. (2022) found that bank size improved banks' return on assets, whereas research by Tarawneh (2006) found otherwise. Age is measured by the number of years the LPD has been operating, and operating experience enables financial institutions to mitigate operating risk more efficiently, which could improve financial performance. Research by Basuony et al. (2014) and Nur Iman et al. (2022) found that age improved banks' financial performance, whereas research by Hossain and Saif (2019) found otherwise. Health is measured by four health category rankings measured by LP-LPD, the LPD supervision bureau, which range from not healthy, less healthy, adequate, and healthy. The financial health category is a key indicator of the performance of financial institutions. Research by Chotalia (2014), Devianto and Dwiasnati (2018), and Alemu and Aweke (2017) found that financial solvency and stability improved bank financial performance. Table 2 below summarises the measurement of study variables:



**Table 2.** Measurement of study variables.

Variable	Notation	Measurement	Expected sign
<b>Dependent variable</b>			
Financial performance	ROA	Net profit Total asset	
Cultural sustainability	CS	25% of net profit	
<b>Independent variable</b>			
Intellectual capital			
Human capital efficiency	HCE	Value-added <sup>a</sup> Labour-related cost	+/-
Structural capital efficiency	SCE	Value-added <sup>a</sup> – labor-related cost	+/-
Capital employed efficiency	CEE	Value added <sup>a</sup> Value-added <sup>a</sup> Total asset	+/-
Capital structure (debt to asset ratio)	CaS	Total liabilities Total asset	+
<b>Control variable</b>			
Size		Total asset	+
Age		Years operating	+
Health		LPD health category <sup>b</sup>	

<sup>a</sup>Value added = operating profit + labour-related cost + depreciation + amortization.

<sup>b</sup>Rankings measured by LP-LPD (LPD supervision bureau).

### 5.5. Technique and analysis

Multiple linear regression was used to determine the effect of more than one independent variable on the dependent variable. The regression is performed using Statistical Package for the Social Sciences (SPSS) and the author have obtained a copyright licence to use the software. Multiple linear regression is performed twice: the first analyses the impact of human capital efficiency (HCE), structural capital efficiency (SCE), capital employed efficiency (CEE), and capital structure and control variables (size, age, and health) on financial performance. The second regression was performed to analyse the impact of HCE, SCE, CEE, and capital structure on cultural sustainability. Residual normality, multicollinearity, and heteroscedasticity tests were performed before hypothesis testing.

## 6. Empirical results and discussion

The data descriptive statistics are shown in Table 3 below:

### 6.1. Classical assumption test

#### 6.1.1. Normality test

The regression model satisfies the normality assumption when the residual value ( $e_i$ ) is normally distributed. The hypotheses used in the test were as follows:

$H_0$ : Residual spread is normally distributed

$H_1$ : Residual spread is not normally distributed

To test this assumption, the histogram and normal P-P plot are shown in Figures 1 and 2 for model 1 and in Figures 3 and 4 for model 2, and the One-Sample Kolmogorov-Smirnov Test result is shown in Table 4 below:

