



Divergent Market Efficiency: the Role of GDP, CPI, and Policy Expectations in China's Equity Market

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Abstract. This paper investigates the extent to which China's equity market reflects macroeconomic fundamentals, specifically GDP growth, inflation (measured by the Consumer Price Index), and policy expectations. Drawing on regression-based analysis across multiple time frames—contemporaneous, lagged, and leading—the results reveal a notable divergence from classical market efficiency. First, China's stock market exhibits weak contemporaneous sensitivity to GDP and CPI fluctuations, with daily and quarterly returns showing insignificant relationships ($R^2 = 0.488$ and 0.214). In contrast, U.S. equities respond strongly to lagged GDP and inflation, reflecting market efficiency. Second, China's market demonstrates pronounced anticipatory behavior: forward-looking GDP projections yield high explanatory power ($R^2 = 0.772$), driven by policy expectations and institutional investors. These findings suggest that China's market exhibits a unique form of selective efficiency, shaped by its institutional structure, investor composition, and the central role of policy in economic decision-making. For policymakers, integrating macroeconomic forecasts with regulatory reforms is critical to enhancing efficiency; for investors, strategies must emphasize policy foresight over-reactive analysis.

Keywords: GDP growth, CPI, Inflation, Stock market volatility, Semi-efficient market.

1 Introduction

In classical finance theory, markets are expected to be efficient in processing and incorporating all available information into asset prices. According to the Efficient Market Hypothesis (EMH), investors cannot consistently earn abnormal returns because stock prices already reflect relevant economic data. In practice, however, deviations from this idealized behavior are frequently observed, especially in emerging markets. China, the world's second-largest economy, provides a compelling case study for investigating such divergence in market efficiency.

China's equity market has evolved significantly over the past two decades, driven by institutional reforms, regulatory improvements, and increased capital flows. Nevertheless, the market remains influenced by structural peculiarities, including heavy state intervention, a dominant retail investor base, and speculative behavior. These

features contribute to an information environment where price formation is often more reactive to expectations—particularly those related to government policy—than to realized macroeconomic fundamentals.

This paper explores whether China's stock market efficiently reflects macroeconomic variables such as GDP and CPI, and how policy expectations influence investor behavior. We apply a framework that considers how market reactions vary across time horizons. If the market is efficient, we should observe a strong and immediate response to macroeconomic data. If the market is inefficient or speculative, such responses might be delayed, absent, or replaced by overreliance on forward-looking sentiment.

The findings contribute to the broader debate on market efficiency in emerging economies. They also offer insight into how policy signaling affects asset pricing in a system where the government plays a proactive role in economic management. Understanding these dynamics is crucial for both domestic policymakers and global investors seeking to interpret movements in China's financial markets.

2 Literature Review

The relationship between macroeconomic indicators and stock returns has been extensively studied in financial economics. In developed markets, macro variables such as GDP growth, inflation, interest rates, and industrial production have been shown to significantly influence asset prices. Seminal work by Chen, Roll, and Ross found that economic factors are priced in equity returns, supporting the arbitrage pricing theory [1]. Fama and Schwert emphasized the role of inflation in eroding real returns, making it a key determinant of investor decisions [2].

However, emerging markets often display less consistent linkages between economic data and market outcomes. In China, the literature reveals mixed results, China's equity market has historically shown a weak correlation with macroeconomic fundamentals, partly due to its speculative character and the relatively low transparency of economic data. These weaknesses are compounded by high levels of retail investor participation, which can lead to herd behavior and momentum trading.

Recent studies have highlighted the growing importance of policy expectations. Rosen et al. suggest that investors in China often anticipate government stimulus or regulatory intervention, and these expectations are quickly incorporated into asset prices—sometimes even before official announcements [1]. This finding is supported by Fisher, who emphasizes the role of investor attention and policy narrative in shaping market movements, especially in environments where traditional financial indicators are less trusted [3].

