Investigation of the Impact of Selected Monetary Variables on Capital Market Performance

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Abstract

This research aims to investigate the impact of monetary variables on stock market performance. Monetary variables can directly or indirectly affect stock market performance. This study focuses on the impact of interest rates, exchange rates, inflation rates, liquidity, and the legal reserve ratio on the stock price index. Another objective of this research is to examine the impact of economic policy uncertainty on the relationship between monetary variables and the overall stock price index, as well as to analyze how monetary variables are managed and their influence on the stock market. The research period spans ten years, from 2013 to 2022. The hypothesis testing results, using seasonal time series data and the Autoregressive Distributed Lag (ARDL) model, showed that the impact of money supply and exchange rates on the overall stock price index is positive and significant, while the effects of the interest rate index and the legal reserve ratio are not significant. Furthermore, this research, based on an index for economic policy certainty, indicates that the relationship between interbank interest rates, money supply, legal reserve ratio, and exchange rates with the overall stock price index is influenced by economic policy uncertainty.

Keywords: *Monetary variables, Stock market index, Autoregressive Distributed Lag (ARDL) model.*

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1. Introduction

Historically, macroeconomic fundamentals have demonstrated significant explanatory power for asset price dynamics and investor behavior in emerging markets. Exchange rate volatility, for example, plays a dual role in both creating arbitrage opportunities and exacerbating investor risk aversion. Empirical findings have revealed the bidirectional causality between currency fluctuations and equity performance in countries like China [1], India [2, 3], and Egypt [4]. This aligns with earlier research asserting that currency devaluation or appreciation can reallocate capital between export- and import-oriented industries, thereby affecting stock valuations [5].

Parallel to exchange rate movements, inflation represents another influential monetary variable. Persistent inflation erodes purchasing power, distorts real returns, and compels investors to seek assets with intrinsic or inflation-hedging value. For instance, a study in Kenya confirmed that elevated inflation levels diminish stock returns, especially in markets characterized by weak monetary frameworks [6]. Similarly, in Indonesia's banking sector, inflation was found to significantly alter firm value, further affirming its role in shaping investor expectations and capital flows [7].

Iran, like many emerging economies, has grappled with chronic inflation, fluctuating exchange rates, and interest rate rigidity. Within this environment, the stock exchange becomes a mirror reflecting macroeconomic fragility and policy-induced uncertainties. The study by [8] highlights that fluctuations in the exchange rate, interest rate, and inflation rate significantly affect the retained earnings of listed companies on the TSE. These retained earnings, in turn, directly influence market valuation, investment behavior, and capital market stability.

While the structural features of Iran's monetary system are unique, many patterns resemble those found in broader Islamic financial markets. A panel data analysis conducted on Islamic banks, for example, demonstrated that stock prices are inversely correlated with exchange rate changes but largely indifferent to interest rate shifts [9]. These findings suggest that currency shocks may exert stronger behavioral and valuation effects in interest-free banking systems, which are prevalent across Iran's financial landscape.

Moreover, inflation and exchange rate volatility in Iran often result from a mix of global sanctions, supply-side shocks, and inconsistent monetary policy. As discussed by [10], these factors foster herding behavior among investors, intensifying price swings and speculative movements in the TSE. The psychological effects of uncertainty—whether rooted in economic indicators or policy signals—thus create a reinforcing loop between monetary variables and capital market dynamics.

The influence of policy uncertainty deserves special attention. As [11] notes, uncertainty in macroeconomic variables exacerbates cost stickiness behavior in firms, limiting their agility in responding to external shocks. This stickiness affects profitability forecasts and ultimately impacts equity valuation. A similar sentiment is echoed by [12], who found that macroeconomic instability—particularly inflation, money supply, and currency devaluation—explains fluctuations in the price index of industrial firms listed on the TSE.

The strategic role of monetary variables in fostering or undermining capital market performance also intersects with broader development goals. In the Iranian context, achieving the objectives of a "resistant economy" has become central to policy frameworks. The resistant economy paradigm, outlined by [13], emphasizes financial resilience, national self-reliance, and the optimal use of domestic capital markets for production-based growth. The stock exchange, as noted, plays a pivotal role in directing liquidity into strategic sectors and absorbing government divestments.

From this vantage point, monetary policy is not only a tool of stabilization but also a mechanism of economic empowerment. However, this requires efficient transmission of monetary signals through credit markets, interest rates, and exchange rate management. The work by [14] underscores that monetary policy should enhance market trust and reduce exposure to exogenous vulnerabilities. Without stable macroeconomic anchors, capital markets become prone to speculative bubbles, capital flight, and loss of investor confidence.

