



# Impact Of Narrative Bias And Market Liquidity On Stock Market Dynamics: Enhancing Predictive Accuracy Of Share Prices

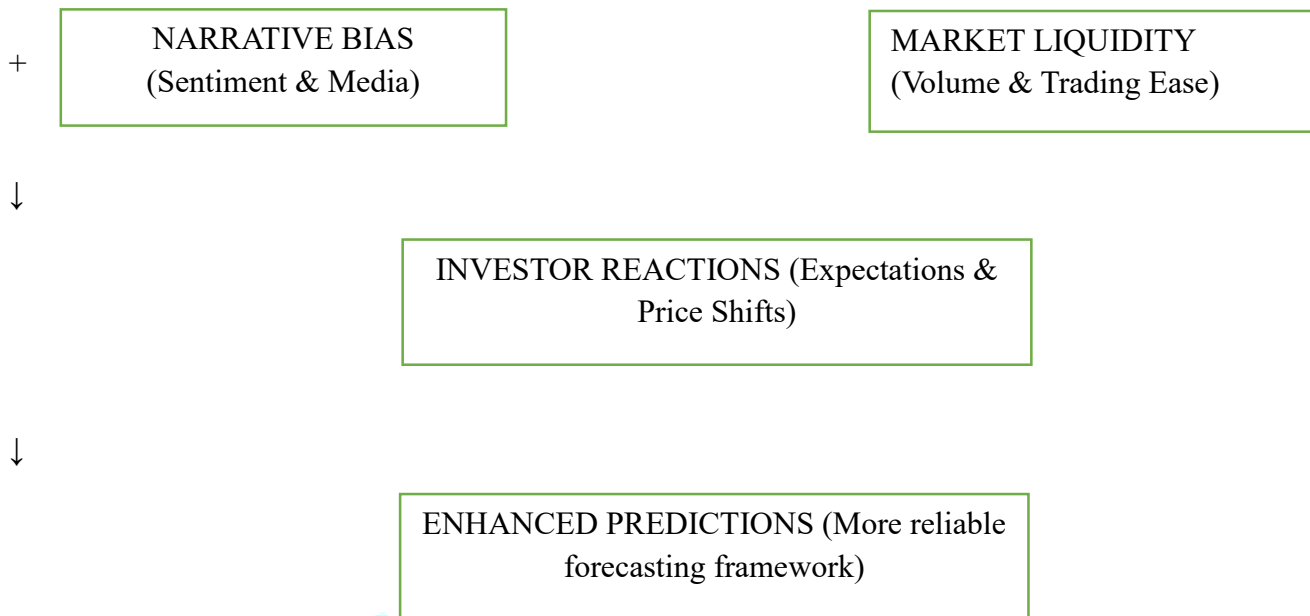
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**Abstract:** Financial markets are not only driven by economic fundamentals, but also by psychological stories and market structure determinants that affect the decision-making process of investors. Studies conducted in Behavioural Finance theory indicate that investors tend to rely on current stories and opinions instead of making rational decisions. The present study is going to consider the effect of the combination of narrative bias and market liquidity on stock market processes and explore the potential of increasing prediction accuracy for shares by including these aspects into consideration. Narrative bias denotes the impact of the media story and social story on financial decision-making, whereas market liquidity implies ease of buying and selling shares without altering their price. With the help of sentiment analysis methods for determining narrative bias and liquidity measures like trading volumes and bid-ask spreads, this paper will establish a forecasting model for stock prices. The empirical study will be performed based on market data from different major stock exchanges, including the National Stock Exchange of India and the Bombay Stock Exchange. The regression and machine learning models will be employed to determine the connection between narrative bias, liquidity conditions, and stock price volatility. According to the results, it is evident that narrative bias plays an important role in determining investors' expectations and influences short-term stock price changes, whereas liquidity conditions have a significant effect on amplifying or weakening those impacts. The combination of both factors provides a more accurate forecasting model for predicting stock prices than the existing ones, which only consider historical stock prices.

