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# **Economic Forces and Stock Exchange Prices: Pre and Post Impacts of Global Financial Recession of 2008**

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## **Abstract**

This study examines the long run as well as short run relationship between China's macroeconomic factors such as industrial production index, imports, exports, inflation rate and interest rate and Shanghai Composite Index and to explore which macroeconomic variables have significant influence on stock exchange prices. To examine the relationships between China's macroeconomic factors and Shanghai Composite Index, Auto-regressive Distributed Lag (ARDL) approach to co-integration has been employed. In the long run, industrial production index and imports have significant impact on stock exchange prices. For the short run; past

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stock prices, industrial production index, previous inflation rate and interest rate are important determinants for stock exchange prices.

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**Keywords:** financial recession, stock exchange prices, co-integration, unit root, Auto-regressive Distributed Lag model

## 1 Introduction

Stock market play vital role in economic growth of a country. The growth of stock market is a sign of the development of industrial sector and of the economy of a country. It provides a platform for stock trading. Stock exchange is also helpful to mobilize the savings and to create investment opportunities and helpful for Government to increase capital for different development projects. The stock prices depend on the information of economic and noneconomic factors. Stock indexes use to measure the temperature of stock market. Stock prices are a good economic barometer. Therefore the movement of stock index can be used as a leading indicator of an economic trend. Mishkin [19] and Caporale et al. [3] suggest that an efficient stock market mobilize more savings and through financing projects it attract more investment which leads to economic growth. As the knowledge about stock market movement is very important for investors, corporate manager and national policy makers thus from last few decades it is widely discussed by researchers and a rich literature found on this topic.

The literature identified different variables which important to explain stock return variations. Such as Linter [17], Fama [9], Caporale and Jung [4], Sari and Soytaş [25], Humpe and Macmillan [14], Sohail and Hussain [26] and Frimpong [12] investigate and note that inflation rate has negative and significant influence on stock return and it is an important variable which use to explain stock

return variations. Gan, et al, [13], Ahmad and Imam [2], Frimpong [12], Humpe and Macmillan [14] and Pilinkus and Boguslauskas [24] examined and found that changes in interest rate have significant and negative impact on stock exchange returns. Investors want to get maximum returns at minimum risk. So when rate of interest increase people like to deposit their money in bank accounts or spent money on interest based bonds instead to invest in risky stock market as in this way they can get risk free return. So, when interest rate increases stock exchange investment become decrease.

Sohail and Hussain [26], Mahmood and Dinniah [18] and Humpe and Macmillan [14] investigated and found industrial production index has positive and significant relation with stock market returns. Many others variables which have significant influence on stock returns are important to predict the stock exchange movement such as money supply, gold prices, oil prices, exchange rates, real economic growth rate, balance of payments and money supply, the political uncertainty, terrorism and emergency in country etc.

In this study we viewed how financial crises of 2008 affect China's macroeconomic factors and Chinese stock market. In this study we also empirically examine the long run as well as short run relationship between China's macroeconomic factors and Shanghai Composite Index of Shanghai Stock Exchange, and examine at which extent macroeconomic factors affect Shanghai Composite Index during January 2001- November 2010, especially in the context of financial crises of 2008. In addition, in this study we also investigate that, can we use China's macroeconomic factors to predict Shanghai Stock Exchange prices. The paper is divided into four sections. Section 1 describes about the previous existing literatures, Section 2 will give a complete description about the methodology, and Section 3 contains the empirical results, finally Section 4 concludes with a summary.

## 2 Literature review

Chen et al., [6] examined relationship among a set of macroeconomic variables and stock returns for United State, they used term structure, industrial production index, market return, inflation rate, risk premium, consumption and oil prices as macroeconomic variables.

