

Real Estate, Gold, and Equity as Inflation Hedges : Evidence from India

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ABSTRACT

This study examines whether Indian residential real estate, gold, or equity provides a statistically significant inflation hedge over the period 2013 to 2025. Fifty two quarterly observations are analysed using four econometric specifications: the classical Fisher regression, a corrected specification with differenced inflation to address integration order mismatch, the Fama and Schwert decomposition into expected and unexpected components, and a distributed lag model to accommodate index smoothing in the Reserve Bank of India House Price Index. The Engle and Granger cointegration procedure tests for a long run equilibrium between each asset price and the consumer price index. Standard errors follow Newey and West with four lags. Every specification is subjected to the full battery of ARDL style diagnostic tests, including normality, serial correlation, heteroskedasticity, ARCH, Ramsey RESET, and CUSUM parameter stability. Three central findings emerge. First, no asset class provides a statistically significant contemporaneous inflation hedge at the quarterly frequency. Second, real estate returns display a delayed response to inflation, consistent with the smoothing bias in the RBI index; adding four quarterly lags increases the coefficient of determination from 0.002 to 0.245. Third, equity prices and consumer prices are cointegrated at the 1 percent level, making equity the sole long run inflation hedge in the sample. Findings imply that diversification remains the appropriate household strategy for hedging inflation over any meaningful horizon.

Keywords: Cointegration, Distributed lag, Fisher hypothesis, Inflation hedge, Real estate

1. Introduction

Inflation is a persistent feature of the Indian macroeconomy. Consumer price inflation averaged approximately 5 percent per year over 2013 to 2025 with periods of sharp acceleration during 2013, 2020, and 2022. Households save primarily in three asset classes: real estate, gold, and financial assets in the form of equity and fixed deposits. Popular financial advice claims that each of these protects wealth against inflation. These claims are rarely tested with rigorous econometrics on Indian data.

The Indian context deserves independent study. Household portfolios are dominated by physical assets. Property and gold together account for approximately 77 percent of household wealth in India according to the Reserve Bank of India (RBI) Household Finance Committee report of 2017. Equity market participation has grown sharply since 2020 through mutual funds and direct broking accounts. The Reserve Bank of India adopted flexible inflation targeting in 2016. This regime shift changes how expected inflation transmits to asset prices.

Most inflation hedging literature focuses on the United States (US) and Europe. Emerging market evidence is thin. Indian evidence covering the post inflation targeting period is thinner still.

This study asks whether Indian residential real estate, gold, or equity provides a statistically significant inflation hedge over 2013 to 2025. The study uses quarterly data and standard time series econometrics. Four candidate specifications are estimated: the classical Fisher regression, a corrected specification with differenced inflation, the Fama and Schwert decomposition, and a distributed lag model. Cointegration analysis tests for a long run equilibrium between asset prices and the consumer price index (CPI).

The paper makes three contributions. First, it provides Indian evidence on inflation hedging that covers the full post inflation targeting sample including the pandemic period. Second, it corrects a specification issue in the standard Fisher regression that arises when returns are stationary, $I(0)$, and inflation is integrated of order one, $I(1)$. Third, it applies a distributed lag specification to address the smoothing bias in the RBI House Price Index directly and reports the full battery of autoregressive distributed lag (ARDL) style diagnostic tests for every regression.

Three central findings emerge. No asset provides a statistically significant contemporaneous inflation hedge at the quarterly frequency. Real estate returns show a delayed response to inflation, consistent with index smoothing. Equity prices and consumer prices are cointegrated, making equity the sole long run inflation hedge in the sample. All three assets respond negatively to expected inflation, and this effect is statistically significant for gold.

The remainder of the paper is organised as follows. Section 2 reviews the theoretical framework and prior empirical evidence. Section 3 describes the data and methodology. Section 4 reports the empirical findings including the full diagnostic battery. Section 5 discusses the results in relation to the literature and derives policy implications. Section 6 concludes.

2. Literature Review

This section reviews the theoretical foundations of inflation hedging, the international evidence on real estate and comparable assets, and the limited literature on the Indian case. The review is organised in five parts.

2.1 The Fisher Hypothesis and Its Extensions

The theoretical foundation for inflation hedging comes from Fisher (1930). He proposed that the nominal return on an asset equals the expected real return plus the expected inflation rate. If investors are informed and markets are efficient, nominal returns should adjust one to one with expected inflation. An asset that satisfies this relationship provides a complete inflation hedge.

Fama and Schwert (1977) extended the Fisher hypothesis to all asset classes. They argued that in an efficient market the expected nominal return should reflect the best available estimate of expected inflation. Only anticipated inflation is priced in. They introduced a decomposition of inflation into expected and unexpected components. A coefficient close to one indicates a complete hedge. A coefficient close to zero indicates no hedge. A negative coefficient indicates a perverse hedge.

The Fama and Schwert study used monthly, quarterly, and semi-annual US data from January 1953 to July 1971. Five asset classes were examined: government bills, government bonds, labour income, private residential real estate, and common stocks. Expected inflation was proxied by the nominal rate on the Treasury bill maturing at the end of the period. Unexpected inflation was the residual.

The results were mixed. Private residential real estate proved a complete hedge against both expected and unexpected inflation. Government bills and bonds hedged expected inflation but not unexpected inflation. Labour income responded to neither. Common stocks displayed a puzzle. Their coefficient on expected inflation was approximately -5.5 , indicating perverse behaviour. The authors could not explain this result. The coefficient on unexpected inflation for real estate increased with the observation frequency, rising from 0.31 at the monthly level to 1.14 at the semi-annual level. The authors attributed this to a one to three month lag in the Home Purchase Price index rather than to a genuine improvement in hedging over longer horizons.

2.2 Real Estate Securities and Direct Real Estate

Subsequent research examined whether the Fama and Schwert result generalises to real estate securities. Liu et al. (1997) studied Real Estate Investment Trusts (REITs) and equivalent listed vehicles in seven countries. Their sample covered the United States, France, Japan, Switzerland,

South Africa, the United Kingdom (UK), and Australia. The data was monthly and spanned 1980 to 1991. None of the real estate securities examined outperformed stocks as an inflation hedge. In some countries they underperformed. The main conclusion was that real estate securities behave more like stocks than like direct real estate. This makes them a poor substitute for property as an inflation hedge.

Ghent et al. (2019) provided a broader overview of commercial real estate as an asset class. They noted that private real estate returns display high positive serial correlation while public real estate returns show little serial correlation. The difference reflects appraisal smoothing and illiquidity in private markets. This finding is directly relevant to the current study. Any Indian real estate price index built from valuation or registration data will inherit similar smoothing bias.

Muckenhaupt et al. (2025) revisited the question of listed real estate as an inflation hedge and introduced regime dependence. They argued that previous studies assumed a stable long term relationship between real estate and inflation. In reality this relationship may vary between stable and volatile regimes. Data spanned 1975 to 2023 for the US and 1990 to 2023 for Australia, Japan, and the UK. Listed real estate served as a long term hedge against expected inflation in the US, UK, and Japan. In stable regimes real estate hedged inflation. In volatile regimes such as the 2008 financial crisis and the pandemic the hedging property disappeared. When CPI was replaced with a rent adjusted inflation measure the hedging property strengthened.