**Keywords:** Narrative Bias, Market Liquidity, Stock Price Prediction, Investor Sentiment, Behavioural Finance

**Graphical Abstract:****1. Introduction**

The stock market is a system where prices are generated through the interactions of a number of investors who have different expectations, information and behavioral characteristics. Classical finance literature considers investors to be rational agents who use information rationally to maximize their expected returns on investment. But Behavioral Finance literature, however, has provided empirical proof that contradicts the notion of rationality among investors.

One of the most significant theoretical frameworks related to this perspective is the one developed by economist Robert J. Shiller in his book Narrative Economics. In his theory, economic decisions are highly affected by stories or narratives, widely disseminated among investors in the form of news in media outlets and public communication platforms. These narratives tend to generate either optimistic or pessimistic expectations that affect market behavior.

Market liquidity is another major determinant of the behavior of markets and an important feature of Market Microstructure. It refers to how easily financial assets can be traded without impacting prices. Markets with high levels of liquidity have less difficulty in entering or exiting investments, whereas low liquidity may result in higher price volatility.

While both the narrative effect and liquidity situation matter, most conventional approaches to forecasting stock prices base themselves more on price trends and ratios from past performances than on other variables. The behavioral and structural elements affecting stock prices in the short run do not get much attention in such models.

**Problem Statement**

Most existing models that predict stock prices tend to ignore the joint impacts of narrative bias and market liquidity on market behavior. This gap may result in partial representations of market behavior and inaccurate predictions.

The key questions investigated in this study are:

1. What is the impact of narrative bias on investor behavior and stock prices?

2. How can market liquidity exacerbate or mitigate the effects of narrative bias?
3. Do predictive models that factor in both narrative bias and market liquidity perform better than traditional price models?

## 2. Literature Review

### 2.1 Narrative Economics and Investor Sentiment

The idea of narrative effect in economic behavior has received considerable traction in the wake of the contributions made by Robert J. Shiller. Narrative economics proposes that economic cycles can be caused by the popularity of certain tales among society, which lead to the formation of expectations.

Narratives may be formed through financial news, conversations on social media, or even analyst reports. The narratives are likely to affect the mood of investors, causing them to engage in more trades.

Research findings based on the technique of sentiment analysis indicate that positive sentiments towards news usually coincide with an upward movement in stock prices.

### 2.2 Behavioural Finance and Narrative Bias

The field of Behavioural Finance has shown that investors are subject to various forms of cognitive biases while making decisions. Such biases include overconfidence, herd behaviour, and confirmation bias. Narrative bias arises when investors use simplified narratives to analyze market information, ignoring objective evaluation of financial data.

Evidence has shown that investors tend to make investment decisions using narrative frameworks, which might result in the systematic misvaluation of assets.

### 2.3 Market Liquidity and Stock Volatility

Liquidity has a fundamental position in financial markets. In line with the theory of market microstructure, liquidity affects the efficiency of price adjustments for new information incorporation.

Author	Main Concept	Key Insight
Robert J. Shiller	Narrative Economics	Widely shared economic stories circulating through media and public discourse can shape investor expectations and influence financial market behaviour.
Paul C. Tetlock (2007)	Media Sentiment	The tone of financial news coverage can affect market reactions, where pessimistic reporting is often associated with short-term downward pressure on stock prices.
Malcolm Baker & Jeffrey Wurgler (2007)	Investor Sentiment	Investor mood and collective sentiment can lead to deviations from fundamental values, resulting in temporary asset mispricing.
Lubos Pastor & Robert F. Stambaugh (2003)	Liquidity Risk	Variations in market liquidity play an important role in determining expected stock returns and can influence the level of risk investors demand compensation for.

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Table 1: Summary of Key Literature

Liquidity metrics include:

- Trading volume

Trading volume is the quantity of stocks traded in a stock during a defined period. Trading volume measures the extent of market turnover and market participant involvement. The higher the trading volume, the better liquidity in the market since stocks can be bought and sold without affecting their price.

- Bid-ask spread

The bid-ask spread refers to the gap between the maximum price that buyers are ready to pay for a security (bid) and the minimum price at which a seller is prepared to sell a stock (ask). A narrow spread denotes high liquidity and reduced transaction costs. In contrast, wide spreads denote low liquidity and expensive transactions.