Inflation rate is one of the economic variables which influence the stock prices. Linter [17], Fama and Schwert [11], Fama [9, 10], Caporale and Jung [4] are investigate relationship between stock returns and inflation rate in the US and European stock exchange markets. The empirical studies of Chatrath and Ramchander [5] examine the relationship between real stock return and inflation for India. Sari and Soytas [25] they used monthly time series data of the period of January 1986 to December 2000 to explore the relationship between inflation and Istanbul Stock Exchange 100 index.

Abdallah and Murinde [1] took monthly data of the time period of January 1985 to July 1994 and used Johansen and Juselius co-integration test to examine the long run relationship among real effective exchange rate and stock prices for Pakistan, India, Philippines and Korea.

Faff and Chan [8] used market factor, prices of gold, exchange rate and rate of interest to explain the variation of Australian gold industry stock returns. Muhammad and Rasheed [20] took monthly time series data of the range 1994-1 to 2000-12 and use Co-integration Vector Error Correction Model and Granger Causality test and examined the relationship among stock exchange returns and rate of exchange in Pakistan, Bangladesh, India and Sri- Lanka. Dimitrova [7] developed a hypothesis to examine whether there exists any relation among stock prices and foreign exchange rate. Gan, et al., [13] used monthly time series data of the period January 1990 to January 2003 and employed Johansen co-integration test and Granger causality test and examined the relationship between macro economic factors (inflation rate, GDP, foreign exchange rate, M1, long- term and short term rate of interest and domestic retail oil prices) and stock returns for New

Zealand. Ahmad and Imam [2] employed Johansen's Co-integration test and vector error correction model to test causality among economic factors; interest rate, broad money supply, industrial production index and Growth of Gross Domestic Production and stock prices and investigated whether economic activities can explain expected movement of stock market in Bangladesh. Tursoy, Gonsel and Rjoub [27] used OLS technique and tested 13 macroeconomic variables against 11 industries portfolios to observe the influence of these variables on Istanbul Stock Exchange. The thirteen variables used in this study are; money supply (M2), inflation, crude oil prices, GDP, foreign reserve, market presser index, industrial production index, imports, exports, unemployment rate, gold prices, exchange rate and interest rate.

Kahler [15] used bi-variate and multivariate Vector Error Correction Model and Granger Causality Test to examine and camper the interaction between the stock market, monetary policy and inflation rate from multi-countries point of view for Singapore and Malaysia. Frimpong [12] use co-integration analysis to the standard discounted model for examines the relationship between economic factors (inflation rate, exchange rate, interest rate and money supply) and Ghana Stock Exchange. Mahmood and Dinniah [18] they used Vector Error Correction Model to investigate the relationship between exchange rate, inflation, industrial production index and stock prices in Japan, Malaysia, Hong Kong, Thailand, Korea and Australia.

Within the framework of standard discounted value and by using the co-integration, Humpe and Macmillan [14] tested the impact of industrial production index, consumer price index (proxy of inflation), long run interest rate and money supply on stock exchange returns, with international point of view for US and Japan.

Pilinkus and Boguslauskas [24] employed Augmented Dickey Fuller Test (ADF) and Impulse Response Function for examine the existence of interaction among consumer price index, Narrow money supply (M1), seasonally adjusted

gross domestic product at previous year prices, rate of unemployment, short term interest rate, and exchange rate and stock prices for Lithuania. Sohail and Hussain [26] took monthly time series sample data of the time period of December 2002 to June 2008 and employed Vector Error Correction Model to investigate relationship between macro economic factors and Lahore Stock market returns they use inflation rate, industrial production index, money supply, real exchange rate and treasury bills rate as macroeconomic factors. Kutty [16] employed Granger Causality Test to examine the co-integration between exchange rate and stock exchange price index in Mexico.

The main purpose of this study to examine the long run as well as short run relationship between China's macroeconomic factors such as industrial production index, imports, exports, inflation rate and interest rate and Shanghai Composite Index and to explore which macroeconomic variables have significant influence on stock exchange prices and at which extent those macroeconomic factors can use to explain the movement of Shanghai stock exchange prices.