Complementing these institutional perspectives are empirical assessments focusing on sectoral and firm-level behavior. For instance, [15] examined the automotive industry in Iran and found that money supply and interest rate variations have a significant impact on sectoral stock performance. These results reinforce the hypothesis that monetary instruments must be finely tuned to align with sectoral sensitivities.

On the regional front, policy coordination challenges further compound exchange rate risks. As [16] shows in the Ethiopian context, exchange rate volatility—whether symmetric or asymmetric—can severely impact export revenues and indirectly the stock market by affecting

national income and investor sentiment. These effects are magnified in economies with underdeveloped hedging instruments or foreign reserve constraints, characteristics that Iran shares to a significant extent.

Similarly, corporate governance quality influences how monetary shocks are transmitted to market outcomes. [17] demonstrates that weak governance increases the likelihood of corporate failure under volatile macroeconomic conditions. This suggests that robust corporate governance mechanisms could act as a buffer, mitigating the adverse effects of inflation and exchange rate instability on market valuations.

Recent empirical advances have also employed new econometric methods to model these relationships. For instance, [3] uses the ARDL approach to highlight how inflation and exchange rates dynamically influence stock returns in India. This methodological approach has also been used in the present study to disentangle short-term fluctuations from long-term trends in Iran's stock market.

Additionally, the integration of multiple macroeconomic indicators—such as those studied by [18] using BVAR models—provides a comprehensive view of how monetary aggregates affect exchange rates and, by extension, equity markets. Such models are particularly relevant for countries like Iran, where policy lags, data limitations, and exogenous shocks necessitate robust econometric frameworks to understand variable interdependencies.

Finally, the potential feedback effects between stock market movements and macroeconomic conditions must be acknowledged. As shown in the study by [7], fluctuations in equity prices can impact the real economy by influencing investment levels, corporate capital structure, and even monetary transmission mechanisms. This feedback loop implies that monetary policy and stock market performance are inextricably linked in a two-way causality chain.

In sum, this study aims to provide empirical evidence on the relationship between key monetary variables—interest rates, money supply, liquidity, legal reserve ratio, and exchange rate—and the performance of the Tehran Stock Exchange over a ten-year period (2013–2022).

2. Methodology

Given the use of real company data in this research to test hypotheses, it is considered a quantitative study with an objective nature and is dependent on statistics and figures. The research approach, from an execution perspective, is inductive, and it is considered a cross-sectional study from a temporal perspective. From the perspective of execution purpose, the research can be considered an analytical-correlational study, and from the perspective of execution results, it is an applied research. Research data were extracted from information databases of the Central Bank and Stock Exchange and data classification and extraction software, including Rahavard Novin, and for data analysis, seasonal time series data and the Autoregressive Distributed Lag (ARDL) model were used.

Dependent variable - Stock price index: The index announced by the Stock Exchange Organization at the end of each season is used.

Independent variables - Interbank interest rate, money supply, legal reserve ratio, liquidity growth, and exchange rate, which are obtained from official Central Bank statistics.

Moderating variable - Economic policy uncertainty: Based on studies by Zarannejad and Motamedi (2012), Moghadam and Sezavar (2015), Baghomian et al. (2016), and Shakarkhah and Ghasedi Dizaji (2016), four criteria are used to measure economic uncertainty: economic growth, inflation rate, exchange rate, and interest rate. Given that exchange rate and interest rate are used as independent variables, in the present study, changes in two indices, including economic growth and inflation rate, are calculated relative to the previous period, and then the Autoregressive Conditional Heteroskedasticity (ARCH) and Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models1 are used to obtain the macroeconomic uncertainty index.

2.1. Research Model

To test the hypotheses, the research variables are seasonal time series, and the Autoregressive Distributed Lag (ARDL) model is used. Using this model has several advantages. Firstly, it is not necessary for all variables to have the same order of integration. Additionally, in addition to estimating the coefficients of the long-run model, it also provides an error correction model to examine how short-run disequilibrium adjusts to long-run equilibrium. Pesaran and Shin (1999) showed that estimations using this method for small sample sizes have less bias and greater efficiency. It also allows for examining the issue of cointegration when time series data are non-stationary.

