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Original Research

Evaluating the Asymmetric Effects of Parallel Financial Markets Shocks on Financial and Commercial Risk as well as Cash Returns

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ABSTRACT

Listed companies are always affected by shocks and instabilities in parallel financial markets such as exchange rates and gold. Knowledge of how these impacts are useful for managing companies and investors to make optimal decisions regarding risk management, financing and investment. Therefore, in this study, the effect of investigating the asymmetric effects of parallel financial markets shock on stock returns and financial and commercial risk of 262 companies listed on the Tehran Stock Exchange during the period 2009-2010 using the Generalized Torque (GMM) approach. Been investigated. The results show that the negative and positive shocks of the exchange rate and the price of gold have an asymmetric effect on trade risk, finance and stock returns. These asymmetric effects apply in terms of size, sign and significance. Positive gold price shocks also have a negative effect on trade risk and a positive effect on financial risk, but these shocks do not have a significant effect on stock returns. In contrast, the impact of negative gold price shocks on financial risk is negative and market returns are positive (the impact of negative shock on trade risk is not statistically significant). Based on the above results, it can be stated that corporate operating costs and financing costs are affected by price shocks in the gold and foreign exchange markets.

1 Introduction

Predicting stock market fluctuations and the degree of stability of these markets is one of the most important topics studied in the world financial markets. Fluctuations as an effective factor in determining investment risk can play an important role in investor decisions and in various financial markets in determining the stock returns of companies is very decisive. An important point is that the nature of fluctuations in different markets is different. Also, although the use of statistical and econometric methods in examining fluctuations in most financial markets of developed countries has received much attention, but no universal method has been proposed to study fluctuations in stock returns with high reliability. In this way, if in one market, a method shows higher efficiency, in another market, it does not have high efficiency. The issue of stock market turmoil has been one of the most important topics in the financial literature in recent decades. The main function of financial markets in

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the economy is to provide a way for capital holders to direct and allocate funds from surplus financial resources to investors in need of financial resources. During this process, the prices of financial assets are subject to price fluctuations due to fluctuations in economic activities, which are considered as a common occurrence in market performance. However, by finding turbulence patterns for different stocks in the market and using the ability to predict stock prices, a smoother and more efficient process for capital allocation can be created. Among the volatility patterns of stock returns are cluster volatility patterns. Modeling stock market volatility seems to be an important issue from the perspective of academic researchers as well as financial practitioners in terms of its uses in predicting stock returns [7]. The securities, currency and gold markets have always been sensitive segments of the financial market. These three markets are rapidly affected by fluctuations and business cycles in the economy and quickly reflect economic change. At the same time, turmoil in any of the markets is causing concern among market policymakers. Although there is no theoretical consensus on the interaction between stock prices, gold, and exchange rates, it should be noted that intermediate variables such as wealth, demand for money, and interest rates play a large role in linking them. Fulfills. In the Iranian economy, the capital market is not significant compared to the foreign exchange and gold markets, and therefore the capital market in Iran is affected by both the foreign exchange and gold markets, but the opposite is not the case. Given that, in recent decades, the expansion of capital markets in developing countries has led to favorable economic growth. Developed countries also owe much of their development to financial markets, especially the stock market [6]. Assessing the impact of currency and gold market shocks on the performance of listed companies is very important. Developing countries, including Iran, have a high degree of shocks and instability of parallel financial markets (currency and gold), and these shocks are the commercial and financial risk of companies, as well as the stock returns of listed companies. Affects the stock market. Because companies on the stock exchange source some of their inputs through imports or export their products to foreign countries, it is also possible thatthese companies have received credits and facilities in foreign currency or institutions and banks listed on the stock exchange have granted foreign currency facilities and credits, so exchange rate shocks in the first place lead to uncertainty among the managers of these companies. And secondly, they lead to uncertainty in the decisions of investors. This situation in the stock market can lead to a recession, or in the event of a boom, limit the stock returns of relevant companies. Gold is also an alternative investment property, and gold market shocks change the behavior of investors in the stock market. Gold price fluctuations are also known as a signal of economic instability, and therefore the demand for products and the supply of inputs, as well as financing costs, can be affected by the gold market situation. A very important point about the impact of parallel market shocks on the performance of companies is that the impact of shocks varies depending on the environment of shock formation, so that economic agents in the volatile market predict the occurrence of any type of shock. Predict and plan to manage the risks resulting from shocks, but in situations where markets are not turbulent, the occurrence of shocks is not very predictable and in this regard No pre-planning. Given the importance of these issues, the present study investigates the asymmetric effects of parallel financial market shocks on the performance of listed companies in terms of shock formation environment. In this study, to specify the negative and positive price shocks of the foreign exchange and gold markets from the heterogeneous conditional variance heterogeneous model (EGARCH) during the period 1973-2019. To evaluate the effect of financial market shocks on companies' performance, the Generalized Torque (GMM) approach and data of 262 companies for the period 2009-2010 are used. In the continuation of this article, first the theoretical foundations and empirical studies are reviewed. In the third section, the research model is introduced

and the estimation method is described. In the fourth section, the shocks are specified, in the fifth section, the results are estimated and analyzed, and finally, a conclusion is made. Extreme price fluctuations in the capital market have long been an issue that has caused major losses to market participants. These fluctuations generally create an unfavorable market environment that has long reduced the confidence of buyers and can be a reason for the transition of the crisis from the financial sector to the real sector of the economy. Of course, price fluctuations are part of the nature of the market, but sometimes these fluctuations are out of their normal form and give way to unbridled ascents and sudden falls, inflicting irreparable blows on real and legal investors.

