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MORALITY BEFORE KNOWLEDGE

The hidden liquidity cost of pawn expansion: Evidence from Pegadaian

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ABSTRACT

Background: Pawn finance provides households with access to collateralized liquidity, but less is known about how growth in core pawn receivables is associated with the lender's own short-horizon balance-sheet liquidity. This study examines that relationship for Pegadaian and evaluates whether the observed pattern is consistent with short-run asset–liability adjustment. **Methods:** The analysis uses 101 monthly observations from January 2017 to May 2025. Liquidity is proxied by the current ratio, while pawn expansion is measured by the monthly log growth of outstanding core pawn receivables. The baseline dynamic regression uses 98 observations after transformations and lags and applies Newey–West heteroskedasticity- and autocorrelation-consistent inference. **Findings:** Pawn-receivable growth is associated with a statistically significant same-month decline in the current ratio. A positive one-month coefficient in the baseline specification is consistent with partial subsequent adjustment, although this lagged association is less stable across robustness specifications and the cumulative two-month association is not statistically distinguishable from zero. The contemporaneous result remains robust to alternative heteroskedasticity and autocorrelation consistent (HAC) bandwidths, calendar-month controls, and a log transformation of the liquidity outcome, while formal stability tests indicate no detectable structural break. Current assets and current liabilities both increase contemporaneously with pawn-receivable growth, with the liability coefficient numerically larger. **Conclusion:** The findings are consistent with short-horizon balance-sheet liquidity pressure accompanying rapid pawn-receivable growth, but they do not establish a causal effect. **Novelty/Originality of this article:** The study shifts the pawn-finance discussion from customer-side liquidity toward institution-side short-horizon balance-sheet adjustment using monthly evidence from a major collateral-based nonbank lender.

KEYWORDS: asset-liability management; liquidity risk; non-bank financial intermediation; pawn; Pegadaian.

1. Introduction

Nonbank financial intermediation has become an increasingly important source of credit alongside traditional banking. Recent research shows that banks and nonbanks coexist because they operate with different funding structures and regulatory constraints, while the expansion of less-regulated lenders has altered the composition of credit provision and raised distinct financial-stability questions (Claessens, 2024; Donaldson et al., 2021; Durdu & Zhong, 2023; Erel & Inozemtsev, 2025). The Financial Stability Board likewise documents continued expansion of nonbank financial intermediation globally (Financial Stability Board, 2025). Recent evidence further emphasizes that banks and nonbank financial intermediaries differ in their funding and liquidity structures even as the

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two sectors have become increasingly interconnected (Acharya et al., 2026). For collateral-based lenders such as Pegadaian, this broader shift makes institution-level liquidity management increasingly relevant as receivables expand.

Pawn finance combines a customer-side liquidity function with an institution-side balance-sheet requirement. For borrowers, pawnshops can provide short-term collateralized credit and a mechanism for coping with temporary financial needs (Inoue, 2021). Industry evidence also identifies capital management as an important operational consideration for pawnbrokers (Hung & Lin, 2022). For the lender, however, collateralization does not remove the need to manage the timing of disbursements, funding, and short-horizon obligations. Liquidity conditions can raise funding costs and constrain intermediation even when borrower credit quality is not the immediate source of stress (Bechtel et al., 2023; Forbes et al., 2023).

The relevant balance-sheet logic is short-horizon asset–liability adjustment. Financial intermediaries expand assets while simultaneously managing liabilities and liquidity buffers. Recent evidence shows that nonbank lending capacity and balance-sheet adjustment depend on funding availability and funding structure (Acharya et al., 2026; Cucic & Gorea, 2026; Fleckenstein et al., 2026). Funding structure also affects resilience: nonbanks can respond more strongly than banks when financial conditions tighten, while funding arrangements shape the capacity to sustain credit provision (Aldasoro et al., 2025; Forbes et al., 2023). Applied to pawn lending, this literature implies that rapid receivable growth may coincide with temporary pressure on short-horizon balance-sheet liquidity when liability growth or other funding requirements outpace current-asset adjustment.

The broader nonbank literature does not imply a single liquidity mechanism across institution types. Money market funds, fixed-income mutual funds, direct lenders, finance companies, and collateral-based lenders differ in the maturity, stability, and withdrawal features of their liabilities, as well as in access to external liquidity support. Evidence from money market and mutual funds shows that liquidity transformation can make balance-sheet adjustment sensitive to the timing of funding claims and investor outflows (Li et al., 2021; Ma et al., 2022). Direct-lending studies likewise show that nonbank credit responses can differ from those of banks because the funding side of intermediation is structured differently (Banerjee & Serena, 2026; Cucic & Gorea, 2026). Broader non-bank financial institutions (NBFI) research also emphasizes that liquidity demand, leverage, and funding structures vary substantially across institution types (Aramonte et al., 2021). These mechanisms should not be transferred mechanically to Pegadaian. Pegadaian's core pawn receivables arise from collateralized pawn loans, Pegadaian does not create deposits, and its customers do not redeem claims in the manner of investment-fund investors. The common implication is narrower: expansion of credit assets should be evaluated together with the timing and composition of funding and other short-horizon liabilities. This motivates the present focus on whether rapid growth in core pawn receivables coincides with temporary compression in an observable accounting liquidity measure, while leaving the specific funding channel unidentified.