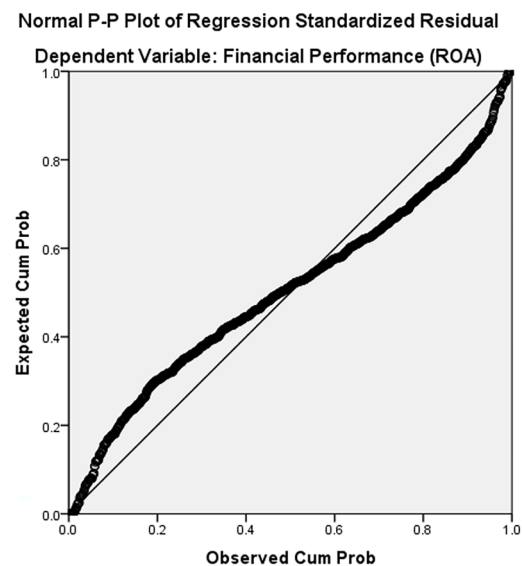
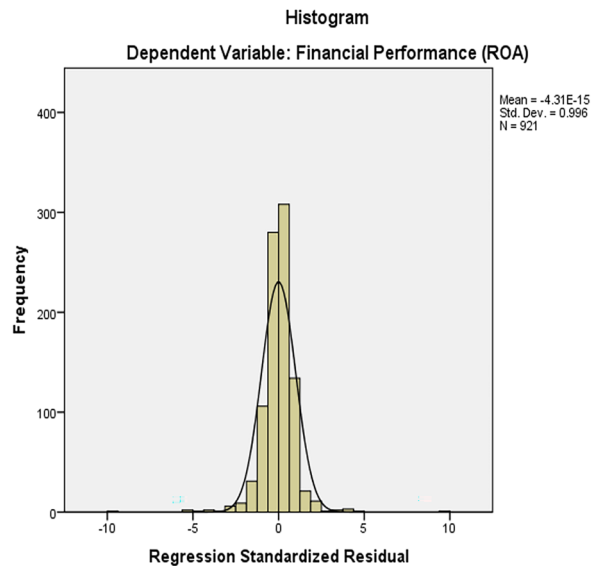
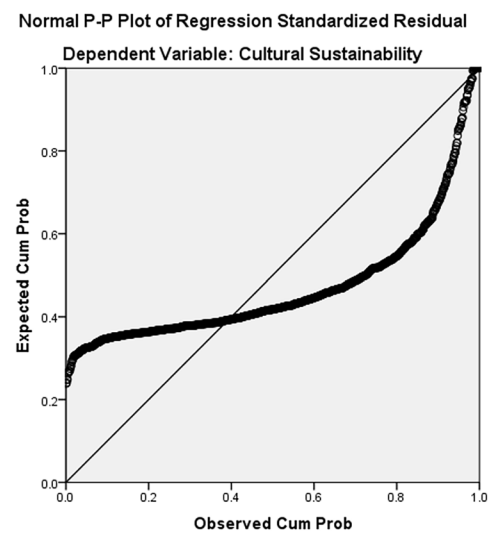
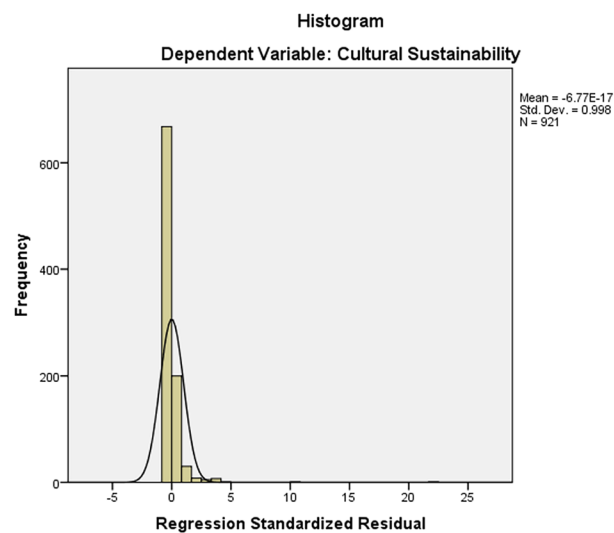
The histogram suggests that the bar does not follow normality curves, the P-P plot graph shows that the observation is within the diagonal line, and the p-value of one sample *Kolmogorov-Smirnov* is less than  $\alpha$  (0.05). These three tests indicate that  $H_0$  is accepted when the residual spread is normally distributed.

#### 6.1.2. Multicollinearity test

The regression model should be free of multicollinearity or correlation between independent variables. In this study, it was measured using the variance inflation factor (VIF). Multicollinearity exists when the VIF value is  $> 10$ . The results in Table 5 below suggest that multicollinearity did not exist in this research model:

**Table 3.** Descriptive statistics.

	Mean	Std. Deviation	N
Financial Performance (ROA)	.0213	.01418	921
HCE	2.0843	1.41049	921
SCE	.5025	.31441	921
CEE	.0444	.02284	921
Capital Structure	.8460	.48783	921
Size	35523913.7200	56008369.53000	921
Age	28.6287	5.12401	921
Health	3.0727	1.00115	921