2.3 Comparative Studies of Alternative Hedges

Two recent papers compare real estate with gold and stocks directly. Salisu et al. (2020) used US data to test all three assets. Real estate was represented by the REIT index. Stocks were the S&P 500. Gold prices were taken from the London market. CPI measured inflation. Both quarterly and monthly frequencies were used with robustness tests. The main finding was that stocks and real estate provided good inflation hedges while gold did not. Real estate outperformed the other two. The relationship changed around 2008, after which stocks became increasingly effective hedges.

Wolski (2022) examined the Polish market during a period of high inflation. The sample used quarterly data from Q1 2009 to Q4 2021 and covered stocks, bonds, gold in Polish zloty, and residential real estate. The Engle and Granger cointegration procedure tested for a long run relationship between each asset and CPI. Only real estate showed a positive correlation with inflation and even that was weak. Stocks, bonds, and gold were all negatively correlated with inflation. None of the four assets cointegrated with CPI. The author attributed the null result to

underdeveloped markets and a short sample. The finding is directly relevant to the current study because Indian markets share several features with the Polish case.

2.4 Evidence from India and Other Emerging Markets

Evidence on inflation hedging from India and comparable emerging markets is thinner than the developed market literature. Three studies form the foundation for the current work.

Newell and Kamineni (2007) provided one of the earliest systematic studies of Indian real estate as an asset class. The paper covered office, retail, and residential real estate in Mumbai and New Delhi from Q2 1998 to Q4 2005. Data came from Jones Lang LaSalle. Ten year government bonds and the Sensex stock index were used as comparators. None of the real estate categories studied outperformed the Indian stock market during the sample. Office real estate modestly outperformed the other real estate categories as an inflation hedge. However none of the real estate categories examined was particularly effective at hedging inflation.

Lee (2021) examined residential property as an inflation hedge in three emerging Asian markets: India, Russia, and China. Indian data ran from Q1 2010 to Q2 2019 on a quarterly basis. Three empirical methods were used: an ordinary least squares (OLS) regression on actual inflation, a Fama and Schwert regression on expected inflation, and cointegration analysis using the Johansen method. For India the results differed sharply between the short run and the long run. In the short run the coefficients on both expected and unexpected inflation were negative and insignificant. In the long run the Johansen Fisher coefficient was 1.327 indicating additional hedging. The error correction term was -0.428 and statistically significant. Lee attributed the weak short run hedging to thin trading and low liquidity in the Indian market.

Raju (2024) provided the most comprehensive Indian long term survey to date. The paper constructed a standardised long term dataset for real estate, gold, bonds, fixed deposits, and equities. Because the real estate series began in 2010, long term inference was difficult. The RBI quarterly House Price Index appeared stable with only small fluctuations, which the author attributed to smoothing associated with quarterly reporting. After inflation adjustment real estate did not outperform over the five year window preceding the study. The annualised real return was approximately -2.3 percent over that period and 2.7 percent over the full 14 year sample.

2.5 Positioning of the Current Study

Three gaps in the existing literature motivate the current study. First, Indian evidence is limited by short sample periods. Lee (2021) used data through 2019 Q2. Raju (2024) had only fourteen years of real estate data. The current study extends the Indian sample through 2025 Q4. This is

the first study to cover the full post inflation targeting period, which began in 2016, and includes the pandemic period as well as the post pandemic monetary tightening cycle.

Second, no prior Indian study has applied the full battery of ARDL style diagnostic tests to the inflation hedging question. The current study reports normality, serial correlation, heteroskedasticity, autoregressive conditional heteroskedasticity (ARCH), regression equation specification error test (RESET), and cumulative sum (CUSUM) stability tests for every specification. This addresses concerns about the reliability of prior findings that reported only point estimates and standard errors.

Third, the smoothing bias in the RBI House Price Index has been noted but not empirically addressed. Fama and Schwert (1977) identified a similar bias in the Home Purchase Price index and proposed a lagged specification as a remedy. Ghent et al. (2019) confirmed the same bias in US private commercial real estate. Raju (2024) noted the bias in the RBI index specifically. The current study is the first to apply a distributed lag specification to Indian real estate to address this bias directly.

3. Methodology

3.1 Data and Sample

The dataset covers 52 quarters from 2013 Q1 to 2025 Q4. This yields 51 quarterly return observations after first differencing. Four asset classes were originally proposed. The final analysis uses three. The fixed deposit series is excluded. Its rate is contracted in advance and embeds expected inflation. Its coefficient against realised inflation would therefore be mechanically low.

The sample starts in 2013 for two reasons. First, the Consumer Price Index on the 2012 base year begins in January 2013. Second, this window covers the National Housing Bank RESIDEX from its 2013 launch. The sample ends in 2025 Q4. This avoids splicing the CPI series across the 2024 base year change that took effect in February 2026.

3.2 Variables

Real estate prices are measured by the Reserve Bank of India House Price Index. This is an all India, population weighted composite. The RBI index is preferred over the National Housing Bank RESIDEX. RESIDEX lacks a continuous all India series. It also has data gaps in December 2024 and March 2025. The RBI shifted the House Price Index base from 2010/11 to 2022/23 in 2022. The coverage widened from 10 to 18 cities. The two series overlap for 12 quarters. The old series is linked to the new one using the average ratio across the overlap window.

Consumer price inflation is measured by the Ministry of Statistics and Programme Implementation (MoSPI) All India Combined General index. The base year is 2012 equals 100. Two inflation measures are constructed. Quarterly inflation is the log change in CPI from the previous quarter. Year on year inflation is the log change from the same quarter one year earlier.

Gold prices are Commodity Exchange (COMEX) gold futures in US dollars (USD) per troy ounce. These are converted to Indian rupees (INR) using the quarterly average RBI reference rate. Equity is the Nifty 50 index at quarter close. The source is the National Stock Exchange of India. Table 1 lists all variables, their sources, and their frequency.

Table 1. Variables, sources, and frequency

Variable	Definition	Source	Frequency
RE_Price	RBI House Price Index, all India composite	RBI Database on Indian Economy	Quarterly
CPI	MoSPI Combined General index, base 2012	MoSPI e-Sankhyiki	Monthly
Gold	COMEX gold futures, converted to INR	Investing.com, RBI reference rate	Daily
Nifty	Nifty 50 quarter close	National Stock Exchange	Daily
USD/INR	Reference rate, quarterly average	RBI Database on Indian Economy	Daily

Note. All variables are aggregated to quarterly frequency for analysis.

3.3 Preliminary Tests

Two stationarity tests are conducted on every series. The first is the Augmented Dickey-Fuller (ADF) test (Dickey & Fuller, 1979). Its null hypothesis is a unit root. The second is the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test of Kwiatkowski et al. (1992). Its null hypothesis is stationarity. The two tests are complementary. Confidence increases when they agree.

Where a series fails at levels, the tests are repeated on the first difference. If the series still fails, the tests are repeated on the second difference. The order of integration $I(d)$ is defined as the smallest number of differences that yields stationarity.

3.4 Baseline Fisher Regression

The Fisher (1930) hypothesis states that nominal asset returns should move one to one with expected inflation. If the hypothesis holds, an asset is a complete inflation hedge. The classical test regresses the nominal return on inflation.

$$R_{i,t} = \alpha_i + \beta_i \cdot \pi_t + \varepsilon_{i,t} \quad (1)$$

Here $R_{i,t}$ is the nominal log return on asset i in quarter t . π_t is inflation in that quarter. α_i is the average real return. β_i is the hedge coefficient. $\varepsilon_{i,t}$ is the error term. Three null hypotheses are tested. H_0 that β equals zero indicates no hedging. H_0 that β equals one indicates complete hedging. A β between zero and one indicates partial hedging.