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decisions of investors. This situation in the stock market can lead to a recession, or in the event of a boom, limit the stock returns of relevant companies. Gold is also an alternative investment property, and gold market shocks change the behavior of investors in the stock market. Gold price fluctuations are also known as a signal of economic instability, and therefore the demand for products and the supply of inputs, as well as financing costs, can be affected by the gold market situation. A very important point about the impact of parallel market shocks on the performance of companies is that the impact of shocks varies depending on the environment of shock formation, so that economic agents in the volatile market predict the occurrence of any type of shock. Predict and plan to manage the risks resulting from shocks, but in situations where markets are not turbulent, the occurrence of shocks is not very predictable and in this regard No pre-planning. Given the importance of these issues, the present study investigates the asymmetric effects of parallel financial market shocks on the performance of listed companies in terms of shock formation environment. In this study, to specify the negative and positive price shocks of the foreign exchange and gold markets from the heterogeneous conditional variance heterogeneous model (EGARCH) during the period 1973-2019. To evaluate the effect of financial market shocks on companies' performance, the Generalized Torque (GMM) approach and data of 262 companies for the period 2009-2010 are used. In the continuation of this article, first the theoretical foundations and empirical studies are reviewed. In the third section, the research model is introduced and the estimation method is described. In the fourth section, the shocks are specified, in the fifth section, the results are estimated and analyzed, and finally, a conclusion is made. Extreme price fluctuations in the capital market have long been an issue that has caused major losses to market participants. These fluctuations generally create an unfavorable market environment that has long reduced the confidence of buyers and can be a reason for the transition of the crisis from the financial sector to the real sector of the economy. Of course, price fluctuations are part of the nature of the market, but sometimes these fluctuations are out of their normal form and give way to unbridled ascents and sudden falls, inflicting irreparable blows on real and legal investors.

2 Theoretical Foundations and Empirical Studies

When a bubble occurs, the value of a stock rises irrationally, although it is reasonable to expect that the value of a company's stock is a function of its current value and forecast of its future state, but sometimes the price changes are so great that it can not be compared to its true value. Excessive price growth will in many cases be accompanied by a sudden fall in price, and in the stock market, those shareholders who find out about this fall later will suffer a severe loss at once. On the other hand, the existence of sharp fluctuations in the stock market increases the market risk, which can also reduce the attractiveness of the stock market. Such behavior can be seen in the stock indices of many markets. The concern of creating a bubble in the stock market is the result of the view that after breaking the bubble, the people who have benefited from the rise in prices do not necessarily lose their profits, but the segment of shareholders who start due to market sentiments and after the growth begins. The share they have bought will fall with it. The process of forming a price bubble can be divided into the following steps:

- Rapid price growth
- Sudden change in public beliefs and investor behavior
- Loss of public confidence in the future of the bubble (formation of reverse expectations)
- Occurrence of mass sales event (abnormal volume of transactions in the capital market)
- Bursting bubbles and falling prices

- Price correction (approaching intrinsic value) [9].

Bubbles can swell in various assets and lead to a net positive effect such as the British Railroad bubble, a simple redistribution like a tulip bubble or a negative net effect such as the 1929 US bubble. However, there are usually several factors and components that play a role in the development of different bubbles [10].

The bubble begins with a clear and continuous increase in asset prices due to an external shock that affects economic conditions. This initial shift has a positive impact on the future outlook and raises expectations for future price increases. If stock prices are clearly rising, uninformed investors see this as a positive sign, in part because of the inference problem. Stocks of certain industries and certain companies may become popular. New buyers appear in the market and the proportion of stocks in the baskets increases, which causes an eruption of trading volume. Because so many investors are pursuing a positive feedback strategy, increasing their trades, along with a lack of relevant information, will strengthen disruptive trades. A stock market boom can be defined as a bubble when stock prices are likely to fall on a large scale. Be high.

What is causing the stock market to collapse is a dramatic change in the behavior of market players. If disruptive trades prevail in the market, the market is likely to fall. The following are some common features and components that can be seen in all or most of the past bubbles.

1) High price increases
2) Stock price stimulus without fundamental justification
3) Gambling and disruptive trading
4) Significant risk and uncertainty
5) Financial leverage
6) The role of government and government

Types of Bubbles in the Markets

McQueen et al. [12] examined the types of bubbles in the markets. Their research results showed that there are four types of bubbles in the financial markets:

1) Rational bubbles
2) Intrinsic bubbles
3) Behavioral bubbles
4) Information bubbles
5) Stock market bubbles

2.1 Research Background

Cariofilas et al. [14] examined cognitive bias in the behavior of stressed investors in the London stock market. Using two-factor and one-factor frameworks, they tested representational and conservative behavioral bias in relation to unusual yield trends. The results showed that there was both behavioral bias in the multifactorial framework but no behavioral bias was observed in the one-factor framework. Zhang and Zheng [22] investigate this phenomenon among institutional investors in the Chinese capital market using the LSV method, which is the classic method of collective behavior testing. Evidence from this study showed that significant collective behavior is observed in the Chinese stock market. Galli [15] examines the impact of alternative monetary policy rules on the rational asset price bubble through an interdepartmental model despite nominal stickiness. A systematic increase in interest rates in response to a growing bubble through its positive effects on bubble growth leads to increased subsequent volatility and economic instability. In this model, optimal monetary policy seeks a balance

between bubble stability and aggregate demand stability. In an article, [16] identify price bubbles in Latin American stock markets. In their study, they used the generalized reversible Dickey Fuller method and a similar Phillips-Prone method. In their study, they found that the bubble periods in the price markets in the 2008 financial crisis preceded the bubble cycles in the United States and lasted longer in the US market. Klotz et al [19] conducted a research to model the existence of a price bubble in the market. They conducted their research in Greece, Ireland, Portugal and Spain. Their results showed that in Spain and Ireland, the price bubble was much larger than in Portugal and Greece from 2003 until the 2008 crisis, which led to the bursting of the bubble. The results showed that the monetary and fiscal policies of the central bank affected the interest rate and the volume of lending on the price bubble in these countries and caused this issue to intensify. Sein and Elisa [17] in a study examined the fluctuations and structure of capital market price bubbles. This study examines the volatility leading to price bubbles between core investors and volatile investors. The results show that investors who use fundamental analysis and place fundamental stock in their stock portfolio are less likely to seek stock that will experience a price bubble in the future. However, the results show that the influx of volatile traders towards core stocks, which increases their trading volume, leads to the possibility of price bubbles in such stocks. Caldara et al. [6] have identified financial shocks and uncertainty simultaneously using the penalty function approach and structural vector autoregression model. Empirical analysis of the effects of financial shocks and uncertainty is difficult because the deterioration of financial conditions (increase in credit spreads) is accompanied by greater uncertainty in economic conditions. The main results of this study are:

1) Financial shocks have a significant inverse effect on macroeconomics and have been one of the main causes of periodic fluctuations since the mid-1980s,
2) Uncertainty shocks explain a significant amount of economic fluctuations,
3) The recent recession. It can be explained by a combination of financial shocks and uncertainty.