### **3 Methodology**

#### **3.1 Sample Size**

Monthly time series data of the sample of 10 years have been selected of the range of 2001 to 2010 of each variable which have been collected from Yahoo Finance and Organization of Economic Corporation and Development (OECD). For deep analysis the sample period has been divided into two sub samples, one is the range of 1-2001 to 6-2007 (before global recession), other is contain on the range of 7-2007 to 11-2010 (during and after global recession). For the purpose of analysis, data all series have been taken in natural logarithm form except Exports and Imports, as these series have negative values.

### **3.2 Dependent Variable: Stock Exchange Prices (PSE)**

In our empirical tests we use a monthly adjusted close prices of stock of emerging economy China's stock market, Shanghai Stock Exchange Composite (SSE Composite) is used as measure for the behavior of country monthly stock exchange prices.

### **3.3 Independent Variables**

#### **3.3.1 Inflation rate (CPI)**

Consumer price index (CPI) is used as a proxy of inflation rate. Inflation rate has negative impact on different economic factors as when general price level of goods and service rise than inflation rate also rise and it decrease the money value, ultimately it also effect on level of investment. Durable goods, gold, foreign currency and shares are hedge against inflation so people spend more on these.

#### **3.3.2 Interest rate (IR)**

There are many types of interest rate but in this study we use long run interest rate.

Interest rates are negatively related with stock exchange investment as investors want to get maximum returns at minimum risk. So when rate of interest increase people like to deposits their money in bank accounts or spent money on interest based bonds instead to invest in risky stock market as in this way they can get risk free return. So, when interest rate increases stock exchange investment become decrease.

### **3.3.3 Industrial production index (IPI)**

Industrial production index (IPI) contains the amount of production of mining, manufacturing and public utilities.

Sohail and Hussain [26], Mahmood and Dinniah [18], Humpe and Macmillan [14] investigate relationship between Industrial production index and stock market returns. The findings of their studies show that industrial production index has positive and significant relation with stock market returns.

### **3.3.4 Exports (X)**

Exports of goods and services increase GNP, industrial production of a country and increase purchasing power of the people of that country. Theoretically the value the value of export is positively correlated to the stock market returns.

### **3.3.5 Imports (M)**

Imports of goods and services mean inflow of goods and services from the rest of the world. There are contradictory results i.e. positive as well as negative influences of imports on economic activities and stock market returns as imports effects to the stock market returns in different ways.

## **3.4 Data Analysis Procedures and Econometrics Techniques**

### **3.4.1 The Econometrics Techniques**

For checking the integration status of the variables of the model the researchers employed Augmented Dickey Fuller (ADF) unit root test. Besides, to examine the long run as well as short run relationship between the variables Auto-regressive Distributed Lag (ARDL) approach to co-integration has been employed.

### 3.4.1.1 Procedure of ARDL Approach to CO-integration

To examine the long run as well as short run relationship between economic factors (inflation rate, money supply, interest rate and industrial production index) and stock exchange prices in China, the study use an appropriate econometric technique that is ARDL Bound Test Approach to Co-integration. Before proceeding ARDL Bound Test Approach to Co-integration, it has been made sure that all variables are integrated at I(0), I(1) or mix order of integration but no variable integrated at I(2) or higher order (Pesaran and Pesaran [21]). As ARDL Bound Test Approach to Co-integration based on the assumption that all variables should be integrated at I(0), I(1) or mix order of integration but no variable integrated at I(2) or higher order. Therefore, to avoid spurious results and to have good data analysis it is necessary to ensure that no variable is integrated at level I(2) or beyond. In order to check the stationary status of the time series data of the variables Augmented Dickey Fuller (ADF) unit root test has been applied. The general form of the Autoregressive Distribution Lag (ARDL) Approach to Co-integration is written as

$$\begin{aligned} \Delta LPSE_t = & a_0 + \sum_{i=1}^n b_i \Delta LIP_{t-i} + \sum_{i=1}^n c_i \Delta LR_{t-i} + \sum_{i=1}^n d_i \Delta LM3_{t-i} + \sum_{i=1}^n e_i \Delta LCPI_{t-i} \\ & + \delta_1 LPSE_{t-1} + \delta_2 LIP_{t-1} + \delta_3 LR_{t-1} + \delta_4 LM3_{t-1} + \delta_5 LCPI_{t-1} \end{aligned} \quad (1)$$

where  $a, b, c, d, e, g, h$  and  $\delta$  are coefficients of variables and  $\Delta$  used for the difference of the variables and 'n' demonstrates the number of lags length.