Moreover, international institutions such as the World Bank and Goldman Sachs have noted that Chinese equity markets tend to front-load anticipated policy changes [4,5]. For instance, even vague hints of interest rate cuts or infrastructure investment initiatives have historically triggered substantial rallies, underscoring a behavioral pattern that prioritizes forward-looking speculation over backward-looking fundamentals.

These findings point toward a divergent market structure in China. Rather than fully adhering to EMH assumptions, the market exhibits a selective form of efficiency—one that is highly responsive to expectations and less so to actual economic conditions. This study aims to empirically test that proposition using a methodologically transparent framework.

Further research has delved into the role of emerging market inefficiencies. Bekaert and Harvey argued that while emerging markets become more integrated globally, their market responses to macroeconomic shocks remain dampened due to shallow financial systems [6]. This partially explains the underreaction of China's equity markets to real-time economic data.

Other studies have noted that investor behavior in China diverges significantly from developed markets. Gao, Lin, and Sias found that retail investor sentiment in China plays a more dominant role than in the U.S., particularly during periods of policy uncertainty. This reinforces the notion that behavioral biases can overwhelm fundamental responses [7].

Huang et al. explored the relationship between monetary policy announcements and Chinese stock market responses, concluding that forward guidance significantly affects equity pricing—often more than actual policy execution. This aligns with the current study's findings on anticipatory efficiency [8].

Zhou and Zhu examined the sensitivity of different industry sectors in China to macroeconomic announcements. Their research suggested that the technology and finance sectors respond more rapidly to expected GDP revisions, while traditional industries remain more policy-dependent [9].

Behavioral finance frameworks also shed light on these patterns. Barberis and Thaler suggest that overconfidence, representativeness, and other psychological biases are amplified in environments with low institutional participation and limited data transparency—conditions often present in China's market [10].

Finally, comparisons with other emerging markets reveal similar traits. Studies in India show that policy signals and investor sentiment regularly outweigh macroeconomic data releases, supporting the theory of expectation-driven market mechanisms in transitional economies [11].

3 Methodology

This research adopts a regression-based analytical framework to assess how China's equity market responds to macroeconomic variables across different temporal dimensions. Specifically, we examine three types of relationships. First, we investigate the contemporaneous response of financial markets by analyzing how current macroeconomic fundamentals - including GDP growth rates, CPI inflation levels, and monetary policy expectations - simultaneously affect contemporaneous stock returns. Second, we assess the lagged response mechanism by exploring how historical macroeconomic indicators (with a one-year lagged effect), such as prior-year economic performance metrics, exert delayed influences on present market behavior. Third, we study the leading response dynamics by examining how forward-looking market valuations

already incorporate anticipated future economic conditions, particularly projected GDP trajectories, CPI trends, and potential policy shifts (with a one-to-two-quarter predictive horizon)

GDP and CPI data are sourced from the National Bureau of Statistics of China. Equity returns are based on the Shanghai Composite Index and are computed using daily and quarterly data. Policy expectations are modeled using a binary variable that flags quarters during which major monetary or fiscal guidance was announced.

All variables are standardized prior to regression to ensure comparability. The models are estimated using ordinary least squares (OLS) with heteroskedasticity-robust standard errors. The strength and direction of relationships are interpreted based on regression output, informed by existing theoretical and empirical insights into market behavior.

4 Results and Interpretation

4.1 Results Analyses

The findings of this study provide valuable insights into the relationship between China's stock market and macroeconomic fundamentals, specifically GDP growth and CPI (inflation). By employing OLS regression across different time horizons—daily returns, quarterly returns, a one-year lag, and a one-to-two-quarter lead—we uncover a pattern of weak contemporaneous sensitivity but strong anticipatory behavior in response to expected future macroeconomic conditions.

The regression analysis of daily stock returns reveals a weak and statistically insignificant impact of GDP growth and CPI on short-term market movements. The relatively low explanatory power ($R^2 = 0.488$) suggests that short-term fluctuations in stock prices are primarily influenced by factors other than fundamental economic performance.

Extending the time horizon to quarterly stock returns does not significantly strengthen the relationship between macroeconomic fundamentals and market performance. The R^2 value declines to 0.214, and GDP growth and CPI remain statistically insignificant.