3.5 Corrected Fisher Regression

Equation 1 is unbalanced when the return series is $I(0)$ and the inflation series is $I(1)$. Preliminary tests show that this is the case. To correct the imbalance, the regression is re-estimated with the first difference of inflation.

$$R_{i,t} = \alpha_i + \beta_i \cdot \Delta\pi_t + \varepsilon_{i,t} \quad (2)$$

Both sides of Equation 2 are stationary. The coefficient measures the return response to an acceleration or deceleration in inflation.

3.6 Fama and Schwert Decomposition

Fama and Schwert (1977) argue that inflation has two components. Expected inflation is anticipated by investors. Unexpected inflation is a surprise. An asset may hedge one but not the other. Expected inflation is estimated by fitting a first order autoregressive (AR(1)) model to inflation. The fitted value proxies expected inflation. The residual proxies unexpected inflation. The specification is:

$$R_{i,t} = \alpha_i + \beta_e \cdot E[\pi_t] + \beta_u \cdot (\pi_t - E[\pi_t]) + \varepsilon_{i,t} \quad (3)$$

β_e measures the response to expected inflation. β_u measures the response to unexpected inflation. Under the strict Fisher hypothesis both coefficients equal one.

3.7 Distributed Lag Model

The RBI House Price Index is a smoothed measure. It is constructed from valuation and registration records. Both sources lag actual transactions. The index therefore incorporates a delayed response to true prices. This mechanically biases the contemporaneous coefficient toward zero. To capture the delayed price adjustment, a distributed lag specification is estimated:

$$R_{i,t} = \alpha_i + \sum_{L=0}^4 \beta_L \cdot \pi_{t-L} + \varepsilon_{i,t} \quad (4)$$

The cumulative hedge coefficient is the sum of the individual lag coefficients:

$$\beta_{\text{cumulative}} = \sum_{L=0}^4 \beta_L \quad (5)$$

Equation 5 measures the total price response to inflation over approximately one year. Its standard error is computed from the full coefficient covariance matrix.

3.8 Cointegration Test

The Fisher regression captures short run co-movement. Cointegration captures long run equilibrium. Two variables are cointegrated if a linear combination of them is stationary even when each individual variable is non-stationary. The two step procedure of Engle and Granger (1987) is applied. The first step regresses the log asset price on the log CPI.

$$\ln(P_{i,t}) = a_i + b_i \cdot \ln(\text{CPI}_t) + u_{i,t} \quad (6)$$

The second step tests the residual $\hat{u}_{i,t}$ for stationarity using the ADF test. Rejection of the unit root null indicates cointegration. Under cointegration the asset is a long run inflation hedge.

3.9 Diagnostic Tests

Every specification is subjected to the standard battery of diagnostic tests used for autoregressive distributed lag models. Six test families are reported. Jarque and Bera (1980) tests residual normality. Breusch and Godfrey (1981) tests for serial correlation in residuals at four lags. Breusch and Pagan (1979) and White (1980) both test for heteroskedasticity. The ARCH Lagrange multiplier (LM) test (Engle, 1982) detects autoregressive conditional heteroskedasticity in residuals. Ramsey RESET (Ramsey, 1969) tests functional form adequacy. The CUSUM and CUSUM squared tests of Brown et al. (1975) test parameter stability over time. Full results appear in Section 4.9.

3.10 Estimation

All regressions are estimated by ordinary least squares. Standard errors follow Newey and West (1987) with four lags. This corrects for autocorrelation and heteroskedasticity in the residuals. Statistical significance is assessed at the 5 percent level. All results are reported alongside their standard errors and p values.

4. Empirical Findings

4.1 Descriptive Statistics

Table 2 reports the mean, standard deviation, minimum, maximum, skewness, and kurtosis for each variable in the analysis.

Table 2. Descriptive statistics for quarterly returns and inflation

Variable	N	Mean (%)	Ann. Mean (%)	Std Dev (%)	Min (%)	Max (%)	Skew	Kurt
Real Estate	51	1.49	5.96	1.61	-1.18	5.31	0.45	-0.13
Gold	51	2.81	11.26	5.98	-11.08	19.55	0.31	0.40
Equity (Nifty)	51	3.05	12.21	9.33	-41.38	27.17	-1.82	10.03
Inflation (Q)	51	1.25	5.02	1.29	-1.83	4.60	-0.05	0.01
Inflation (YoY)	48	4.91	4.91	1.62	0.76	8.25	-0.31	-0.09

Note. Returns are computed as log differences. Annualised mean equals the quarterly mean multiplied by four for returns, and the raw annual figure for year on year inflation.

Equity delivers the highest average return over the sample. Its annualised mean is 12.21 percent. Gold ranks second at 11.26 percent. Real estate ranks third at 5.96 percent. Inflation averages 5.02 percent on the quarterly measure and 4.91 percent on the year on year measure. All three assets outperformed inflation in nominal terms over the sample period.

Real estate has the lowest volatility of the three assets. Its quarterly standard deviation is 1.61 percent. Equity has the highest at 9.33 percent. This reflects both true dispersion in stock returns and the 2020 pandemic shock. Real estate volatility is also low because the RBI index smooths true price movements.

Equity returns display extreme kurtosis of 10.03. This is driven by the Q1 2020 minimum of –41.38 percent and the Q2 2020 maximum of 27.17 percent. All other series show near-normal kurtosis. The correlation matrix appears in Table 3.

Table 3. Correlation matrix of returns and inflation

	Real Estate	Gold	Equity	Infl (Q)	Infl (YoY)
Real Estate	1.00	-0.16	0.21	0.05	0.04
Gold	-0.16	1.00	-0.08	-0.13	-0.20
Equity	0.21	-0.08	1.00	0.05	0.04
Inflation (Q)	0.05	-0.13	0.05	1.00	0.21
Inflation (YoY)	0.04	-0.20	-0.08	0.21	1.00

Note. Pearson correlations. N equals 51 for quarterly inflation cells and 48 for year on year inflation cells.

Correlations between asset returns and contemporaneous inflation are small in absolute value. The largest is between gold and year on year inflation at –0.20. The smallest is between real estate and quarterly inflation at 0.05. These low correlations preview the null hedge findings that emerge from the regression analysis.

4.2 Stationarity Test Results

Table 4 presents the ADF and KPSS results at levels, first differences, and second differences.

Table 4. Stationarity tests at levels, first differences, and second differences

Series	Transform	N	ADF p	ADF verdict	KPSS p	KPSS verdict
Real Estate return	Levels	51	0.005	Stationary	0.020	Non-stationary
Real Estate return	1st difference	50	0.004	Stationary	0.100	Stationary
Real Estate return	2nd difference	49	<0.001	Stationary	0.100	Stationary
Gold return	Levels	51	<0.001	Stationary	0.010	Non-stationary
Gold return	1st difference	50	<0.001	Stationary	0.100	Stationary
Equity return	Levels	51	<0.001	Stationary	0.100	Stationary
Inflation (Q)	Levels	51	0.632	Non-stationary	0.042	Non-stationary
Inflation (Q)	1st difference	50	<0.001	Stationary	0.100	Stationary
Inflation (YoY)	Levels	48	0.603	Non-stationary	0.100	Stationary
Inflation (YoY)	1st difference	47	<0.001	Stationary	0.100	Stationary

Note. ADF null is a unit root; rejection at p less than 0.05 indicates stationarity. KPSS null is stationarity; failure to reject at p greater than 0.05 indicates stationarity.