- Market depth

Markets with low liquidity tend to have high volatility due to the possibility that large trades could substantially influence prices. Depth of the market is a term used to refer to the amount of buy and sell orders in the market at various price points. This term reflects the capacity of the market to handle large deals without influencing prices.

#### 2.4 Stock Price Prediction Models

Classical prediction techniques utilize statistical tools such as Linear Regression, time series models, and autoregression. More contemporary prediction techniques make use of machine learning techniques such as neural networks and random forest.

But there are models that focus solely on price data without taking into account any behavioral indicators such as investor sentiment or narrative impact.

### 3. Empirical Example:

#### Narrative Effects on Liquidity

Let us imagine a situation where a firm reports its earnings that are just above expectations for the quarter. The press coverage of the report is characterized by the notion of “future strong growth.” The narrative is rapidly diffused in the investor community.

If the equity is highly liquid with wide market depth and narrow bid-ask spread, then it will result in smooth upward adjustments in the stock price. In the case of low liquidity stocks, such a narrative may cause sharp price increases since a few buyers could have a significant impact on the price.

Here we see how liquidity influences narrative effects.

#### 4. Research Gap

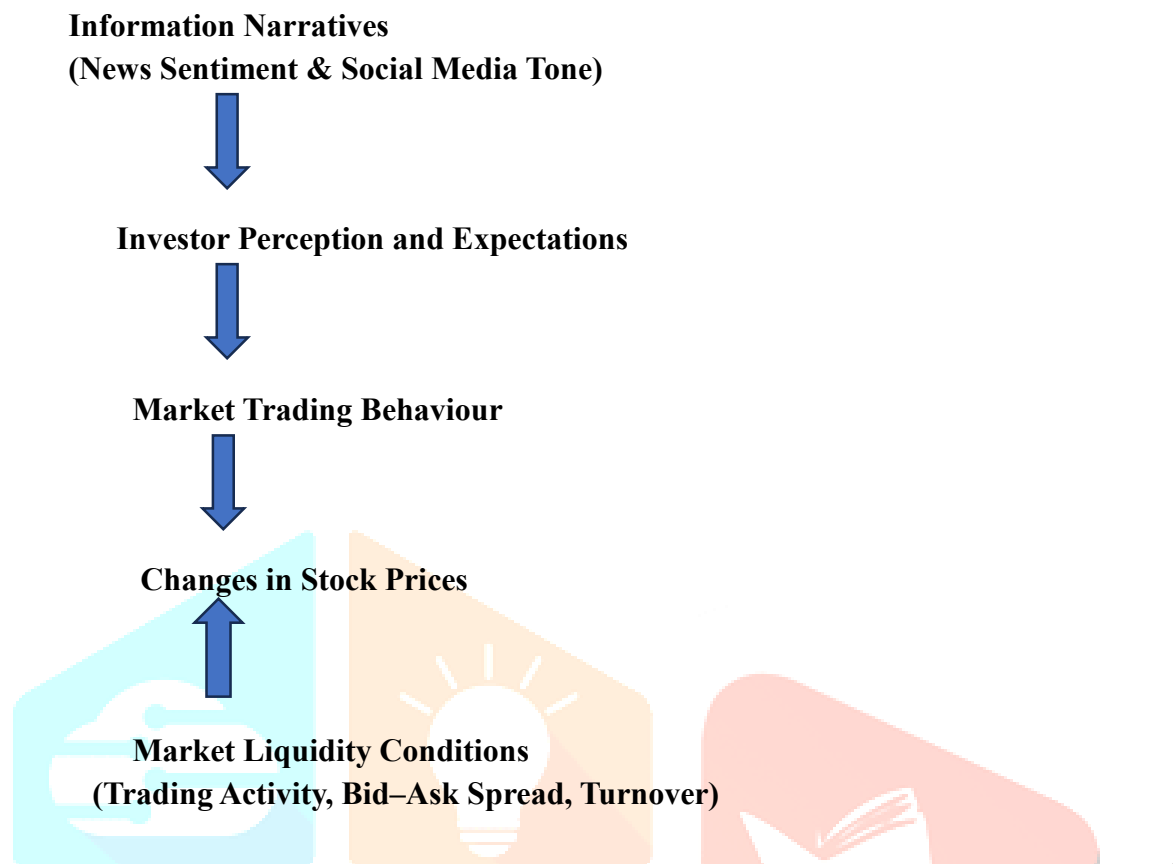


Figure 1: Conceptual Framework of Narrative Bias and Market Liquidity Impact on Stock Prices

While there is ample literature on investor sentiment and market liquidity individually, very few have tried to investigate the simultaneous impact of narrative bias and market liquidity on stock price behavior.