Harold and Warner [12] examined the criteria for price bubbles and stock falls. In this study, they examined the criteria affecting the bubble and stock fall over a long period. In this study, the effects of various assets such as bonds, housing, currency and commodities based on stock return fluctuations were investigated using the severe linear effects approach.

Mohammadi et al. [19] in a study examined the resilience and dynamics of risk between financial markets, commodity markets and digital currencies with the MGARCH model approach. Results of this studyIndicates the contagion of fluctuations between financial markets and the inverse relationship between the dollar and the euro and bitcoin. And have a significant relationship with each other, but other financial assets have a direct and significant relationship in terms of returnAnd fluctuated with each other. Also stability, the trend of changes in oil and gold prices led toThere is an important relationship between returns and enhanced risk transfer between the foreign exchange market, virtual money, oil and gold. FinallyResearch model shows the intensity of contagion between financial markets in the context of small and large shocksIt is different, indicating the existence of asymmetric effects on risk overflow between important financial markets. Kashani Tabar et al. [18] in a study examined the prediction of bursting the stock price bubble in the Tehran Stock Exchange (conditional turbulence approach). In the present study, to predict the price bubble, the daily data of 144 companies in the Tehran Stock Exchange in the period 2017-2007 have been analyzed by the generalized variance heterogeneity model (GARCH). Based on the results of data analysis, member companies in the center of the stock exchange and securities have experienced price bubbles in the years in question, which

were more in the first 6 months of the year. Among the factors causing the price bubble were political shocks and returns in parallel markets such as oil, currency and gold, respectively. Soheili et al. [14]in a study compared the impact of monetary and fiscal policy shocks on the stock price bubble in the Iranian economy in the framework of a random dynamic general equilibrium model. The results show that the shock of monetary policy increases the willingness to invest in the stock market, and as a result, marginal cue increases and the stock price bubble intensifies. In response to the shock of fiscal policy, by increasing government spending, investors' willingness to invest in asset markets such as the stock market decreases, and as a result, stock prices fall. Fallahi and Teymouri [12] in a study to identify the role of financial shocks in the fluctuations of the Iranian economy (using the sign restraint approach and Bayesian estimation). In this study, following the identification of the role of financial sector shocks (credit supply shock, housing price shock and stock market shock) along with real and monetary sector shocks (total supply shocks, aggregate demand, monetary policy and investment) in business cycles of the Iranian Economy Are. In order to structurally identify different shocks, the vector autoregression model with symptomatic limitation has been used. The two main models have been estimated using Bayesian method and seasonal data for a period of 14 years from 1991-2016.The findings of this study indicate that financial shocks, especially credit supply shocks, are of considerable importance in explaining the fluctuations of real sector variables in the economy. There is also evidence that financial shocks have played a larger role in explaining the recent recession in Iran's economy. Kamran Rad [16] examined the price bubble identification tests in Tehran Stock Exchange. The basis for the formation of price bubbles in the stock market. Bubble is a term that is often used in connection with the price of various assets, especially stock prices. The meaning of this word seems very simple, but it is a complex and controversial concept, and there is no single view among economists and researchers in the field of financial management in this regard. In this article, we have tried to examine the tests used to identify the price bubble in the Tehran Stock Exchange. Mohammad Ali Pourkenari et al. [19] investigated the effect of price bubble and shareholders' loss avoidance tendencies on non-fundamental value of companies listed on the Tehran Stock Exchange. Loss avoidance and behavior of stock market elements in non-fundamental value such as market price, core value in 30 companies listed on the Tehran Stock Exchange in a 3-year period 2012-2014 to be examined and the effect of three price variables, avoidance tendencies and behavior of non-fundamental stock market elements has been tested.The results indicate that the effect of all three explanatory variables with non-fundamental value in companies listed on the Tehran Stock Exchange has a significant and positive relationship and among the explanatory variables the price bubble has a significant effect.

3 Introducing the Research Model

An oil shock usually refers to sudden changes in oil prices. In this crude definition, all experts seem to agree, but in the discussion of measuring it on macroeconomic variables, various definitions are offered, and therefore various measurement methods, and apparently part of the difference in results also arises from this issue. For example, studies by Engel and Patton, Cooper and Jimenez Rodriguez have been performed using Arch-Gach models. While some other studies use a contractual definition for oil price volatility. For example, Hamilton, defined instability as an increase of more than 25% of the maximum oil price in the previous year. But far from the theoretical issues, what is on the minds of the oil shock today are shocks that have not yet exceeded the number of fingers on one hand. They are the first oil shock following the OPEC effort in 1974-74, which resulted in an increase in oil prices from $ 1.9 per barrel in 1972 to $ 10.41 in 1974, in other words, during the period in question. Increased more than 5 times. The second oil shock occurred in 1978. The outbreak of the revolution and the strikes of the oil

industry workers caused the cessation of Iran's oil exports as one of the largest oil exporters in the world, caused an increase in oil prices. The price of oil in the single shipment market reached $ 40 per barrel. The third oil shock, unlike the first and second shocks, led to a fall in oil prices in 1985. Oil prices, which had risen to $ 34 a few years after the victory of the revolution in Iran and the re-export of Iranian oil in the early 1980s, have fallen steadily. The decline peaked in 1985, when oil prices fell from $ 28 to $ 11. The fourth oil shock occurred in 1991, following the occupation of Kuwait by the Iraqi army and the subsequent invasion of Iraq by the United States and its allies. The price of oil reached about $ 40 this year, but it lasted only about a month and then gradually dropped to $ 20 throughout the year. In this study, the following models have been used to investigate the asymmetric effects of negative and positive shocks of exchange rates and gold prices on the performance of companies in the field of stock returns and financial and commercial risks:

$$FR_{it} = \theta FR_{it-1} + \alpha_1 NSE_{it} + \alpha_2 NSG_{it} + \alpha_3 PSE_{it} + \alpha_4 PSG_{it} + \beta_1 ROA_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 SR_{it} + \xi_{it} \quad (1)$$

$$BR_{it} = \theta BR_{it-1} + \alpha_1 NSE_{it} + \alpha_2 NSG_{it} + \alpha_3 PSE_{it} + \alpha_4 PSG_{it} + \beta_1 ROA_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 SR_{it} + w_{it} \quad (2)$$

$$RI_{it} = \theta RI_{it-1} + \alpha_1 NSE_{it} + \alpha_2 NSG_{it} + \alpha_3 PSE_{it} + \alpha_4 PSG_{it} + \beta_1 ROA_{it} + \beta_2 SIZE_{it} + \beta_3 MTB_{it} + \beta_4 SR_{it} + v_{it} \quad (3)$$

In these patterns:

BR_{it} The business risk of the company is in year t. Commercial risk is measured based on operating leverage:

Percentage change in sales. Percentage change in profit before interest and taxes = operating leverage

FR_{it} The financial risk of the i company is in year t. Financial risk is measured by the degree of financial leverage:

Percentage change in earnings before interest and taxes. Percentage change in earnings per share = degree of financial leverage

RI_{it} The stock price return of the 1st company in year t.