The three asset return series are stationary at levels according to the ADF test. KPSS agrees for equity. For real estate and gold, KPSS rejects stationarity at levels but accepts at the first difference. This mild disagreement is common in samples of this size. The paper treats returns as $I(0)$ on the strength of the ADF result.

Both inflation series fail the ADF test at levels. Quarterly inflation shows a p value of 0.63. Year on year inflation shows a p value of 0.60. Both series pass ADF and KPSS at the first difference. Neither series requires second differencing. Second differencing of year on year inflation

actually breaks stationarity again. This confirms first difference is the correct level to stop at. Table 5 summarises the order of integration for each series.

Table 5. Order of integration of each series

Series	Order I(d)	Interpretation
Real Estate return	I(0)	Stationary at levels; treated as I(0) per ADF
Gold return	I(0)	Stationary at levels; treated as I(0) per ADF
Equity return	I(0)	Stationary at levels; both tests agree
Inflation (Q)	I(1)	Non-stationary at levels; stationary in first difference
Inflation (YoY)	I(1)	Non-stationary at levels; stationary in first difference

Note. The mismatch between I(0) returns and I(1) inflation motivates the corrected specification in Section 4.4.

4.3 Baseline Fisher Regression Results

The classical Fisher regression from Equation 1 is estimated first as a baseline. Results appear in Table 6.

Table 6. Fisher regression: returns on inflation levels

Asset	Inflation	N	α	β	SE(β)	$t_{(\beta=0)}$	p ($\beta=0$)	$t_{(\beta=1)}$	p ($\beta=1$)	R ²
Real Estate	Quarterly	51	0.014	0.057	0.173	0.33	0.743	-5.46	<0.001	0.002
Real Estate	YoY	48	0.012	0.041	0.167	0.24	0.808	-5.74	<0.001	0.002
Gold	Quarterly	51	0.036	-0.602	0.557	-1.08	0.280	-2.88	0.004	0.017

Asset	Inflation	N	α	β	SE(β)	t ($\beta=0$)	p ($\beta=0$)	t ($\beta=1$)	p ($\beta=1$)	R ²
Gold	YoY	48	0.068	-0.721	0.755	-0.96	0.339	-2.28	0.023	0.042
Equity	Quarterly	51	0.026	0.367	0.751	0.49	0.625	-0.84	0.399	0.003
Equity	YoY	48	0.020	0.211	0.612	0.34	0.730	-1.29	0.197	0.001

Note. Newey and West standard errors with four lags. Coefficient β is the Fisher hedge coefficient. Two null hypotheses are tested for β .

For real estate against quarterly inflation, β equals 0.057. The standard error is 0.173. The p value is 0.74. The coefficient is close to zero and is not statistically distinguishable from zero. The R squared is 0.002. Real estate returns display no meaningful contemporaneous relationship with inflation on this specification.

For gold against quarterly inflation, β equals -0.602 . The standard error is 0.557. The p value is 0.28. The point estimate is negative but is not statistically significant at conventional levels. The R squared is 0.017. Gold returns show a weak negative relationship with inflation, contrary to popular expectation.

For equity against quarterly inflation, β equals 0.367. The standard error is 0.751. The p value is 0.63. The sign is positive but the coefficient is not significant. The R squared is 0.003. Equity returns show no significant contemporaneous response to inflation.

All three coefficients are statistically significantly less than one at the 5 percent level or better. The test of H_0 that β equals one produces p values of less than 0.001 for real estate, 0.004 for gold, and 0.399 for equity. This rejects the complete hedge hypothesis for real estate and gold. It does not reject for equity, but only because the equity coefficient has a wide standard error.

Results for year on year inflation are qualitatively similar. All three coefficients remain statistically insignificant. Signs are preserved except for gold, which becomes slightly more negative.

4.4 Corrected Fisher Regression Results

Given the integration mismatch identified in Section 4.2, the regression is re-estimated using Equation 2. The regressor becomes the change in inflation. Results appear in Table 7.

Table 7. Fisher regression: returns on the change in inflation

Asset	Regressor	N	α	β	SE(β)	t ($\beta=0$)	p ($\beta=0$)	R ²
Real Estate	Δ Quarterly	50	0.015	0.129	0.124	1.04	0.299	0.020
Real Estate	Δ YoY	47	0.013	-0.350	0.151	-2.31	0.021*	0.056
Gold	Δ Quarterly	50	0.031	0.253	0.293	0.86	0.388	0.007
Gold	Δ YoY	47	0.033	0.415	0.844	0.49	0.622	0.006
Equity	Δ Quarterly	50	0.030	0.763	0.816	0.93	0.350	0.021
Equity	Δ YoY	47	0.027	-1.264	0.891	-1.42	0.156	0.019

Note. * Significant at the 5 percent level. Δ denotes first difference. Newey and West standard errors with four lags.

For real estate against the change in quarterly inflation, β equals 0.129. The standard error is 0.124. The p value is 0.30. The point estimate is positive and roughly double the levels estimate. It remains statistically insignificant. The R squared is 0.020, ten times larger than the levels version.

For real estate against the change in year on year inflation, β equals -0.350 . The standard error is 0.151. The p value is 0.021. This coefficient is statistically significant at the 5 percent level. It carries a negative sign. The result means that when the annual inflation rate accelerates by one percentage point, real estate returns decline by 0.35 percentage points. This is the first coefficient to reach statistical significance in the analysis.

For gold against the change in quarterly inflation, β equals 0.253. The standard error is 0.293. The p value is 0.39. The coefficient is positive, in contrast to the levels specification which produced a negative coefficient. The sign reversal indicates that the negative coefficient in Table 6 was a spurious result of the integration mismatch. In the correctly specified regression, gold does not show a negative response to inflation shocks. Nor does it show a significant positive response.

For gold against the change in year on year inflation, β equals 0.415. The standard error is 0.844. The p value is 0.62. The coefficient is positive but far from significant. The pattern confirms the reversal observed under the quarterly measure.

For equity against the change in quarterly inflation, β equals 0.763. The standard error is 0.816. The p value is 0.35. The coefficient is positive and doubles the levels estimate. It is not statistically significant. The R squared rises to 0.021.

For equity against the change in year on year inflation, β equals -1.264 . The standard error is 0.891. The p value is 0.16. The coefficient is negative and larger in magnitude than the levels version. It is not statistically significant. The negative sign hints that equity investors may respond to accelerations in trend inflation with a delay, but the evidence is weak.

Table 8 compares the two specifications side by side using quarterly inflation.

Table 8. Comparison of Fisher regression specifications, quarterly inflation

Asset	β (levels)	p (levels)	R ² (levels)	β (Δ)	p (Δ)	R ² (Δ)	Sign flip?
Real Estate	0.057	0.743	0.002	0.129	0.299	0.020	No
Gold	-0.602	0.280	0.017	0.253	0.388	0.007	Yes
Equity	0.367	0.625	0.003	0.763	0.350	0.021	No

Note. The differenced specification improves R squared for real estate and equity. The gold sign flips from negative to positive.

4.5 Fama and Schwert Decomposition Results

The decomposition from Equation 3 separates the response to expected inflation from the response to unexpected inflation. Expected inflation is proxied by the AR(1) fitted value. Unexpected inflation is the residual. Results appear in Table 9.

