



Consumer Confidence, Islamic Msme Financing, Inflation, Ramadan, And Real Sales: ARDL

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Abstract: This study aims to analyze the influence of the Consumer Confidence Index, Islamic MSME financing, inflation, and Ramadan on the Real Sales Index in Indonesia. The study uses monthly data from January 2022 to June 2025 obtained from Bank Indonesia, the Central Statistics Agency, and Islamic Banking Statistics published by the Financial Services Authority. The analysis method used is Autoregressive Distributed Lag (ARDL) because the results of the Augmented Dickey-Fuller stationarity test indicate a combination of integration orders $I(0)$ and $I(1)$, with no variables integrated at order $I(2)$. Based on the criteria for selecting the best model, the ARDL(3,2,1,2,3) model was obtained. The results of the bounds test indicate a long-term relationship between variables with an F-statistic value of 4.592, which is greater than the upper bound value at the 5 percent significance level. In the long term, the Consumer Confidence Index, Islamic MSME financing, and inflation have a negative and significant effect on the Real Sales Index. Meanwhile, the Ramadan variable is proven to have a positive and significant effect on increasing real sales. The results of this study indicate that consumer psychological factors, monetary conditions, and religious momentum play a significant role in shaping the dynamics of public consumption in Indonesia. Furthermore, diagnostic tests demonstrate that the research model is free from autocorrelation and heteroscedasticity and exhibits a good level of stability, making it suitable for use as a basis for economic analysis and policy formulation.

Keywords: Consumer Confidence Index; Inflation; Ramadan; Real Sales Index; Sharia MSME Financing.

1. INTRODUCTIONS

Retail sales performance is an important indicator for understanding the dynamics of household consumption in Indonesia. In the national context, Bank Indonesia uses the Real Sales Index (RSI) to monitor developments in retail sales, while the Consumer Confidence Index (CCI) is employed to capture household perceptions and optimism regarding current and future economic conditions (Bank Indonesia, 2025, 2026). The literature suggests that consumer confidence is often treated as a leading indicator of consumption activity and retail sales, although the strength of this relationship may vary depending on the economic context, observation period, and type of consumption being examined (Allenby et al., 1996; Desroches & Gosselin, 2002; Hunneman et al., 2015; Mermod & Dudzeviciute, 2011; Tjandrasa & Dewi, 2022).

Based on the foregoing discussion, this study aims to analyze the effects of the Consumer Confidence Index, Islamic MSME financing, inflation, and the Ramadan dummy variable on Indonesia's Real Sales Index during the 2022–2025 period. The contribution of this study lies in integrating the dimensions of household sentiment, Islamic financing for the productive sector, price stability, and religious seasonality within a single empirical framework based on the ARDL approach.

2. LITERATURE REVIEW

In addition to consumer sentiment, retail sales are also influenced by macroeconomic conditions, particularly inflation. Inflation is directly related to households' real purchasing power, the formation of price expectations, and changes in spending patterns. When price pressures intensify, households tend to become more selective in their consumption, postpone purchases, or reduce the volume of their spending. In the Indonesian context, monthly inflation developments constitute an important variable for explaining changes in retail sales, as persistently rising prices can weaken households' real consumption capacity (Badan Statistik Indonesia, 2026).

On the other hand, Islamic MSME financing is also relevant to examine, as MSMEs constitute one of the main pillars of domestic economic activity. From the perspective of Islamic economics, financing provided to MSMEs serves to expand access to capital, sustain the continuity of small businesses, and strengthen production and distribution activities. The literature indicates that Islamic financial institutions and financing mechanisms play an important role in MSME development, particularly in terms of improving access to finance and enhancing business capacity (Isfianadewi, 2024). However, the effect of Islamic MSME financing on formal retail sales has not been extensively tested in a direct manner, especially through the use of aggregate indicators such as the Real Sales Index.

Another important characteristic of Indonesia's retail market is the strong influence of religious seasonality, particularly during Ramadan. This period is often associated with increased household consumption across various categories of goods, including basic necessities, clothing, and socio-religious expenditures. Previous studies indicate that Ramadan can affect purchasing behavior and intensify household consumption (Azman, 2024; Hosen, 2024). In the Indonesian context, the relevance of Ramadan as a seasonal factor is also reflected in the tendency for retail sales and household consumption to strengthen during major religious holiday periods (Bank Indonesia, 2025, 2026).

