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Characteristics and Implications of Housing Price Expectations

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1. **[Background of the Analysis]** Overheated housing price expectations can lead to excessive market reactions, such as "maxed-out loans (so-called *yeongkkeul*)" or "panic buying," and may pose potential risks to financial stability through sharp increases in asset prices and rising household debt. In Korea, where housing functions as an asset to a significant degree, expectations tend to have a considerable influence on the actual market. Nevertheless, empirical research on this subject remains limited. Accordingly, this study conducts an empirical analysis of the characteristics of housing price expectations, their macroeconomic spillover effects, and their relationship with key policy variables, using the housing price expectations item from the Consumer Sentiment Index (CSI) in the Bank of Korea's Consumer Survey.

2. **[Characteristics of Housing Price Expectations]** Housing price expectations exhibit both high volatility and strong persistence. This suggests that while housing price expectations may exhibit significant short-term fluctuations, once a directional trend takes hold, it tends to persist over an extended period. In practice, housing price expectations often move in a consistent direction for a certain period before reversing course, after which they tend to persist in the opposite direction—resulting in pronounced fluctuations and long-lasting cycles. Furthermore, housing price expectations tend to precede actual housing price movements, exhibiting a self-fulfilling nature.

3. **[Macroeconomic Spillover Effects]** An increase in housing price expectations is found to raise key macroeconomic indicators, including actual housing prices, household debt, industrial production, and inflation. Housing prices and household debt gradually increase following a rise in expectations, reaching their peak approximately seven to eight months later. Notably, beginning around the third or fourth month, the growth in household debt tends to outpace

that of industrial production, indicating that overheated expectations may contribute to credit expansion and heighten the risk of financial imbalances.

4. **[Correlation to Policy Variables]** Monetary policy easing (i.e., policy rate cuts) is found to significantly stimulate housing price expectations. In particular, the stimulative effect becomes substantially stronger when accompanied by macroprudential policy easing. Conversely, when regulatory measures are tightened, the response of expectations tends to be limited. These findings underscore the importance of close coordination with macroprudential policy to mitigate the risk of overheating in housing price expectations during periods of monetary easing.

5. **[Counterfactual Scenario Analysis]** This study assesses the quantitative impact of housing price expectations on actual housing prices and household debt through a counterfactual scenario analysis. The analysis assumes a scenario where housing price expectations remained anchored at the neutral level observed in April 2020 over the two-year period from May 2020 to May 2022. The analysis indicates that, over the period, housing prices would have increased by approximately half the actual rise (11 percent compared to the actual 24 percent), while the increase in the household debt-to-GDP ratio (based on deposit-taking institutions) would have been about one-third lower (4.9 percentage points compared to the actual 7.6 percentage points) as of May 2022. These results highlight that ensuring the stable anchoring of housing price expectations is essential for effective policy management.

▪ We hereby extend our gratitude to Directors Ye-il Lee, Bo-reum Kwak, and Se-ri Shim, as well as to Junior Economist Dong-jae Kim of the Economic Research Institute at the Bank of Korea, for their valuable advice during the preparation of this paper, as well as to all participants in the in-house seminars. Special thanks go to Statistical Research Assistants Won-hyeong Han and Yeon-jin Seong for their assistance. All remaining errors in the paper are attributable to the authors.

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Ⅰ. Background of the Review

The housing market is a key sector closely interconnected with household assets, liabilities, and consumption, having an impact on both the real economy and financial stability—primarily through its association with household debt. In Korea, real estate accounts for a substantial share of household wealth, comprising 71.5 percent of total household assets (The Survey of Household Finances and Living Conditions, 2023), while housing mortgage loans make up 58.3 percent of total household credit (as of October 2024, Bank of Korea). Within this structure, sharp fluctuations in housing prices can have widespread implications beyond mere changes in asset values, potentially undermining the stability of the financial system and the broader real economy (Chu et al., 2025).

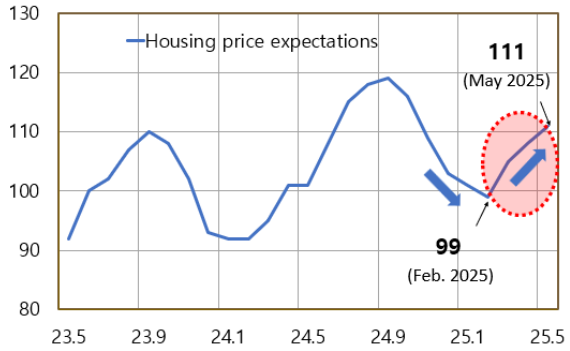
In the housing market, expectations play a crucial role, as anticipated changes in housing prices not only reflect sentiment but also have tangible effects on actual housing transactions and price formation. When expectations of price increases take hold, end-users bring forward their purchase decisions, and speculative demand may enter the housing market, leading to increases in both transaction volumes and housing prices. In other words, expectations can become self-fulfilling. In particular, apartments in Korea are widely perceived and treated as financial assets, due to their high degree of uniformity, their function as a store of value, and the ease with which they can be traded (Seong et al., 2022). Accordingly, expectations regarding future housing prices exert an increasingly significant influence on the decision-making of market participants. Indeed, in Korea, heightened expectations of price increases have triggered so-called "maxed-out loans" and "panic buying," resulting in sharp surges in housing prices and a rapid accumulation of household debt that contribute to financial imbalances.

In this context, systematically analyzing housing price expectations and identifying their spillover effects on the real economy and the financial sector is a crucial task in terms of both macroeconomic management and financial stability. In Korea, however, research on housing price expectations remains limited given their significance. Most existing studies on expectations have primarily focused on general price levels—namely expected inflation—while relatively few have explored housing price expectations in depth. Although some Korean literature has examined housing price expectations, many of these studies fall short of adequately reflecting the interactions between housing price expectations and macroeconomic variables beyond the housing market.[1]

[1] Previous studies that have used the housing price expectations item of the CSI from the Bank of Korea's Consumer Survey are listed below. These studies differ from the analysis in this paper in that they either exclude macroeconomic variables beyond the housing market from their models or treat them as exogenous when included.

In particular, recent trends show that since March, housing price expectations have shifted to an upward trajectory, as shown in Figure 1, accompanied by a notable rise in apartment prices in the Seoul area and an acceleration in household lending by financial institutions. Given this renewed intensification of expectations, it is especially timely to assess their macroeconomic spillover effects and derive relevant policy implications.

[Figure 1] Recent Trends in Housing Price Expectations



Source: BOK Consumer Survey

The rest of the paper is organized as follows. Chapter 2 explores the characteristics of housing price expectations through a comparison with inflation expectations. Chapters 3 and 4 analyze the relationship between housing price expectations and macroeconomic variables through the use of a Vector Autoregression (VAR) model and the Local Projections method. Finally, Chapter 5 concludes with key policy implications drawn from the analysis.

Ⅱ. Trends and Characteristics of Housing Price Expectations

This chapter examines the fundamental characteristics of housing price expectations. The housing price expectations index is a quantitative [2] indicator based on survey responses regarding how respondents expect housing prices to change relative to current

Author	Model	Key Variables	Key Findings
Lee et al. (2013)	VAR	Housing price expectations, housing prices * Based primarily on KB's Buyer-Seller Sentiment Index (survey of real estate agencies), Jan. 2000 – Dec. 2012 Also based on BOK data (Aug. 2008 – Dec. 2012)	Housing price expectations—especially those not explained by macroeconomic variables—significantly influence housing price movements.
Lim et al. (2017)	Panel VAR	Housing price expectations, news coverage, housing prices, housing trading volume * Jul. 2008 – Dec. 2016	Housing price expectations account for 10 percent of housing price variation and 14 percent of transaction volume variation.
Kim (2022)	VAR	Endogenous variables: Housing price expectations, housing prices, housing transaction volume Exogenous variables: Real rents, mortgage interest rates, leading economic index, real M2, inflation rate, change in unsold housing units, housing market regulation dummy * Jan. 2013 – Jan. 2022	Housing price expectations do not predict apartment price changes but show predictive power for transaction volume.

[2] The index is calculated based on responses to the question: "Compared to the present, how do you expect housing prices in Korea to change one year from now?" The score is computed as follows: 100 + (percentage responding "increase significantly" + 0.5 × "increase slightly") – (percentage responding "decrease significantly" + 0.5 × "decrease slightly")

levels. If the index exceeds 100, it means that more respondents expect housing prices to rise; if it falls below 100, it indicates that more respondents expect prices to decline. The index is compiled separately by the BOK and KB (Kookmin Bank) on a monthly basis and released in the latter part of each month. Of the two, only the BOK survey targets general households [Table 1]. Given that general households are the main participants in housing transactions, this study employs the housing price expectations item from the CSI[3] in the BOK Consumer Survey, which reflects responses from the general public. The BOK data offers the advantage of allowing comparisons with other expectation indicators, such as inflation and interest rates.

[Table 1] Overview of Housing Price Expectation Indicators

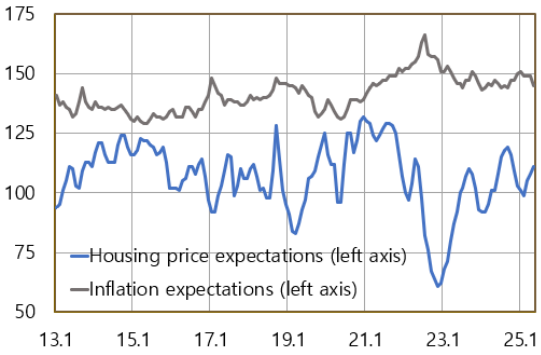
	Housing Price Expectations CSI	Housing Price Outlook Index
Survey Institution	BOK	KB
Survey Content	Housing price after 1 year	Apartment price after 2–3 months
Survey Target	2,500 households nationwide	Approx. 6,000 real estate agencies nationwide
Survey Period	Monthly, within ±7 days of the 15th	Monthly, the week including the 15th (Mon–Fri)

Sources: BOK, KB

2.1 High Volatility and Persistence

This section analyzes the volatility and persistence of housing price expectations, which exhibit significantly greater fluctuations and stronger persistence than inflation expectations. As shown in Figure 2, housing price expectations exhibit substantial fluctuations even over relatively short periods, yet once formed, they tend to persist in the long term. That is, expectations tend to shift rapidly in a clear direction over a sustained period and, once the trend reverses, move sharply in the opposite direction. As a result, these expectations exhibit a cyclical pattern marked by large amplitude and relatively long durations.