Indonesia provides a relevant institutional setting because pawn businesses operate within a formal Financial Service Authority/*Otoritas Jasa Keuangan* (OJK) supervisory framework. For most of the January 2017–May 2025 sample, pawn businesses were governed by POJK 31/POJK.05/2016; POJK 39/2024 took effect on 27 December 2024 and replaced the earlier framework (Otoritas Jasa Keuangan, 2016, 2024). Indonesian evidence also shows that public ownership can shape lending responses during periods of stress, reinforcing the value of institution-specific analysis for state-linked financial intermediaries (Susamto et al., 2023).

Existing research leaves a clear gap between the pawn-finance literature and the broader literature on nonbank credit and liquidity. Pawn studies have primarily examined household risk coping and industry-level operational or sustainability factors (Hung & Lin, 2022; Inoue, 2021). By contrast, recent research on nonbank intermediation examines regulatory substitution, direct lending, funding shocks, and the changing role of nonbanks in credit supply (Chernenko et al., 2022; Cornelli et al., 2024; Davydiuk et al., 2024; Elliott

et al., 2024; Erel & Inozemtsev, 2025; Gopal & Schnabl, 2022; Irani et al., 2021). Evidence from Asia also shows that nonbank finance interacts with monetary transmission, while Indonesian evidence links monetary conditions, funding liquidity, and credit provision (Beirne et al., 2023; Soedarmono et al., 2023). What remains underexplored is whether month-to-month growth in a collateral-based pawn lender's receivables is systematically associated with changes in the institution's own short-horizon balance-sheet liquidity. This study addresses that institution-side question using monthly data from Pegadaian.

The issue is practically relevant because short-horizon liquidity pressure can matter even when longer-run profitability and credit quality remain sound. Recent evidence shows that nonbank lenders adjust credit supply and risk exposure when funding or monetary conditions change, while liquidity shocks originating in the nonbank sector can transmit to other financial institutions (Davydiuk et al., 2024; Elliott et al., 2024; Sarmiento, 2025). The relevant empirical question is therefore not whether pawn expansion is inherently destabilizing, but whether faster pawn-receivable growth is systematically accompanied by tighter short-horizon balance-sheet liquidity.

This distinction also matters for interpretation of stress. Evidence from syndicated lending shows that nonbanks can contract lending more sharply than banks during crises (Aldasoro et al., 2025), while recent evidence finds nonbank credit supply to be more cyclical than bank credit supply (Fleckenstein et al., 2026). These findings do not imply that Pegadaian faces the same funding structure or crisis-transmission channel. They instead reinforce the narrower motivation for monitoring whether rapid balance-sheet expansion is accompanied by reduced short-horizon liquidity capacity.

Against this background, the study examines whether monthly growth in Pegadaian's core pawn receivables is associated with contemporaneous and subsequent changes in short-horizon balance-sheet liquidity. The analysis also examines current-asset and current-liability dynamics to determine how movements in the current ratio coincide with adjustment on the two sides of the short-horizon balance sheet. Monthly inflation and changes in the BI policy rate are included to account for broad macro-financial conditions that may co-move with pawn activity and institutional liquidity.

The contribution is twofold. First, the study shifts the analysis of pawn finance from household access to liquidity toward the lender's own balance-sheet adjustment. Second, it uses monthly institutional data to distinguish the same-month association from the following-month pattern and relates changes in the liquidity ratio to contemporaneous movements in current assets and current liabilities. Because the design is observational, these results are interpreted as conditional short-run associations rather than causal effects.

The hypotheses follow from this timing and balance-sheet logic. Credit expansion requires assets to be funded, while changes in funding and liquid-asset positions need not occur synchronously. Evidence from Indonesian funding-liquidity research and recent studies of nonbank lending shows that credit provision and funding conditions are closely linked, although the institutional mechanisms differ across intermediary types (Cucic & Gorea, 2026; Fleckenstein et al., 2026; Soedarmono et al., 2023). This motivates a directional expectation that contemporaneous pawn-receivable growth is associated with short-run tightening in the current ratio.

H1: Higher contemporaneous pawn-receivable growth is associated with a decline in the monthly change of the current ratio. Short-horizon liquidity adjustment may occur with delay if funding, liability management, or internal balance-sheet rebalancing follows the initial expansion in receivables. This motivates a second hypothesis concerning the following-month association.

H2: The one-month lag of pawn-receivable growth is positively associated with the monthly change in the current ratio, consistent with partial short-run adjustment. Because the current ratio depends jointly on current assets and current liabilities, the interpretation of liquidity changes can be strengthened by examining whether pawn-receivable growth is accompanied by movements in both accounting components. This motivates the third hypothesis:

H3: Pawn-receivable growth is positively associated with contemporaneous growth in both current assets and current liabilities.

2. Methods

2.1 Research design and identification scope

This study uses a monthly observational time-series design to examine short-run associations between growth in Pegadaian's core pawn receivables and changes in its accounting-based liquidity position. The analysis focuses on contemporaneous and near-term adjustment rather than long-run equilibrium relationships. The baseline specification includes short lags to account for persistence in liquidity movements and to distinguish the same-month pawn-receivable growth association from the following-month pattern.

The design does not identify an exogenous shock to pawn-receivable growth. Accordingly, the estimated coefficients are interpreted as conditional short-run associations after accounting for the included dynamics and macro-financial controls. Potential simultaneity, omitted variables, and unobserved institutional changes remain limitations of the design.