Methodologically, this study employs the Autoregressive Distributed Lag (ARDL) approach because it is suitable for time-series data characterized by a combination of $I(0)$ and $I(1)$ orders of integration, while also allowing the simultaneous estimation of short-run and long-run relationships through bounds testing and error correction representation (Menegaki, 2019; Pesaran et al., 2001). This approach is particularly relevant for analyzing monthly retail sales, which tend to be dynamic, are influenced by lagged consumption behavior, and may exhibit delayed responses to changes in consumer sentiment, Islamic MSME financing, inflation, and the seasonal effect of Ramadan.

3. RESEARCH METHODS

This study employs a quantitative approach using monthly time series data from January 2022 to June 2025. The dependent variable is the Real Sales Index (RSI), while the independent variables consist of the Consumer Confidence Index (CCI), sharia MSME financing, inflation, and a Ramadan dummy variable. The Ramadan dummy is coded as 1 for months that coincide with Ramadan and 0 for months outside Ramadan. Data on the RSI and CCI were obtained from official publications of Bank Indonesia, inflation data were sourced from Statistics Indonesia, and data on sharia MSME financing were taken from the Sharia Banking Statistics published by the Financial Services Authority (Bank Indonesia, 2025, 2026; Otoritas Jasa Keuangan, 2025; Badan Pusat Statistik, 2026).

In general, the empirical model of this study is formulated as follows:

$$IPR_t = \alpha + \beta_1 IKK_t + \beta_2 UMKM_t + \beta_3 INFLASI_t + \beta_4 DUMMY_t + \varepsilon_t$$

The estimation was conducted using the Autoregressive Distributed Lag (ARDL) approach. This method was selected because it can be applied to variables that are stationary at level $I(0)$, at first difference $I(1)$, or a combination of both, provided that none of the variables is integrated of order two, or $I(2)$ (Menegaki, 2019; Pesaran et al., 2001). Therefore, the first stage of the analysis was to perform a stationarity test using the Augmented Dickey-Fuller (ADF) test in order to confirm the order of integration of each variable.

After conducting the stationarity test, the optimal lag length was determined using the Akaike Information Criterion (AIC). The model with the lowest AIC value was selected as the main ARDL specification. Subsequently, the long-run relationship among the variables was examined using the Bounds Test. If the bounds test indicates the presence of cointegration, the analysis proceeds to the interpretation of the long-run coefficients and the Error Correction Model (ECM). To ensure the econometric adequacy of the model, several diagnostic tests were also performed, including the Breusch-Godfrey Serial Correlation LM Test, the Breusch-Pagan-Godfrey Heteroskedasticity Test, the Histogram-Normality Test, as well as the CUSUM and CUSUMSQ stability tests.

Table 1. Operational Definition of Variables.

Variable	Definition	Unit/Proxy	Role
IPR	Real Sales Index	Monthly index	Dependent
IKK	Consumer Confidence Index	Monthly index	Independent
UMKM	Sharia MSME financing	Monthly value	Independent
INFLASI	Monthly inflation	Monthly percentage	Independent
DUMMY	Ramadan indicator	1 = Ramadan; 0 = non-Ramadan	Independent

Source: Compiled by the author based on official data definitions.

Table 2. Results of the ADF Stationarity Test.

Variable	Prob. Level	Level Status	Prob. First Difference	FD Status	Order of Integration
IPR	0.0268	Stationary	—	—	I(0)
IKK	0.0329	Stationary	—	—	I(0)
UMKM	0.8490	Non-stationary	0.0000	Stationary	I(1)
INFLASI	0.7353	Non-stationary	0.0000	Stationary	I(1)

Source: Data processed using EViews 12.

4. RESULT AND DISCUSSION

Descriptive statistics are used to provide an initial overview of the characteristics of the research data during the observation period. The mean, minimum, maximum, and standard deviation values of each variable indicate that the data exhibit sufficient variation to be analyzed dynamically.

Table 3. Descriptive Statistics of Research Variables.

