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Foreign Ownership, Digital Transformation, and Monetary Policy as Drivers of Vietcombank Stock Valuation: ARDL Evidence from 2015-2026

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Abstract

This study examines the long-run and short-run determinants of the market valuation of Vietcombank (VCB), a bellwether listed bank in Vietnam. The empirical design uses a quarterly dataset comprising 48 observations from 2015Q1 to 2026Q4. The dependent variable is the natural logarithm of VCB's market price, while explanatory variables capture the VN-Index, foreign ownership, the policy interest rate, digital/non-credit income capability, and a Basel III implementation indicator. An autoregressive distributed lag model, ARDL(1,1,0,2,1,0), is estimated after unit-root testing confirms that the continuous series are integrated of order zero or one and none is I(2). The bounds test reports an F-statistic of 6.842, supporting a long-run equilibrium relationship. Long-run estimates show positive

effects for market co-movement ($\beta=0.425$), foreign ownership ($\beta=1.280$), digital-income capability ($\beta=0.895$), and Basel III implementation ($\beta=0.085$), whereas the policy interest rate has a negative effect ($\beta=-0.048$). In the short run, monetary-policy effects are insignificant contemporaneously but become significantly negative after one and two quarters. The error-correction coefficient is -0.385, indicating that approximately 38.5% of a disequilibrium is corrected each quarter. The findings suggest that foreign capital, digital transformation, and prudential quality signals are central to the premium valuation of a major Vietnamese bank, while monetary tightening transmits with a lag.

Keywords: Bank Stock Price, Foreign Ownership, Digital Transformation, Basel III, Monetary Policy, ARDL, Vietcombank, Vietnam

1. Introduction

Bank equities occupy a distinctive position in emerging capital markets because their prices simultaneously reflect firm-specific performance, regulatory quality, macroeconomic conditions, and market-wide sentiment. In Vietnam, this interaction is particularly visible for large listed banks whose market capitalization and index weights make them both recipients and transmitters of market movements. Vietcombank (ticker VCB) is an analytically useful case because it combines a large state ownership presence, substantial participation by foreign investors, a strong role in the VN-Index, and an ongoing transition toward digital banking and higher prudential standards.

Existing studies of bank stock prices in Vietnam have frequently relied on multi-bank panel datasets. Such designs are valuable for identifying average industry effects, but they can obscure bank-specific dynamics, including heterogeneous sensitivity to foreign capital, policy transmission lags, and technology-driven changes in revenue structure. This study therefore adopts a single-case time-series perspective and asks whether VCB's valuation responds not only to conventional market and monetary variables but also to two forward-looking indicators: the share of income associated with digital/non-credit services and the implementation of Basel III standards.

The article makes three contributions. First, it examines the interaction of market conditions, foreign ownership, monetary policy, digital transformation, and prudential regulation in one integrated ARDL specification. Second, it explicitly distinguishes long-run equilibrium effects from short-run adjustment, allowing the lagged transmission of interest-rate shocks to be identified. Third, it provides evidence that valuation in a large emerging-market bank may increasingly be supported by non-traditional value drivers, especially digital service income and regulatory-quality signals, rather than by credit expansion alone.

The remainder of the article develops the conceptual expectations, explains the data and ARDL procedure, presents long-run

and short-run results, discusses implications for bank management, investors and regulators, and closes with limitations and directions for future research.

2. Literature Review and Hypotheses

The valuation of bank stocks is shaped by the interaction between market-wide pricing, ownership structure, monetary conditions, and bank-specific capabilities. Macro-financial research emphasizes that bank equity is sensitive to shifts in discount rates, liquidity conditions, and global financial cycles (Borio & Gambacorta, 2016; Rey, 2021) [3, 10]. At the firm level, capital strength and risk management can support market value by reducing perceived downside risk and signaling resilience (Berger & Bouwman, 2020) [2]. More recent research also points to digital transformation and the diversification of non-interest income as potential sources of scalable value creation (Scott *et al.*, 2023) [11].

For a bellwether stock, broad market co-movement is expected to be especially important. A rising VN-Index may reflect improved risk appetite, liquidity, and growth expectations, all of which can raise the valuation of a large banking stock. Accordingly, H1 predicts a positive long-run relationship between the VN-Index and VCB's stock price.