NSE_{it} Negative exchange rate shock is in year t, which is determined using the EGARCH approach and in terms of the environment in which shocks are formed.

NSG_{it} The negative shock is the price of gold in year t, which is determined using the EGARCH approach and in terms of the environment in which shocks are formed.

PSE_{it} : Positive exchange rate shock in year t, which is determined using the EGARCH approach and in terms of the environment of shock formation.

PSG_{it} Positive shock is the price of gold in year t, which is determined using the EGARCH approach and the environment in which shocks are formed.

ROA_{it} The return on assets of the company is in year t.

$SIZE_{it}$ The natural logarithm is the assets of the 1st company in year t.

MTB_{it} The ratio of market value to the book value of the company is in year t.

SR_{it} The systematic risk of the company is in year t.

v_{it} Company i residues in year t are for research models ξ_{it} ،w_{it} ،

To estimate these patterns, the Generalized Torque (GMM) approach and the data of 262 companies for the period 2009-2010 are used. The heterogeneous conditional variance (EGARCH) model during the period 1973-2019 is used to specify the negative and positive price shocks of the foreign exchange and gold markets.

3.1 The Environment of Formation and Specification of Shocks

Given the emphasis of this study on the environment of shock formation, the need to calculate price volatility in the foreign exchange and gold markets and in terms of specifying price shocks in both markets, in this regard, the study process Lee and Et al. [9], in which a nonlinear scalable specification for financial market shocks is presented, was found to be appropriate to the objectives of this study. Accordingly, the EGARGH asymmetric model is used here to model the currency and gold market volatility as follows:

$$\begin{aligned} &ARIMA(p,d,q): a(L)\Delta^d y_t = a_0 + \mathrm{b(L)}\varrho_t + \varepsilon_t \\ &\mathrm{L^i y_t = y_{t-i}} \\ &\beta(\mathrm{L}) = (1 - \beta_1 \mathrm{L} + \ldots + \beta_P \mathrm{L^p}) \\ &\gamma(\mathrm{L}) = (1 + \gamma_1 \mathrm{L} + \cdots + \gamma_q \mathrm{L^q}) \end{aligned} \tag{4}$$

$$\log(\sigma_t^{\text{۲}}) = \omega + \sum_{\mathrm{j=1}}^{\mathrm{q}} \beta_{\mathrm{j}} \log(\sigma_{t-\mathrm{j}}^{\text{۲}}) + \sum_{\mathrm{k=1}}^{\mathrm{r}} \gamma_{\mathrm{j}} \left(\frac{\varepsilon_{t-\text{۱}}}{\sigma_{t-\text{۱}}}\right) + \sum_{\mathrm{i=1}}^{\mathrm{p}} \theta_{\mathrm{j}} \left|\frac{\varepsilon_{\mathrm{t-۱}}}{\sigma_{\mathrm{t-۱}}}\right| + \mathrm{v_t} \tag{5}$$

Where a, b, α, γ and β; Fixed parameters, L; Interrupt operator, d; Degree of significance (differentiation) of y_t and ϱ_t series; they are a random component. If γ is less than zero, then positive shocks propagate less fluctuations than negative shocks. To estimate models (4) and (5), gold price and unofficial exchange rate data during the period 1973-2013 have been used.

Time series modeling is based on the assumption that variables are mana. Since the adoption of the unit root test for the hypothesis of permanence is subject to the rejection of the null hypothesis that the root is the unit of the series. Most unit root tests have low test power against mana. As a result, the null hypothesis is usually accepted and erroneously rejects the meaning of the series. The solution in this case is to use single root tests whose zero hypothesis is based on time series significance. The reason for using the null hypothesis based on time series significance is that it is very difficult to control the test statistic size of this hypothesis when this process is meaningful. This means that the size of the statistic will be larger than it actually is. The most famous statistic for testing the null hypothesis is that the KPSS statistic series is valid, which has been introduced by "Kuwait Kowski, Phillips, Schmidt and Shin" [15]. Based on the results of the KPSS unit root test, the null hypothesis of this test that there is no unit root for all variables during the period 1973-2013 is accepted (Table 1). Therefore, EGARCH models will be free from the problem of falsehood based on the studied variables.

Table 1: Results of KPSS Unit Root Test for Natural Logarithm of Free Market Exchange Rate and Gold Price

Variable	KPSS statistics	Critical values at the significance level			
LEXCH	1272.0	0.2160	0.1460	0.1190	The variable is at the continuous level.
LGOLD	1164.0	0.2160	0.1460	0.1190	The variable is at the continuous level.

Source: Research Findings

Table 2: Modeling Gold Price and Exchange Rate Shocks in Iran

Equation	The dependent variable	LGOLD				LEXCH			
	Independent variables	Coefficient	Standard deviation	Statistics Z	probability level	Coefficient	Standard deviation	Statistics Z	probability level
Conditional	Width of origin	1759.1	2471.0	7592.4	0000.0	3062.7	5563.0	1337.13	0000.0
	Time trend	1808.0	0090.0	0728.20	0000.0				
	AR (1)	4915.0	1030.0	7723.4	0000.0	6494.0	0387.0	7672.16	0000.0
	AR (2)					3324.0	0413.0	0509.8	0000.0
	MA (1)	5233.0	1385.0	7784.3	0002.0	8520.0	0331.0	7542.25	0000.0
averag e	Width of origin	2173.0	0551.0	9415.3	0001.0	-3529.0	2636.0	-3387.1	1807.0
	$\lvert e_{t-1} / \sigma_{t-1} \rvert$	-6452.0	0209.0	-8114.30	0000.0	-0565.3	3383.0	-0342.9	0000.0
e_{t-1} / h_t	e_{t-1} / σ_{t-1}	-2107.0	1309.0	-6097.1	1075.0	8182.1	5290.0	4370.3	0006.0
e_{t-1} / h_t	σ_{t-1}	9105.0	0000.0	3000.314636	0000.0	5784.0	0558.0	3615.10	0000.0