Statistics	IPR	IKK	UMKM	INFLASI	DUMMY
Mean	1.681739	1.570721	2.372551	3.082381	0.166667
Median	1.678030	1.572774	2.373509	2.795000	0.000000
Maximum	1.706565	1.581038	2.377693	5.950000	1.000000
Minimum	1.665818	1.549688	2.367436	-0.090000	0.000000
Std. Dev.	0.011437	0.007192	0.003071	1.479467	0.377195
Skewness	0.517226	-1.078128	-0.265760	0.300184	1.788854
Kurtosis	2.091359	3.973614	1.794532	2.349100	4.200000
Jarque-Bera	3.317505	9.795382	3.037417	1.372195	24.920000
Probability	0.190376	0.007464	0.218994	0.503537	0.000004
Sum	70.63303	65.97030	99.64713	129.4600	7.000000
Sum Sq. Dev.	0.005363	0.002121	0.000387	89.74176	5.833333
Observations	42	42	42	42	42

Source: Data processed using EViews 12.

Visually, the monthly IPR pattern shows that several Ramadan periods coincided with relatively higher levels of retail sales. This pattern provides an initial indication that Ramadan may serve as an important seasonal factor in retail dynamics.

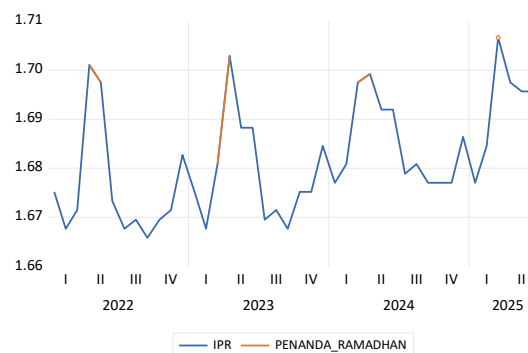


Figure 1. Monthly Trend of the Real Sales Index (IPR) with Markers for Ramadan Periods in Indonesia, 2022–2025.

Based on the optimal lag selection using AIC, the best model is ARDL(3,2,1,2,3). This model is jointly significant, with Prob(F-statistic) = 0.0000, and has an Adjusted R-squared of 0.8577, indicating adequate explanatory power.

Table 4. Estimation Results of the ARDL(3,2,1,2,3) Model.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IPR(-1)	0.3059	0.1457	2.0995	0.0469
IPR(-2)	0.1473	0.1455	1.0121	0.3220
IPR(-3)	-0.4871	0.1399	-3.4819	0.0020
IKK	-0.3277	0.1970	-1.6632	0.1098
IKK(-1)	-0.4937	0.1996	-2.4736	0.0212
IKK(-2)	0.3627	0.1635	2.2183	0.0367
UMKM	1.3058	0.6514	2.0046	0.0569
UMKM(-1)	-2.1984	0.6064	-3.6253	0.0014
INFLASI	-0.0006	0.0018	-0.3348	0.7408
INFLASI(-1)	-0.0053	0.0024	-2.2262	0.0361
INFLASI(-2)	0.0039	0.0016	2.3863	0.0256
DUMMY	0.0178	0.0024	7.5251	0.0000
DUMMY(-1)	0.0049	0.0038	1.2762	0.2146
DUMMY(-2)	0.0038	0.0036	1.0448	0.3070
DUMMY(-3)	0.0064	0.0041	1.5689	0.1303
C	4.5788	1.3047	3.5095	0.0019

Model summary: R-squared = 0.9139; Adjusted R-squared = 0.8577; F-statistic = 16.2665; Prob(F-statistic) = 0.0000; Durbin-Watson = 2.2663.

Source: Data processed using EViews 12.

In the short run, IPR is influenced by its own lagged values. The Consumer Confidence Index (IKK) exhibits a lagged effect, with the first lag being negative and significant, while the second lag is positive and significant. Current-period sharia MSME financing shows a marginally positive effect, but its first lag has a negative and significant impact. Inflation in the current period is not significant; however, its first lag is negative and significant, whereas the second lag is positive and significant. The variable exerting the strongest short-run effect on IPR is the Ramadan dummy, which has a positive and highly significant coefficient.

The bounds test results show that the F-statistic value is 4.5920, which is higher than the finite-sample upper bound at the 5 percent significance level. Therefore, it can be concluded that a long-run relationship exists among IPR, IKK, sharia MSME financing, inflation, and the Ramadan dummy variable.

Table 6. Bounds Test Results.