2.2 Data source, sample, and unit of analysis

The dataset combines official monthly financial-position series for Pegadaian with Indonesian macroeconomic indicators. The three underlying Pegadaian series are total current assets, total current liabilities, and the outstanding *Gadai* component of loans granted reported in OJK's monthly pawnshop-company financial-position statistics. For consistency in this study, the latter stock is referred to as core pawn receivables. The current ratio, pawn-receivable growth, and current-asset and current-liability growth are constructed from these OJK series. The BI policy rate is obtained from Bank Indonesia, while national monthly consumer-price inflation on a month-to-month basis is obtained from Statistics Indonesia/*Badan Pusat Statistik* (BPS). Monetary balance-sheet variables are expressed in IDR billions.

The unit of analysis is Pegadaian as represented in the published OJK series. The sample covers January 2017 through May 2025, providing 101 monthly observations. Transformations and lagged terms reduce the effective sample in the baseline regression to 98 observations. The analysis uses the OJK financial-position series as published. Because the available documentation does not permit complete verification of whether the reporting boundary remained unchanged in every month, the analysis assumes comparability of the published series over time. Any unobserved change in reporting coverage would represent a measurement limitation.

2.3 Variable definitions and construction

2.3.1 Liquidity outcomes and core pawn receivables growth

Short-horizon balance-sheet liquidity is proxied by the current ratio:

$$\Delta Liquidity_t = \frac{Current\ Assets_t}{Current\ Liabilities_t} \quad \text{(Eq. 1)}$$

The baseline dependent variable is the monthly first difference of this ratio, $\Delta\text{Liquidity}_t$. The current ratio is used as an accounting-based coverage measure rather than as a regulatory liquidity ratio; it does not capture detailed maturity mismatches, committed funding facilities, or the liquidity of individual asset categories. As a robustness check, the analysis uses the monthly log change in the same ratio, $\Delta\ln\text{Liquidity}_t$, which expresses

liquidity movements in proportional terms. This is an alternative transformation of the same underlying liquidity proxy rather than an independent liquidity measure.

The current ratio is used here because current assets and current liabilities are available consistently at monthly frequency throughout the sample. Its role is comparative rather than prudential: changes in the ratio indicate whether short-horizon accounting coverage becomes tighter or looser from one month to the next. A decline can occur even when both balance-sheet components increase if current liabilities grow more rapidly than current assets. Accordingly, the measure should not be interpreted as equivalent to a regulatory liquidity ratio or as a direct measure of maturity mismatch. This limitation motivates both the alternative log-change specification and the separate analysis of current-asset and current-liability growth.

Core pawn activity is measured by the outstanding *Gadai* component of loans granted in OJK's monthly financial-position series for Pegadaian. This underlying stock is referred to throughout the manuscript as core pawn receivables. Pawn-receivable growth (g_pawn_core) denotes the monthly log change in this same stock and is defined as:

$$g_t^{pawn} = \Delta \ln(Receivables_t) \quad \text{(Eq. 2)}$$

The log difference approximates the proportional month-to-month change in outstanding core pawn receivables and reduces dependence on the scale of the level series.

2.3.2 Macro-financial controls

The baseline model includes two macro-financial controls. Monetary conditions are represented by the monthly change in the BI policy rate and its first lag. Inflation is measured as monthly consumer price index (CPI) inflation on a month-to-month basis and is included contemporaneously and with one lag. This control choice is consistent with evidence that monetary conditions interact with nonbank finance in Asia and with funding liquidity in Indonesian financial intermediation (Beirne et al., 2023; Soedarmono et al., 2023). These variables reduce, but do not eliminate, potential omitted-variable confounding.

Table 1. Variable definitions, measurements, and sources

Variable	Definition	Measurement	Source
Core pawn receivables	Outstanding *Gadai* component of loans granted, referred to in this study as core pawn receivables	IDR billion, monthly stock	OJK monthly financial-position statistics for Pegadaian
Current assets	Total current assets reported for Pegadaian	IDR billion, monthly stock	OJK monthly financial-position statistics for Pegadaian
Current liabilities	Total current liabilities reported for Pegadaian	IDR billion, monthly stock	OJK monthly financial-position statistics for Pegadaian
Current ratio	Short-horizon accounting liquidity proxy	Current assets/current liabilities	Authors' calculation from OJK data
Δ Current ratio	Baseline dependent variable	$\text{Current ratio}_t - \text{Current ratio}_{t-1}$	Authors' calculation from OJK data
Δln (Current ratio)	Alternative transformation of liquidity	$\ln(\text{Current ratio}_t) - \ln(\text{Current ratio}_{t-1})$	Authors' calculation from OJK data

Pawn-receivable growth (g_pawn_core)	Monthly growth in outstanding core pawn receivables	Δln (Core pawn receivables$_t$)	Authors' calculation from OJK data
Δ BI policy rate	Monthly change in the BI policy rate	BI rate$_t$ − BI rate$_{t-1}$, percentage points	Bank Indonesia
Inflation	National monthly consumer-price inflation	Percent, month-to-month	Statistics Indonesia (BPS)
Current-asset growth	Component outcome	Δln (Current assets$_t$)	Authors' calculation from OJK data
Current-liability growth	Component outcome	Δln (Current liabilities$_t$)	Authors' calculation from OJK data

(OJK, Bank Indonesia, BPS; Author's compilation, 2026)

2.4 Time-series properties, baseline model specification, and estimation

Financial level series may exhibit persistence or stochastic trends, making regressions in untreated levels vulnerable to misleading inference. The analysis therefore evaluates the time-series properties of the principal variables using augmented Dickey–Fuller tests before estimation (Brooks, 2019; Dickey & Fuller, 1979), with MacKinnon (1996) approximate p-values used for the reported unit-root inference. The liquidity ratio, log liquidity ratio, log core pawn receivables, BI policy rate, and inflation are assessed in levels, while the transformed variables used in the regressions are also tested.