Source: Research Findings

To estimate the EGARCH model, it was first necessary to determine the conditional mean equation. According to the correlation diagram of the gold price and exchange rate series, as well as the Akaik Information Scale (AIC) and Schwartz Bayesin (SBC), the ARMA equation (1,1) for the gold price and the ARMA equation (1,2) for the dollar exchange rate against the state- Rivals have an advantage. Based on the correlation diagram of the logarithm squared of the residuals obtained from the ARMA model estimation (1,3), the EGARCH model (1,1) has been selected as the most suitable model for the conditional variance equation. The relevant results are presented in Table (2). While the trend variable has entered both patterns. According to Table (2), the role of positive and negative shocks in the formation of currency fluctuations and the price of gold are not the same. Based on this table, the following are the fluctuations of the currency and gold market (H_it) and the negative shocks (〖NS〗 _it) and positive (〖PS〗 _it):

$$H_t = \sigma_t \tag{6}$$

$$NS_t = \min(o, \varepsilon_t) \tag{7}$$

$$PS_t = \max(o, \varepsilon_t) \tag{8}$$

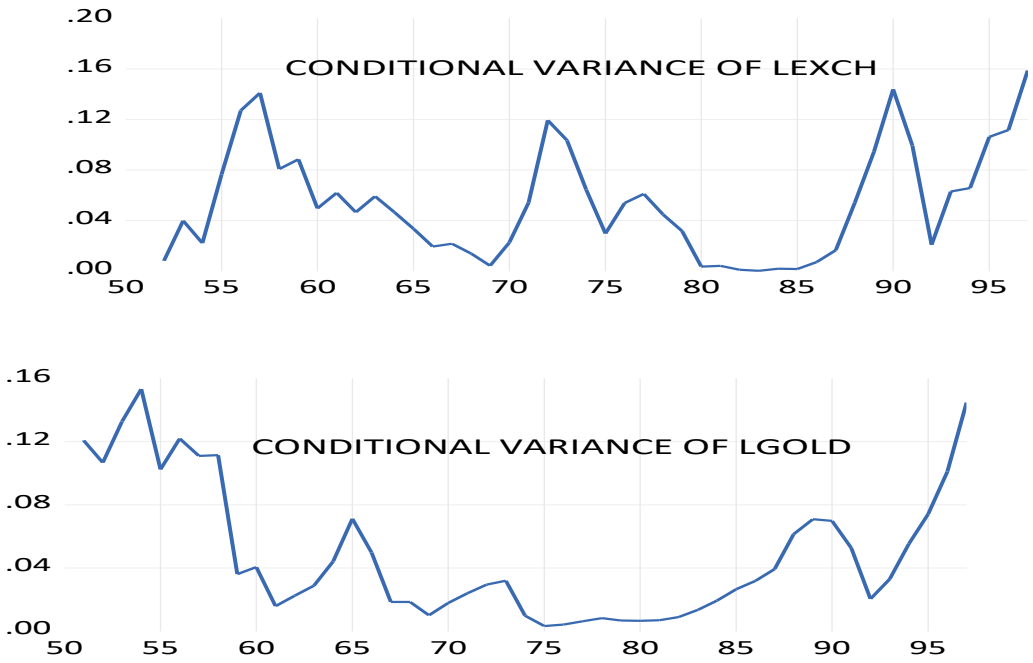

Fig 1: Modeling the environment for the formation of exchange rate and gold price shocks (exchange rate and gold instability

Table 3: Descriptive statistics of variables

riable	Average	Middle	Maximum	At least	Standard deviation	Elongation	skewness	Amara Jark for	Probability level
BR	2919.2	0001.1	3190.1580	-6720.13	0911.80	4105.3	9826.222	4557291	0000.0
FR	-8459.30	8406.0	7696.220	-5600.681	9030.1433	-4433.47	2290.2253	477000000	0000.0
RI	2487.2	6800.0	0000.200	0000.0	1347.8	4781.12	3063.216	4339346	0000.0
ROA	2626.0	0861.0	7364.37	-7709.12	8651.1	6555.11	2091.191	3383808	0000.0
SIZE	9630.13	8825.13	6136.20	3446.9	7293.1	3780.0	6653.3	95	0000.0
MTB	-9520.1528	0429.466	5.247126	-9079400	191481	-2193.47	2110.2239	471000000	0000.0
SR	1041.0	0000.0	4631.150	-9399.54	3920.6	7668.8	7713.268	6674441	0000.0
PSG	4628.0	0000.0	6360.2	0000.0	7182.0	4851.1	9672.3	7020.18	0001.0
PSE	6719.0	5265.0	8055.3	0000.0	8236.0	8829.1	9249.6	7055.56	0000.0
NSG	-3888.0	-0264.0	0000.0	-8152.1	5041.0	-1250.1	3130.3	8906.9	0071.0
NSE	-0654.0	0000.0	0000.0	-7169.0	1608.0	-9938.2	5349.11	3329.208	0000.0
LGOLD	6180.5	9922.5	6407.10	5878.0	6241.2	-1699.0	2199.2	3876.1	4997.0
LEXCH	7817.7	3514.8	7685.11	2195.4	0558.2	-2994.0	0891.2	2775.2	3202.0

Source: Research Findings

According to the data in Table 3, the average BR in the numerical value is 29.2. This figure shows that most companies have BRs close to this number. This figure shows that most observations are centered on this point. The median is also 1.100. It is also observed that the standard deviation is equal to the value of 0.80, which indicates the distribution of the majority of data, in other words, the distribution

of the majority of data in the average value plus and minus the standard deviation. The average FR in the numerical value is -30. 845. This figure shows that most companies have FRs close to this number. In other words, most observations focus around this point. The median is also 0.8406. It is also observed that the standard deviation is equal to the value of 1433.903, which indicates the distribution of the majority of data, in other words, the distribution of the majority of data in the mean value plus and minus the standard deviation.