Statistic	Value
F-statistic	4.5920
k	4

Finite-sample critical values (5%):

n = 40: I(0) = 2.893; I(1) = 4.000

$n = 35$; $I(0) = 2.947$; $I(1) = 4.088$

Table 7. Long-Run Coefficients.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IKK	-0.4436	0.1945	-2.2803	0.0322
UMKM	-0.8633	0.3512	-2.4585	0.0219
INFLASI	-0.0020	0.0007	-2.8031	0.0101
DUMMY	0.0317	0.0039	8.1421	0.0000
C	4.4285	0.8571	5.1666	0.0000

Source: Data processed using EViews 12.

The long-run findings indicate that IKK, sharia MSME financing, and inflation have significant negative effects on IPR, whereas Ramadan has a significant positive effect. Empirically, these results suggest that the strengthening of retail sales in Indonesia is more consistently supported by the seasonal momentum of Ramadan, while consumer sentiment, MSME financing, and price pressures operate through more complex mechanisms.

To assess the speed of adjustment toward long-run equilibrium, the error correction term coefficient was employed. The error correction term coefficient is negative and statistically significant, indicating the existence of an adjustment mechanism from short-run disequilibrium toward long-run equilibrium.

Table 8. Error Correction Model (ECM) Results.

Variable	Coefficient	Prob.
ECT / IPR(-1)*	-1.0339	0.0001
D(IPR(-1))	0.3398	0.0465
D(IPR(-2))	0.4871	0.0020
D(IKK)	-0.3277	0.1098
D(IKK(-1))	-0.3627	0.0367
D(UMKM)	1.3058	0.0569
D(INFLASI)	-0.0006	0.7408
D(INFLASI(-1))	-0.0039	0.0256
D(DUMMY)	0.0178	0.0000
D(DUMMY(-1))	-0.0101	0.0587
D(DUMMY(-2))	-0.0064	0.1303

Source: Data processed using EViews 12.

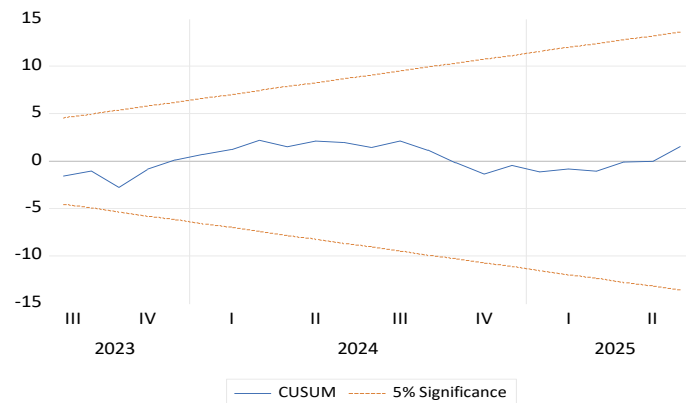
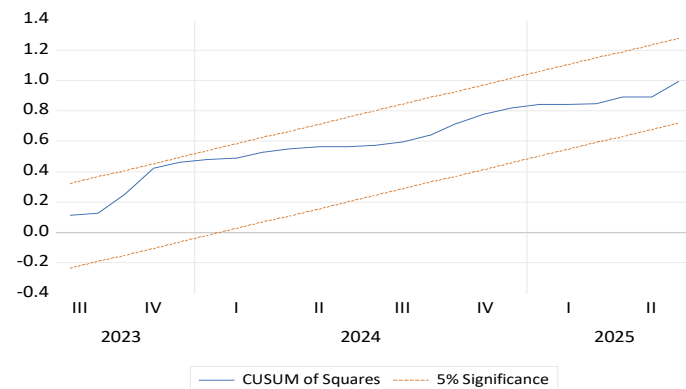
The ECT coefficient of -1.0339, which is significant at the 1 percent level, indicates that short-run disequilibrium is corrected rapidly toward long-run equilibrium. A value slightly below -1 suggests a very fast adjustment process with an indication of overshooting, but it remains acceptable as long as the model passes the stability tests.

Diagnostic tests were conducted to ensure that the model satisfies the basic assumptions of econometrics and is appropriate to serve as a basis for empirical interpretation. All diagnostic test results indicate that the model is well specified and econometrically sound.

Table 9. Summary of Model Diagnostic Tests.