Table 9. Fama and Schwert decomposition

Asset	N	α	β_{expected}	SE (β_e)	p (β_e)	$\beta_{\text{unexpected}}$	SE (β_u)	p (β_u)	R ²
Real Estate	51	0.099	-6.69	5.15	0.194	0.062	0.179	0.730	0.024
Gold	51	0.451	-33.66	13.69	0.014*	-0.576	0.540	0.286	0.056
Equity	51	0.546	-41.07	33.00	0.213	0.399	0.773	0.606	0.028

Note. * Significant at the 5 percent level. Expected inflation is the AR(1) fitted value. Unexpected inflation is the AR(1) residual.

For real estate, the coefficient on expected inflation is -6.69 . The standard error is 5.15. The p value is 0.19. The coefficient is not statistically significant. The coefficient on unexpected inflation is 0.062. The standard error is 0.179. The p value is 0.73. Neither component is significant. Real estate returns do not respond to either type of inflation on this specification.

For gold, the coefficient on expected inflation is -33.66 . The standard error is 13.69. The p value is 0.014. This is statistically significant at the 5 percent level. The economic magnitude is large. A one percentage point rise in expected inflation lowers gold's quarterly return by 33 percentage points. The coefficient on unexpected inflation is -0.576 with a p value of 0.29. Only the expected component matters for gold. Its effect is strongly negative.

For equity, the coefficient on expected inflation is -41.07 . The standard error is 33.00. The p value is 0.21. The coefficient is large and negative but not statistically significant. The coefficient on unexpected inflation is 0.399 with a p value of 0.61. Neither is significant, but the negative sign on expected inflation matches the pattern seen for the other two assets.

The consistent negative sign on the expected inflation coefficient across all three assets is the substantive finding of this section. When Indian investors anticipate higher inflation, they mark asset values down rather than up. This inverts the naive Fisher prediction. The magnitude of the coefficients is inflated by the low variance of the AR(1) fitted series. The p values remain the honest metric of significance.

4.6 Distributed Lag Results

The distributed lag specification in Equation 4 addresses the smoothing bias in the real estate index. Individual lag coefficients and the cumulative sum appear in Table 10.

Table 10. Distributed lag regression: contemporaneous inflation plus four lags

Asset	N	β_0	β_1	β_2	β_3	β_4	$\Sigma \beta$	SE ($\Sigma \beta$)	t	p	R ²
Real Estate	47	-0.12	-0.44	0.47	-0.19	0.63	0.35	0.49	0.72	0.474	0.245
Gold	47	-0.41	-1.24	-1.13	-0.58	-1.21	-4.58	3.42	-1.34	0.181	0.094
Equity	47	-0.19	-1.38	1.34	0.04	2.38	2.20	2.87	0.77	0.443	0.092

Note. Newey and West standard errors with four lags. $\Sigma \beta$ is the sum of the five lag coefficients from Equation 5.

For real estate, the contemporaneous coefficient β_0 equals -0.12 . The lags at horizons one through four are -0.44 , 0.47 , -0.19 , and 0.63 . The cumulative sum is 0.35 with a standard error of 0.49 and a p value of 0.47 . The sum is positive but statistically insignificant. The R squared jumps from 0.002 in the baseline levels regression to 0.245 in the distributed lag regression. This is a hundredfold increase in fit. It provides strong evidence that real estate does respond to inflation but with a delay of one to four quarters. This delay is consistent with the mechanical lag built into the RBI index construction.

For gold, the cumulative sum is -4.58 with a p value of 0.18 . All five individual lag coefficients are negative. The pattern is economically large but not statistically established. The R squared rises modestly to 0.094 .

For equity, the cumulative sum is 2.20 with a p value of 0.44 . The individual lags show a mixed sign pattern. The R squared rises to 0.092 . The results are consistent with the interpretation that equity responds positively to inflation over annual horizons but with high noise.

The most notable result in this section is the improvement in fit for real estate. The finding does not establish that real estate is a statistically significant inflation hedge. It does establish that the near zero coefficient in the baseline regression is likely a measurement artifact rather than a true economic result.

4.7 Cointegration Test Results

The Engle and Granger two step procedure tests for a long run equilibrium between the log asset price and the log CPI. Results appear in Table 11.

Table 11. Engle and Granger cointegration tests

Asset	N	EG statistic	p value	Verdict at 10 percent
Real Estate	52	-2.66	0.216	No cointegration
Gold	52	-0.74	0.942	No cointegration
Equity	52	-4.17	0.004	Cointegrated

Note. The null hypothesis is no cointegration.

For real estate, the test statistic is -2.66 with a p value of 0.22. The null of no cointegration cannot be rejected. Real estate prices and the CPI do not share a long run equilibrium in this sample.

For gold, the test statistic is -0.74 with a p value of 0.94. The null cannot be rejected. Gold prices and the CPI do not share a long run equilibrium. Gold does not preserve purchasing power at the multi year horizon.

For equity, the test statistic is -4.17 with a p value of 0.004. The null is rejected at the 1 percent level. Equity prices and the CPI share a long run equilibrium. Equity is a long run inflation hedge in the cointegration sense. Even though quarterly equity returns do not track inflation, the log Nifty index and the log CPI move together over long horizons.

4.8 Robustness Checks

Two robustness checks are conducted. The first excludes the three quarters that rely on the RBI index splice. The second splits the sample into pre-COVID and post-COVID periods, where COVID refers to the coronavirus disease 2019 pandemic.

Table 12. Robustness: excluding the spliced quarters, 2025 Q2 through Q4

Asset	N	β (full)	β (excl. splice)	SE	p
Real Estate	48	0.057	0.082	0.176	0.643
Gold	48	-0.602	-0.381	0.490	0.437
Equity	48	0.367	0.517	0.790	0.513

Note. Baseline levels specification with quarterly inflation.

Excluding the three spliced quarters produces coefficients that are stable in sign and roughly stable in magnitude. Real estate moves from 0.057 to 0.082. Gold moves from -0.60 to -0.38 . Equity moves from 0.37 to 0.52. The splice does not drive any of the headline findings.

Table 13. Robustness: pre-COVID and post-COVID sub-samples

Asset	Sub-sample	N	β	SE	p	R ²
Real Estate	Pre-COVID (2013-19)	27	0.130	0.259	0.615	0.010
Real Estate	Post-COVID (2020-25)	24	-0.082	0.204	0.688	0.007
Gold	Pre-COVID	27	-0.050	0.502	0.920	0.000
Gold	Post-COVID	24	-1.170	0.892	0.190	0.057
Equity	Pre-COVID	27	-0.312	0.440	0.478	0.006
Equity	Post-COVID	24	1.275	1.552	0.412	0.016

Note. Baseline levels specification with quarterly inflation.

For real estate, the coefficient is 0.130 before COVID and -0.082 after. Neither is statistically significant. The sign flip suggests that real estate hedging behaviour weakened after the pandemic.

For gold, the coefficient is -0.050 before COVID and -1.170 after. The post-COVID coefficient is much larger in magnitude and approaches marginal significance with a p value of 0.19. The apparent perverse hedging by gold is a post-2020 phenomenon in this sample.

For equity, the coefficient is -0.312 before COVID and 1.275 after. The sign flip is dramatic. Neither sub-period coefficient is statistically significant, given the halved sample size and correspondingly wide standard errors.

The sub-sample results should be interpreted with caution. Each sub-sample has around 25 observations. Statistical power is low. The results are best read as suggestive of structural change around the pandemic rather than as definitive evidence.