Foreign ownership may affect bank valuation through several channels. International institutional investors contribute demand and liquidity, but their participation may also serve as a governance and information-quality signal. In emerging banking markets, stronger foreign ownership can therefore be associated with higher valuation, although it may also increase exposure to global risk-on/risk-off cycles (Claessens & Horen, 2024) [4]. Accordingly, H2 predicts a positive effect for the foreign-ownership ratio.

Monetary-policy tightening increases discount rates and can compress banking margins when funding costs reprice faster than lending assets. The market response need not be immediate because policy effects pass through balance sheets, credit demand, and reported earnings over time. The project therefore predicts a negative relationship between the policy interest rate and VCB valuation, with the main short-run effect appearing after one or two quarters.

Digital banking can generate fee income, lower transaction costs, widen customer reach, and reduce reliance on traditional interest income. Accordingly, the ratio used by the project to represent digital/non-credit income capability is expected to be positively associated with market valuation. Finally, Basel III implementation is interpreted as a quality and resilience signal. Higher prudential standards can strengthen confidence among long-horizon investors and potentially support a valuation premium.

Table 1: Hypotheses and expected relationships

Hypothesis	Expected relationship
H1	VN-Index (VNI) positively affects VCB stock valuation.
H2	Foreign ownership (FOR) positively affects VCB stock valuation.
H3	Policy interest rate (IR) negatively affects VCB stock valuation, with a lag.
H4	Digital/non-credit income capability (DIGI) positively affects VCB stock valuation.
H5	Basel III implementation (B3) positively affects VCB stock valuation.

3. Data and Methodology

The study is a single-case quarterly time-series analysis of Vietcombank using 48 quarterly observations spanning 2015Q1-2026Q4. The empirical analysis is based on the values contained in the research dataset. Because the observation window extends through 2026Q4, the temporal coverage and external verification of the latest observations are explicitly considered when interpreting the findings and limitations.

The dependent variable is the natural logarithm of VCB's stock market price. The principal regressors are the natural logarithm of the VN-Index (VNI), foreign ownership (FOR), the policy interest rate (IR), the digital/non-credit income ratio (DIGI), and a Basel III dummy (B3). The dataset draws on the State Bank of Vietnam, the Ho Chi Minh Stock Exchange, Vietcombank's audited reports, and related official materials. PRICE and VNI are logarithmically transformed to harmonize scale and reduce heteroskedasticity concerns.

The empirical workflow follows a conventional ARDL strategy. Descriptive statistics are first examined, followed by Augmented Dickey-Fuller and Phillips-Perron unit-root tests. The continuous series are required to be I(0) or I(1), because the ARDL bounds framework is not valid in the presence of I(2) variables. Correlation and variance-inflation diagnostics are then used to assess multicollinearity. The selected dynamic specification is ARDL(1,1,0,2,1,0), and a bounds test is used to assess the presence of a long-run equilibrium relationship. The short-run representation is expressed as an error-correction model (ECM), in which the lagged error-correction term captures the speed at which deviations from long-run equilibrium are eliminated.

Post-estimation diagnostics in the report include the Breusch-Godfrey LM test for serial correlation, the Breusch-Pagan-Godfrey test for heteroskedasticity, the Ramsey RESET test for functional-form misspecification, and a Jarque-Bera residual-normality test.

Table 2: Variable definitions and expected signs

Variable	Operationalization	Expected sign
ln(PRICE)	Natural logarithm of VCB stock market price	Dependent
ln(VNI)	Natural logarithm of VN-Index	+
FOR	Foreign ownership ratio	+
IR	Policy interest rate	-
DIGI	Ratio representing income from non-credit/digital services	+
B3	Basel III implementation dummy (0/1)	+

4. Empirical Results

4.1 Descriptive Evidence

The descriptive statistics show substantial changes in market valuation and digital capability over the study period. The mean of ln(PRICE) is 11.1842 (standard deviation 0.4125), while ln(VNI) averages 6.8815 (standard deviation 0.2984). Foreign ownership averages 0.1652 and ranges from 0.098 to 0.231. The policy interest rate averages 0.0498, and DIGI averages 0.2148, with a range from 0.072 to 0.380. These data are consistent with a period in which VCB became more digitally oriented and increasingly exposed to foreign institutional participation.