The liquidity ratio, log liquidity ratio, log core pawn receivables, and BI policy rate do not reject a unit root in levels over the sample, whereas the transformed liquidity, pawn-receivable growth, and policy-rate series reject a unit root. Inflation is stationary in its monthly month-to-month form. The regression specifications therefore use monthly changes or log changes where appropriate, consistent with the study's focus on short-run adjustment rather than long-run equilibrium relationships. The baseline model is:

$$\Delta Liquidity_t = \alpha + \phi_1 \Delta Liquidity_{t-1} + \phi_2 \Delta Liquidity_{t-2} + \beta_0 g_t^{pawn} + \beta_1 g_{t-1}^{pawn} + \gamma_0 \Delta BI_t + \gamma_1 \Delta BI_{t-1} + \delta_0 Inflation_t + \delta_1 Inflation_{t-1} + \varepsilon_t \quad \text{(Eq. 3)}$$

The contemporaneous pawn-receivable growth term, β_0, captures the same-month association specified in H1, while β_1 captures the following-month association specified in H2. Two lags of the dependent variable are included to account for short-run persistence while keeping the dynamic specification parsimonious relative to the sample size. The BI-rate and inflation terms account for broad monetary and price conditions contemporaneously and with one lag. In addition to the individual pawn-receivable growth coefficients, the analysis tests whether $\beta_0 + \beta_1 = 0$. This cumulative test determines whether the contemporaneous and following-month associations imply a statistically detectable net two-month relationship.

The models are estimated by ordinary least squares with Newey–West heteroskedasticity- and autocorrelation-consistent covariance estimates (Newey & West, 1987). Newey–West inference allows the coefficient estimates to remain those of ordinary least squares while adjusting their estimated covariance matrix for heteroskedasticity and serial dependence. The baseline bandwidth is determined using the Newey–West automatic lag-selection rule (Newey & West, 1994), which yields four lags for the effective sample.

Statistical inference focuses on the contemporaneous pawn-receivable growth coefficient, the one-month-lagged pawn-receivable growth coefficient, and their cumulative sum. Residual serial dependence is additionally assessed using the Ljung–Box portmanteau test for white noise (Ljung & Box, 1978).

Robustness analysis evaluates four sources of specification sensitivity. First, the baseline model is re-estimated using Newey–West bandwidths of three and six lags around

the four-lag baseline. Second, calendar-month indicators are included to assess whether recurring seasonal patterns materially alter the pawn-receivable growth coefficients. Third, a one-month lead of pawn-receivable growth is added as a limited timing check; a significant lead would be inconsistent with a simple temporal interpretation in which current pawn-receivable growth precedes current liquidity movement. Fourth, the model is estimated using the monthly log change in the current ratio.

Parameter stability is evaluated separately using an unknown-break Supremum Wald test (Andrews, 1993) and a recursive cumulative-sum test (Brown et al., 1975) applied to the corresponding dynamic ordinary least squares (OLS) specification. These diagnostics assess sensitivity to timing, seasonality, inference choices, and parameter instability, but they do not eliminate contemporaneous endogeneity or omitted-variable bias.

To interpret movements in the current ratio, the analysis estimates analogous dynamic regressions for the monthly log growth of current assets and current liabilities. The explanatory structure and Newey–West bandwidth are kept consistent with the baseline liquidity model. These regressions are interpreted as an accounting decomposition rather than as independent causal tests of a funding mechanism. Because the current ratio depends jointly on current assets and current liabilities, the component estimates indicate whether the observed liquidity movement is accompanied primarily by asset growth, liability growth, or simultaneous adjustment on both sides of the short-horizon balance sheet. The aggregate accounting series do not identify the specific funding instruments underlying liability growth.

3. Results and Discussion

3.1 Results

3.1.1 Data structure and descriptive statistics

The empirical analysis is based on monthly observations spanning January 2017 to May 2025, yielding 101 months in the raw dataset. Because the main outcomes and the key explanatory variable are constructed as first differences or log differences, variables expressed as monthly changes or growth rates mechanically lose one observation and therefore have 100 observations.

Table 2. Descriptive statistics

Variable	Obs	Mean	Std. dev.	Min	Max
Current assets	101	57,368.37	15,260.15	38,394	103,719
Current liabilities	101	33,392.23	11,439.95	21,371	72,423
Core pawn receivables	101	39,246.66	9,777.541	28,641	69,353
Liquidity ratio (current assets/current liabilities)	101	1.752071	0.1699947	1.391851	2.132138
Monthly change in liquidity ratio (d_liq)	100	-0.0002192	0.0771312	-0.2367402	0.2749578
Monthly log change in liquidity (d_ln_liq)	100	-0.0001369	0.0439541	-0.146934	0.1534644
Pawn-receivable growth	100	0.0088033	0.0200174	-0.0470579	0.0987677
BI rate (level)	101	4.913366	0.9659423	3.5	6.25
Monthly change in BI rate (d_BI)	100	0.0075	0.1645893	-0.25	0.5
Inflation (monthly, m-to-m)	101	0.2341584	0.3457811	-0.76	1.65

(Author's compilation, 2026)

The current ratio averages 1.752, with values ranging from 1.392 to 2.132. Its monthly first difference has a mean close to zero and a standard deviation of 0.077, indicating that

the level of the ratio is relatively stable over the full sample despite meaningful month-to-month movements. Monthly pawn-receivable growth averages 0.0088 in log-difference terms, with a standard deviation of 0.0200 and observations spanning both contractions and expansions. These distributions provide sufficient short-run variation for the dynamic analysis that follows.