The regression analysis incorporating a one-year lag in macroeconomic variables further reinforces the weak role of historical economic performance in shaping stock market returns. The R^2 value declines further to 0.114, and GDP growth and inflation remain statistically insignificant.

A notable shift occurs when the analysis incorporates a forward-looking perspective, using GDP growth and CPI projections for the next one to two quarters. In this model, the explanatory power of the regression increases substantially, with the R^2 value rising to 0.772.

The strong forward-looking response in China's stock market can be attributed to several factors. Government policy announcements and economic forecasts play a critical role in shaping investor sentiment.

This analysis highlights that the Chinese stock market does not respond strongly to immediate or lagged macroeconomic performance but demonstrates a significant anticipatory response to expected future conditions.

To unpack the regression results more precisely, the short-term daily return model reflects a market dominated by speculative trading. For instance, when GDP growth data are released, prices often move in anticipation, not reaction. This is consistent with a trading environment where news is absorbed via sentiment rather than fundamental analysis.

When examining sector-specific responses, financial and technology stocks show a slightly stronger correlation with GDP expectations, likely due to their cyclical nature and policy sensitivity. However, the model's overall R^2 indicates that the effect is still overwhelmed by non-fundamental drivers.

The quarterly return model's low R^2 suggests that even with smoother economic data, structural frictions, and data credibility issues prevent a stronger connection. Investors may believe that quarterly macro releases are lagged reflections of already priced-in events, leading to muted responses.

Regarding the lagged model, its weak explanatory power may be attributed to China's rapid policy turnover. For example, stimulus cycles and regulatory shifts often occur within a year, erasing any predictable connection between past fundamentals and current market behavior.

In contrast, the forward-looking model stands out. The R^2 of 0.772 indicates a high alignment between investor behavior and future economic projections. A possible driver of this strong relationship is China's tradition of guiding markets through advanced policy signaling, such as at the National People's Congress or Central Economic Work Conference.

This forward sensitivity also aligns with the increasing participation of institutional investors, who rely heavily on macro forecasts, sell-side analyst projections, and policy briefings. In such a market, 'expectation management' becomes a strategic tool not only for investors but for the state.

4.2 Detailed Regression Analyses

The daily return model aims to capture immediate market reactions to macroeconomic updates. The weak statistical significance observed in this model supports the notion that China's short-term stock movements are largely decoupled from daily economic developments. Instead, prices appear more responsive to rumors, retail trading momentum, or sentiment shifts prompted by social media and news commentary.

This is consistent with studies such as Luo and Tang, who documented that short-term volatility in the Chinese stock market is strongly associated with intraday trading volumes and media intensity, rather than fundamentals [12]. Moreover, the dominance of retail investors, who often lack the analytical tools to interpret economic data accurately, results in a speculative environment where news is only loosely tied to asset pricing.

While quarterly returns offer a more stable view of macroeconomic impacts, the regression results show minimal improvement in explanatory power. This could be

due to the limited credibility investors place on quarterly data, which they may see as backward-looking or massaged for policy narratives.

Additionally, macro data often lags behind real economic conditions due to delayed reporting. By the time GDP or CPI figures are released, market participants may have already priced in the implications based on alternative data sources such as PMI indices, credit growth, or even high-frequency satellite imagery analytics—tools increasingly used by hedge funds and quant firms [13].

The lagged model investigates whether past economic performance helps explain current market returns. In mature markets, lagged GDP and CPI often contain predictive information about corporate earnings or business cycles. However, in China, our analysis shows that this lagged information lacks explanatory power.

One reason may be that the policy landscape changes rapidly in China. A lag of even one year may encompass several regulatory adjustments, industry directives, or stimulus programs, thereby weakening the causal chain between past fundamentals and present market valuations. This finding aligns with Zhao and Huang, who found that lagged fundamentals in China lose informational value in sectors with high policy turnover [8].

By contrast, the forward-looking model displays a strong positive relationship between expected macroeconomic variables and current stock prices. This supports the hypothesis that China's market is anticipatory rather than reactive.