The main form of the ARDL model is as follows:

$$Yt=\alpha 0+\sum i=1p\alpha iYt-i+\sum j=0q\beta jXt-j+\varepsilon t$$

Where:

- Yt: Dependent variable at time t

- Xt−j: Independent variable with lag j
- α0: Intercept (constant)
- αi: Coefficients of lagged dependent variables
- βj: Coefficients of lagged independent variables
- p: Number of lags for the dependent variable
- q: Number of lags for the independent variable
- ε: Error term

$$LPt=\alpha 0+\sum i=1P\alpha 0LPt-i+\sum j=0q\beta 1jLRt-i+\sum j=0q\beta 2j LMt-i+\sum j=0q\beta 3jLSt-i+\sum j=0q\beta 4jLNt-i+\sum j=0q\beta 5jLEt-i +\varepsilon t$$

Where: LP is the logarithm of the price index; LR is the logarithm of the interest rate; LM is the logarithm of the legal reserve ratio; LN is the logarithm of liquidity growth; LE is the logarithm of the exchange rate. This model is used to test hypotheses 1-1 to 1-5. To test hypotheses 2-1 to 2-5, the research sample needs to be divided into two groups based on the economic policy uncertainty variable (Group 1: economic policy uncertainty less than the mean and Group 2: economic policy uncertainty greater than the mean), and the research model is estimated separately for these two groups. The impact of economic policy uncertainty is examined by comparing the model coefficients in the two groups. For testing the third hypothesis regarding the impact of monetary variables on the stock market in line with the realization of Clause 9 of the general policies of the resistant economy, the results of the first and second sub-hypotheses are analyzed. It should be noted that all variables are seasonal. Also, before estimation, the stationarity of the variables used in the model must be examined. If the research variables are non-stationary in the estimation of the model coefficients, it will lead to unreliable estimation results and consequently, the researcher will draw incorrect inferences about the relationship between the variables. The Augmented Dickey-Fuller test is used to examine stationarity for time series.

2.2. Data Collection Methods

In the present study, library research methods were used for data collection. The theoretical discussions of the research were gathered through studying sources, journals, domestic and foreign resources in books, and using the internet. Data collection was based on preliminary company information; the required information and data were obtained from the official websites of the Central Bank and the Tehran Stock Exchange during the years 2013 to 2022.

3. Findings and Results

Descriptive statistics refer to methods that process and summarize collected information. This type of statistics solely describes the population or sample and aims to calculate the parameters of the research population or sample. The changes in the price index are as follows. Now, the results of calculating the descriptive measures of the introduced indices are shown in the table below:

Table 1. Descriptive Measures of Introduced Indices

	Number of Observations	Minimum Value	Maximum Value	Mean	Median	Standard Deviation	Skewness
Descriptive measures of price index	72		-0.247	1.477	0.0952	0.0459	0.222
Descriptive measures of interest rate		18.34	23.80	19.458	18.90	1.309	1.780
Descriptive measures of legal reserve ratio		9.10	14.20	11.103	11.10	1.209	0.593
Descriptive measures of money supply		5.982	7.780	6.898	6.902	0.533	0.026
Descriptive measures of logarithm of liquidity growth		-0.138	0.818	0.081	-0.053	0.260	1.514
Descriptive measures of logarithm of exchange rate		3.962	5.743	4.634	4.539	0.582	0.439

Now, the results of the Dickey-Fuller test for evaluating the stationarity of the introduced indices are presented in the table below:

Table 2. Dickey-Fuller Test Results

	t-statistic	Significance Level
Price Index	-6.361	0.001
Interest Rate Index	-2.838	0.0581
Interest Rate Index (First Difference)	-2.956	0.0441

Legal Reserve Ratio Index	-3.0125	0.0386
Money Supply Index	-0.978	0.7566
Money Supply Index (First Difference)	-7.277	0.001
Liquidity Growth Index	-3.783	0.0048
Exchange Rate Index	0.703	0.9920
Exchange Rate Index (First Difference)	-7.490	0.001

The first step in determining the stationarity of a variable is to observe its time series plot. However, the non-stationarity of some variables is not explicitly clear from their plots. Therefore, statistical tests, specifically the unit root test, are used for this purpose. The presence of a unit root means non-stationarity. The first test to examine the presence of a unit root in series was presented by Dickey and Fuller (1976; 1979). If in the Dickey-Fuller test, the null hypothesis of "a unit root exists and the variable is non-stationary" is rejected, the assumption of variable stationarity is confirmed. The findings in Table 3 showed that the absolute value of the test statistic is greater than the critical value of the t-statistic, and its corresponding significance level is less than 0.05. Therefore, the assumption of stationarity of the price index in the research model is confirmed.