For preceding the Autoregressive Distribution Lag (ARDL) Bound Test Approach to Co-integration, two steps are involved.

**First**, for testing whether a long term co-integration exists between endogenous variable and exogenous variables of the model we test null hypothesis ( $H_0$ ) against alternative hypothesis ( $H_1$ ). Null hypothesis ( $H_0$ ) shows that there is no co-integration exists between variables while alternative hypothesis ( $H_1$ ) illustrate that there is co-integration exists between variables.

$$H_0 : \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5 = \dots = \delta_n = 0$$

$$H_1 : \delta_1 \neq \delta_2 \neq \delta_3 \neq \delta_4 \neq \delta_5 \neq \dots \neq \delta_n \neq 0$$

Null hypothesis ( $H_0$ ) shows that there is no co-integration exists between variables while alternative hypothesis ( $H_1$ ) illustrate that there is co-integration exists between variables.

We test null hypothesis ( $H_0$ ) against alternative hypothesis ( $H_1$ ) by using ARDL bound test. ARDL bound approach to co-integration is a non standard distribution without considering whether variables are integrated at  $I(0)$ ,  $I(1)$  or mix order of integration but no variable is integrated at  $I(2)$  or higher order. Pesaran et al. [22] gave two set of critical values i.e., lower bound values and upper bound values. The set of lower bound values assumes that all variables are  $I(0)$  and other set of upper bound values assumes that all variables are  $I(1)$ . These sets provide a band which covers all possible categories of the integrated variables into the  $I(0)$ ,  $I(1)$ , even fractionally integrated or mix order of integrated. ARDL bound test is based on F-test. Wald test for determination of F-statistic value is used in the study. If the computed F-statistic value is greater than the critical value of upper bound which is given by Pesaran et al. [22], it reject null hypothesis ( $H_0$ ) in favor of alternative hypothesis ( $H_1$ ), indicating that there is co-integration between the variables. If the computed F-statistic value is less than the critical value of lower bound, it reject alternative hypothesis ( $H_1$ ) in favor of null hypothesis ( $H_0$ ), indicates that there is no co-integration exists between the variables. If the computed F-statistic is fall between the lower bound and upper bound, the result is inconclusive. The critical values of lower bound and upper bound can be seen by the table which is developed by Pesaran et al. [23].

**Second**, after establishing the co-integration an appropriate lag length of the variables is selected through Akaike Information Criteria (AIC). After determination of appropriate lag length of the selected variables the long run parameters of the model are estimated. The short run dynamics of the model determine by the error correction model (ECM). Error Correction Model (ECM),

without losing long run information, also provides long run equilibrium. The specified form of the Error Correction Model (ECM) is as following;

$$\Delta LPSE_t = a_0 + \sum_{i=1}^n b_i \Delta LIP_{t-i} + \sum_{i=1}^n c_i \Delta LR_{t-i} + \sum_{i=1}^n d_i \Delta LM3_{t-i} + \sum_{i=1}^n e_i \Delta LCPI_{t-i} + \phi ecm_{t-1} \quad (2)$$

where;

$a$  = is the constant term.

$b$  = is short run partial co-efficient of industrial production index.

$c$  = is short run partial co-efficient of interest rate.

$d$  = is short run partial co-efficient of money supply.

$e$  = is short run partial co-efficient of inflation rate.

$\phi ecm$  = is the speed of adjustment.