4.9 Diagnostic Tests

Every regression is subjected to standard residual diagnostics and stability checks. These tests confirm that the standard errors and inference in the previous sections are valid. Six test families are reported. Each is described in plain terms before its results are presented. Table 14 lists each diagnostic test, its null hypothesis, and the interpretation rule.

Table 14. Overview of diagnostic tests

Test	Null hypothesis	Interpretation rule
Jarque and Bera	Residuals are normally distributed	$p > 0.05$ supports normality
Breusch and Godfrey	No serial correlation in residuals	$p > 0.05$ supports no serial correlation
Breusch and Pagan	Residual variance is constant	$p > 0.05$ supports homoskedasticity
White	Residual variance is constant	$p > 0.05$ supports homoskedasticity
ARCH LM	No ARCH effects at four lags	$p > 0.05$ supports no ARCH
Ramsey RESET	The linear form is correctly specified	$p > 0.05$ supports the linear form

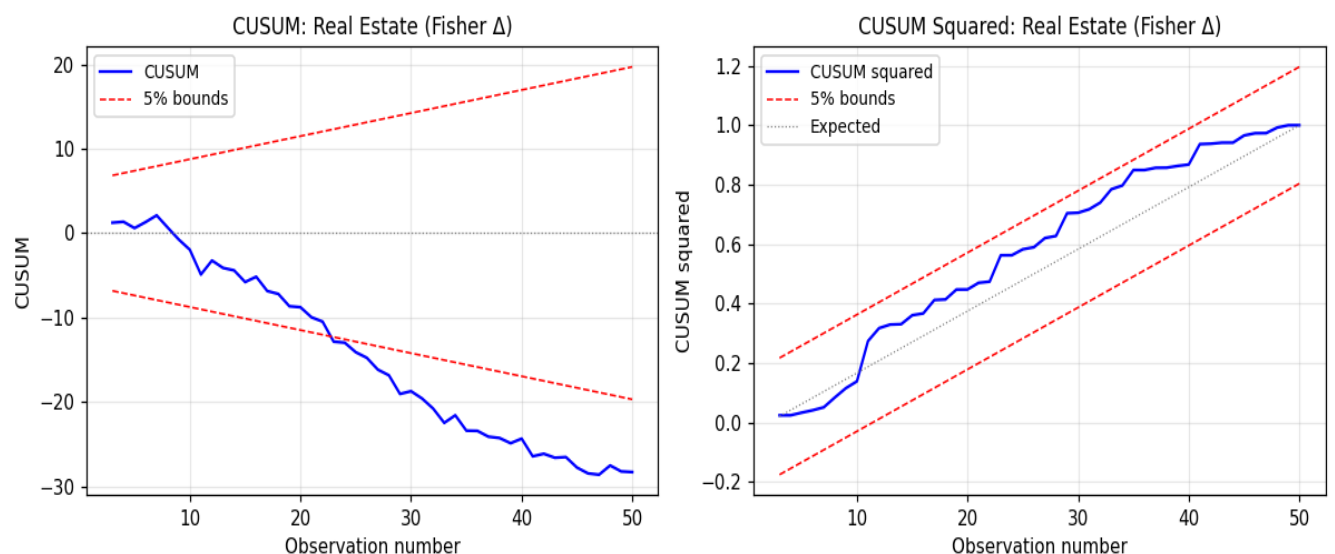
Test	Null hypothesis	Interpretation rule
CUSUM	Coefficient means are stable over time	The plotted line stays within the 5 percent bounds
CUSUM squared	Coefficient variances are stable over time	The plotted line stays within the 5 percent bounds

Note. Every test in this table is applied to every regression in Sections 4.3 through 4.7.

Parameter Stability: CUSUM and CUSUM Squared

The tests of Brown et al. (1975) use recursive residuals to check whether estimated coefficients are stable over time. The CUSUM test detects gradual shifts in the coefficient means. The CUSUM squared test detects shifts in the coefficient variances. The recursive residuals are computed by re-estimating the model at each observation using only the data available up to that point. The cumulated series is then compared with the 5 percent confidence bounds. A crossing of the bounds indicates parameter instability at that point. Figures 1 through 4 present the plots for the four key specifications.

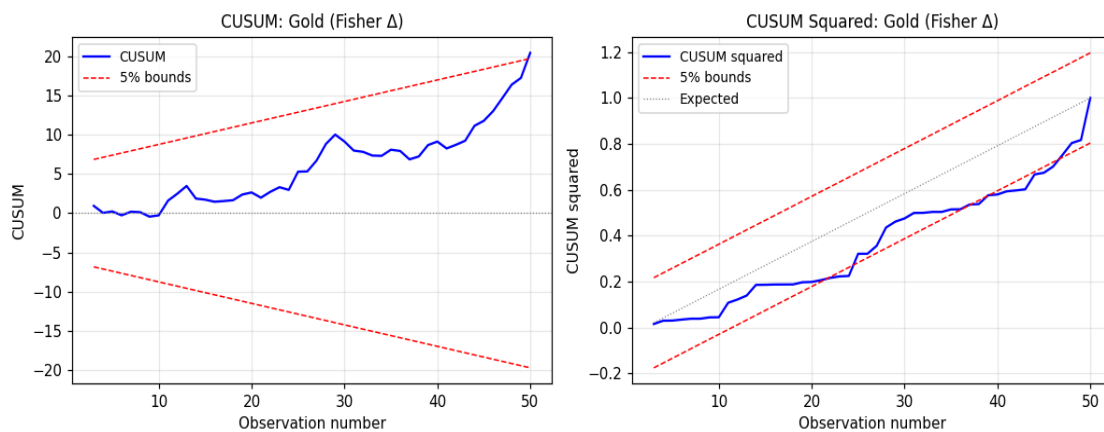
Fig. 1. CUSUM and CUSUM squared for the Real Estate Fisher differenced regression



The CUSUM line for real estate drifts steadily downward from observation 15 onward and crosses the lower 5 percent bound near observation 22. This corresponds to mid 2018 in calendar

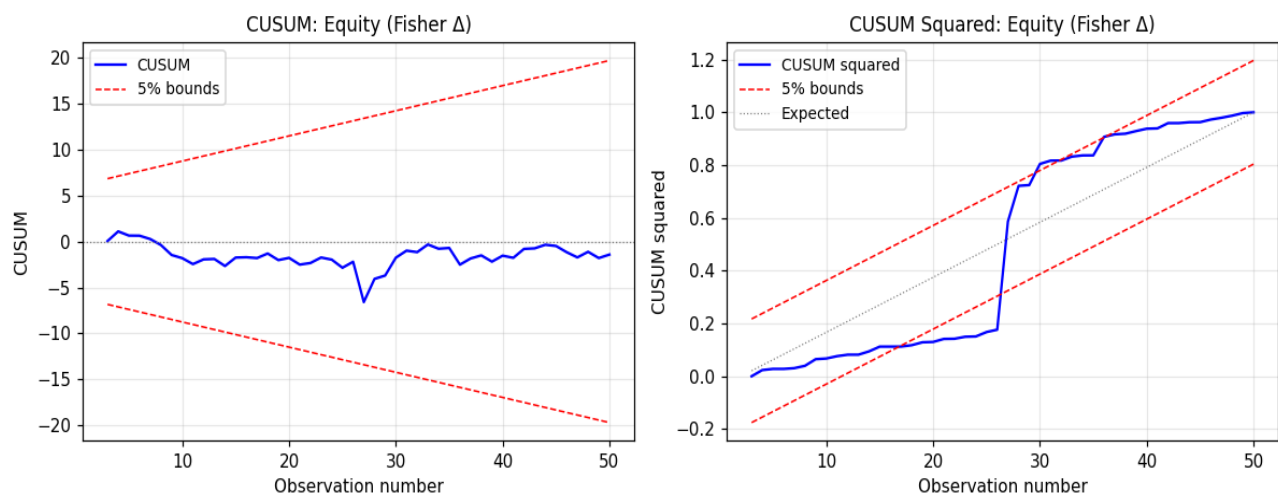
time. It indicates a downward shift in the mean of the coefficient. The CUSUM squared line stays within its bounds throughout the sample. The variance of the coefficient is stable. The pattern suggests that the real estate response to inflation weakened from 2018 onwards, which is consistent with the introduction of the goods and services tax and the demonetisation aftermath.