**Figures 1 & 2.** Histogram and normal P-P plot of model 1.**Figures 3 & 4.** Histogram and normal P-P plot of model 2.

### 6.1.3. Heteroskedasticity test

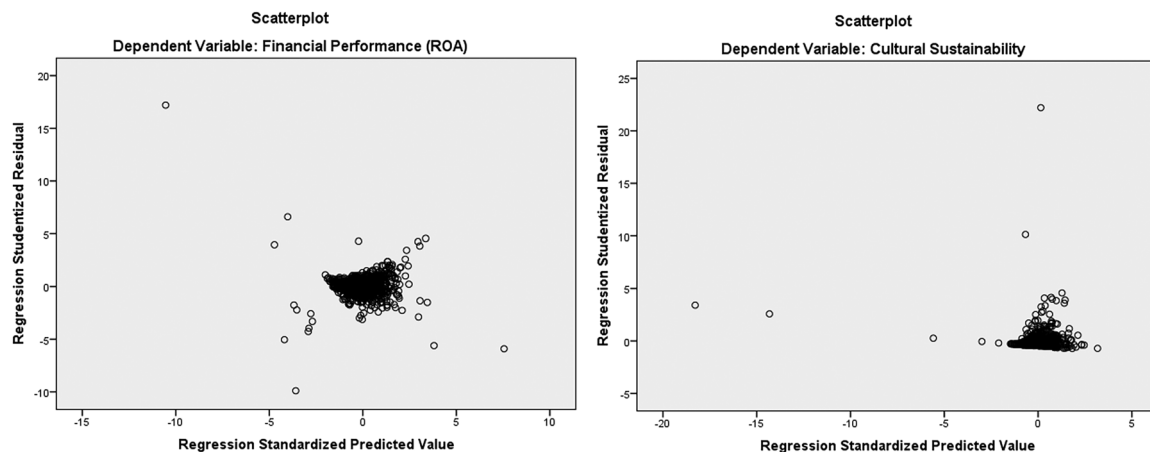
The test was conducted to determine whether the residual variance was relatively the same in the model, as a proper model should have homogeneity in residual variance. In this study, heteroskedasticity is not presented by the values of the dependent variable predictor (ZPRED) and the residual (SRESID) in the graphic plot, as the scatterplot is randomly patterned under the 0 and Y axes, as shown in [Figures 5 and 6](#).

**Table 4.** One sample Kolmogorov-Smirnov test.

Residual	P-value
Model 1	0.000
Model 2	0.000

**Table 5.** VIF multicollinearity test.

Variable	Model 1		Model 2	
	Tolerance	VIF	Tolerance	VIF
HCE	0.889	1.125	0.922	1.085
SCE	0.979	1.022	0.993	1.007
CEE	0.700	1.429	0.925	1.081
Capital Structure	0.994	1.006	0.995	1.005
Size	0.879	1.138		
Age	0.968	1.033		
Health	0.764	1.309		

**Figures 5 & 6.** Heteroskedasticity test scatterplot of model 1 and 2.

## 6.2. Multiple linear regression

Multiple linear regression was performed to analyse the impact of independent to dependent variables, which consisted of three analyses, namely partial impact (T test), simultaneous impact (F test), and coefficient determination ( $R^2$ ), with the use of SPSS. A partial test of the regression model aimed to analyse whether each independent variable had a significant impact on the dependent variable, whereas the simultaneous test aimed to analyse whether all variables simultaneously had a significant impact on the dependent variable.

### 6.2.1. The impact of intellectual capital, capital structure, and the control variables to financial performance

Based on Table 6 the model is as follow:

$$ROA = -0.014 + 0.002HCE + 0.003SCE + 0.478CEE - 0.0005CaS + 0.000000000002 Size + 0.00008 Age + 0.002 Health + e_i$$

**6.2.1.1. T (partial) test.** As indicated in Table 6, the constant value of -0.014 shows prior to the impact of independent variables, there was an early derivation of financial performance (ROA) of 0.014. Human capital efficiency (HCE) has a positive and significant impact on financial performance, as shown by the higher T count than T Table ( $19.272 > 1.963$ ) and a P value of T lower than  $\alpha$  ( $0.000 < 0.050$ ). The test rejected  $H_0$ , with a coefficient showing an increase of 1 in HCE, significantly increasing financial performance by 0.002. These results suggest that H1a is accepted. Structural capital efficiency (SCE) has