The pairwise correlations are high for several market and capability variables: $\ln(\text{PRICE})$ correlates 0.8215 with $\ln(\text{VNI})$, 0.8912 with FOR, 0.9125 with DIGI, and 0.7812 with B3, while its correlation with IR is -0.6415. These values motivate careful dynamic modeling rather than simple bivariate inference.

Table 3: Descriptive Statistics

Statistic	$\ln(\text{PRICE})$	$\ln(\text{VNI})$	FOR	IR	DIGI
Mean	11.1842	6.8815	0.1652	0.0498	0.2148
Median	11.2677	6.9180	0.1685	0.0450	0.2060
Maximum	11.7118	7.3119	0.2310	0.0650	0.3800
Minimum	10.3672	6.2971	0.0980	0.0400	0.0720
Std. deviation	0.4125	0.2984	0.0382	0.0098	0.0951
Observations	48	48	48	48	48

4.2 Unit roots and cointegration

The ADF and PP results reported in the project indicate that $\ln(\text{PRICE})$, $\ln(\text{VNI})$, FOR, IR and DIGI are not stationary in levels but become stationary after first differencing. No continuous variable is integrated of order two. For example, the ADF statistic for $\ln(\text{PRICE})$ changes from -1.842 ($p=0.3561$) in levels to -5.421 ($p<0.001$) after first differencing; $\ln(\text{VNI})$ similarly changes from -2.105 ($p=0.2435$) to -6.112 ($p<0.001$). These results satisfy the integration conditions required for the ARDL procedure.

The ARDL bounds test yields an F-statistic of 6.842, exceeding the reported upper-bound critical value of 4.68 at the 1% level. The null hypothesis of no long-run relationship is therefore rejected, supporting cointegration among VCB valuation and the explanatory variables in the selected specification.

4.3 Long-run estimates

Table 4 reports the long-run coefficients from ARDL(1,1,0,2,1,0). Every substantive regressor is statistically significant at the 1% level. Market co-movement is positive: a 1% increase in the VN-Index is associated with a 0.425% increase in VCB's long-run stock price, holding other factors constant. Foreign ownership has the largest estimated positive coefficient (1.280), indicating a particularly strong association between foreign participation and VCB valuation.

The policy interest rate coefficient is negative (-0.048), consistent with a discount-rate and monetary-transmission channel. DIGI is strongly positive (0.895), supporting the argument that fee-based and digital-service income has become a valuation-relevant capability. The Basel III dummy is also positive (0.085), which the project interprets as an approximate 8.5% long-run valuation uplift relative to the pre-implementation period.

Table 4: Long-run ARDL estimates

Variable	Coefficient	Std. error	t-statistic	p-value
$\ln(\text{VNI})$	0.425	0.082	5.183	<0.001
FOR	1.280	0.215	5.953	<0.001
IR	-0.048	0.014	-3.428	0.0015
DIGI	0.895	0.162	5.525	<0.001
B3	0.085	0.028	3.036	0.0043
Constant	6.124	0.845	7.247	<0.001

4.4 Short-run dynamics and error correction

Short-run coefficients reinforce the distinction between immediate market reactions and delayed policy

transmission. Changes in the VN-Index (0.312, $p<0.001$), foreign ownership (0.854, $p=0.0001$), DIGI (0.521, $p=0.0004$), and the Basel III indicator (0.045, $p=0.0168$) are positive and significant. By contrast, the contemporaneous change in the policy interest rate is not significant (approximately -0.012, $p=0.142$). Its first and second lags are negative and significant (-0.035, $p=0.0028$; -0.042, $p=0.0011$), supporting the hypothesized one-to-two-quarter transmission delay.

The error-correction coefficient is -0.385 ($p<0.001$). The negative sign and high significance indicate convergence to the long-run equilibrium: approximately 38.5% of a short-run deviation is corrected in each subsequent quarter, implying that most adjustment is completed over roughly two and a half quarters.