Estimating the Research Pattern

In the first step to identify the study variables in Table (3) descriptive statistics of variables are presented. In using data panel data for modeling, as well as time series data modeling, unit root tests should be considered. Numerous articles have suggested that panel unit root tests are more capable than time series unit root tests. In general, common single-root tests in the data panel include LLC, ADF, and IPS tests, from which the LLC test is selected as the most appropriate test in most studies. This choice is due to the suitability of this test for panels with a small time period. In addition, Westerland and Brittang [9] show that LLC is more powerful than IPS, while ADF is also appropriate for the characteristics of time series data. Panel data (data panel). The results of this test for the variables used in the research model are shown in Table (4). According to this table, all variables are at the level of mana. In other words, for all regressions, in all tests, the null hypothesis that states the existence of a single root is rejected, and therefore the possibility of false regression in the estimated patterns is ruled out. Now that the significance of the research variables has been ensured, the study patterns have been estimated using the GMM method. Using the GMM approach saves the number of control variables. In other words, in this model, there is no need for the presence of many control variables. The presence of control variables in the classical panel, although it helped to further explain the model, but greatly reduced the degree of freedom of the model, and this makes the reliability and reliability of the model vulnerable. This is not relevant in the GMM approach. In this study, the dynamic estimator of GMM method proposed by Blondel and Bond [17] is used. The GMM method is one of the appropriate estimation methods in panel data, so that this method considers the effects of dynamic adjustment of the dependent variable. Using the GMM method of dynamic panel data has advantages such as taking into account individual heterogeneity and more information, eliminating the biases in cross-sectional regressions, which results in more accurate, more efficient and less linear estimates in GMM. In general, the dynamic GMM method is more appropriate than other methods for at least three reasons. In this method, endogenous variables can also be used. One way to control the endogenousness of variables is to use a tool variable. An instrument will have the necessary power when it is highly correlated with the variable under consideration, while it is not correlated with the error components. However, it is very difficult to find such a tool. One of the advantages of the GMM method is that it allows the interruption of these variables to be used as appropriate tools for endogenous control. The second advantage of this method is that the dynamics in the studied variable can be included in the model and the third advantage is that this method can be used in all time series, cross-sectional and panel data. In this research, a two-stage system estimator GMM is used [17,13]). The results of the research model in Table (5) are presented by GMM method.

Table 4: LLC Test in Relation to Research Variables

Variable	Statistics LLC	probability level	Conclustion
ROA	-2000.6576	0000.0	Good level
SIZE	-8800.2915	0000.0	Good level
RI	-5910.159	0000.0	Good level
BR	-6440.30	0000.0	Good level
FR	-3070.524	0000.0	Good level
MTB	-6000.16120	0000.0	Good level
SIZE	-8800.2915	0000.0	Good level
SR	-5209.48	0000.0	Good level
NSE	-9932.45	0000.0	Good level
NSG	-8334.29	0000.0	Good level
PSE	-1900.4	0000.0	Good level
PSG	-4038.12	0000.0	Good level

Source: Research Findings

The value of Sargan test (J) in relation to all three estimated patterns is significant and their level of probability is greater than 10%. Hence, the estimated models have sufficient validity. Table (5) shows that financial risk, business risk and stock returns of companies are significantly affected by their recent period values. The results show that the effect of negative and positive exchange rate shocks on trade, financial risk and stock returns is statistically significant. But the magnitude of this effect is not the same. So that the effect of positive exchange rate shock on trade risk is positive and on financial risk and stock returns is negative. The impact of negative exchange rate shocks is also negative on trade risk and stock returns and positive on financial risk. Based on these results, it can be stated that an increase in the exchange rate reduces financial risk and stock returns, and this is due to the fact that the company's operating costs increase and also in the case of an increase in the exchange rate, the cost Corporate interest rates are also increasing. Because companies' production is mainly dependent on imports, while companies resort to short-term and long-term facilities to cover the costs of rising exchange rates, and this increases their interest costs. As a result of these developments, companies' financial risk is reduced. Also, in response to the increase in the exchange rate, the market demands share of the companies under review at low prices, and the result is a decrease in stock returns. But in relation to business risk, the sales of companies do not change much with the increase of the exchange rate, but this is while the changes in profit before interest and taxes are greater than the changes in sales, so business risk increases with the increase of exchange rates. In relation to the impact of negative exchange rate shocks on financial and trade risk in terms of sign is the opposite of the impact of positive exchange rate shocks. But the impact of negative exchange rate shocks on stock returns is also a sign of the impact of positive exchange rate shocks. Therefore, it can be argued that exchange rate shocks, whether negative or positive, will have a negative impact on the stock returns of companies listed on the stock exchange. According to the results, the impact of positive gold price shocks on trade risk is negative and on financial risk is positive, but these shocks do not have a significant effect on stock returns. The impact of negative gold price shocks is also on negative financial risk and on positive market returns. However, this negative shock has no significant effect on business risk. Based on the above results, it can be said that with the increase in the price of gold, the operating costs of the company increase. This increase is

mainly due to the fact that an increase in the price of gold means inflation in the domestic economy or an increase in the exchange rate.

Table 5: Results of estimating research models by GMM meth

The dependent variable	BR				FR				RI			
variable	Coefficient	Standard deviation	Amara t	probability level	Coefficient	Standard deviation	Amara t	probability level	Coefficient	Conversion deviation	Amara t	probability level
BR(-1)	91	16	6479.5	0								
FR(-1)					-2941	109	-9815.3	0				
RI(-1)									314	49	4596.6	0
PSE	5128.25	4956.6	9277.3	1	-7197.24	5226.94	-5678.2	103	-1328	682	-9467.1	517
NSE	-3320.35	6327.82	-2275.4	0	4350.52	3100.18	8493.2	44	-6272.14	5878.1	-2124.9	0
PSG	-234.21	4952.5	-8257.3	1	3258.19	1540.68	7926.2	53	683	688	9928	3209
NSG	-3616.5	3530.3	-5990.1	1100	-2810.55	124.17	-2398.3	12	4744	882	3817.5	0
ROA	825.28	4915.5	1138.5	0	-4924.14	8227.13	-1029.1	2702	2419	2004	2070.1	2275
SIZE	1022.3	9451.2	534.1	2923	4348.29	2794.51	8198.5	0	1934.1	750	9163.2	0
MTB	0	1	-3120	7551	93	47	9761.1	483	0	0	-3214.2	203
SR	2815	263	7118.1	0	-1588.35	1860.8	-2950.4	0	-84	75	-1177.1	2638
Sargan Statistics (J)	9301.25				1835.18				6443.65			
Probability level J	7247				9672				2022			