The extant literature on prediction models is mainly concentrated on one of the following two aspects:

- Behaviour (e.g., Sentiment Analysis) or
- Structure (e.g., Market Liquidity and Trading Activity).

In other words, there seems to be a lack of integration between these approaches when it comes to predicting stock prices. This study attempts to bridge that gap.

#### 5. Research Objectives

##### 5.1. To investigate the effect of market liquidity on the volatility of stock prices.

The objective is to analyse the effect of the liquidity state on the stability of stock prices by looking at various liquidity metrics, including trading volumes and bid-ask spreads. These parameters will help us understand how easy or difficult it is to sell stocks without significantly affecting their prices.

##### 5.2. To design a new framework that takes into account both behavioural finance and market structure features to predict stock prices.

By incorporating the behavioural component into the liquidity structure framework, we will be able to create an effective tool for stock price prediction. Our proposed framework will include psychological narratives and liquidity measures to provide an advanced analysis of investors' behaviour in the stock market.

### 5.3. To assess whether the incorporation of narrative biases and liquidity indicators enhances stock price prediction models.

Our goal is to test whether behavioural and structural factors can improve predictions compared to price-based models alone. We will integrate sentiment scores and liquidity indicators in regression and machine learning algorithms to evaluate the effectiveness of our approach.

## 6. Hypothesis Development

### Hypothesis 1: Narrative biases affect stock prices in the short run.

According to H1, narratives, opinions, and sentiments prevalent among investors in social media and financial press can have an effect on short-term movements of stock prices. Investor attitudes regarding stock prices are often defined in terms of a narrative that results either in optimism or pessimism concerning the performance in the future. Thus, when positive narratives regarding individual stocks or the market as a whole are abundant, buying activities take place, which drives up prices. On the other hand, narratives resulting in investor pessimism result in selling activities, driving down prices.

### Hypothesis 2: Market liquidity significantly influences stock price volatility.

The second hypothesis suggests that the level of liquidity in financial markets affects how stable or unstable stock prices are. Liquidity refers to how easily a stock can be traded without causing large changes in its price. In highly liquid markets, a large number of buyers and sellers are present, which allows transactions to occur smoothly and reduces extreme price fluctuations. On the other hand, when liquidity is limited, even relatively small trades can lead to substantial price changes. As a result, variations in liquidity conditions are expected to have a measurable effect on stock price volatility.

### Hypothesis 3: The relationship between narrative bias and market liquidity has a significant impact on the performance of the stock market.

This hypothesis posits that narrative sentiments and market liquidity are not two separate entities which act alone; rather, they act together to affect the market performance. The presence of strong narratives in a very liquid market will have the effect of making sure that the information spreads rapidly and, consequently, prices are adjusted. On the other hand, if there is a lack of liquidity, the same narratives will cause larger fluctuations in prices due to the lack of participants to soak up the transactions.

### H4: Prediction models that consider narrative biases and liquidity will have better predictive performance compared to models that use only historical price information.

In the final hypothesis, it is stated that the predictive models for stock prices can be made more accurate by introducing other variables into them apart from the historical stock prices. In traditional predictive models, it is assumed that there are some elements that could improve the forecasting capabilities of the model which could be ignored in the traditional models. For example, narrative sentiments and liquidity levels of markets are two such variables.