Figure 1 presents the monthly evolution of core pawn receivables, the current ratio, and the principal current balance-sheet components. Core pawn receivables and both current assets and current liabilities increase over the longer sample period, while the current ratio exhibits substantial variation across months. These descriptive patterns provide context for the subsequent dynamic analysis but do not by themselves establish an association between pawn-receivable growth and liquidity changes.

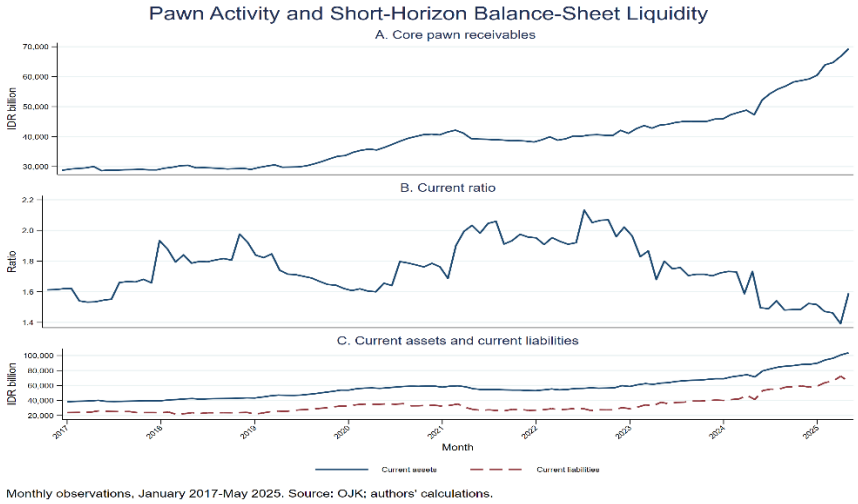


Fig. 1. Pawn activity and short-horizon balance-sheet liquidity, January 2017–May 2025
Note: Panel A reports outstanding core pawn receivables. Panel B reports the current ratio, defined as current assets divided by current liabilities. Panel C reports current assets and current liabilities. Monetary balance-sheet variables are expressed in IDR billions.
(OJK; Author's compilation, 2026)

3.1.2 Time-series diagnostics and transformation

Before estimating the dynamic regressions, the analysis evaluates the time-series properties of key variables using augmented Dickey-Fuller tests. Table 3 reports the ADF test statistic and the MacKinnon approximate p-value for the key level series and the transformed series used in estimation.

Table 3. ADF tests

Series	N	Z(t)	p-value
Current ratio	100	−2.277	0.1794
Log current ratio	100	−2.268	0.1825
Log core pawn receivables	100	2.753	1.0000
BI policy rate	100	−0.742	0.8355
Inflation	100	−8.546	< 0.001
Monthly change in current ratio	99	−12.932	< 0.001
Monthly log change in current ratio	99	−13.001	< 0.001
Pawn-receivable growth	99	−8.800	< 0.001
Monthly change in BI policy rate	99	−5.054	< 0.001

Note: All augmented Dickey–Fuller tests use zero augmentation lags. MacKinnon approximate p-values are reported. Stata-displayed p-values of 0.0000 are reported as p < 0.001
(Author's compilation, 2026)

The liquidity ratio, log liquidity ratio, log core pawn receivables, and BI policy rate do not reject the unit-root null at conventional significance levels. By contrast, the monthly change in the current ratio, log change in the current ratio, pawn-receivable growth, monthly change in the BI policy rate, and monthly inflation series reject the unit-root null. The regression specifications therefore use the stationary transformations reported in Table 3.

3.1.3 Baseline dynamic liquidity model

The baseline specification estimates monthly liquidity changes as a function of short-run persistence, pawn expansion dynamics, and parsimonious macro-financial controls. The dependent variable is the monthly change in the liquidity ratio. The model includes two lags of monthly change in the liquidity ratio, the contemporaneous and one-month lag of pawn-receivable growth, the contemporaneous and one-month lag of monthly changes in the BI policy rate, and the contemporaneous and one-month lag of inflation. Inference uses Newey–West heteroskedasticity- and autocorrelation-consistent standard errors with a maximum lag of 4. Table 4 reports the baseline estimates.

Table 4. Baseline Newey–West model

Regressor	Coefficient	Std. err.	p-value	95% CI
Δ Current Ratio, t-1	-0.1432645	0.0571331	0.014	[−0.257, −0.030]
Δ Current Ratio, t-2	-0.1052228	0.0799718	0.192	[−0.264, 0.054]
Pawn-receivable growth (t)	-1.827255	0.3894885	< 0.001	[−2.601, −1.053]
Pawn-receivable growth (t−1)	0.8218227	0.3636122	0.026	[0.099, 1.544]
Δ BI Policy Rate (t)	-0.0306109	0.0575064	0.596	[−0.145, 0.084]
Δ BI Policy Rate (t-1)	-0.0094634	0.0424587	0.824	[−0.094, 0.075]
Inflation (t)	-0.0652031	0.0187036	0.001	[−0.102, −0.028]
Inflation, t-1	0.0319671	0.0200313	0.114	[−0.008, 0.072]
Constant	0.01613	0.010125	0.115	[−0.004, 0.036]

Model summary: N = 98, F(8, 89) = 12.43, Prob > F = 0.0000.