Source: Research Findings

This also results in companies turning to debt and borrowing and increasing financing costs. However, this situation does not have a significant impact on the sales of companies. Therefore, as the price of gold rises, so does the commercial risk and the financial risk of companies. But investors and shareholders in buying and selling stocks do not take into account the increase in gold prices in their decisions. In contrast to positive shocks, negative shocks to the price of gold do not have a significant effect on trade risk, but they do reduce financial risk, and this also implies that interest and tax costs are affected by lower gold prices with a significant reduction. Attention is encountered. It is noteworthy that the stock market reacts positively and significantly to the decline in gold prices. This is because as prices fall in the gold market, part of the capital and funds are diverted from the gold market to the stock market. Balance sheet itself does not specify and show all the activities that a bank pays. Because banks cando many swap contracts and obligations, exchange, and commitments Outside of the balance sheet. To such activities and exchange that will not appear on the balance sheet, are saying off-balance

sheetactivities. These items are usually reported in the notes to the attached financial statements [22]. In control variables, the effect of ROA on business risk is positive and significant and its effect on financial risk and stock returns is not statistically significant. The impact of SIZE on business risk is not statistically significant, but it is positively and statistically significant in relation to financial risk and stock returns. The impact of MTB on trading risk is not significant, but this variable has a significant impact on financial risk and stock returns, but the magnitude of this impact is very small and close to zero. The effect of systematic risk on business risk is positive and on financial risk is negative, and these effects are statistically significant, but this effect is not statistically significant in relation to stock returns.

Test for bubbles: The SADF and GSADF unit root test tests explosive behavior more powerfully. Given that in both tests, the t-statistic is larger than the critical values at all levels of significance, so the hypothesis of explosive behavior at all levels of significance is confirmed. Confirmation of this explosive behavior is strong evidence that there is a bubble in the stock market for the period under review. The advantage of SADF and GSADF tests is that in addition to having more power in the bubble test, we can also make possible courses based on them. These two processes are used as a strategy to determine the starting and ending point of bubbles. In other words, if the null hypothesis of each test is rejected, the start and end point of the bubbles can be estimated. The SADF test only allows the identification of a bubble in the desired time series, and when the time series under study has consecutive bubble periods and the bubbles occur continuously, the SADF test becomes incompatible and weak. For this reason, in the event of more than one bubble, the generalized SADF test called GSADF will have greater capabilities in detecting explosive behavior and bubbles in such time series. The GSADF test, like the SADF, uses a recursive regression model (BSADF). To identify bubble periods based on the test, the GSADF, as proposed by Phillips et al. [14], compares the regression SADF statistic sequence with the critical value sequence obtained by Monte Carlo simulation. Considering that the time period studied is 2009-2010, so according to the retrospective approach of the test, to determine the bubble periods from the beginning of 2009, in this research we must also consider the daily data of the years before 2009. At points where the blue lines have crossed the red lines, there has been a structural break in stock prices. The main reason for these failures is exchange rate shocks at any time. Accordingly, in the days when a structural failure in the model occurred and this event affects all trends related to stock returns, it is marked as the protrusion of blue lines from red lines. This test shows the very high effects of the stock market from various quantitative and qualitative variables and also shows how sensitive the capital markets and investors are to different news sources and trends.