[Figure 2] Trends in Housing Price and Inflation Expectations[1),2)]



Note: 1) Expectations for consumer prices one year from now, relative to current levels
2) Calculated using the same method as the housing price expectations index

Source: BOK Consumer Survey

[3] Although the survey was launched in July 2008, the question at that time included commercial properties, rendering it inconsistent with the current format. To ensure methodological consistency, the analysis utilizes data for the Prospective Housing Prices CSI from January 2013 onward.

The high volatility of housing price expectations is further evidenced by its larger standard deviation (14.44) and coefficient of variation (2.05) relative to those of inflation expectations [Table 2]. The coefficient of variation, calculated by dividing the standard deviation by the mean, measures the degree of relative volatility with respect to the average level. For housing price expectations, the coefficient of variation stands at 2.05, more than ten times higher than that of inflation expectations (0.18).[4]

[Table 2] Measurement Results for the Volatility and Persistence of Expectations[1)]

	Housing Price Expectations	Inflation Expectations
Mean	7.03	41.26
Standard Deviation	14.44	7.54
Coefficient of Variation	2.05	0.18
Persistence	0.914	0.952

Note: 1) The mean values are calculated by subtracting 100 from the raw data. The analysis covers the period from January 2013 to January 2025.

2) Persistence is measured as the sum of coefficients ($\sum_{k=1}^{p}\phi_k$) from an AR(p) model ($y_t^e = \alpha + \sum_{k=1}^{p}\phi_k\, y_{t-1}^e + \varepsilon_t$), with lag length ($p$) selected based on the Akaike Information Criterion.

Sources: BOK, authors' calculations

This high volatility appears to stem from several structural factors. First, households tend to perceive housing not as a consumption good but as an investment asset, which likely leads households to incorporate changes in macroeconomic conditions more actively into their expectations, thereby contributing to increased volatility. Second, differences between aggregate and single-category indicators may contribute to the differing levels of volatility. Consumer prices are measured as a weighted average of prices across a broad range of goods and services, which allows fluctuations in individual items to offset one another and tends to result in averaging. In contrast, housing price expectations reflect perceptions of a single asset class, making them more prone to sharp fluctuations. Third, the presence or absence of institutional mechanisms may also contribute to the observed differences. In the case of inflation, the existence of an explicit policy target—set at 2 percent and managed by the central bank—helps anchor expectations at a stable level. In contrast, housing prices are not directly managed by a dedicated authority, nor are they governed by a clear policy target, making it more difficult for expectations to become anchored at a specific level.

In addition, housing price expectations also exhibit a high level of persistence, with a coefficient of 0.914. This indicates a strong tendency for upward or downward expectations, once formed, to persist over a considerable period rather than fade quickly.

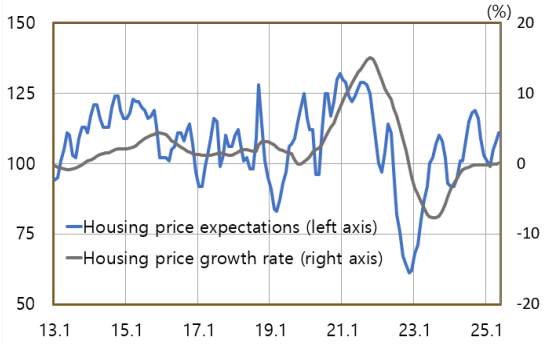
[4] Even when excluding the period of pronounced fluctuations (July 2019 to June 2023), the coefficient remains high at 1.33, well above that of inflation expectations.

2.2 Leading Relationship

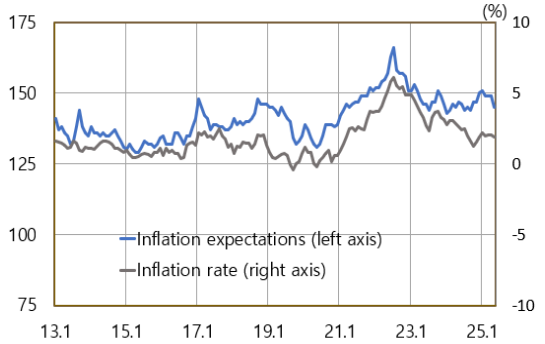
Housing price expectations have been shown to lead actual housing prices, in contrast to inflation expectations, which generally coincide with or lag behind observed inflation trends. Figure 3 compares the raw series of expectations with the year-on-year growth rates of actual prices. While both housing prices and inflation display a strong correlation with their respective expectations, housing price expectations appear to slightly lead actual housing price movements. This leading pattern is also evident in month-on-month growth rates, as housing price expectations tend to precede changes in actual housing prices on a monthly basis (see Box 1)

[Figure 3] Comparison of Expectations and Actual Price Changes[1)]

(Housing Prices: Expectations Lead)



(Consumer Prices: Expectations Move in Tandem)



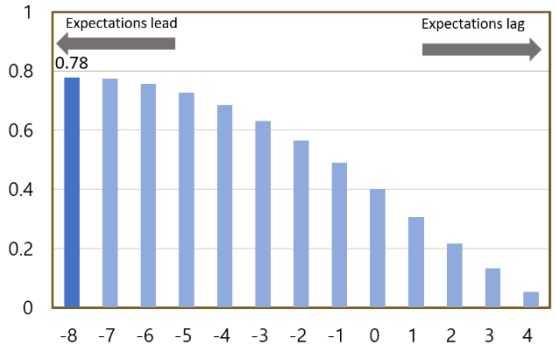
Note: 1) Year-on-year growth rate

Sources: BOK, KB Land, authors' calculations

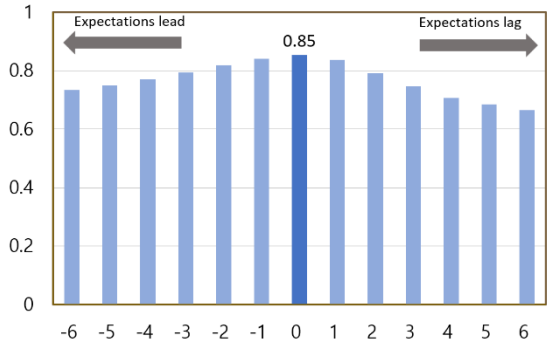
The cross-correlation also clearly demonstrates the leading nature of housing price expectations. As shown in Figure 4, the cross-correlation analysis indicates that housing price expectations lead the actual housing price growth rate by approximately eight months, with a correlation coefficient of 0.78. By contrast, inflation expectations exhibit the highest correlation with the inflation rate in the same month, indicating a strong contemporaneous correlation.

[Figure 4] Cross-Correlation Between Price Growth Rates and Expectations[1),2)]

(Housing Prices: Expectations Lead)



(Consumer Prices: Expectations Move in Tandem)



Note: 1) Cross-correlation between the year-on-year price growth rate in month t and the expectation index in month t + i; the x-axis denotes the lead or lag period i.

2) Based on seasonally adjusted data using ARIMA-12

Sources: BOK, KB Land, authors' calculations

Granger causality tests, which examine whether past values of one time series contain predictive information about another, further support the view that housing price expectations lead actual housing price growth. The test results show that housing price expectations significantly lead actual housing price growth, confirming their strong forward-looking nature. In other words, in the case of housing prices, the null hypothesis stating that "housing price expectations do not lead actual housing price growth" is rejected across all time lags and significance levels. In contrast, the null hypothesis that "actual housing price growth does not lead expectations" cannot be rejected. The result that housing price expectations display forward-looking characteristics aligns with the findings of Choi et al. (2009), who used the Doctor Apartment Price Outlook Index in their analysis.

Meanwhile, inflation expectations are found to lag behind actual inflation rates, implying that such expectations are more reflective of past price developments than predictive of future inflation. This observation aligns with prior research (Lee, 2012; Nam et al., 2018), which indicate that inflation expectations tend to exhibit a backward-looking pattern.

[Table 3] Granger Causality Test Results Between Price Growth Rates and Expectations[1),2)]

(Housing Prices: Expectations Lead)

	Null Hypothesis	
	Expectations ↛ Prices	Prices ↛ Expectations
Lag=3	0.000***	0.463
Lag=6	0.000***	0.757
Lag=12	0.000***	0.417

(Consumer Prices: Expectations Lag)

	Null Hypothesis	
	Expectations ↛ Prices	Prices ↛ Expectations
Lag=3	0.454	0.000***
Lag=6	0.718	0.001***
Lag=12	0.175	0.044**

Note: 1) ***, **, * indicate rejection of the null hypothesis at the 1 percent, 5 percent, and 10 percent significance levels, respectively.
2) Based on seasonally-adjusted data using ARIMA-12

Sources: BOK, KB Land, authors' calculations

Box 1 presents similar findings based on cross–correlation coefficients and Granger causality analysis using month-on-month growth rates, as year-on-year growth rates partially incorporate past data.

Box 2 presents detailed characteristics of housing price expectations by demographic

and statistical attributes, while Box 5 summarizes regional trends.