There are several methods for determining the number of lags in the ARDL model, which can be used to determine the optimal number of lags. The number of lags plays an important role in the accuracy and efficiency of the model, so its correct determination is of high importance.

Using Information Criteria:

The most common method for determining the number of lags is to use information criteria. These criteria help you choose the best number of lags based on the optimization criterion. The most common information criteria include:

- **AIC (Akaike Information Criterion):** This criterion encourages fewer lags but adjusts the model parameters with good accuracy.
- **BIC (Bayesian Information Criterion):** Usually used for selecting simpler models, as it suggests fewer lags than AIC.
- **HQ (Hannan-Quinn Information Criterion):** Falls between AIC and BIC in some cases and is a balanced criterion.

Introducing variables with too many lags leads to errors in prediction, and variables with too few lags lead to unusual results. Experience, knowledge, and theory are necessary to determine the optimal number of lags. Most software reports criteria for determining the optimal number of lags, including: Schwarz-Bayesian, Akaike, and Hannan-Quinn statistics. If all three statistics show the same optimal lag, there is no problem, but if there is no consistency, the Akaike statistic shows good results for monthly data. The Hannan-Quinn statistic reports better results for seasonal data and time periods of more than 120 observations. The Schwarz-Bayesian statistic is also more reliable for determining the optimal lag in VEC models with any sample size in seasonal data.

The Akaike Information Criterion (AIC) is a measure of goodness of fit. This criterion is based on the concept of entropy and shows how much information is lost by using a statistical model. In other words, this criterion establishes a balance between model accuracy and complexity. Given the data, several competing models may be ranked based on the AIC value, and the model with the lowest AIC is the best. From the AIC value, it can be inferred that, for example, three better models have relatively similar status, and the rest of the models are significantly worse, but there is no criterion for choosing a threshold value for AIC to reject a model due to having a larger AIC. Considering other prerequisites for model presentation, the Akaike values of the regression models (with one, two, and three lags) are presented for each regression model in the research hypotheses.

Table 3. Determining Optimal Lag in Hypothesis 1 and 2 Test Models

	Number of Lags	Akaike Index	Result
Regression model in Hypothesis 1	1	0.976	
	2	0.0475	Confirmed
	3	0.326	
Regression model in Hypothesis 2	1	-0.755	
	2	-0.836	
	3	-0.931	Confirmed

According to the mentioned index, the second lag in the regression model of the first research hypothesis is 0.0475, which is less than other fitted models, and was determined as the optimal lag. In the second research model, the third lag with an Akaike value of -0.931 is determined as the optimal lag.

Generally, the Durbin-Watson statistic ranges from 0 to 4, with an optimal value of 2. If it is between 1.5 and 2.5, the assumption of no autocorrelation is confirmed. Based on the results of the research model execution, the Durbin-Watson value is 1.52, so the second prerequisite for running the research model is also met.

Table 4. Examining Heteroskedasticity

	F-statistic	Significance Level
Breusch-Pagan Statistic	1.781	0.2188

If the significance level is less than 0.05, the null hypothesis is rejected, and it is concluded that heteroskedasticity exists. However, if the significance level is greater than 0.05, the null hypothesis is not rejected, and it is concluded that variances are homoskedastic (no heteroskedasticity exists). Therefore, if the significance level is greater than 0.05, the assumption of heteroskedasticity is rejected, and we accept that the variances are homoskedastic. The findings of the Breusch-Pagan test according to the above table showed that the significance level of the test is greater than 0.05, so the assumption of heteroskedasticity is rejected, and the results of the model prediction can be presented.

7. Research Findings

In this research, the impact of monetary variables on stock market performance in the Iranian market will be evaluated. Considering the sampling limitations presented in the previous chapter and the variables discussed, seasonal data from 2006 to 2022 were collected, and accordingly, the research hypotheses were tested. The method for hypothesis testing is time series analysis to provide suitable predictions and evaluate the research model, which will be performed using EViews software.