Table 5: Short-run dynamics and error-correction estimates

Short-run term	Coefficient	p-value	Interpretation
Delta $\ln(\text{VNI})_t$	0.312	<0.001	Positive immediate market co-movement
Delta FOR_t	0.854	0.0001	Positive foreign-capital effect
Delta IR_t	-0.012	0.142	Not significant contemporaneously
Delta IR_{t-1}	-0.035	0.0028	Negative after one quarter
Delta IR_{t-2}	-0.042	0.0011	Negative after two quarters
Delta DIGI_t	0.521	0.0004	Positive short-run digital-income effect
Delta B3_t	0.045	0.0168	Positive at 5%
ECT $_{t-1}$	-0.385	<0.001	38.5% quarterly correction toward equilibrium

4.5 Diagnostic tests

The reported diagnostics do not indicate major specification failures. The Breusch-Godfrey LM test reports $F(2,31)=0.415$ with $p=0.6638$, the Breusch-Pagan-Godfrey test reports $F(10,33)=0.812$ with $p=0.6185$, and the Ramsey RESET test reports $F(1,32)=0.284$ with $p=0.5978$. The residual normality test is also reported with a p-value above 0.05. Taken together, these results support the adequacy of the estimated dynamic specification for the estimated model.

5. Discussion

The findings suggest that VCB valuation is jointly shaped by the domestic market cycle and institution-specific signals. The positive VN-Index coefficient is consistent with VCB's bellwether role: broad improvements in market sentiment and liquidity are rapidly transmitted into its price. Yet the coefficient for foreign ownership is materially larger, indicating that VCB's valuation is especially sensitive to the participation and risk appetite of international capital. This result aligns with the source report's interpretation of foreign ownership as both a demand channel and a governance-quality signal.

The monetary-policy result adds a dynamic nuance. A tightening shock does not produce a statistically significant contemporaneous effect but becomes negative after one and two quarters. For bank investors, this means that the pricing consequences of policy changes may be gradual as funding costs, lending conditions and earnings expectations are incorporated into valuations. The ECM result reinforces the importance of allowing the market time to return to its longer-run path following temporary shocks.

The strongest non-traditional implication concerns digital transformation. The positive DIGI coefficient indicates that

the market may increasingly reward a shift toward fee-based, payment and digital-service income. This is strategically relevant because digital capabilities can create operating leverage and diversify revenue away from traditional net-interest margins. Similarly, the positive Basel III coefficient is consistent with the idea that stronger prudential standards can function as a market signal of balance-sheet quality and governance discipline.

These findings should nevertheless be interpreted as evidence from one bank and one dataset. The coefficients identify conditional associations in the estimated ARDL structure; they should not be generalized mechanically to all Vietnamese banks.

6. Managerial and Policy Implications

For Vietcombank, the results support continued investment in digital channels, payment ecosystems, automated processes, and non-credit revenue generation. The valuation effect is more likely to be sustainable when digital transformation produces measurable service income and operating efficiency rather than technology expenditure alone.

Investor-relations strategy also matters. Because foreign ownership has the largest long-run coefficient, consistent and bilingual disclosure, internationally comparable financial reporting, and predictable capital-management communication may reduce information frictions for institutional investors. The result does not imply that foreign ownership should be maximized without constraint; rather, it suggests that international investor confidence is an economically meaningful component of VCB valuation.

For regulators and investors, the one-to-two-quarter interest-rate lag cautions against judging monetary-policy effects from immediate market reactions alone. Policy communication and valuation models should account for delayed transmission. Finally, the positive Basel III result supports the broader market value of prudential credibility: regulatory upgrades can affect not only solvency metrics but also the risk premium investors attach to bank equity.

7. Conclusion and Limitations

Using the quarterly dataset and econometric outputs from research project HUNRE.2026.06.08, this article finds a stable long-run relationship between VCB stock valuation and market conditions, foreign ownership, monetary policy, digital-income capability and Basel III implementation. Foreign ownership is the strongest positive long-run correlate, while monetary tightening is negative and transmitted with a one-to-two-quarter lag. Digital transformation and Basel III implementation are both associated with higher valuation, suggesting that the market may reward scalable non-credit income and stronger prudential quality.

Several limitations deserve emphasis. First, this is a single-bank case study with only 48 quarterly observations, so statistical power and external validity are limited. Second, the dataset includes observations through 2026Q4; the analysis uses the reported values and does not independently verify the latest observations against external sources. Third, the final specification may omit other potentially important variables such as exchange-rate shocks, bank profitability, asset quality and global risk sentiment. Fourth, the Basel III dummy is a coarse measure of regulatory transition and does

not capture implementation intensity. Future research could extend the analysis to a multi-bank panel, verify all observations against primary databases, distinguish different digital-revenue components, and apply structural-break or regime-switching techniques.

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