2.3 Determinants of Expectations

Housing price expectations appear to be influenced more by broader macroeconomic and policy conditions—such as industrial production, stock prices, interest rates, and housing starts—than by the past trajectory of housing prices themselves. To examine the determinants of housing price expectations, the following equation is estimated, drawing on the approach of Lee et al. (2013). The analysis is based on monthly data covering the period from January 2013 to January 2025.

• **Expectation Determination Equation:**

$$Sentiment_t = \beta_0 + \beta_1 Sentiment_{t-1} + X'B + \varepsilon_t$$

In this context, Sentiment refers to housing price expectations. Consistent with Lee et al. (2013), lagged terms are included to reflect potential momentum effects in housing price expectations. X denotes the set of information available to households at time t—namely the time of the survey—including publicly released economic indicators. B represents the coefficients vector, and the specific explanatory variables are listed in Table 4. In selecting explanatory variables, variables such as housing price growth, housing starts, and the Consumer Price Index (CPI) are derived from the previous month's values that have already been publicly released, in consideration of the timing of the sentiment survey and the release schedule of macroeconomic variables. By contrast, values from the same month are used for real-time indicators such as the KOSPI index, call rates, and KRW/USD exchange rate.[5]

The analysis of housing price expectation determinants reveals that the majority of variables included in the model are statistically significant. Industrial production and the KOSPI index serve as indicators of household income and overall economic conditions. As these variables can enhance household purchasing power and positively affect actual housing prices, the finding that they have a positive impact on housing price expectations is consistent with economic intuition. Conversely, higher interest rates may dampen housing demand, while an increase in housing starts may give rise to expectations of greater future supply—both putting downward pressure on housing prices. Accordingly, the finding that these variables have a negative effect on housing price expectations also appears to be valid.

[5] Lee et al. (2013) employed values from the same month, with the exception of the lagged term of expectations.

[Table 4] Estimation Results of the Expectation Determination Equation

	Housing Price Expectations
Lagged dependent variable	0.87*** (24.476)
Interest rate expectations (same month, p)	-0.07*** (-2.648)
Real housing price growth (previous month, %)	0.26 (0.155)
Housing starts (previous month, 10,000 units)	-0.52** (-2.205)
Consumer price inflation (previous month, %)	-0.12 (-0.067)
Industrial production growth (previous month, %)	0.73*** (2.851)
KOSPI growth (same month, %)	0.26*** (2.779)
Call rate change (same month, %p)	-7.95* (-1.845)
KRW/USD exchange rate change (same month, %)	-0.38*** (-2.716)
Number of observations:	144
Adj R^2	0.87

Note: 1) Interest rate expectations refer to the anticipated interest rate six months from the current period.
2) ***, **, * denote statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.
3) Figures in parentheses represent robust t-statistics.
4) All variables are confirmed to be stationary at the 5-percent significance level based on the Phillips–Perron test.
5) All growth rates, inflation rates, and changes are calculated on a month-on-month basis and based on seasonally adjusted data using ARIMA-12.

Sources: BOK, KB Land, authors' calculations

In addition, the housing price increase in the previous month was not statistically significant. This indicates that past increases in housing prices, once the effects of other influencing variables are controlled for, do not have a significant effect on housing price expectations. Combined with the findings in Section 2, this supports the interpretation that housing price expectations are formed in a relatively forward-looking manner.

Taken together, the results of this chapter suggest that housing price expectations are influenced more by broader economic variables—such as industrial production, stock prices, interest rates, and housing starts—than by past trends in housing prices themselves. In other words, housing price expectations are primarily shaped by economic conditions and policy-related factors. Furthermore, given that housing price expectations tend to lead actual price movements, exhibit self-fulfilling characteristics, and display considerable volatility and persistence, the interplay between these expectations and the macroeconomy is expected to be substantial.

Ⅲ. The Nexus Between Housing Price Expectations and Macroeconomic Variables

3.1 Analysis Overview

This chapter empirically examines the dynamic relationship between housing price expectations and macroeconomic variables—the central focus of this study—by estimating a Vector Autoregression (VAR) model that incorporates exogenous variables and conducting impulse response analysis. The analysis uses monthly data from January 2013 to January 2025.

• VAR Model

$$Y_t = C + A_1 Y_{t-1} + A_2 Y_{t-2} + B_1 X_t + u_t$$

$$u_t = S e_t \ , \quad E[e_t e_t'] = I_5$$

The endogenous variable vector Y consists of housing price expectations, total industrial production, real housing prices,[6] the CPI, and the call rates.[7] Among these, industrial production, the CPI, and the call rates constitute the three core macroeconomic variables that are included in Dynamic Stochastic General Equilibrium (DSGE) models. C denotes the vector of constants, and X represents the vector of exogenous variables, comprising the U.S. total industrial production index, the U.S. effective federal funds rate, and the commodity price index, which represent external factors. Given that the Korean economy is a relatively small-scale open economy, these variables are deemed to be exogenous.

Structural shocks are identified through a recursive (Cholesky) identification scheme. In determining the ordering of variables, housing price expectations are placed first,[8] based on the assumption that, at the time these expectations are formed, other endogenous variables—except for the call rates—are not readily observable due to publication lags. The specific ordering of variables is as follows:

• **Ordering of Variables for Structural Shock Identification**

Expectations → Industrial production → Housing prices → Consumer prices → Interest rates

Under recursive identification, the results may be sensitive to the ordering of variables. Box 3 therefore applies an alternative ordering. Nevertheless, the results remain broadly consistent across different specifications.

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[6] The variable was constructed by dividing the KB Housing Sales Price Index by the Consumer Price Index.

[7] With the exception of the call rates and the U.S. effective federal funds rate, all variables were seasonally adjusted and converted into logarithmic form, then multiplied by 100. Accordingly, the estimated shocks and responses for these variables can be interpreted in percentage terms.

[8] Barsky and Sims (2012) placed the consumer confidence index (E5Y) first in the VAR model, thereby identifying its shock as an autonomous fluctuation that is not influenced by the contemporaneous information of the other variables.

3.2 Impulse Response Analysis Results

3.2.1 Response of Macroeconomic Variables to an Expectation Shock

A shock to housing price expectations reflects fluctuations attributable to external factors outside the model's scope. Barsky and Sims (2012) describe such expectation shocks as arising from "news" or "animal spirits." For instance, news may include announcements of new macroprudential policies or regulatory measures related to real estate.

The following results examine how these expectation shocks influence the macroeconomy.

A shock to housing price expectations is found to have a positive effect on actual housing prices, as well as on industrial production and consumer prices, as illustrated in Figure 5. Specifically, the response of total industrial production to the housing price expectation shock peaked at 0.23% after three months and then gradually dissipated. This rise in industrial production may be attributed to several factors. First, expectations of higher housing asset values may produce a "wealth effect" among consumers. That is, households perceive the anticipated increase in housing prices as a gain in asset value, prompting higher consumption spending, which in turn stimulates production across industries. In addition to the wealth effect, anticipatory demand from households aiming to purchase homes before further price increases may lead to a temporary rise in consumption spending[9]—such as on moving expenses, home renovations, and durable goods. Choi (2009) empirically demonstrates that rising housing price expectations lead to increased retail sales. Second, rising expectations for housing prices can increase the collateral value of housing assets, thereby easing credit constraints for households and firms while stimulating both consumption and investment. In addition, optimism about a booming housing market may lead to an expansion in construction investment. While some argue that rising housing prices may suppress consumption among non-homeowning households[10], our empirical results indicate that the resulting boost to overall demand and production is likely to be more significant.[11]

Real housing prices were observed to increase rapidly following the occurrence of an expectation shock, reaching a peak of 0.43 percent (0.52 percent in nominal terms) after

[9] Following home purchase, previously constrained consumption may ease, potentially leading to an increase in nondurable goods consumption (Jung, 2020).

[10] Chopra et al. (2023) demonstrated that rising housing price expectations lead to reduced consumption among renters.

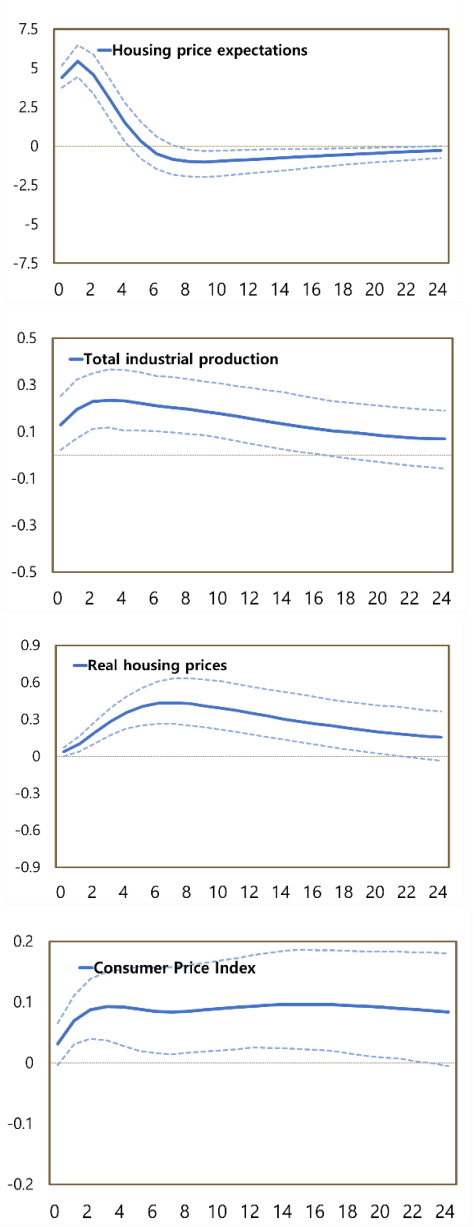
[11] Given that over half of all households (56.4 percent, according to the 2023 Statistics of House Ownership) are homeowners, the consumption-enhancing effect of increased perceived wealth likely had a substantial impact.

seven months. This outcome is quantitatively similar to the findings of Jeon et al. (2020).[12] Notably, three months after the shock, the rise in real housing prices (0.28 percent) exceeded the growth in industrial production (0.23 percent), a trend that persisted thereafter. This implies that elevated expectations may lead to an excessive expansion in housing demand relative to income levels.