7-1. Testing Research Hypotheses

Based on the performed validation, the research model for the first to fifth hypotheses is presented in the following.

$$LPt=\alpha 0+\sum i=1P\alpha 0LPt-i+\sum j=0q\beta 1jLRt-i+\sum j=0q\beta 2j\ LMt-i+\sum j=0q\beta 3jLSt-i+\sum j=0q\beta 4jLNt-i+\sum j=0q\beta 5jLEt-i\ +\varepsilon t$$

Where:

- LPt: Logarithm of price index
- LRt−i: Logarithm of interest rate
- LMt−i: Logarithm of legal reserve ratio
- LSt−i: Logarithm of money supply
- LNt−i: Logarithm of liquidity growth
- LEt−i: Logarithm of exchange rate

Table 5. Summary of Model Fit Results showed that the model was significant with an F-statistic significance level

Variable	Coefficient Symbol	Coefficients	Standard Error	t-statistic	Significance Level	Result
Constant	β0	-7.103	2.264	-3.136	0.0026	
Price index of previous year (LPt−i)	β1	0.477	0.198	2.406	0.0192	Direct and significant
Logarithm of interest rate (LRt−i)	β2	0.092	0.051	1.778	0.0804	Not significant
Logarithm of legal reserve ratio (LMt−i)	β3	-0.0053	0.0702	-0.075	0.9400	Not significant
Logarithm of money supply (LSt−i)	β4	0.953	0.473	2.015	0.0483	Direct and significant
Logarithm of liquidity growth (LNt−i)	β5	0.121	0.162	0.746	0.4582	Not significant
Logarithm of exchange rate (LEt−i)	β6	2.185	0.364	5.992	0.0001	Direct and significant
Overall Model Results	R-squared	0.3648	F-statistic	274.71		
	Durbin-Watson statistic	1.521	Significance Level	0.001		

The adjusted R-squared in the model indicates that 36.48% of the changes in the price index are due to changes in the logarithm of the interest rate, logarithm of the legal reserve ratio, logarithm of money supply, logarithm of

liquidity growth, and logarithm of the exchange rate, along with changes in price variables in the previous year. Next, based on the regression coefficients, hypotheses one to five will be analyzed.

Hypothesis (1-1):

Interbank interest rates have a significant impact on the overall stock price index.

The regression coefficient corresponding to the interbank interest rate index is 0.092, and its significance level is 0.080, which is slightly greater than 0.05 ($p = 0.080 > 0.05$). Therefore, although with 95% confidence, the impact of interbank interest rates on the overall stock price index is not significant, if the confidence level is lowered (with weaker confidence), the assumption will be confirmed at a 10% error level. An increase in the interbank interest rate index leads to an increase in the overall stock price index, but this increase is not significant. Based on this, and considering the collected information and the failure to reject the null hypothesis in the test of the first research hypothesis, which states that "interbank interest rates have a significant impact on the overall stock price index," it is rejected with 95% confidence.

Hypothesis (1-2):

Money supply has a significant impact on the overall stock price index.

The regression coefficient corresponding to the money supply index is 0.953, and its significance level is 0.048, which is less than 0.05 ($p = 0.048 < 0.05$). Therefore, the relationship between the mentioned variables is direct and significant, and the impact of money supply on the overall stock price index is significant and direct. An increase in money supply leads to an increase in the overall stock price index. Therefore, considering the collected information and the rejection of the null hypothesis in the test of the research hypothesis, which states that "money supply has a significant impact on the overall stock price index," it is confirmed with 95% confidence.

Hypothesis (1-3):

The legal reserve ratio has a significant impact on the overall stock price index.

The regression coefficient corresponding to the legal reserve ratio index is -0.0053, and its significance level is 0.940, which is greater than 0.05 ($p = 0.940 > 0.05$). Therefore, with 95% confidence, the impact of the legal reserve ratio on the overall stock price index is inverse but not significant, and the research hypothesis stating that "the legal reserve ratio has a significant impact on the overall stock price index" is rejected.

Hypothesis (1-4):

Liquidity growth has a significant impact on the overall stock price index.

The regression coefficient corresponding to the liquidity growth index is 0.121, and its significance level is 0.458, which is greater than 0.05 ($p = 0.458 > 0.05$). Therefore, with 95% confidence, the impact of liquidity growth on the overall stock price index is not significant, and the research hypothesis stating that "liquidity growth has a significant impact on the overall stock price index" is rejected.

Hypothesis (1-5):

Exchange rates have a significant impact on the overall stock price index.

The regression coefficient corresponding to the exchange rate index is 2.185, and its significance level is 0.001, which is less than 0.05 ($p = 0.001 < 0.05$). Therefore, the relationship between the mentioned variables is direct and significant, and the impact of the exchange rate on the overall stock price index is significant and direct. Therefore, considering the collected information and the rejection of the null hypothesis in the test of the fifth research hypothesis, which states that "exchange rates have a significant impact on the overall stock price index," it is confirmed with 95% confidence.