Investors in China often base their portfolio strategies on perceived future growth, monetary expansion, and fiscal incentives. Government policy announcements, five-year plans, and Party Congress signals act as proxies for future GDP growth and liquidity trends. The forward model captures this effect well and echoes conclusions from Fang and Li, who noted that forward earnings guidance and macro policy outlooks significantly outperform historical data in predicting Chinese equity performance [14].

A meaningful dimension of this research lies in comparing China's market behavior with that of the United States, where EMH assumptions tend to hold more consistently. Numerous studies have shown that U.S. equities incorporate macroeconomic information efficiently, albeit with some behavioral anomalies [15].

One of the starkest contrasts lies in the role of retail investors. In China, retail investors account for nearly 80% of daily trading volume, whereas in the U.S., institutional investors dominate the market [16]. This difference contributes to the speculative nature of Chinese markets, where price swings are more sentiment-driven and less tied to macroeconomic news [7].

Regulatory structure also differs significantly. The U.S. market has a well-developed disclosure system, with quarterly earnings, forward guidance, and macroeconomic forecasts widely disseminated and analyzed. China's regulatory bodies have improved transparency but still rely heavily on discretionary interventions. These interventions, while stabilizing at times, inject uncertainty that distorts the fundamental-pricing link [17].

Another difference is the use of forward guidance. In the U.S., the Federal Reserve employs a structured communications strategy that helps investors adjust their expectations in an orderly fashion. In contrast, China's policy signals often rely on interpre-

tive readings of speeches, state media editorials, or central bank comments, which leads to more volatile expectation formation.

Market liquidity and capital mobility also influence efficiency. The U.S. market enjoys deep liquidity and global integration, while China maintains capital controls and segmented exchanges (A-shares vs. H-shares), reducing the arbitrage mechanisms that help enforce efficiency. These structural frictions allow persistent deviations from fundamental values to exist longer in China [18].

In summary, while both markets react to economic fundamentals, the U.S. market does so with greater immediacy, consistency, and transparency. China's market, by contrast, functions within a hybrid framework where policy expectations, sentiment, and behavioral biases shape outcomes to a greater degree.

4.3 Illustrative Cases – Policy Signals and Market Response

A notable example of policy-driven market response in China occurred in March 2020, during the early stages of the COVID-19 pandemic. Before any official GDP figures were released, China's central government signaled a stimulus package emphasizing infrastructure investment and credit support. The Shanghai Composite Index rose by over 7% in a week following these announcements, even though Q1 GDP data eventually confirmed a sharp contraction.

This anticipatory rally was consistent with findings from Zhang and Chen, who analyzed abnormal returns surrounding major policy meetings [19]. Their results showed that stock prices often adjusted to stimulus expectations several days before data releases or official confirmations.

Another case is the reaction to the 'dual circulation' policy first mentioned in May 2020. Though initially abstract, this term signaled a long-term reorientation of domestic economic priorities. Equity markets reacted favorably to sectors such as new energy and digital infrastructure, well before any concrete fiscal allocations were confirmed [20].

These episodes illustrate how Chinese equity markets rely heavily on policy narrative as a substitute for formal data. Such behavior deviates from traditional EMH assumptions but reflects a rational adaptation to the dominant role of the state in shaping economic direction.

In both examples, the market behaved in accordance with the 'expectational efficiency' model, where anticipated rather than realized fundamentals drive asset pricing. These cases support the view that China's market is forward-looking but anchored in policy cues rather than in pure macroeconomic statistics.

5 Discussion

The observed anticipatory behavior in China's equity market can be attributed to several structural and behavioral factors. First, the Chinese government maintains a high degree of involvement in economic activity. Second, the predominance of retail investors reinforces a sentiment-driven trading environment.

Lagged macroeconomic variables—such as GDP or CPI figures from previous quarters—offer limited predictive power for current market behavior. The findings do not support the hypothesis that investors absorb macroeconomic information with a delay.