Narrative Bias —————▶ Stock Price Returns (H1)

Market Liquidity —————▶ Stock Price Volatility (H2)

Narrative Bias × Liquidity —▶ Market Dynamics (H3)

Integrated Model —————▶ Higher Prediction Accuracy (H4)

Figure 2: Research Model and Hypotheses

## 7. Research Methodology

**Data Collection**



**News & Social Media Data**

**Stock Market Data (NSE/BSE)**



**Sentiment Analysis**



**Liquidity Measurement**

**(Volume, Bid-Ask Spread)**



**Regression & Machine Learning Models**



**Prediction Accuracy Evaluation**

Figure 3: Research Methodology Flowchart

### Research Design

The study employs an empirical research design that is quantitative in nature. This involves analyzing relationships among narrative sentiment indicators, measures of liquidity, and stock price dynamics.

### Data Sources

Sources of data include:

- Online financial news media
- Twitter feeds pertaining to stocks
- Historical market data from National Stock Exchange of India and Bombay Stock Exchange.

The database contains historical time series data on daily stock prices, trading volumes, and financial news sentiment indices.

### Variables

#### ➤ Independent Variables

- Narrative Bias (sentiment score based on news and social media)

The concept of narrative bias captures the influence of dominant narratives and sentiments in the market on investment decisions made by investors. The sentiment scores for narratives are calculated through text analysis methods, which assign news articles and social media sentiments to either a positive, negative, or neutral category. This enables the research to measure the extent to which sentiment-driven narratives may influence stock prices.

- Market Liquidity Measures (Volume and Bid-Ask Spread)

Market liquidity measures capture the extent to which it is possible to trade stocks without affecting their prices adversely. The two measures include trading volume, capturing market activity, and bid-ask spread, which captures transaction costs.

### ➤ **Dependent Variable**

Stock price returns

Stock price returns refer to the changes in the value of stocks expressed in percentages. The value reflects the market result resulting from the investors' sentiments and liquidity levels. In this research, stock returns have been adopted to assess the impact of narrative bias and liquidity indicators on price movements and market behavior.

### ➤ **Control Variables**

- Market index returns

The returns on the market index denote the overall returns on the entire stock market. They serve as the control variables since they will ensure that the changes in returns on individual stocks are independent of any changes that might affect the entire stock market.

- Interest rates

The interest rate affects the borrowing costs and the returns on financial assets. Thus, an increase or decrease in interest rates may cause changes in investor behaviour and cause funds to flow from one asset class to another. By serving as the control variables, interest rates will ensure that the study accounts for macroeconomic determinants of stock price changes.

- Firm size

Firm size is usually determined by using the measure of market capitalization. Larger firms tend to have more coverage from analysts and higher levels of liquidity. The inclusion of firm size as one of the control variables helps to eliminate the chances of obtaining results influenced by the structural difference between big firms and small firms.

## **Measurement of Narrative Bias**

Narrative bias can be measured through sentiment analysis methods which categorize textual information based on positive, negative, or neutral sentiment. The sentiments generated are the dominant narratives for particular firms or for the market as a whole.

Liquidity can be analyzed through:

- average daily turnover
- bid-ask spread
- volume/turnover ratio

Analytical Techniques

The research uses different analytical techniques such as:

- multivariate regression models
- time series
- machine learning techniques

These tools allow for assessment of the impact of narrative sentiment and liquidity on stock prices.

### 8. Data Analysis and Results

The regression analysis highlights the presence of important correlations between narrative sentiment, different liquidity indicators, and stock prices.