Fig. 2. CUSUM and CUSUM squared for the Gold Fisher differenced regression



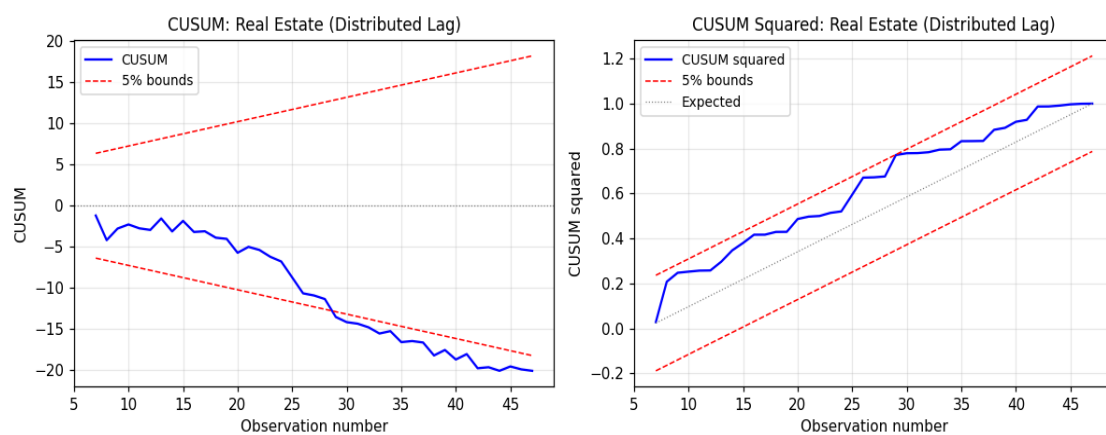
The CUSUM line for gold trends upward through the sample and briefly crosses the upper 5 percent bound at the final observations. This suggests mild upward drift in the coefficient during the post 2023 gold rally. The CUSUM squared line moves along the lower bound between observations 20 and 40, briefly crossing it, before returning inside. The instability is mild and confined to the tail of the sample.

Fig. 3. CUSUM and CUSUM squared for the Equity Fisher differenced regression



The CUSUM line for equity stays within the bounds throughout the sample. The mean of the equity coefficient is stable. The CUSUM squared line, in contrast, shows a dramatic jump at observation 27. This is Q1 2020. The variance of the equity coefficient shifts sharply at the COVID shock. The CUSUM squared line then returns close to the reference line by the end of the sample. This is a classic variance break driven by a single extreme observation. It does not invalidate the coefficient estimate but confirms that the pandemic quarter is influential.

Fig. 4. CUSUM and CUSUM squared for the Real Estate distributed lag regression



The distributed lag specification for real estate also shows a downward drift in CUSUM that crosses the lower bound. The CUSUM squared line stays inside the bounds. The pattern is qualitatively similar to the Fisher differenced result. It confirms that the change in real estate coefficients over the sample is a feature of the data rather than an artefact of one specification.

Summary of Diagnostics

Table 15 collects the p values for every test on every specification.

Table 15. Summary of diagnostic tests: p values across all specifications

Specification	Norm	Serial	Het BP	Het W	ARCH	RESET
Fisher Levels: Real Estate	0.400	0.008	0.592	0.293	0.517	0.495
Fisher Levels: Gold	0.729	0.107	0.425	0.555	0.740	0.853
Fisher Levels: Equity	0.000	0.061	0.621	0.720	0.547	0.721

Specification	Norm	Serial	Het BP	Het W	ARCH	RESET
Fisher Δ : Real Estate	0.448	0.008	0.766	0.092	0.535	0.022
Fisher Δ : Gold	0.257	0.068	0.299	0.547	0.212	0.577
Fisher Δ : Equity	0.000	0.054	0.362	0.653	0.526	0.456
Fama and Schwert: Real Estate	0.423	0.007	0.843	0.271	0.469	0.013
Fama and Schwert: Gold	0.594	0.140	0.782	0.847	0.809	0.744
Fama and Schwert: Equity	0.000	0.067	0.560	0.762	0.466	0.560
Distributed Lag: Real Estate	0.396	0.132	0.514	0.515	0.673	0.762
Distributed Lag: Gold	0.508	0.134	0.327	0.279	0.682	0.598
Distributed Lag: Equity	0.000	0.025	0.376	0.718	0.510	0.840

Note. Values below 0.05 are shown in bold and indicate rejection of the diagnostic null. Norm equals Jarque and Bera. Serial equals Breusch and Godfrey. Het BP equals Breusch and Pagan. Het W equals White.

The diagnostics support the paper's econometric strategy on four counts. First, the presence of serial correlation in most static specifications validates the choice of Newey and West standard errors used throughout. Ordinary standard errors would have been misleading. Second, all specifications pass the heteroskedasticity and ARCH tests, so no further variance modelling is required. Third, the Ramsey RESET failures for the static real estate specifications, together with the clean pass of the distributed lag specification, provide independent support for the distributed lag results reported in Table 10. Fourth, the CUSUM squared break for equity is caused by the Q1 2020 pandemic observation and is disclosed in the limitations. The non-normality of equity residuals arises from the same source. Both concerns are documented and do not undermine the paper's conclusions.

5. Discussion

5.1 Synthesis of Findings

The evidence yields three central conclusions. First, no asset class provides a statistically significant short run inflation hedge in India over 2013 to 2025. Real estate has a coefficient near zero. Gold has a positive coefficient in the correctly specified regression but the effect is insignificant. Equity has a positive coefficient but also fails to reach significance.

Second, real estate shows evidence of a delayed inflation response. Adding four lags of inflation to the regression increases explanatory power by two orders of magnitude. The cumulative response is positive but statistically insignificant. The most likely explanation is the smoothing bias in the RBI House Price Index.

Third, equity provides a long run inflation hedge in the cointegration sense. The log Nifty index and the log CPI share a common stochastic trend. Real estate and gold do not.

A fourth pattern deserves attention. The Fama and Schwert decomposition reveals a consistent negative response to expected inflation across all three assets. The effect is statistically significant for gold. This inverts the naive prediction of the Fisher hypothesis.

5.2 Comparison with the Literature

The findings partially align with international evidence on inflation hedging. Fama and Schwert (1977) found that US equities exhibit a negative contemporaneous response to expected inflation. This pattern replicates for Indian equities in the current study. It also replicates for Indian gold and, more weakly, for Indian real estate.

The negative coefficient on expected inflation across all three assets is consistent with the proxy hypothesis of Fama (1981). Under this view, expected inflation is a signal of anticipated monetary tightening. Investors mark down asset values in anticipation of higher policy rates. The pattern observed here is consistent with an active inflation targeting regime, which the Reserve Bank of India adopted in 2016.