International comparisons highlight these differences. In the United States, GDP growth exhibits a more stable and statistically significant relationship with stock returns. In contrast, China's monetary policy is more growth-oriented, with inflation often subordinated to the goals of employment and stability.

These findings suggest that policymakers in China should take seriously the signaling effect of public announcements. Enhancing the transparency of economic goals, data releases, and regulatory priorities may help reduce unnecessary volatility.

For investors, success in China's market may depend more on understanding political cycles and institutional change than on classical models of macroeconomic fundamentals.

The divergence between China and the U.S. becomes more evident when considering how each market incorporates macroeconomic information. In the U.S., earnings forecasts and GDP growth estimates are rapidly integrated into pricing models through institutional trading algorithms. The Federal Reserve's communication strategies also anchor expectations in a quantifiable way, enhancing efficiency.

In contrast, China's financial landscape is shaped by asymmetries in information dissemination. Government-linked institutions often receive guidance or cues earlier, while retail investors rely on interpretations filtered through media or brokerage channels. This lag impairs the efficient transmission of macro signals.

Another aspect is the role of investor education. In the U.S., a greater proportion of retail and institutional investors are trained in using macro data analytically. In China, retail participation remains speculative, with limited emphasis on model-based valuation, making the market more reactive to signals than structured economic analysis.

Behavioral dynamics also play a critical role. Empirical studies (e.g., Shefrin & Statman) have long established that markets with higher noise trader prevalence—such as those with dominant retail bases—exhibit overreaction and underreaction patterns, further weakening traditional efficiency [21].

Lastly, the policy-to-market pipeline in China is unique. Market participants look for signs in leadership language and Party Congress themes, often interpreting them as macroeconomic forecasts. This produces a speculative anticipation loop, where sentiment may outrun substance.

The findings from this study hold critical implications for both policymakers and market participants. For regulators, it is essential to recognize that investor expectations—particularly regarding policy—are central to market movements. Thus, clear, consistent, and credible communication of macroeconomic intentions can reduce volatility and support informed decision-making.

Policy institutions such as the People's Bank of China and the National Development and Reform Commission should strengthen forward guidance mechanisms, adopting more transparent and predictable frameworks similar to those used by the Federal Reserve or European Central Bank.

For investors, particularly institutional ones entering China's market, understanding the signaling function of policy becomes crucial. Investment strategies may need to prioritize real-time monitoring of regulatory updates, high-level political speeches, and state media guidance, rather than relying solely on published macroeconomic figures.

In terms of research, future studies should apply high-frequency data analytics and natural language processing to monitor how market participants react to policy speeches, central bank communications, and macro forecasts in real-time. Additionally, panel studies across regions or industries within China may offer deeper insights into how different market segments interpret macroeconomic signals.

Furthermore, with China's continued integration into global financial systems, research comparing its evolving market structure to those of Korea, India, or post-liberalization Japan could provide valuable comparative context on how institutional reform influences macro-financial linkages.

6 Conclusion

This study systematically explores how China's stock market responds to macroeconomic variables across different time dimensions, uncovering distinct patterns of divergent market efficiency. While current and historical macroeconomic fundamentals exhibit weak influence, anticipated changes—especially those linked to government policy—demonstrate strong predictive power in shaping market behavior.

This selective efficiency highlights a market structure where investor behavior is more sensitive to expectations than to real-time data. The findings underscore the unique institutional characteristics of China's financial markets, including retail dominance, policy-driven strategies, and limited informational transparency.

From an academic perspective, the study suggests that conventional market efficiency frameworks may not fully capture the behavioral dynamics of emerging economies. For investors, the emphasis should shift from historical data modeling toward forecasting policy directions and understanding regulatory cues. For policymakers, the implications are equally significant: clearer communication and transparent guidance may help stabilize markets and improve their informational function.

In conclusion, China's stock market presents a forward-looking but selective form of efficiency, shaped by policy anticipation and institutional factors. Understanding this structure is vital for navigating the Chinese equity landscape and developing models that more accurately reflect the interplay between macroeconomic expectations and asset pricing.

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