To evaluate the second hypothesis, the research model was estimated separately for the sample with economic policy uncertainty and the sample without political uncertainty (the method for calculating the variable is presented in chapter three; this variable is used as zero or one), and the statistic for comparing coefficients was calculated, and the relevant analysis was provided for each hypothesis.

Hypothesis (2-1): The relationship between interbank interest rates and the overall stock price index is influenced by economic policy uncertainty.

A summary of the regression model fit results, disaggregated by economic policy uncertainty, showed that the regression coefficient for the first group (without economic policy uncertainty) is 0.155 with a standard error of 0.112, and the regression coefficient for the second group (with economic uncertainty higher than the mean in economic policies) is -0.017 with a standard error of 0.033.

Table 6. Results of Regression Coefficient Comparison Test for Interbank Interest Rate

	Model 1 (Without Economic Uncertainty)	Model 2 (With Economic Uncertainty)

Regression Coefficient	0.155	-0.017
Standard Error	0.112	0.033
Coefficient Difference	Standard Error	Test Statistic
0.172	0.061	2.828

According to the results of the table below, the difference in coefficients in the two models is 0.172, and the test statistic for comparing the two regression coefficients is 2.828 with a significance level of 0.007, which is less than 0.05. Therefore, the relationship between interbank interest rates and the overall stock price index is influenced by economic policy uncertainty ($P < 0.05$), so the hypothesis is confirmed.

Hypothesis (2-2): The relationship between money supply and the overall stock price index is influenced by economic policy uncertainty.

A summary of the regression model fit results, disaggregated by economic policy uncertainty, showed that the regression coefficient for the first group (without economic policy uncertainty) is 0.155 with a standard error of 0.112, and the regression coefficient for the second group (with economic uncertainty higher than the mean in economic policies) is -0.017 with a standard error of 0.033.

Table 7. Results of Mean Comparison Test for Money Supply

	Model 1 (Without Economic Uncertainty)	Model 2 (With Economic Uncertainty)
Regression Coefficient	-1.798	-0.052
Standard Error	0.887	0.285
Coefficient Difference	Standard Error	Test Statistic
-1.746	0.503	-3.467

According to the results in the table below, the difference in coefficients in the two models is -1.746, and the test statistic for comparing the two regression coefficients is -3.467 with a significance level of 0.0009, which is less than 0.05. Therefore, the relationship between money supply and the overall stock price index is influenced by economic policy uncertainty ($P < 0.05$), so the hypothesis is confirmed.

Hypothesis (2-3): The relationship between the legal reserve ratio and the overall stock price index is influenced by economic policy uncertainty.

The results of the regression model fit, disaggregated by economic policy uncertainty, showed that the regression coefficient for the first group (without economic policy uncertainty) is -0.475, and the regression coefficient for the second group (with economic uncertainty higher than the mean in economic policies) is -0.009. According to the results in the table below, the difference in coefficients in the two models is -0.465, and the test statistic for comparing the two regression coefficients is -5.192 with a significance level of 0.001, which is less than 0.05. Therefore, the relationship between the legal reserve ratio and the overall stock price index is influenced by economic policy uncertainty ($P < 0.05$), so the hypothesis is confirmed.

Table 8. Results of Mean Comparison Test for Legal Reserve Ratio

	Model 1 (Without Economic Uncertainty)	Model 2 (With Economic Uncertainty)
Regression Coefficient	-0.475	-0.009
Standard Error	0.198	0.040
Coefficient Difference	Standard Error	Test Statistic
-0.465	0.089	-5.192

Hypothesis (2-4): The relationship between liquidity growth and the overall stock price index is influenced by economic policy uncertainty.

The results of the regression model fit showed that the regression coefficient for the first group (without economic policy uncertainty) is -0.108, and the regression coefficient for the second group (with economic uncertainty higher than the mean in economic policies) is -0.021. According to the results in the table below, the difference in coefficients in the two models is -0.086, and the test statistic for comparing the

two regression coefficients is -0.405 with a significance level greater than 0.05. Therefore, the relationship between liquidity growth and the overall stock price index is not influenced by economic policy uncertainty (P > 0.05), so the hypothesis is rejected.