(Author's compilation, 2026)

Table 4 shows a negative contemporaneous association between pawn-receivable growth and the monthly change in the current ratio. The contemporaneous coefficient is −1.827 (95% CI: −2.601 to −1.053; $p < 0.001$), while the one-month-lagged coefficient is positive at 0.822 (95% CI: 0.099 to 1.544; $p = 0.026$). Given the standard deviation of monthly pawn-receivable growth of approximately 0.020, a one-standard-deviation increase in pawn-receivable growth is associated with an approximately 0.037-point same-month decline in the current ratio. Relative to the sample mean current ratio of 1.752, this is approximately 2.1% of the average ratio level. The estimated one-month-lagged coefficient corresponds to an approximately 0.016-point positive movement for the same one-standard-deviation change.

The cumulative test of the contemporaneous and one-month-lagged pawn-receivable growth coefficients yields $F(1,89) = 2.63$ with $p = 0.1082$. The estimated net two-month association is therefore not statistically distinguishable from zero. The contemporaneous evidence is consequently stronger than the evidence for a persistent two-month effect. The residual portmanteau test yields $Q = 5.4256$ with $p = 0.9422$, providing no evidence of substantial residual autocorrelation at the tested horizons.

Among the controls, contemporaneous monthly inflation is negatively associated with the change in the current ratio (coefficient = −0.065, $p = 0.001$), while its first lag is not statistically significant. Neither the contemporaneous nor lagged monthly change in the BI policy rate is statistically significant in the baseline specification.

3.1.4 Robustness checks

The robustness analysis evaluates sensitivity to the Newey–West bandwidth, recurring calendar-month seasonality, short-run timing, the transformation of the liquidity outcome, and parameter stability. Each check is reported separately below.

3.1.4.1 HAC lag sensitivity

Because monthly series can exhibit different degrees of serial correlation across subsamples, the baseline specification is re-estimated under alternative Newey–West lag lengths of 3, 4, and 6. Table 5 reports the key coefficients for the contemporaneous and lagged pawn-receivable growth terms, together with the p-value from the cumulative association test that evaluates whether the sum of the two coefficients equals zero.

Table 5. HAC lag sensitivity

HAC lag	Pawn-receivable growth (t)	Std. err.	p-value	Pawn-receivable growth (t−1)	Std. err.	p-value	Cumulative test p-value
3	-1.827255	0.3934727	0.000	0.8218227	0.3733198	0.030	0.1052
4	-1.827255	0.3894885	0.000	0.8218227	0.3636122	0.026	0.1082
6	-1.827255	0.3720765	0.000	0.8218227	0.3600227	0.025	0.1033

(Author's compilation, 2026)

The contemporaneous pawn-receivable growth coefficient remains negative and statistically significant across Newey–West bandwidths of three, four, and six lags, while the one-month-lagged coefficient remains positive and statistically significant. The cumulative two-month test remains statistically insignificant, with p-values between 0.103 and 0.108. The same-month association is therefore robust to reasonable changes in the heteroskedasticity and autocorrelation consistent (HAC) bandwidth, whereas the data do not support a statistically detectable cumulative two-month association.

3.1.4.2 Seasonality and lead-placebo timing checks

Adding calendar-month indicators does not materially alter the principal contemporaneous result. The coefficient on current pawn-receivable growth remains negative and statistically significant at −1.983 ($p < 0.001$), compared with −1.827 in the baseline specification. The month indicators are not jointly significant, $F(11,78) = 1.16$, $p = 0.330$, providing no evidence that recurring calendar-month effects account for the baseline association. The one-month-lagged pawn-receivable growth coefficient remains positive but is only marginally significant ($p = 0.067$), while the cumulative two-month association remains statistically insignificant ($p = 0.130$). These results reinforce the robustness of the contemporaneous association while providing weaker evidence for a stable following-month offset.

To evaluate whether the baseline relationship is consistent with pawn-receivable growth preceding liquidity movement rather than reflecting purely reverse timing, the specification is augmented by including a one-month lead of pawn-receivable growth. This yields a sample size of 97 observations due to the lead construction and lag structure. Table 6 reports the pawn-receivable growth coefficients and the formal test of the lead term.

The one-month lead of pawn-receivable growth is not statistically significant ($p = 0.119$), while the contemporaneous pawn-receivable growth coefficient remains negative and statistically significant ($p < 0.001$). The one-month-lagged pawn-receivable growth coefficient, however, is no longer statistically significant in the lead-augmented specification ($p = 0.120$). The timing check therefore supports the robustness of the contemporaneous association but also indicates that the positive following-month

coefficient is less stable across specifications. The lead test does not resolve simultaneity or omitted-variable endogeneity.

Table 6. Lead-placebo timing check

Regressor	Coefficient	Std. err.	p-value
Pawn-receivable growth (t)	-1.955915	0.3783048	0.000
Pawn-receivable growth (t−1)	0.4470437	0.2843464	0.120
Pawn-receivable growth (t+1)	0.519454	0.3299897	0.119

Model summary: N = 97, F (9, 87) = 15.35, Prob > F = 0.0000. Test of lead pawn-receivable growth (g_pawn_core, t+1 = 0): F(1, 87) = 2.48, Prob > F = 0.1191.
(Author's compilation, 2026)

3.1.4.3 Alternative liquidity outcome transformations and structural stability checks

The baseline model is re-estimated using the monthly log change in liquidity as an alternative dependent variable. This specification retains the same regressor structure and HAC lag length. Table 7 reports the key coefficients and the cumulative two-month association test.