The Consumer Price Index (CPI) was also found to increase in response to the expectation shock. This outcome aligns with economic intuition, given that heightened expectations tend to boost overall consumption and that the CPI includes rental components such as *jeonse* prices. Moreover, it carries important implications for central bank policymaking, particularly in light of the central bank's core mandate of maintaining price stability.

[12] Using an Error Correction Model (ECM), Jeon et al. (2020) reported that a 1-percentage-point increase in the expected housing price growth rate resulted in a 0.38-percent rise in actual housing prices. Given that the average Housing Price Expectations CSI (7.03) during the study's analysis period is approximately three times higher than the average actual housing price increase rate (2.25 percent year-on-year) and the magnitude of the expectation shock in this study is 4.61 percent, the results can be considered quantitatively consistent with those of Jeon et al. (2020).

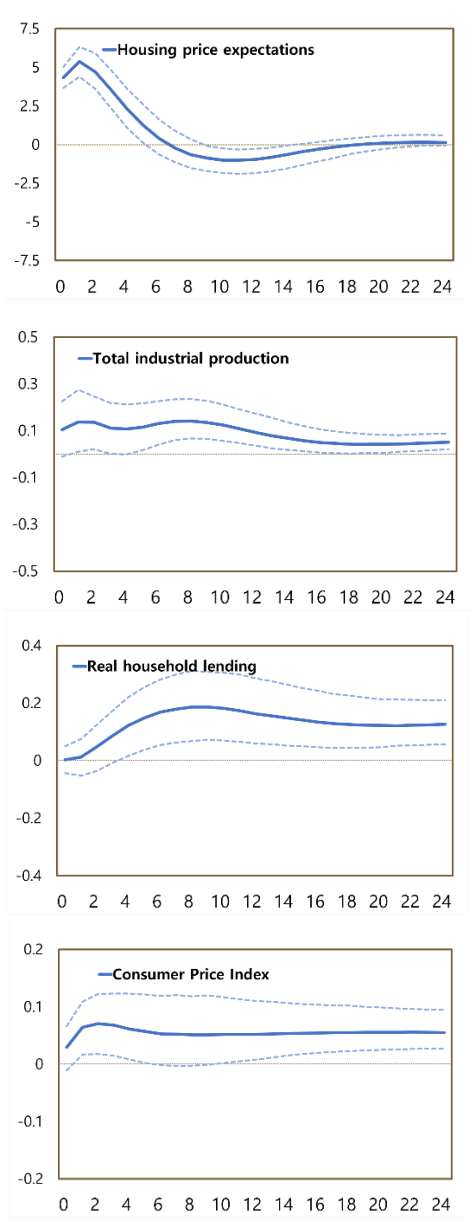
[Figure 5] Responses to an Expectation Shock[1]: Baseline Model



Note: 1) One standard deviation shock (4.61 percent)
2) The solid line represents the 50th percentile (median), while the dotted lines indicate the 5th and 95th percentiles, all derived from 1,000 bootstrap replications.
3) The horizontal axis represents time in months; the response of interest rates is omitted.

Source: Authors' calculations

[Figure 6] Responses to an Expectation Shock[1]: Household Lending Model



Note: 1) One standard deviation shock (4.60 percent)
2) The solid line represents the 50th percentile (median), while the dotted lines indicate the 5th and 95th percentiles, all derived from 1,000 bootstrap replications.
3) The horizontal axis represents time in months; the response of interest rates is omitted.

Source: Authors' calculations

Meanwhile, household lending was excluded from the baseline analysis model, as the benefits of including an additional endogenous variable were deemed insufficient relative to the drawback of reduced degree of freedom.[13] To address this limitation and explore the impact of expectations on household lending, the same analysis was conducted by substituting real housing prices with real household lending.

The results of the analysis [Figure 6] indicate that expectation shocks also have a significant positive effect on real household lending. Notably, mirroring the response of real housing prices, the rise in real household lending began to exceed the growth of industrial production about four months after the shock. This finding suggests that rising expectations can contribute to excessive borrowing.

3.2.2 Responses of Expectations to an Expansionary Monetary Policy Shock

The previous section examined how macroeconomic variables respond to "exogenous shocks to expectations," such as those triggered by news. However, expectations can also change endogenously—for example, in response to monetary policy. This section explores how expectations react to an expansionary monetary policy shock.

In line with theoretical expectations, an expansionary monetary policy shock led to increases in industrial production, housing prices, and inflation. Notably, it was also found to stimulate housing price expectations in the short term [Figure 7]. Specifically, expectations increased by up to 0.95% after three months, but the statistically significant positive effect disappeared after five months. Nevertheless, as base rate adjustments are often implemented gradually within a consistent policy framework, their stimulative impact on expectations may persist for a longer period.

The heightened expectations may, in turn, begin to interact with the real economy. This is distinct from the effects of an exogenous expectation shock on the economy, as examined earlier. To explore this interaction, Figure 8 presents an impulse response analysis that removes the feedback path from changes in monetary policy and other economic conditions to expectations,[14] thereby isolating the impact under the assumption that expectations remain constant.

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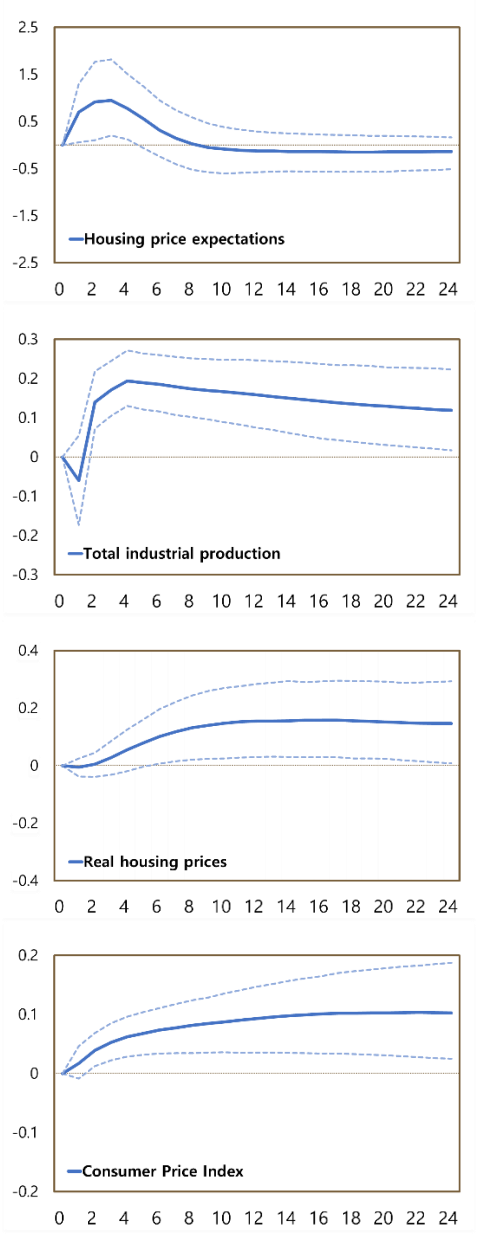
[13] There is a strong positive correlation between housing prices and household lending; therefore, similar results can be expected even when both variables are included in the model simultaneously. For robustness checking, an analysis incorporating both variables was conducted, as presented in Box 4.

[14] The impulse responses were calculated by setting a value of zero for all elements in the first row of the companion matrix, which corresponds to expectations.

[Figure 7] Responses to an Expansionary Monetary Policy Shock[1]: Baseline Model

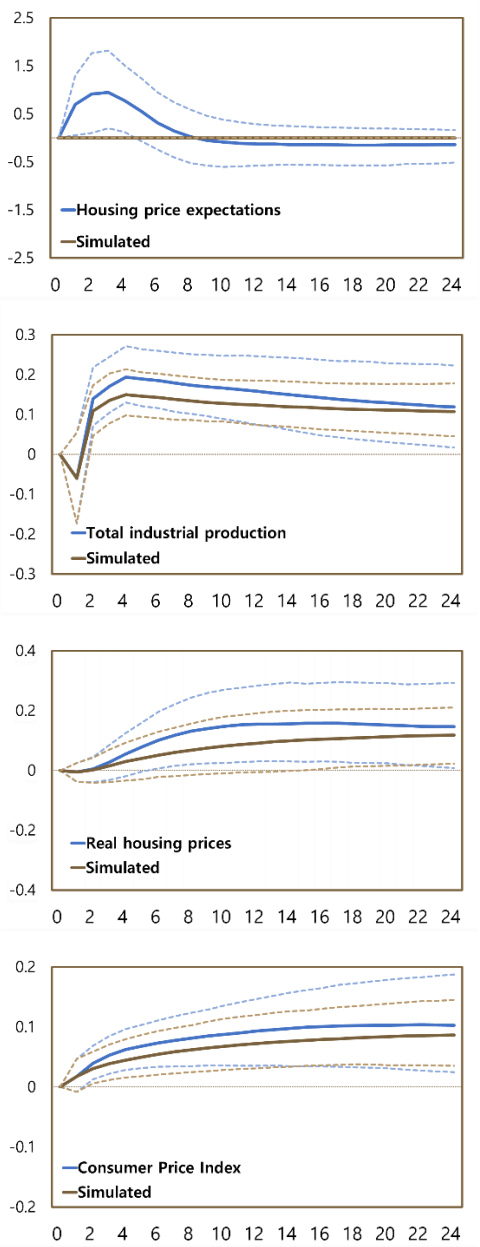


Note: 1) One standard deviation shock (6.43bp)

2) The solid line represents the 50th percentile (median), while dotted lines indicate the 5th and 95th percentiles, all derived from 1,000 bootstrap replications. The horizontal axis represents time in months.