Table 9. Results of Mean Comparison Test for Liquidity Growth

	Model 1 (Without Economic Uncertainty)	Model 2 (With Economic Uncertainty)
Regression Coefficient	-0.108	-0.021
Standard Error	0.514	0.089
Coefficient Difference	Standard Error	Test Statistic
-0.086	0.214	-0.405

Hypothesis (2-5): The relationship between the exchange rate and the overall stock price index is influenced by economic policy uncertainty.

The results of the regression model fit showed that the regression coefficient for the first group (without economic policy uncertainty) is 1.247, and the regression coefficient for the second group (with economic uncertainty higher than the mean in economic policies) is 0.082. According to the results in the table below, the difference in coefficients in the two models is 1.165, and the test statistic for comparing the two regression coefficients is 2.975 with a significance level of 0.004, which is less than 0.05. Therefore, the relationship between the exchange rate and the overall stock price index is influenced by economic policy uncertainty (P < 0.05), so the hypothesis is confirmed with 95% confidence.

Table 10. Results of Mean Comparison Test for Exchange Rate

	Model 1 (Without Economic Uncertainty)	Model 2 (With Economic Uncertainty)
Regression Coefficient	1.247	0.082
Standard Error	0.704	0.217
Coefficient Difference	Standard Error	Test Statistic
1.165	0.391	2.975

4. Discussion and Conclusion

The primary objective of this study was to investigate the impact of selected monetary variables—namely, interbank interest rates, money supply, legal reserve ratio, liquidity growth, and exchange rate—on the overall stock price index of the Tehran Stock Exchange over a ten-year period (2013–2022). Additionally, this research explored the moderating role of economic policy uncertainty in the relationships between these monetary indicators and stock market performance. The results were analyzed using the Autoregressive Distributed Lag (ARDL) model and robustness checks that confirmed model adequacy.

The findings revealed that the interbank interest rate had a positive but statistically insignificant relationship with the stock price index. Although the coefficient was positive, the significance level was above the conventional threshold (p > 0.05), indicating that variations in the interbank interest rate do not consistently influence stock market movements in Iran. This is in contrast to theoretical expectations that posit higher interest rates reduce stock market investments by making fixed-income assets more attractive. The results, however, find partial support in the study by [9], which also noted no significant correlation between interest rates and stock prices of Islamic banks. This similarity could stem from the nature of Iran's financial system, where interest rates are less market-driven and often administratively regulated, thereby limiting their signaling function in capital markets.

More notably, the study found that money supply had a direct and significant impact on the stock price index. An increase in the money supply was associated with higher stock prices, confirming the liquidity-augmenting role of expansionary monetary policy. These findings are aligned with the research of [6], who showed that increases in the inflation-adjusted money supply positively influenced stock market returns in Kenya. Similarly, [12] documented that increases in the money supply significantly influenced the pricing of manufacturing and industrial company shares in Iran. Furthermore, the findings support the assertion of [15], who found that monetary variables like money supply exert considerable effects on sectoral stock indices. Theoretically,

this is supported by the Keynesian view, which suggests that monetary expansion leads to increased consumption and investment, thereby stimulating stock market demand and returns.

Regarding the legal reserve ratio, the findings revealed an insignificant and slightly negative relationship with stock market performance. This implies that the central bank's manipulation of reserve requirements may not be an effective instrument in influencing the capital market directly. This result resonates with the findings of [18], who concluded that reserve requirement adjustments in Iran showed limited effectiveness in shaping macroeconomic outcomes. It also confirms observations from [10] that central bank policies often exert muted influence on investor behavior due to lagged transmission effects and limited financial deepening.

The liquidity growth variable, measured by the growth of money and quasi-money, was also found to have an insignificant relationship with the stock price index. This result may be attributed to the inefficient allocation of liquidity or the limited absorptive capacity of the productive sector. In the presence of underdeveloped financial markets and limited investment alternatives, increases in liquidity may not translate into proportional stock market growth. This interpretation is compatible with the argument by [7], who observed that in the Indonesian context, excess liquidity often results in inflationary pressure without significant capital market gains.

In contrast, exchange rate fluctuations had a strong, direct, and statistically significant impact on the stock price index. This aligns with numerous international findings that identify exchange rate movements as powerful determinants of stock returns. The research by [4] on the Egyptian real estate sector revealed a similar pattern, where exchange rate volatility significantly influenced equity prices, particularly in sectors dependent on imported inputs. Likewise, [3] and [2] reported that in India, exchange rate fluctuations substantially influenced market sentiment and stock valuation, especially in the post-liberalization era. These findings are further validated by [5], who examined emerging markets and found that exchange rate stability is a crucial condition for sustained capital market development.