Table 7. Alternative transformation of the liquidity outcome

Regressor	Coefficient	Std. err.	p-value
Pawn-receivable growth (t)	-1.03557	0.2337023	0.000
Pawn-receivable growth (t−1)	0.4692232	0.2194217	0.035
Inflation (t)	-0.037226	0.0106669	0.001
Inflation (t-1)	0.0169836	0.0118354	0.155

Model summary: N = 98, F(8, 89) = 11.11, Prob > F = 0.0000. Cumulative association test (g_pawn_core + lag = 0): F (1, 89) = 2.37, Prob > F = 0.1276.
(Author's compilation, 2026)

Using the monthly log change in the current ratio produces the same directional pattern. The contemporaneous pawn-receivable growth coefficient is −1.036 ($p < 0.001$), while the one-month-lagged coefficient is 0.469 ($p = 0.035$). The cumulative two-month association remains statistically insignificant ($p = 0.128$). The result therefore confirms that the same-month negative association is not dependent on expressing liquidity changes in absolute ratio points, while the cumulative effect remains unsupported.

Formal stability diagnostics provide no evidence of a structural break over the sample period. The unknown-break Supremum Wald procedure identifies June 2023 as the date associated with the largest test statistic, but the null hypothesis of parameter stability is not rejected (statistic = 10.789, $p = 0.930$). The recursive cumulative sum (CUSUM) statistic is 0.419, below the 5% critical value of 0.948. Taken together, these diagnostics indicate that the estimated dynamic specification is not dominated by a detectable parameter break over the sample.

3.1.5 Component dynamics of liquidity movements

To document how pawn-receivable growth co-moves with the components underlying the liquidity ratio, the study estimates analogous dynamic specifications for the monthly growth rates of current assets and current liabilities. The dependent variables are the first differences of the natural logs of current assets (d_ln_ca) and current liabilities (d_ln_cl). Both models use the same regressor structure and Newey–West lag length as the baseline model. Table 8 reports the key pawn-receivable growth coefficients and the cumulative two-month test for each component regression.

Table 8. Component dynamics

Dependent variable	Pawn-receivable growth (t)	Std. err.	p-value	Pawn-receivable growth (t−1)	Std. err.	p-value	Cumulative test p-value
Current-asset growth (d_ln_ca)	0.971676	0.0591391	0.000	-0.2641836	0.1554739	0.093	0.0001
Current-liability growth (d_ln_cl)	2.02924	0.2658649	0.000	-0.4137969	0.2853436	0.151	0.0003

Model summaries: Current-asset growth model: N = 98, F(8, 89) = 102.59, Prob > F = 0.0000. Current-liability growth model: N = 98, F(8, 89) = 15.31, Prob > F = 0.0000.

(Author's compilation, 2026)

Pawn-receivable growth is positively associated with contemporaneous growth in both current assets and current liabilities. The contemporaneous coefficient is 0.972 for current assets and 2.029 for current liabilities, with both estimates statistically significant at $p < 0.001$. The liability coefficient is therefore numerically larger than the asset coefficient, although the analysis does not formally test the difference between coefficients across the two equations. The lagged component coefficients are negative but are not statistically significant at the 5% level. The cumulative two-month associations remain positive and statistically significant for both components. These estimates are interpreted as an accounting decomposition consistent with simultaneous balance-sheet expansion rather than as identification of a specific funding mechanism.

3.2 Discussion

The strongest empirical result is the contemporaneous negative association between pawn-receivable growth and the change in Pegadaian's current ratio. The coefficient remains negative and statistically significant across alternative heteroskedasticity and autocorrelation consistent (HAC) bandwidths, after controlling for calendar-month seasonality, and when liquidity is expressed in log-change form. Economically, a one-standard-deviation increase in monthly pawn-receivable growth is associated with an approximately 0.037-point decline in the current ratio in the same month, equivalent to about 2.1% of its sample-average level. This provides consistent support for H1 and indicates that rapid pawn-receivable growth is systematically accompanied by tighter short-horizon balance-sheet liquidity.

Evidence for the following-month adjustment is weaker. The baseline and log-transformed specifications produce positive and statistically significant one-month-lagged coefficients, consistent with partial subsequent adjustment. However, the lagged coefficient becomes statistically insignificant in the lead-augmented specification and only marginally significant after controlling for calendar-month effects. In addition, the cumulative contemporaneous-plus-lag effect is not statistically distinguishable from zero across the principal specifications. H2 should therefore be interpreted as receiving qualified rather than uniformly robust support: the data are consistent with some following-month offset but do not establish a persistent net two-month effect.

The component regressions clarify the accounting pattern underlying the current-ratio movement. Pawn-receivable growth is associated with contemporaneous growth in both current assets and current liabilities, while the coefficient on current-liability growth is numerically larger. Because the current ratio depends on the relative movement of these two components, this pattern is consistent with liability growth contributing to same-month compression of the ratio even while current assets increase. The aggregate data do not identify which specific funding instruments generate the liability movement, so the

component results should be interpreted as balance-sheet decomposition rather than causal mechanism identification.

The findings are consistent with a broader intermediation literature showing that liquidity resilience depends on funding structure and the ability of financial intermediaries to adjust credit supply under funding or monetary shocks (Davydiuk et al., 2024; Elliott et al., 2024; Forbes et al., 2023; Sarmiento, 2025). Pegadaian nevertheless differs materially from direct-lending vehicles, market-based nonbanks, and traditional banks because its core business is collateral-based pawn lending. The results should therefore not be generalized mechanically to the wider nonbank sector. Their contribution is narrower: they show that short-horizon balance-sheet liquidity adjustment is relevant within a collateralized pawn-lending institution.