**Table 6.** Multiple linear regression summary.

Variable	B	t count	P-value t	Definition
Constant	-0.014			
HCE	0.002	19.272	0.000	Significant
SCE	0.003	6.427	0.000	Significant
CEE	0.478	53.986	0.000	Significant
Capital Structure	-0.0005	-1.378	0.169	Insignificant
Size	2.160E-12	0.671	0.502	Insignificant
Age	7.867E-5	2.347	0.019	Significant
Health	0.002	8.246	0.000	Significant
$\alpha$	= 0.050			
Coefficient of Determination ( $R^2$ )	= 0.870			
F-count	= 875.941			
F-Table ( $F_{7,913,0.05}$ )	= 2.020			
P-value F	= 0.000			
t-Table ( $t_{913,0.05}$ )	= 1.963			

a positive and significant impact on financial performance, as shown by a higher T count than in the T Table ( $6.427 > 1.963$ ) and a P value of T lower than  $\alpha$  ( $0.000 < 0.050$ ). The test rejected  $H_0$ , with a coefficient showing an increase of 1 in SCE, significantly increasing financial performance by 0.003. This result suggests that H1b is accepted. Capital employed efficiency (CEE) has a positive and significant impact on financial performance, as shown by the higher T count than the T Table ( $53.986 > 1.963$ ) and a P value of T lower than  $\alpha$  ( $0.000 < 0.050$ ). The test rejected  $H_0$ , with a coefficient showing an increase of 1 in CEE, significantly increasing financial performance by 0.478. This result suggests that H1c is accepted, and that H1 is accepted in aggregate.

Capital structure has a negative but insignificant impact on financial performance, as shown by a T count lower than the T Table ( $1.378 < 1.963$ ) and a P value of T higher than  $\alpha$  ( $0.169 > 0.050$ ). The test accepted  $H_0$ , with a coefficient showing an increase of 1 in capital structure, reducing financial performance by 0.0005 insignificantly. This result suggests that H3 is not accepted.

For the control variables tested, size has a positive but insignificant impact on financial performance, as shown by a T count lower than the T Table ( $0.671 < 1.963$ ) and a P value of T higher than  $\alpha$  ( $0.502 > 0.050$ ). The test accepted  $H_0$ , with a coefficient showing an increase of 1 in size, increasing financial performance by 0.000000000002 insignificantly. Age has a positive and significant impact on financial performance, as shown by a higher T count than T Table ( $2.347 > 1.963$ ) and a P value of T lower than  $\alpha$  ( $0.019 < 0.050$ ). The test rejected  $H_0$ , with a coefficient showing an increase of 1 in age, significantly increasing financial performance by 0.00008. Health has a positive and significant impact on financial performance, as shown by a higher T count than T Table ( $8.246 > 1.963$ ) and a P value of T lower than  $\alpha$  ( $0.000 < 0.050$ ). The test rejected  $H_0$ , with a coefficient showing an increase of 1 in health, significantly increasing financial performance by 0.002.

**6.2.1.2. F (simultaneous) test.** According to Table 6, the value of F count is higher than that of F Table ( $875.941 > 2.020$ ) and a smaller P value than  $\alpha$  ( $0.000 < 0.050$ ). The test rejected  $H_0$  simultaneously: HCE, SCE, CEE, capital structure, size, age, and health have a significant impact on financial performance.

**6.2.1.3. Coefficient of determination ( $R^2$ ).** The value of R square shown in Table 6 of 0.870 indicates the simultaneous impact of HCE, SCE, CEE, capital structure, size, age, and health on financial performance to the value of 87 percent, and the remaining 13 percent are impacted by other variables not included in the model.

## 6.2.2. The impact of intellectual capital and capital structure to cultural sustainability

Based on Table 7 the model is as follow:

$$CS = 88376.956 + 26423.408 \text{ HCE} + 76812.900 \text{ SCE} - 500247.203 \text{ CEE} + 7447.781 \text{ CaS} + e_i$$

**6.2.2.1. T (partial) test.** As indicated in Table 7, the constant value of 88376.956 shows prior to the impact of independent variables, there was an early uplift of cultural sustainability by 88376.956. Human capital efficiency (HCE) has a positive and significant impact on cultural sustainability, as shown by a higher T count than T Table ( $3.246 > 1.963$ ) and a P value of T lower than  $\alpha$  ( $0.001 < 0.050$ ). The test rejected  $H_0$ ,