Source: Authors' calculations

[Figure 8] Responses to an Expansionary Monetary Policy Shock[1]: When the Expectation Channel Is blocked (Yellow Line)



Note: 1) One standard deviation shock (6.43bp)

2) The solid line represents the 50th percentile (median), while the dotted lines indicate the 5th and 95th percentiles, all derived from 1,000 bootstrap replications. The horizontal axis represents time in months.

Source: Authors' calculations

The responses of macroeconomic variables to an expansionary monetary policy shock appear weaker when the expectations channel is blocked (yellow solid line in Figure 8). The figure shows that, under the scenario in which the expectations channel is blocked, the effects of an interest rate cut on industrial production and inflation are reduced compared to the baseline case (blue solid line). This suggests that an expansionary monetary policy may operate not only through traditional transmission channels, but also through an indirect mechanism that amplifies policy effects via elevated expectations. While the difference between the two scenarios is not statistically significant, the magnitude—reaching 20 to 30 percent—indicates that this factor warrants close attention in future policy analysis.

In particular, when the expectations channel is blocked, the stimulative effect of interest rate cuts on housing prices was not found to be statistically significant. This suggests that, even amid interest rate reductions, housing prices may remain stable if expectations are effectively managed.

3.3 Counterfactual Analysis

This section extends upon the previous hypothetical impulse response analysis to more concretely examine the specific potential trends in housing prices and household debt if expectations had been effectively managed. The analysis is based on the following scenarios:

• **Counterfactual scenarios**

Scenario 1: Absence of exogenous shocks to expectations[15]

⇒ This reflects a situation with an absence of exogenous shocks that both affect expectations and cannot be explained by the model.

Scenario 2: Expectations remain at the April 2020 level[16]

⇒ This assumes that expectations are managed to prevent further increases, for example, through strong policy measures such as consistent communication or an expanded housing supply.[17]

The results indicate that, if housing price expectations had been managed more effectively, actual housing prices and household lending would have remained on a lower and more stable trajectory [Figure 9].

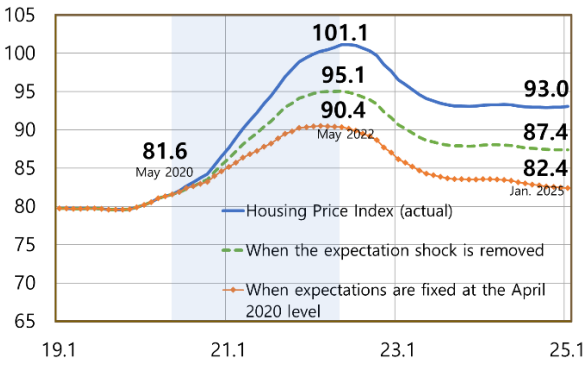
[15] Using the methodologies of Sims and Zha (2006) and Finck and Tillmann (2019), this paper generated counterfactual paths for housing prices and household lending by setting the structural shocks to expectations to zero ($e_t^{CSI} = 0$) from May 2020 to May 2022.

[16] In addition to Scenario 1, the coefficients in the estimated equation for expectations were adjusted to keep them constant at their April 2020 level.

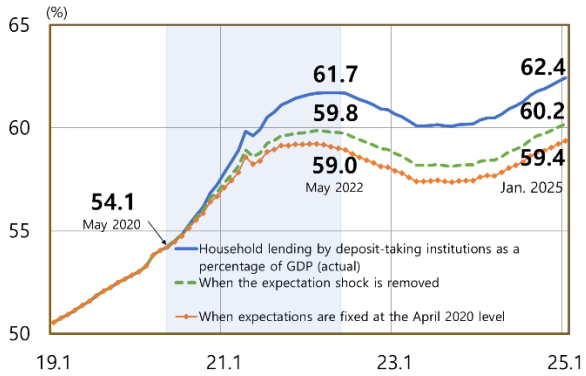
[17] These policy variables are not included in the model and are presented solely as illustrative examples to aid the reader's understanding.

[Figure 9] Counterfactual Scenario Analysis Results

(Housing Prices[1])



(Household Lending by Deposit-Taking Institutions as a Percentage of GDP[2] (%)[3)4)])



Note: 1) Derived from the baseline model

2) Annual GDP data were used, and changes in GDP values across scenarios were not reflected in the results.

3) Derived from the household lending model

4) Figures exclude household credit from non-deposit-taking institutions such as insurance companies and credit card companies, and therefore differ from the actual household debt ratio.

5) Both housing prices and household lending are based on seasonally-adjusted series.

Sources: BOK, authors' calculations

As shown in Figure 9, the actual path of housing prices (solid blue line) exhibited a steep upward trend beginning in May 2020. In contrast, the simulated path under Scenario 1 (green dotted line) showed a more moderate increase, with the rise being relatively limited (6.1 percent lower as of January 2025). Notably, under Scenario 2—where expectations were fixed at the April 2020 level (seasonally-adjusted value of 100.0) through strong policy measures—the trend was even more subdued (red dotted line), showing a larger decrease relative to Scenario 1 (11.4 percent lower as of January 2025).

Household lending also followed a similar pattern, indicating that under the counterfactual scenarios, borrowing would have occurred at lower levels compared to the actual outcome. As of January 2025, the household-lending-to-GDP ratio would have been 2.2 percentage points lower under Scenario 1 and 3 percentage points lower under Scenario 2, relative to the actual ratio of 62.4 percent. These results reaffirm the significant influence of expectation fluctuations on the housing market and household debt cycle, underscoring the importance of stabilizing expectations as a key factor in promoting financial stability.

In summary, the analysis indicates that housing price expectations are not merely a psychological factor or a leading indicator for predicting housing price trends, but a structural variable that influences both the housing market and the broader economy. While the positive impact of rising housing price expectations on industrial production may be viewed favorably, the accompanying increases in housing prices and household debt—outweighing the benefits to the real economy—are cause for concern. Excessive increases in housing prices and the resulting

growth in household debt can constrain consumption and concentrate limited resources in real estate, potentially undermining medium- to long-term growth prospects (Chu et al., 2025). Therefore, it is important for policymakers to manage housing market expectations in a stable manner. From the perspective of monetary policy, it is also necessary to recognize that expectation changes resulting from policy decisions can generate spillover effects across multiple sectors.

IV. State-dependent Response Analysis

The previous chapter confirmed that stabilizing housing market expectations plays a crucial role in moderating actual housing prices and household debt. In addition to monetary policy, another policy factor that influences housing price expectations is macroprudential policy (Rooj et al., 2025).[18] Therefore, the response of housing price expectations to monetary policy may vary depending on the macroprudential policy stance. This chapter examines this possibility.

To examine whether the response in expectations varies according to the macroprudential policy stance, this study employs the Local Projections method proposed by Jordà (2005). This approach directly estimates the response at time $t + h$ and is less sensitive to model misspecification compared to VAR model-based impulse response analysis. As such, it provides robust estimates and is well-suited for nonlinear analysis. The analytical model is presented below.

• Model for interaction with macroprudential policy

$$CSI_{t+h} = D_t^A(\alpha^A + \beta_k^A shock_t^{MP} + \sum_{i=1}^{p} \Pi_{i,h}^A Y_{t-i}) + D_t^B(\alpha^B + \beta_k^B shock_t^{MP} + \sum_{i=1}^{p} \Pi_{i,h}^B Y_{t-i}) + \sum_{j=0}^{h} \Gamma_j X_{t+j} + v_{t+h}, \quad h = 0,1,\dots,12$$

The variables included in Y and X, as well as the lag length (p = 2), follow the specification of the baseline VAR model. The monetary policy shock ($shock^{MP}$) was extracted from the baseline VAR model.[19] D_t^A takes the value 1 when the macroprudential policy stance and the monetary policy shock extracted from the VAR model are aligned—both reflecting tightening or both reflecting easing—and 0 otherwise. D_t^B takes the value 1 when the two are misaligned and 0 otherwise.[20] The period of

[18] Kim and Mehrotra (2019), Kim and Shim (2022), and Seok (2022) have reported that macroprudential policy exerts a significant impact on household lending and housing prices.

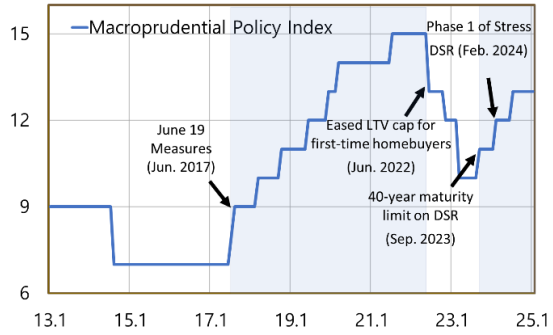
[19] Ma and Lee (2020), as well as Kang (2024), similarly extracted shocks by imposing recursive restrictions in a VAR model and estimated impulse responses using a state-dependent local projections method.