Recent evidence on nonbank lending provides additional context for this balance-sheet interpretation. Cucic and Gorea (2026) show that nonbank lending expansion can be financed through increased long-term debt, while Fleckenstein et al. (2026) document substantially stronger cyclicality in nonbank than bank credit supply. Aldasoro et al. (2025) further find that nonbanks curtail syndicated lending more sharply during financial crises, indicating that resilience can depend on intermediary type and funding structure. These results do not identify the liability mechanism operating within Pegadaian, but they reinforce the need to analyze asset expansion together with the funding side of the balance sheet. In the present study, current assets and current liabilities both increase contemporaneously with pawn-receivable growth, and the coefficient on current liabilities is numerically larger. The component equations, however, do not reveal whether the additional liabilities reflect debt funding, operating payables, other short-horizon obligations, or internal treasury decisions. The result therefore should not be read as evidence that Pegadaian uses the same debt-funding channel documented in other nonbank lenders. Its implication is narrower: the liability side moves strongly enough alongside pawn expansion to help explain why the current ratio compresses even when current assets also rise. This interpretation is consistent with the broader view that non-bank financial institutions (NBFIs) differ substantially in leverage, funding structure, and access to liquidity support (Acharya et al., 2026; Aramonte et al., 2021). It also clarifies the scope of external validity. The paper does not claim a universal nonbank liquidity mechanism; it documents one institution-specific pattern whose economic relevance is informed by, but not identical to, the broader NBFI literature.

The robustness checks strengthen this associational interpretation without converting it into a causal result. The same-month coefficient remains stable across heteroskedasticity and autocorrelation consistent (HAC) bandwidths, seasonal controls, and the alternative liquidity transformation. Calendar-month indicators are not jointly significant, and formal stability tests provide no evidence of a detectable structural break. Future pawn-receivable growth is also statistically insignificant in the lead specification. These checks reduce sensitivity to specific inference, seasonal, timing, and stability concerns, but contemporaneous pawn-receivable growth may still respond to unobserved demand conditions, funding decisions, or institutional factors that also affect liquidity.

From a management perspective, the results support monitoring pawn-receivable growth jointly with the current ratio and current-liability growth during periods of rapid expansion. For supervisory purposes, the findings suggest that growth indicators may be more informative when evaluated together with short-horizon balance-sheet conditions. These implications concern monitoring and liquidity preparedness rather than a specific regulatory threshold or causal intervention, neither of which can be identified from the present design.

4. Conclusions

This study examines the short-run association between growth in Pegadaian's core pawn receivables and changes in accounting-based liquidity over January 2017–May 2025. The central empirical result is a robust negative contemporaneous association: months with

faster pawn-receivable growth are associated with declines in the current ratio. This result remains statistically significant across alternative heteroskedasticity and autocorrelation consistent (HAC) bandwidths, calendar-month controls, a timing specification, and a log transformation of the liquidity outcome. Formal stability diagnostics also provide no evidence of a detectable structural break over the sample. Taken together, these results provide robust support for H1.

The baseline model produces a positive and statistically significant one-month-lagged pawn-receivable growth coefficient, consistent with partial subsequent adjustment. However, this lagged association is not consistently significant across the robustness specifications, and the cumulative two-month association is not statistically distinguishable from zero. H2 therefore receives qualified rather than uniformly robust support: the evidence is consistent with partial following-month adjustment, but it does not establish a consistently significant or persistent recovery effect.

The balance-sheet component results show that pawn-receivable growth is accompanied by contemporaneous growth in both current assets and current liabilities, with a numerically larger coefficient for current liabilities. These results support H3, which predicts contemporaneous growth in both balance-sheet components. This pattern is consistent with short-horizon balance-sheet adjustment in which liability growth contributes to compression of the current ratio. The evidence does not identify the specific funding instrument or establish that pawn-receivable growth causes the liquidity movement.

The practical implication is that rapid pawn-receivable growth should be evaluated jointly with short-horizon liquidity and liability dynamics. For management, this supports integrating liquidity monitoring into monthly growth planning. For supervisors and public-sector stakeholders, it supports considering expansion and short-horizon balance-sheet conditions together rather than treating growth and liquidity as separate dimensions.

The study has four main limitations. First, the evidence is based on a single institution and should not be generalized automatically to other pawn companies or nonbank financial intermediaries. Second, the current ratio is an accounting-based liquidity proxy and does not measure detailed maturity mismatches, committed funding facilities, or the liquidity of individual asset categories. Third, the observational time-series design cannot eliminate simultaneity or omitted-variable bias and therefore does not identify a structural causal effect. Fourth, the analysis relies on published financial-position series whose reporting boundary cannot be independently verified for every month. Future research could examine richer funding-composition data, broader institutional samples, and identification strategies capable of isolating exogenous changes in pawn activity or funding conditions.

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Author Contribution

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Not available.

Data Availability Statement

The underlying monthly institution-level series were obtained from OJK's published pawnshop-company financial-position statistics for Pegadaian. These series comprise total current assets, total current liabilities, and the outstanding Gadai component of loans granted, which is referred to in this study as core pawn receivables. The BI policy-rate series was obtained from Bank Indonesia, and national monthly CPI inflation on a month-to-month basis was obtained from Statistics Indonesia/*Badan Pusat Statistik* (BPS). All ratios, differences, and growth variables used in the analysis were constructed from these official source series. The analytical dataset is available from the corresponding author upon reasonable request.

Conflicts of Interest

The author declare no conflict of interest.

Declaration of Generative AI Use

During the preparation of this work, the author used ChatGPT to assist in translation and readability of the article. After using this tool, the author reviewed and edited the content as needed and took full responsibility for the content of the publication.

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