**Table 7.** Multiple linear regression summary.

Variable	B	t count	P-value t	Definition
Constant	88376.956			
HCE	26423.408	3.246	0.001	Significant
SCE	76812.900	2.184	0.029	Significant
CEE	-500247.203	-0.997	0.319	Insignificant
Capital Structure	7447.781	0.329	0.742	Insignificant
A	= 0.050			
Coefficient of Determination ( $R^2$ )	= 0.018			
F count	= 4.112			
F Table ( $F_{4,916,0.05}$ )	= 2.382			
P-value F	= 0.003			
t-Table ( $t_{916,0.05}$ )	= 1.963			

with a coefficient showing an increase of 1 in HCE, significantly increasing cultural sustainability by 26423.408. This result suggests that H2a is accepted. Structural capital efficiency (SCE) has a positive and significant impact on cultural sustainability, as shown by the higher T count than in the T Table ( $2.184 > 1.963$ ) and a P value of T lower than  $\alpha$  ( $0.029 < 0.050$ ). The test rejected  $H_0$ , with a coefficient showing an increase of 1 in SCE, significantly increasing cultural sustainability by 76812.900. This result suggests that H2b is accepted. Capital employed efficiency (CEE) has a negative but insignificant impact on cultural sustainability, as shown by a T count lower than the T Table ( $0.997 < 1.963$ ) and a P value of T higher than  $\alpha$  ( $0.319 > 0.050$ ). The test accepted  $H_0$ , with a coefficient showing an increase of 1 in CEE, reducing cultural sustainability by 500247.203, although insignificantly. This result suggests that H2c is not accepted and that in aggregate H2 is accepted.

Capital structure has a positive but insignificant impact on cultural sustainability, as shown by a T count lower than the T Table ( $0.329 < 1.963$ ) and a P value of T higher than  $\alpha$  ( $0.742 > 0.050$ ). The test accepted  $H_0$ , with a coefficient showing an increase of 1 in capital structure, increasing cultural sustainability by 7447.781 insignificantly. This result suggests that H4 is not accepted.

**6.2.2.2. F (simultaneous) test.** According to Table 7, the value of F count is higher than that of F Table ( $4.112 > 2.382$ ) and a smaller P value than  $\alpha$  ( $0.003 < 0.050$ ). The test rejected  $H_0$ , thus, HCE, SCE, CEE, and capital structure simultaneously have a significant impact on cultural sustainability.

**6.2.2.3. Coefficient of determination ( $R^2$ ).** The value of R square shown in Table 7 of 0.018 indicates the simultaneous impact of HCE, SCE, CEE, and capital structure on cultural sustainability to a value of 1.8 percent, and the remaining 98.2 percent are impacted by other variables not included in the model.

## 7. Summary and conclusion

This study, conducted at the village credit union locally known as *lembaga perkreditasi desa* (LPD) in Bali, found that intellectual capital and its human, structural, and capital employed components have a positive impact on financial performance and cultural sustainability, while capital structure has insignificant impact. This study finding confirms previous findings by Ahamad et al. (2022); Castro et al. (2021) and Olarewaju and Msomi (2021) that skill- and knowledge-related labour expenditure enhances organizational performance and financial sustainability, especially in the long term. Intellectual capital as an intangible asset is accepted as more valuable than physical commodities, as it can bring constant new ideas to the organization. Capital structure was found to have an insignificant impact on financial performance and cultural sustainability, showing that the risk associated with third-party majority financing in the village credit union does not directly affect profitability. Additionally, operating experience (age) and financial health have positive impact LPD financial performance.

This study implicates that intellectual capital within its intangible nature has more impact than inherent practices of capital composition associated with microfinance, and financial industry in general. Knowledge-based asset is consistently and gradually becoming important sources of competitive advantages. Without competitive advantages possessed by commercial banks, LPD relies on local wisdom and social inclusive cycles that make it attractive for traditional village as source of financing. Although more It is very important to note that the data in this study is from 2020 to 2022 which may be affected by the COVID-19 pandemic, which has greatly impacted socio-economic conditions worldwide, including LPD in Bali.

## Author contributions statement

The first author is involved in conception and design of the research, analysis and interpretation of the data, and drafting the paper. All authors are involved in the revising it critically for intellectual content, and the final approval of the published version. All authors are accountable for all aspects of the work.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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## Data availability statement

The data used in this research were provided by *Lembaga Pemberdayaan Lembaga Perkreditan Desa* (LP-LPD) and were processed according to the authors. The data are available upon request from the authors by contacting the corresponding author at ochaw@unud.ac.id.

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## Appendix

**Table A1.** LPD growth relative to local economy.

Period	Asset Value (Billion Rupiah)	Asset Growth	Economic Growth*
2022	25,258	8.82%	4,84%
2021	23,210	–1.66%	–2.47%
2020	23,602	–2.98%	–9.33%
2019	24,327	11.82%	5.02%
2018	21,756	17.78%	5.17%

Source: LP-LPD and BPS (2023).

\*Based on Bali's gross regional domestic product.