[20]

	Macroprudential policy tightening period	Macroprudential policy easing period
$shock^{MP} > 0$	$D_t^A = 1$, $D_t^B = 0$	$D_t^A = 0$ $D_t^B = 1$
$shock^{MP} < 0$	$D_t^A = 0$, $D_t^B = 1$	$D_t^A = 1$, $D_t^B = 0$

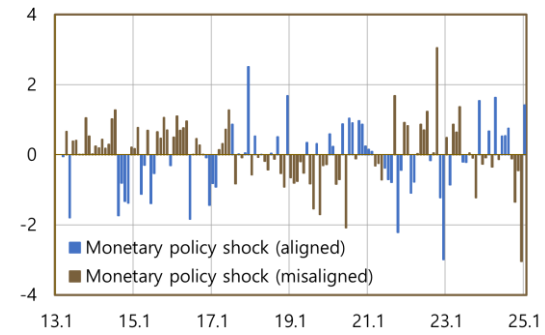
macroprudential policy tightening is defined as a period in which the macroprudential policy index exhibits an upward trend. Following the approach of Kim and Shim (2022), the index is based exclusively on borrower-targeted regulations. Specifically, up to 2021, the index relies on LTV and DSTI dummy variables provided by the IMF. After 2021, dummy variables are generated by assigning values of 1 (tightening), –1 (easing), or 0 (no change) at each point in time, according to changes in the regulatory ratios and the scope of LTV, DTI, and DSR rules. These dummy variables are then aggregated to construct the macroprudential policy index [Figure 10].

[Figure 10] Macroprudential Policy Index



Sources: IMF, authors' calculations

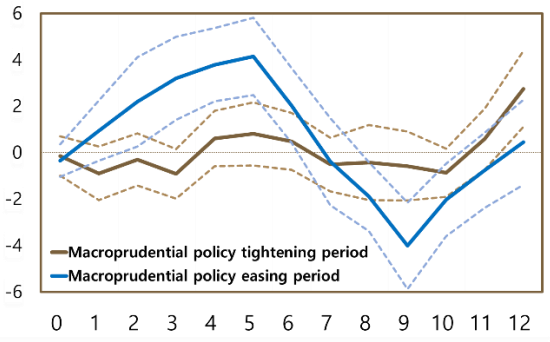
[Figure 11] State-dependent Monetary Policy Shocks



Source: Author's calculations

The results show that the stimulative effect of interest rate cuts on housing price expectations is stronger and more persistent during periods of macroprudential policy easing [Figure 12]. This likely reflects the impact of macroprudential policy in activating the credit expansion channel, thereby fostering conditions that allow the transmission of monetary policy to influence housing market expectations more rapidly. In other words, under such circumstances, the "signaling effect" of interest rate cuts on expectations appears to be amplified.

[Figure 12] Responses of Expectations to an Expansionary Monetary Policy Shocks[1)] by Macroprudential Policy State



Note: 1) One standard deviation shock (6.45bp)
2) Dotted lines represent a confidence interval of 68 percent for the estimates.
3) The horizontal axis represents time in months.

Source: Authors' calculations

In contrast, during periods of macroprudential policy tightening, the effect of interest rate cuts on stimulating housing market expectations was significantly weaker, with little statistical significance observed.

These results suggest that an appropriate policy mix between monetary policy and macroprudential policy is crucial for managing housing price expectations. For example, strengthening macroprudential policy could serve as a complementary measure to prevent interest rate cuts from fueling housing price expectations

V. Policy Implications

This chapter presents policy implications based on the preceding analyses.

Expectations regarding housing prices have a significant impact on actual housing prices and household debt, underscoring the need for close monitoring and careful management by policymakers. The analysis confirms that housing price expectations precede and substantially influence actual housing prices, and are directly linked to household debt. Given that Korea's household debt-to-GDP ratio is already at a high level, it is essential to closely monitor and actively manage expectations to prevent excessive optimism from fueling further accumulation of household debt. For instance, if housing price expectations become irrationally overheated and detach from economic fundamentals, efforts should be made to stabilize them through effective communication. Measures such as expanding the housing supply or curbing speculative demand can help temper excessive expectations for further price increases. Moreover, the finding that housing price expectations respond significantly to interest rate levels suggests that monetary policy should, to some extent, take its effect on such expectations into account. Considering housing price expectations is also warranted under the central bank's mandate to ensure financial stability, given their influence on household debt and the resulting financial imbalances.

Above all, close coordination between monetary and macroprudential policy is critically important. The findings of this study show that when the two policies are aligned in the same direction, housing market expectations tend to fluctuate significantly, whereas when they move in opposite directions, their effects offset each other, resulting in minimal change in expectations.

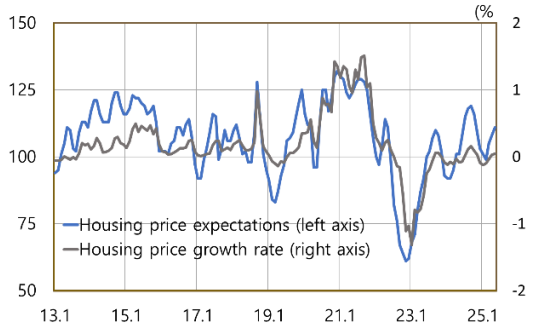
These findings suggest that, in order to prevent financial imbalances caused by an overheated housing market during a period of interest rate cuts, macroprudential policy should be reinforced in a complementary manner. As the Bank of Korea maintains a rate-cutting stance in response to weak domestic economic conditions, housing price expectations have begun to trend upward again since its low point in February 2025 [Chapter 1, Figure 1]. Given Korea's already-high household debt-to-GDP ratio, it is essential to make close and coordinated policy efforts to ensure that housing price expectations are not further stimulated.

<Box 1>

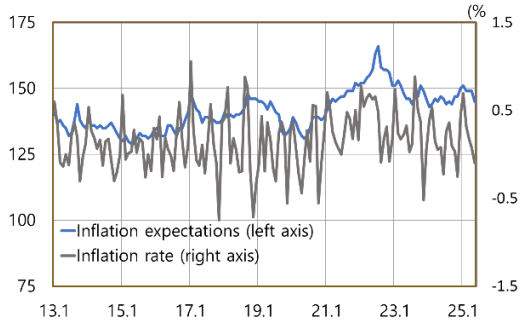
Comparison Between Expectations and Actual Month-on-month Price Growth

[Figure A1] Trends in Expectations and Actual Month-on-month Price Growth

(Housing Prices)



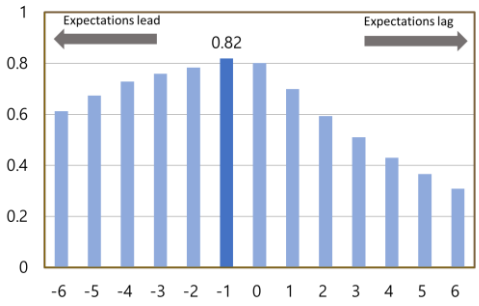
(Consumer Prices)



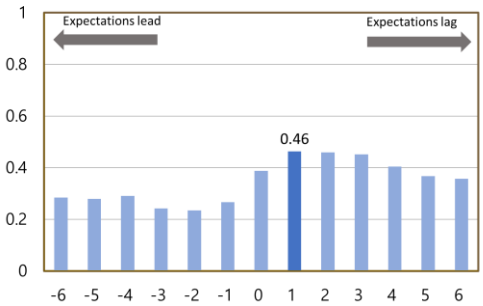
Sources: BOK, KB Land, authors' calculations

[Figure A2] Cross-correlation Between Expectations and Month-on-month Price Growth

(Housing Prices)



(Consumer Prices)



Note: 1) Cross-correlation coefficients are between the year-on-year price growth rate in month t and the expectation index in month t + i; the x-axis denotes the lead or lag period i.

2) Based on seasonally-adjusted data using ARIMA-12

Sources: BOK, KB Land, authors' calculations

[Table A1] Granger Causality Test Results Between Actual Month-on-month Price Growth and Expectations[1),2)]

(Housing Prices)

	Null hypothesis	
	Expectations ↛ Prices	Prices ↛ Expectations
Lag=3	0.000***	0.463
Lag=6	0.000***	0.058*
Lag=12	0.000***	0.150

(Consumer Prices)

	Null hypothesis	
	Expectations ↛ Prices	Prices ↛ Expectations
Lag=3	0.080*	0.001***
Lag=6	0.197	0.015**
Lag=12	0.178	0.141

Note: 1) ***, **, and * denote rejection of the null hypothesis at the 1-percent, 5-percent, and 10-percent significance levels, respectively.

2) Based on seasonally-adjusted data using ARIMA-12

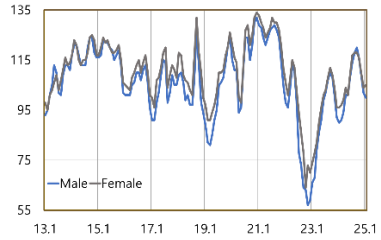
Sources: BOK, KB Land, authors' calculations

<Box 2>

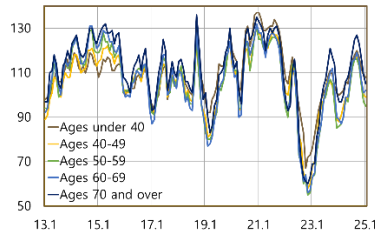
Demographic and Statistical Characteristics: Predictive Superiority of the Low Financial Literacy Group

While the graphs show no clear differences in housing price expectations across demographic and statistical groups, distinct patterns emerge when the data are quantified and summary statistics are compared with prediction success rates.

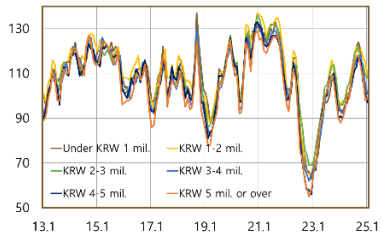
Gender



Age



Income



First, groups with lower financial literacy tend to exhibit higher housing price expectations. The expectation indices for women, older adults, and low-income groups are above those of other groups [Table A2], indicating that a larger share of individuals in these categories anticipate price increases. This pattern—where lower financial literacy is associated with higher expected price growth—parallels findings from the literature on inflation expectations. Prior studies have shown that groups with lower financial literacy, such as women, those with less education, lower income, or fewer assets, tend to exhibit a stronger upward bias in their forecasts (D'Acunto et al., 2024; Arioli et al., 2017). The literature further suggests that such groups often base expectations not on objective statistics or economic indicators, but on perceived price changes in daily life (e.g., groceries), relying more heavily on intuition or subjective impressions.