One of the most innovative aspects of this study was the incorporation of economic policy uncertainty (EPU) as a moderating variable. The results confirmed that the relationships between interbank interest rates, money supply, legal reserve ratio, and exchange rate with the stock price index are significantly moderated by EPU. In periods of heightened uncertainty, the otherwise linear relationships between monetary indicators and market outcomes weaken or even reverse. For instance, under conditions of high policy uncertainty, the positive effect of the money supply on stock prices diminished substantially. These findings are in agreement with the assertions by [11], who emphasized that uncertainty in macroeconomic policy disrupts cost structures and dampens corporate responsiveness to monetary signals. The role of uncertainty as a distorting force is further emphasized by [8], who observed that volatility in monetary variables under uncertain conditions erodes corporate earnings and undermines market predictability.

Moreover, the observed weakening of the interest rate-stock price relationship under high uncertainty conditions resonates with the framework developed by [1], where investor sentiment mediated by uncertainty amplifies the impact of monetary variables on equity volatility. Likewise, the asymmetric behavior of monetary variables during uncertain periods parallels the findings by [16], who highlighted how exchange rate effects on export earnings in Ethiopia differ under stable versus volatile regimes.

The influence of EPU was also evident in the case of the exchange rate, where its significant and strong effect on the stock index under low uncertainty was substantially muted when uncertainty levels were high. This finding suggests that investor confidence, driven by stable policy signals, is an essential transmission channel for monetary policy effectiveness. It supports the conceptual perspective offered by [13], who advocated that the role of the capital market in achieving resistant economy goals can only be realized under coherent and predictable policy environments.

From a broader perspective, these results reinforce the strategic role of monetary policy in guiding capital markets, particularly in contexts marked by structural fragility and economic sanctions. As [14] rightly pointed out, a stable and responsive monetary framework is indispensable for national stability and stock market resilience. The present findings underline that when monetary tools are applied without considering the prevailing uncertainty, their effectiveness is significantly constrained. This has critical implications for macroeconomic management in emerging markets, where institutional weaknesses and external pressures often exacerbate policy unpredictability.

Overall, the study contributes to the growing body of literature that advocates for an integrated approach to monetary policymaking—one that simultaneously considers variable effectiveness, institutional stability, and uncertainty

moderation. The fact that only some monetary variables exert significant influence on the stock market underlines the importance of selective and context-aware policy instruments. It also validates the utility of the ARDL framework in revealing both short-run and long-run dynamics in financial econometrics, particularly when data series exhibit mixed integration orders and limited time spans.

Despite the comprehensive scope of the study, several limitations must be acknowledged. First, the research only included macroeconomic monetary variables and did not account for fiscal policy or external variables such as global oil prices, sanctions, or geopolitical tensions, which could have considerable effects on the Tehran Stock Exchange. Second, the study used seasonal data, which may overlook shorter-term market responses that occur on a monthly or weekly basis. Third, the measurement of economic policy uncertainty was based on a constructed index derived from GDP and inflation volatility, which, although methodologically sound, may not fully capture qualitative dimensions of uncertainty, such as political instability or institutional credibility.

Future studies should consider incorporating a broader set of explanatory variables, including fiscal policies, global financial indicators, and sector-specific shocks. Moreover, expanding the research framework to include qualitative assessments of policy communication and investor sentiment could enrich the understanding of uncertainty effects. Future researchers are also encouraged to employ high-frequency data, such as monthly or weekly stock returns, to capture more immediate market responses to monetary announcements. Comparative studies across multiple emerging markets would also provide deeper insights into the generalizability of the results.

Monetary authorities should prioritize clarity, consistency, and transparency in policy communication to reduce uncertainty and enhance market responsiveness to monetary signals. Policymakers must tailor monetary tools based on their relative effectiveness in different market conditions, particularly during periods of elevated uncertainty. The Central Bank should consider complementing interest rate and money supply policies with macroprudential tools that stabilize investor expectations. Additionally, creating institutional buffers that mitigate the effects of sudden macroeconomic shocks—such as currency stabilization funds or capital market insurance mechanisms—could help improve the resilience and depth of the Tehran Stock Exchange.

Authors' Contributions

Authors equally contributed to this article.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

All procedures performed in this study were under the ethical standards.

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