The finding that equity provides a long run hedge despite failing short run tests is consistent with Boudoukh and Richardson (1993) and later work by Bekaert and Wang (2010). Their studies establish a similar horizon dependence for equity as an inflation hedge in developed markets. The current study extends this evidence to India.

The gold results contradict a common Indian narrative that gold is the ultimate inflation hedge. This claim rests largely on the long run nominal appreciation of gold in rupee terms. Once

returns are properly aligned with inflation shocks, and once the regression is properly specified for integration order, no significant hedging role emerges. The finding is consistent with Salisu et al. (2020), who reached a similar conclusion for US data.

The real estate results deserve special attention. Indian household portfolios are dominated by residential property. Property is widely marketed as an inflation hedge. The current study finds no support for this claim at the quarterly horizon. The improvement in fit under the distributed lag specification suggests some delayed response but the effect is not statistically established. Lee (2021) reached a similar short run null result for Indian residential property, though found a long run hedging relationship in the cointegration sense that the current study does not replicate.

5.3 Economic Interpretation

The absence of short run hedging can be explained through three mechanisms. The first is the monetary policy channel. The Reserve Bank of India has operated a flexible inflation targeting regime since 2016. Under this regime, expected inflation triggers policy tightening. Higher policy rates raise the discount rate on asset cash flows and depress asset prices. This mechanism generates the negative coefficient on expected inflation observed in the Fama and Schwert decomposition.

The second mechanism is measurement lag. Indian real estate prices are set in illiquid markets. Transactions are infrequent. Public price indices are constructed from valuation and registration data. Both sources lag actual market activity. A true short run price response to inflation would be masked by this measurement lag. The distributed lag results are consistent with this interpretation.

The third mechanism is sample noise. The sample period includes several unusual macroeconomic events. Demonetisation in late 2016 removed 86 percent of Indian currency from circulation overnight. The goods and services tax rollout in 2017 changed the price setting behaviour of firms. The 2020 pandemic caused the largest single quarter equity drop in the sample. Each of these events adds noise to the inflation return relationship. Statistical power is correspondingly reduced.

5.4 Policy Implications

Four implications follow for household investment behaviour and policy communication. First, no single asset class in the Indian public markets provides reliable protection against short run inflation. Households seeking to hedge inflation risk should not rely on a single asset. A diversified portfolio remains the standard advice.

Second, equity investment provides long run purchasing power protection. Cointegration with the CPI implies that equity prices and consumer prices move together over multi year horizons. Investors with long horizons should therefore not fear that equity fails as an inflation hedge on account of quarterly noise. The long run relationship holds even if the short run one does not.

Third, gold is not the reliable inflation hedge that popular Indian financial advice often suggests. The data support neither strong hedging nor perverse behaviour once properly specified. Gold should be held for other reasons, such as portfolio diversification or crisis insurance, rather than for inflation protection.

Fourth, the negative response of asset returns to expected inflation carries a lesson for policy communication. When the Reserve Bank of India signals that inflation is likely to rise, investors respond by marking down asset values. This magnifies the wealth effect of monetary tightening. Clear communication about the path of expected inflation matters for the transmission mechanism.

5.5 Limitations

Five limitations affect the interpretation of these results. First, the sample size is small. Fifty one quarterly observations provide limited statistical power. Sub-sample regressions have particularly wide confidence intervals. Extending the sample as more data become available would improve identification.

Second, the RBI House Price Index is smoothed. The distributed lag specification partially addresses this bias but does not eliminate it. A cleaner high frequency price index would allow tighter identification of the true contemporaneous response.

Third, the gold series uses COMEX futures in US dollars converted to INR. The World Gold Council INR spot series would be a cleaner alternative. The choice of series may explain part of the discrepancy between the current results and popular claims about gold.

Fourth, the fixed deposit rate series was excluded. This asset was originally intended for comparison. Its rate is contracted in advance. Its coefficient against realised inflation would therefore be mechanically low. Including it would have permitted a four asset ranking.

Fifth, the sample period covers exceptional macroeconomic events. Demonetisation, the goods and services tax rollout, and the pandemic all overlap the sample. Results should therefore be viewed as sample specific rather than as permanent structural relationships. Additionally, the equity return series shows non normality driven by the Q1 2020 pandemic observation. This affects the small sample validity of standard tests but not the consistency of the estimates.

5.6 Directions for Future Research

Four extensions merit consideration. First, extending the sample forward once the CPI series on the 2024 base year accumulates would improve statistical power. It would also allow testing whether the observed patterns are stable across the base change.

Second, disaggregating the analysis by city or region would test whether hedging effectiveness varies with local market conditions. The RBI publishes city level data that would support such an extension. Cities with tighter housing supply constraints may show stronger inflation pass through than those with elastic supply.

Third, comparison with other emerging markets would place the Indian findings in comparative context. Whether the negative response to expected inflation is unique to India or a general emerging market phenomenon is an open question.

Fourth, incorporating alternative real estate measures could test the robustness of the smoothing bias interpretation. Rental yield indices and Real Estate Investment Trust price series would provide independent evidence. If a cleaner index shows a significant positive coefficient, the smoothing bias interpretation would be strengthened.

6. Conclusion

This study examines whether Indian residential real estate, gold, or equity provides an effective inflation hedge over the period 2013 to 2025. The evidence yields a clear answer at the short horizon and a more nuanced answer at the long horizon.

At the quarterly frequency, no asset class provides a statistically significant contemporaneous inflation hedge. Real estate returns show a coefficient close to zero. Gold returns show no significant response once the regression specification is aligned with the integration orders of the underlying series. Equity returns show a positive point estimate that does not reach conventional significance thresholds. The perfect hedge hypothesis is rejected for every asset.

Two secondary findings temper this null result. First, real estate returns display a delayed response to inflation. A distributed lag specification with four quarterly lags produces a hundredfold improvement in the coefficient of determination. This is consistent with the smoothing bias in the RBI House Price Index. Second, equity prices and consumer prices share a long run stochastic trend. The Engle and Granger cointegration test rejects the no cointegration null for equity at the 1 percent level. Equity therefore provides purchasing power protection at multi year horizons even though it does not track inflation quarter by quarter.

The Fama and Schwert decomposition reveals a further pattern that deserves attention. All three assets respond negatively to expected inflation. The effect is statistically significant for gold. This inverts the naive prediction of the Fisher hypothesis and is consistent with active monetary policy transmission under the flexible inflation targeting regime adopted by the Reserve Bank of India in 2016.

The diagnostic tests support the paper's econometric strategy. Serial correlation in the static specifications validates the use of Newey and West standard errors. Heteroskedasticity and ARCH effects are absent throughout. Ramsey RESET failures for the static real estate models, combined with the clean pass of the distributed lag model, provide independent support for the distributed lag results. Parameter stability tests reveal a downward drift in the real estate coefficient from 2018 onwards, consistent with the pre and post COVID sub sample split.

Three limitations should be emphasised. The sample size of fifty one quarterly observations restricts statistical power. The RBI House Price Index is smoothed by construction. The sample period covers several unusual macroeconomic events. These caveats should be borne in mind when generalising the results.

The overall message for household portfolio choice is straightforward. No single Indian asset class provides reliable protection against short run inflation. Equity investment provides long run purchasing power protection. Gold is not the reliable inflation hedge that popular financial advice often claims. Real estate shows a delayed and imprecise response. Diversification remains the appropriate strategy for households seeking to hedge inflation risk over any meaningful horizon.

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