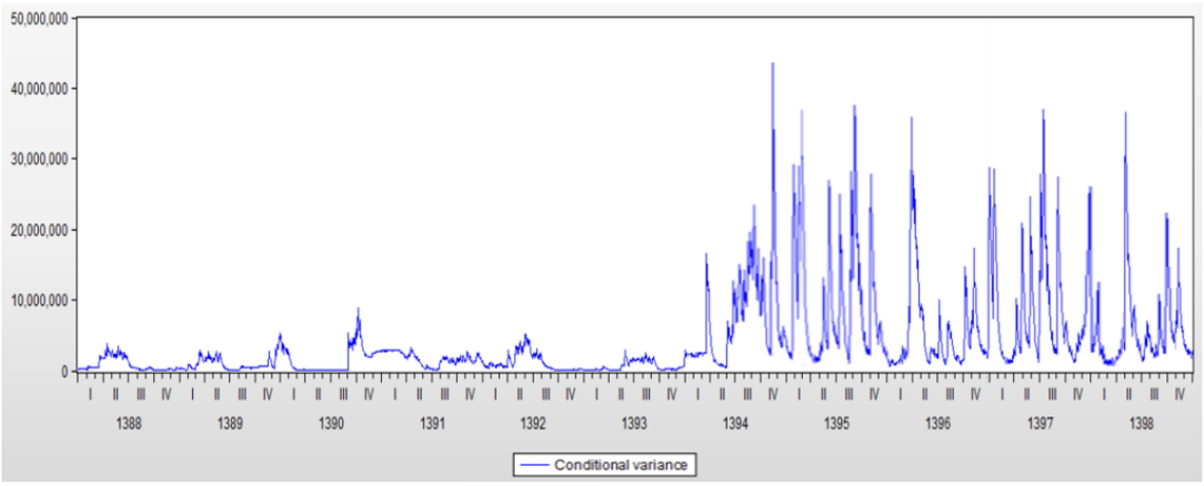

Fig 2: Prediction of Price Fluctuations and Bubbles Formed in The Capital Market

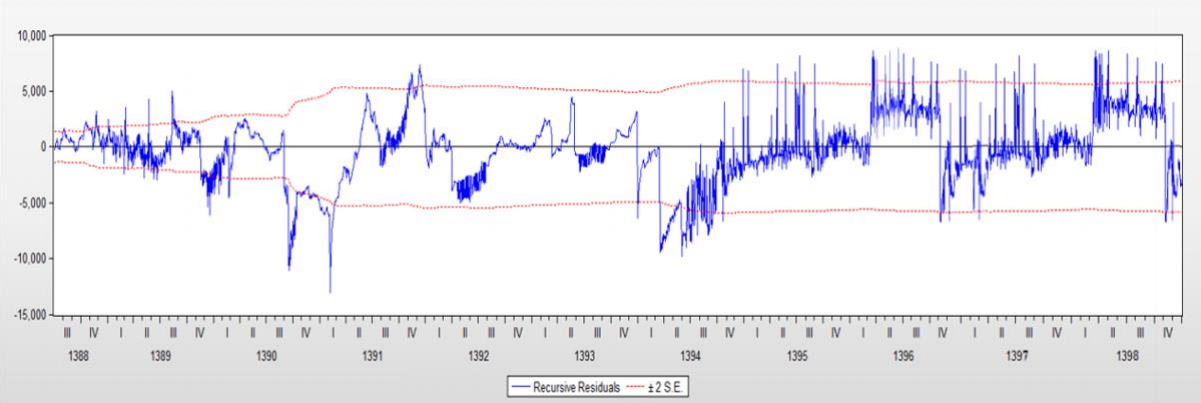

Fig 3: periods of Price Bubbles

6 Conclusion

Listed companies are affected by shocks and volatility in parallel financial markets such as currency and gold. These influences are due to the fact that suppliers and suppliers of production inputs, factors of production, financial suppliers, and ultimately demanders of goods and services in the decisions of consumption, production, supply and investment are self-components. They also include those related to the currency and gold markets. Corporate management also pays attention to these components. This causes the business and financial risks and the return of companies to be affected by the shocks of the foreign exchange and gold markets. However, knowing how this influences risk management and optimizing investment decisions can be helpful. Therefore, in this study, the effect of financial market shocks (gold and foreign exchange) on stock returns and financial and commercial risk of 262 companies listed on the Tehran Stock Exchange during the period 2009-2010 using the generalized torque approach. (GMM) was evaluated [13]. In this study, to specify the negative and positive shocks of the gold and foreign exchange market, the EGARCH approach and annual data during the period 1973-2010 were used. The results showed that in the market, negative and positive shocks in the form of Gold price volatility and exchange rate volatility play an asymmetric role. In the next step, negative and positive shocks were specified in a normalized way in terms of the environment of shock formation in the magnitude of the impact of shocks. In the sense that non-standard negative and positive shocks obtained based on the residual EGARCH conditional mean equations are divided by the conditional standard deviation obtained from these models. This type of specification ensured that in a turbulent environment of the foreign exchange or gold market, the impact of negative and positive shocks on the variables under study was reduced. This principle is consistent with economic-financial facts and theories such as the theory of rational expectations. After specifying the negative and positive shocks of the gold and foreign exchange market in a normalized manner, the impact of these shocks on financial, commercial and stock returns was examined.

Estimation of GMM study patterns showed that financial risk, business risk and stock returns of companies are affected by their past values and this impact is also statistically significant. According to the results, the negative and positive shocks of the exchange rate and the price of gold have an asymmetric effect on trade risk, finance and stock returns. These asymmetric effects apply in terms of size, sign and significance. So that the positive exchange rate shock has a positive effect on trade risk and has a negative effect on financial risk and stock returns, and the negative exchange rate shock has a negative effect on trade risk and stock returns and a negative effect on financial risk. Positive gold price shocks also have a negative effect on trade risk and a positive effect on financial risk, but these

shocks do not have a significant effect on stock returns. In contrast, the impact of negative gold price shocks on financial risk is negative and market returns are positive (the impact of negative shock on trade risk is not statistically significant [18].

Investment is one of the key factors in the economic growth of the country and in this regard, the capital market as one of the most important investment options is a good place to attract capital. Individual and institutional investors choose their preferred stocks based on the degree of risk-taking and expected returns, and therefore capital markets must have the necessary efficiency to attract investors and provide financial resources and optimal allocation of resources for returns. Have more of them. In order for the capital market to reach this efficiency, it is necessary for fluctuations in the market to be created logically and based on fundamental factors. Although in the short run the market fluctuates, which of course requires the nature of the market, but in the long run the stock price should be determined based on the logical factors of companies and the information published about them In addition to considering many financial and non-financial factors inside and outside the company for forecasting and decision-making, investors can accurately measure stock price behavior by being aware of the factor affecting stock returns. Determine more and thus make more effective decisions. In the investment decision-making process by investors, managers, financial analysts and other groups using information are one of the important factors for decision-making and predicting stock returns. Stock market investors come in a variety of categories, the largest of which are individual investors in number. These are real people who participate in this market using their personal knowledge and experience as well as their interest in the stock market. But another group of participants are brokers who, in addition to their main duties, which is to provide services to investors, according to their history of continuous presence in the market, to buy and sell shares for themselves and their customers. Based on the above results, it can be said that the operating costs of companies increase with the increase in the price of gold, and this increase is due to the fact that with the increase in the price of gold, the purchasing power of the economy decreases and Due to this, the prices of goods, services, inputs and factors of production increase, and as a result, the operating costs of companies' increase. Companies therefore face debt and borrowing and increased financing costs. However, changes in the price of gold have little effect on companies' sales plans. Also, the stock market only reacts positively and significantly to the fall in gold prices. This is also due to the direction of part of the capital and funds of the gold market to the stock market in the conditions of decreasing gold prices. Rising rates also increase operating costs and corporate interest costs. This is due to the dependence of companies' production on imports. Therefore, it is natural for companies to borrow and create debt to cover the costs of raising the exchange rate and increase their financing costs. At the same time, exchange rate changes do not have much effect on companies' sales plans. Based on the results, stock returns react negatively to negative and positive exchange rate shocks, which also shows that imports play a significant role in the production of companies compared to the export of products of these companies. Based on the above results, it is suggested:

1. Managers and investors should consider the situation of parallel financial markets such as gold and foreign exchange in their decisions and take into account the shocks related to these markets and price instability in these markets in their decisions.
2. The stock market is an incentive and punishment mechanism for listed companies to force them to increase the float of their stocks, because then the relationship between the intrinsic value of the stock and its price is lost and small companies have high stock prices. In this case, the influx of shareholders to buy shares of a particular company and create a price bubble will be impossible.
3. The stock market should strive to create transparency in the market and the availability of

market information and companies for all traders. Because the price bubbles and the resulting losses are mostly aimed at small companies.

4. Since the existence of political shocks has a great impact on the financial market (stock exchanges and securities). The stock exchange organization should strive for an advantage called capital insurance so that both investors are encouraged to operate in these markets by gaining part of their losses, and shareholders who, in the event of political shocks, quickly invest their capital in parallel markets such as foreign exchange. And transfer gold and cause disruption in a part of the economy, be punished.

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