Second, groups with lower financial literacy also show higher success rates in predicting the direction of housing prices [Table A3]. Taken together with the first finding, this implies that women, older adults, and low-income individuals were not only more likely to expect price increases, but in many cases, such increases did in fact occur afterward. In other words, the relatively strong upward expectations observed among lower financial literacy groups tended to be more closely aligned with subsequent market movements.

[Table A2] Expectation Levels and Prediction Accuracy by Group

		Expectation index (mean)	Std. Dev.	Prediction accuracy[1)]	Financial literacy[2)]
Gender	Male	106.23	15.00	77.40%	66
	Female	110	13.11	80.80%	65.3
Age	Ages under 40	109.22	12.61	77.80%	66.2
	Ages 40-49	105.45	14.14	76.90%	67.9
	Ages 50-59	105.33	16.18	78.80%	67.9
	Ages 60-69	106.17	16.62	76.70%	64.7
	Ages 70 and over	111.16	16.03	81.20%	59.3
Monthly income	Less than KRW 1 mil.	109	14.32	82.20%	Low income
	KRW 1-2 mil.	110.99	14.74	82.30%	59.7
	KRW 2-3 mil.	108.68	13.22	76.50%	
	KRW 3-4 mil.	106.65	14.61	76.20%	Mid income
	KRW 4-5 mil.	106.28	15.00	76.90%	66.8
	KRW 5 mil. or over	104.66	15.40	71.20%	High income 68.8
Housing tenure	Owner	107.41	14.71	78.60%	
	Non-owner	106.17	14.29	76.90%	

Note: 1) Prediction accuracy is calculated as (number of successful directional predictions / total observations) x 100. A directional prediction is considered successful when the expectation index is above (below) 100 and the actual year-on-year housing price growth one year later is also positive (negative). Cases where the expectation index equals 100 are excluded from the analysis.

2) Higher values indicate greater financial literacy.

Sources: BOK (Consumer Survey, 2024 National Financial Literacy Survey), KB Land, authors' calculations

[Table A3] Detailed Prediction Frequencies by Group

Housing prices 1 year later		Increase (n=104)		Decrease (n=29)	
Expectations		Increase >100	Decrease <100	Increase >100	Decrease <100
Gender	Male	85	19	11	18
	Female	92	9	16	13
Age	Ages under 40	87	11	17	11
	Ages 40-49	83	19	11	17
	Ages 50-59	84	19	9	20
	Ages 60-69	80	20	10	19
	Ages 70 and over	93	11	14	15
Income	Less than KRW 1 mil.	91	10	13	15
	KRW 1-2 mil.	93	9	14	14
	KRW 2-3 mil.	87	16	15	14
	KRW 3-4 mil.	83	20	11	16
	KRW 4-5 mil.	83	20	10	17
	KRW 5 mil. or over	76	28	10	18
Housing tenure	Owner	86	16	12	17
	Renter	82	19	11	18

Note: Cases where the expectation index equals 100 are excluded.

Sources: BOK, KB Land, authors' calculations

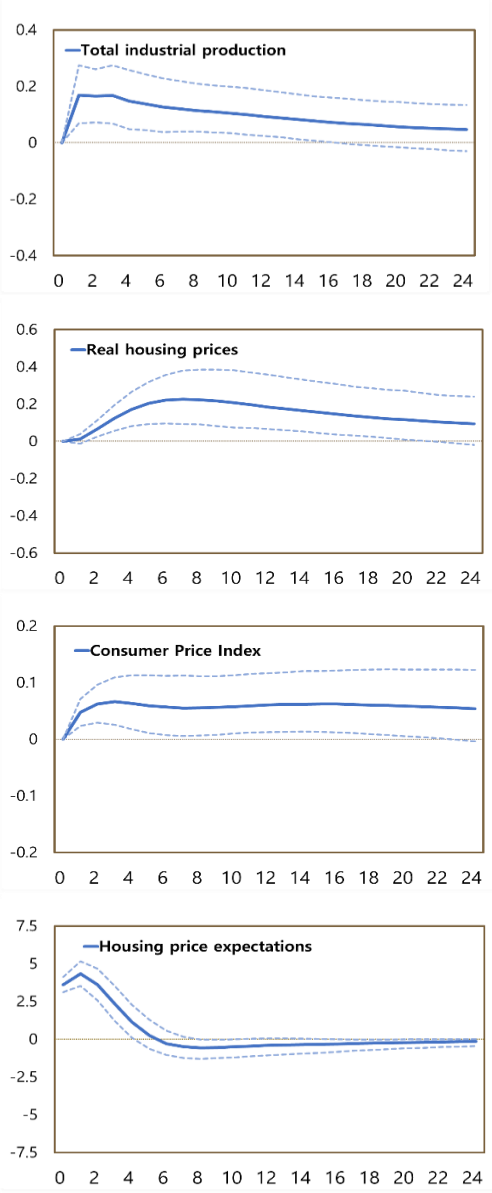
<Box 3>

VAR Analysis Robustness Check (1)

▶ The ordering of endogenous variables is specified as follows:[21]

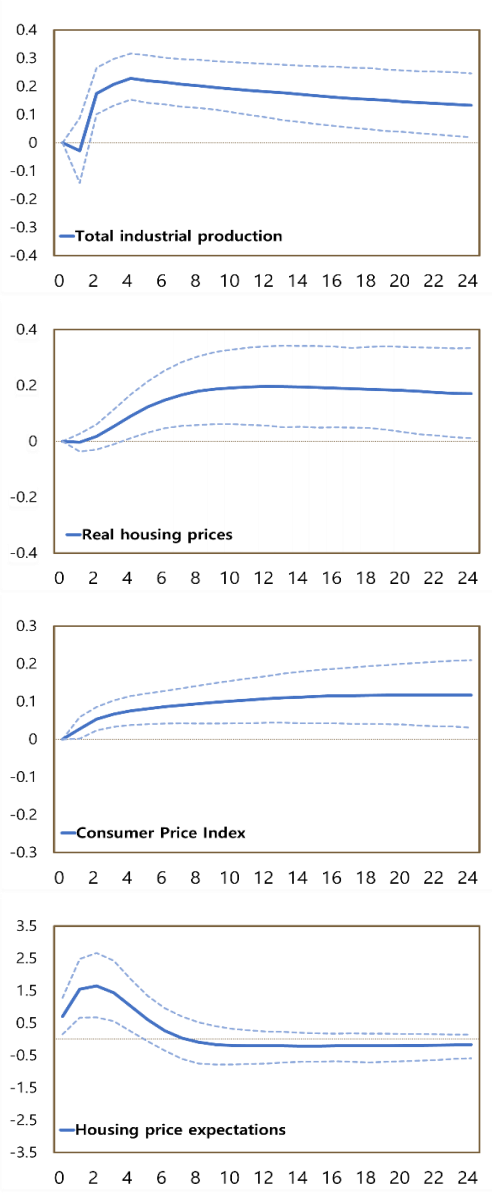
Industrial production → Housing prices → Consumer prices → Interest rate → Expectations

[Figure A3] Responses to an Expectation Shock[1)]



Note: 1) One standard deviation shock (3.83 percent)
2) The solid line represents the 50th percentile (median), while the dotted lines indicate the 5th and 95th percentiles, all derived from 1,000 bootstrap replications.
3) The horizontal axis represents time in months.
Source: Authors' calculations

[Figure A4] Responses to a Monetary Policy Shock[1)]



Note: 1) One standard deviation shock (6.57bp)
2) The solid line represents the 50th percentile (median), while the dotted lines indicate the 5th and 95th percentiles, all derived from 1,000 bootstrap replications.
3) The horizontal axis represents time in months.
Source: Author's calculations

[21] Similar results are obtained even when the ordering is set as: Industrial production → Housing prices → Consumer prices → Expectations → Interest rate.