Diagnostic Test	Statistic	Probability	Decision
Breusch-Godfrey Serial Correlation LM Test	F-statistic	0.3097	No autocorrelation
Breusch-Godfrey Serial Correlation LM Test	Obs*R-squared	0.1275	No autocorrelation
Breusch-Pagan-Godfrey Heteroskedasticity Test	F-statistic	0.2262	No heteroskedasticity
Breusch-Pagan-Godfrey Heteroskedasticity Test	Obs*R-squared	0.2309	No heteroskedasticity
Jarque-Bera Normality Test	Jarque-Bera	0.5251	Residuals are normally distributed
CUSUM	Graph	—	Stable
CUSUMSQ	Graph	—	Stable

Source: Data processed using EViews 12.

**Figure 2.** Results of the ARDL Model Parameter Stability Test Based on CUSUM.**Figure 3.** Results of the ARDL Model Variance Stability Test Based on CUSUM of Squares.

The results shown in Figure 2 and Figure 3 indicate that the CUSUM and CUSUMSQ lines remain within the 5 percent critical bounds. Therefore, the ARDL model can be considered stable.

The findings of this study indicate that Ramadan is the most consistent variable in driving increases in IPR, both in the short run and in the long run. This result is in line with the literature showing that Ramadan is associated with changes in purchasing behavior and increased household consumption (Azman, 2024; Hosen, 2024). In the Indonesian context, this

finding is also consistent with the tendency for domestic consumption to strengthen during religious periods, as reflected in Bank Indonesia's retail sales and consumer surveys (Bank Indonesia, 2025, 2026).

The negative long-run effect of inflation on IPR supports the argument that sustained increases in prices weaken households' real purchasing power. When inflation rises, real consumption tends to decline, which in turn puts pressure on the retail sector. This finding underscores that price stability remains an essential prerequisite for strengthening the domestic retail market.

Meanwhile, the negative long-run effect of the Consumer Confidence Index (IKK) suggests that consumer confidence is not always automatically translated into higher formal retail consumption. This finding implies that household optimism may be allocated to other forms of expenditure, such as savings, installment payments, non-retail spending, or service consumption. This result can still be understood within the framework of the literature, which suggests that the relationship between consumer confidence and retail sales may vary depending on the context, consumption structure, and economic characteristics of a country (Allenby et al., 1996; Desroches & Gosselin, 2002; Hunneman et al., 2015; Tjandrasa & Dewi, 2022).

The negative long-run finding for sharia MSME financing also indicates that the transmission of productive financing to formal retail sales does not always occur directly. Sharia MSME financing may support productive activities, but its effects may be dispersed across various subsectors and may not be fully reflected in the Real Sales Index (IPR). In this context, the findings do not imply that sharia MSME financing is unbeneficial; rather, they suggest that the relationship between productive financing and formal retail sales is more complex than a simple linear association. This perspective remains consistent with the literature that views sharia financing as an instrument for strengthening MSMEs, although it is not always directly linked to aggregate retail indicators (Isfianadewi, 2024).

From a methodological perspective, the negative and significant ECM result, together with the fact that the model passes all diagnostic tests, indicates that the model has an adequate econometric foundation. In other words, the model does not merely produce statistically neat results on paper, but is also sufficiently robust to be sustained in academic discussion.

5. CONCLUSION

This study concludes that there is a long-run relationship among the Consumer Confidence Index (IKK), sharia MSME financing, inflation, the Ramadan dummy, and the

Real Sales Index (IPR) in Indonesia. In the long run, IKK, MSME financing, and inflation exert significant negative effects on IPR, whereas Ramadan has a significant positive effect. In the short run, the relationships among the variables are dynamic through lag mechanisms, with Ramadan emerging as the strongest determinant in increasing retail sales. The negative and significant error correction term coefficient indicates that short-run disequilibrium is adjusted rapidly toward long-run equilibrium..

The practical implications of this study highlight the importance of maintaining inflation stability, improving the effectiveness of the transmission of sharia MSME financing to trade sectors more directly related to retail activities, and utilizing the momentum of Ramadan as a driver of domestic consumption. From an academic perspective, this study demonstrates that the analysis of retail sales in Indonesia needs to simultaneously consider consumer sentiment, productive sector financing, price stability, and religious seasonal patterns.

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