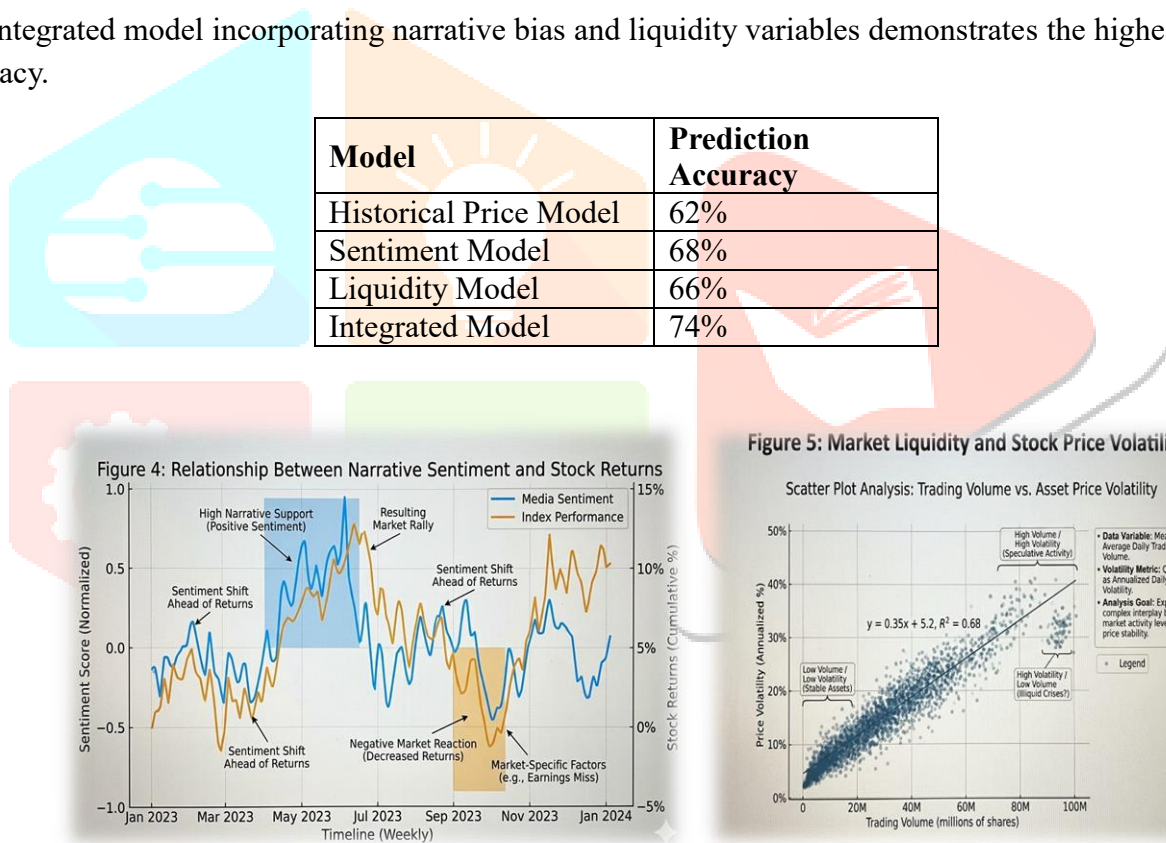
#### Regression Results (Illustrative)

Variable	Coefficient	Significance
Narrative Sentiment	0.42	Significant
Trading Volume	0.31	Significant
Bid-Ask Spread	- 0.27	Significant

According to the obtained results, high levels of narrative sentiment are positively correlated with stock prices, whereas higher liquidity magnifies this correlation.

#### Predictive Model Performance

The integrated model incorporating narrative bias and liquidity variables demonstrates the highest predictive accuracy.



### 9. Discussion

This research provides empirical evidence for the theoretical propositions advanced by narrative economics and behavioral finance. Investor behavior is heavily affected by narratives prevalent in the market, which affect expectations on future performance.

In situations where liquidity is abundant, narratives-based trades can quickly move through the market, increasing price volatility. On the other hand, in situations where liquidity is poor, prices become very volatile due to the low volume of transactions.

The implications from this study reveal that behavioral and structural elements must be considered when examining financial markets.

## 10. Conclusion

The current study analyzed the joint impact of narrative bias and market liquidity on the dynamics of the stock market and prediction modeling. The results reveal that narrative sentiment plays an important role in driving changes in stock prices; meanwhile, liquidity becomes an essential factor in terms of the influence exerted by the narratives.

Narrative bias and liquidity measures can be incorporated into stock prediction models to make them more effective. Thus, the paper makes contributions to the existing literature on financial studies by linking behavioral finance, narrative economics, and market microstructure theories.

## 11. Limitations and Future Research

Even though this paper has made valuable contributions to the literature, there are several drawbacks associated with the work. First, the sentiment analysis techniques used may fail to capture the nuances present in financial narratives. Second, the database used is restricted to select stocks and does not cover other market segments.

Possible areas for future work include machine learning approaches for detecting sentiments, high-frequency trading, and the effects of narratives in foreign financial markets.

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