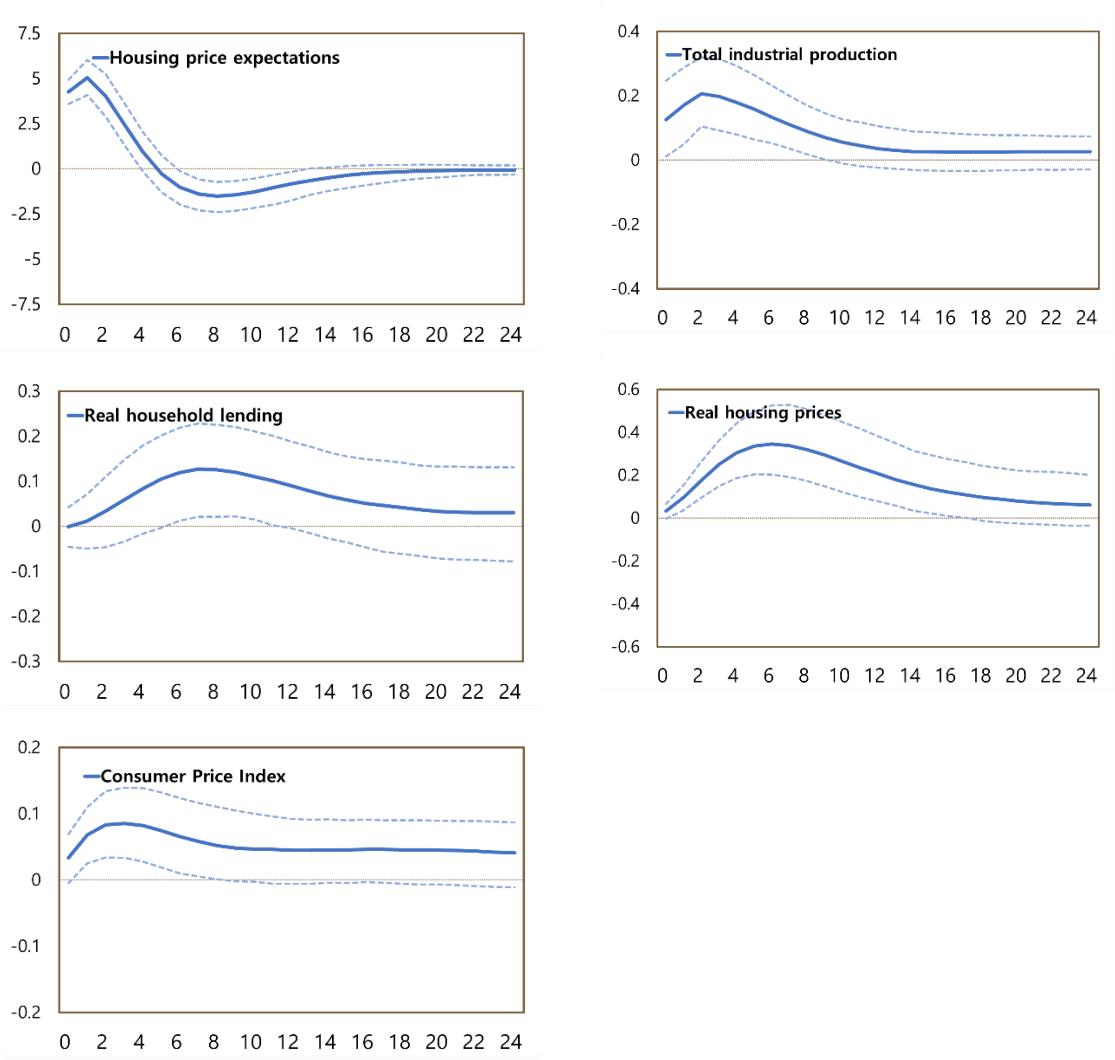
<Box 4>

VAR Analysis Robustness Check 2

▶ Both housing prices and household debt are included, with the ordering of endogenous variables specified as follows:

Expectations → Industrial production → Household debt → Housing prices → Consumer prices → Interest rate

[Figure A5] Responses to an Expectation Shock[1)]



Note: 1) One standard deviation shock (4.57 percent)
2) The solid line represents the 50th percentile (median), while the dotted lines indicate the 5th and 95th percentiles, all derived from 1,000 bootstrap replications.
3) The horizontal axis represents time in months.

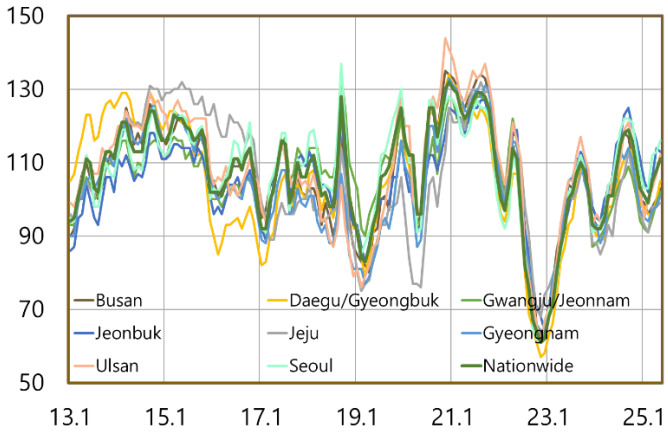
Source: Authors' calculations

<Box 5>

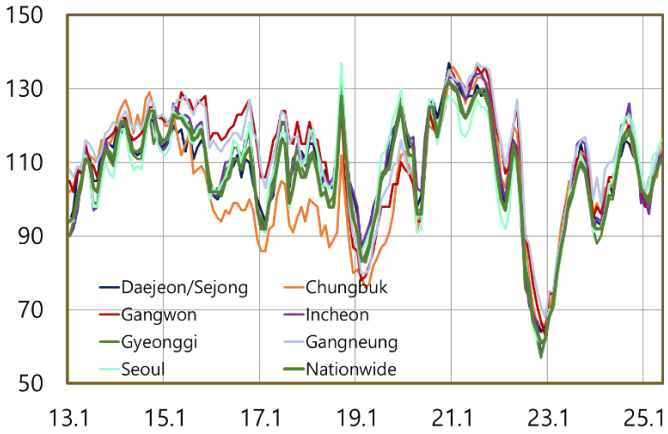
Trends in the Regional Housing Price Expectations CSI

[Figure A6] Trends in the Regional Housing Price Expectations CSI

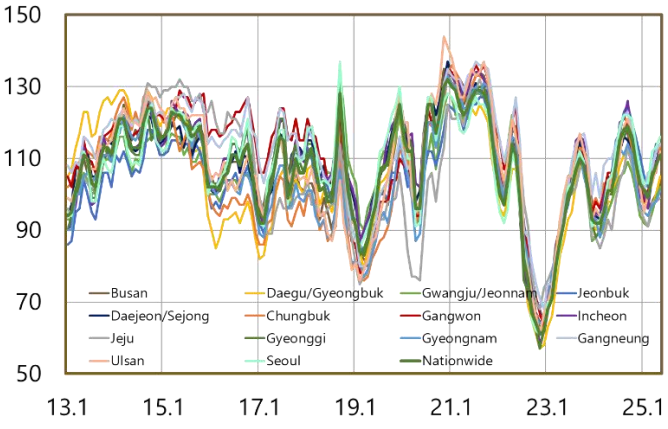
(Southern Region, Seoul, and Nationwide)



(Central and Northern Region and Nationwide)



(Overall)



Source: BOK

References

(In Korean)

Kang, S. (2024). "Empirical Investigation of Wage-Price Spiral Using Long-time Series Wage Data," *The Korean Economic Review*, Vol. 72, No. 1.

Kim, G. (2022). "Housing Market Dynamics Using Non-fundamentals-based Market Sentiment Measures." *Journal of Industrial Economics and Business*, Vol. 35, No. 3.

Nam, M., Go, M. (2018). *Characteristics and Implications of Inflation Expectation Formation.* Bank of Korea, Monthly Statistical Bulletin, Vol. 71, No. 12.

Ma, E., Lee, W. (2020). "Asymmetric Effects of the Fiscal Policy in Korea." *Korea Review of Applied Economics*, Vol. 22, No. 2.

Seok, B. (2020). "Monetary Policy in the Presence of Household Loan Regulation." *The Korean Economic Forum*, Vol. 15, No. 1, pp.35-59

Seong, B., Kim C., Hwang, N. (2022). *Characteristics and Implications of Housing as an Asset in Korea.* Bank of Korea. BOK Issue Note, No. 2022-19, May 23, 2022.

Lee, S., Jin, C. (2013). "The Study on the Relationship between Investor Sentiment and Home Prices," *The Korea Spatial Planning Review*, Vol. 78.

Lee, Y., Lee S. (2018). "A Study on the Effects of Macroprudential Policies Using Panel VAR Model – with Focus on the Apartment Prices of the Seoul Metropolitan Area," *Journal of Financial Regulation and Supervision*, Vol. 5, No. 2.

Lee, J. (2012). *Characteristics of Inflation Expectations in Korea*. Bank of Korea. BOK Economic Review, No. 2012-1, April 2012.

Lim, J., Lim, M. (2017). "Relationship Among News Coverage, Consumers' Sentiment, Prices, and Trading Volume in Housing Markets." *Housing Studies*, Vol. 25, No. 3.

Jeon, H., Kwon, S. (2020). "Analysis of the Effect of Expected Housing Prices and Liquidity on the Housing Market." *Journal of Digital Convergence*, Vol. 18, No. 11.

Choi, H., Rhim, B. (2009). "Role of the Housing Price Forecast in Housing Price and Business Cycle. *The Korea Spatial Planning Review*, Vol. 63.

Chu, M., Harm, K., Lee, Y., Yun, J. (2025). *Credit Concentration in the Real Estate Sector: Structural Drivers and Risks*. Bank of Korea, BOK Issue Note, No. 2025-9, April 25, 2025.

(In English)

Arioli, R., Bates, C., Dieden, H., Duca, I., Friz, R., Gayer, C., Kenny, G., Meyler, A., & Pavlova, I. (2017). *EU consumers' quantitative inflation perceptions and expectations: An evaluation* (No. 186). ECB Occasional Paper.

Barsky, R. B., & Sims, E. R. (2012). Information, animal spirits, and the meaning of innovations in consumer confidence. *American Economic Review*, 102(4), 1343-1377.

Chopra, F., Roth, C., & Wohlfart, J. (2023). *Home Price Expectations and Spending: Evidence from a Field Experiment* (No. 10450). CESifo Working Paper.

D'Acunto, F., Charalambakis, E., Georgarakos, D., Kenny, G., Meyer, J., & Weber, M. (2024). *Household inflation expectations: An overview of recent insights for monetary policy* (No. 24). ECB Discussion Paper Series.

Finck, D., & Tillmann, P. (2022). The role of global and domestic shocks for inflation dynamics: Evidence from Asia. *Oxford Bulletin of Economics and Statistics*, 84(5), 1181-1208.

Jung, D. J. (2020). *Consumption Dynamics and a Home Purchase* (No. 2020-27). Bank of Korea Working Paper, 2020.12.

Kim, S., Shim, S. (2022). *Measuring the effects of LTV and DTI limits: A heterogeneous Panel VAR approach with sign restrictions* (No. 2022-3). Bank of Korea Working Paper, 2022.1.

Rooj, D., Saha, A., Sengupta, R., & Banerjee, A. (2025). The impact of financial stress on house price expectations: evidence from survey data. *International Journal of Housing Markets and Analysis*.

Sims, C. A., & Zha, T. (2006). Were there regime switches in US monetary policy?. *American Economic Review*, 96(1), 54-81.