The signs and magnitudes of the coefficients indicate the strength and direction of the relationship between the dependent variable (stock exchange prices) and independent variables (industrial production index, interest rate, inflation rate exports and imports). The negative and significant value of  $ecm$  (-1) shows the speed of adjustment of the disequilibria from the previous period's shock which converge back to the long run equilibrium in the current period.

In order to check the consistent pattern of the variables and stability of the model the study conduct CUSUM and CUSUMSQ tests.

## 4 Empirical Results

### 4.1 Results of Augmented Dickey Fuller Test (ADF)

The results of the ADF unit root test shows that all variables are integrated at I(0) and I(1) but no variable integrated at I(2) or higher order.

Table 1: Augmented Dickey Fuller (ADF) Unit Root Test

Time Period	Variables	I(0)	I(1)	Decision
July 2007 to November 2010	LPSE	-1.301741	-6.981080***	I(1)***
	LIP	-2.149106	-6.526436***	I(1)***
	LI	-1.813815	-4.985694***	I(1)***
	LCPI	-2.004885	-4.562395***	I(1)***
	X	-5.741342***	-----	I(0)***
	M	-6.809223***	-----	I(0)***
January 2001 to Jun 2007	LPSE	0.792512	-7.595213	I(1)***
	LIP	-9.024717***	-----	I(0)***
	LI	-1.960581	-8.655613***	I(1)***
	LCPI	-3.436722**	-----	I(0)**
	X	-6.797415***	-----	I(0)***
	M	-14.71183***	-----	I(0)***

Note: \*, \*\* and \*\*\* are indicates that co-efficient are statistically significant at the level of 10%, 5% and 1% respectively.

## 4.2 Results of Autoregressive Distribution Lag (ARDL) Approach to Co-integration

### 4.2.1 ARDL bound test for co-integration

Applying Autoregressive Distribution Lag (ARDL) Approach to Co-integration model (1) has been estimated. The appropriate lag length of the variables is selected through Akaike Information Criteria (AIC). Table 2

demonstrates the results of the ARDL bound test for co-integration shows that there is long run relationship exists between said macroeconomic variables and stock exchange prices.

Table 2: Results of the ARDL Bound Test for Co-integration

Time Period	Lag Length	F-statistic (calculated)	Lower Bound Value (at 5%)	Upper Bound Value (at 5%)	Decision
July 2007 to November 2010	4	5.320610	3.17	4.57	Co-integration
January 2001 to Jun 2007	5	5.632459	3.12	4.25	Co-integration

Note: values of lower bound and upper bound are cited from Pesaran et al. [23]

#### 4.2.2 Stability of the model

In order to check the stability of the models between the critical lower bounds and upper bounds, of respective sample periods, we use CUSUM and CUSUMSQ tests. Figure 1 and Figure 2 show the stability of the model between critical bounds for July 2007 to November 2010. While the stability of the model

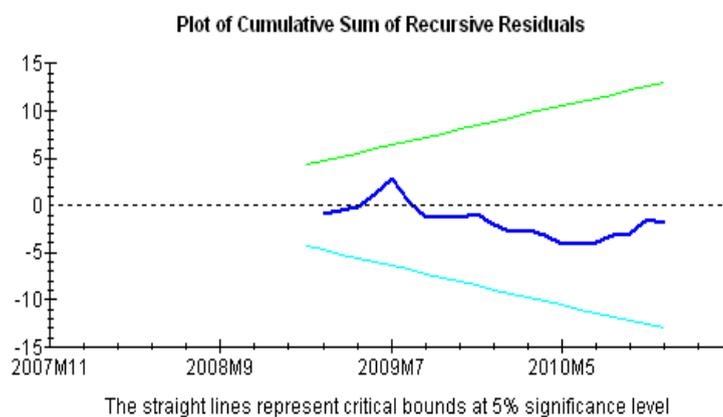


Figure 1: CUSUM test - July 2007 to November 2010

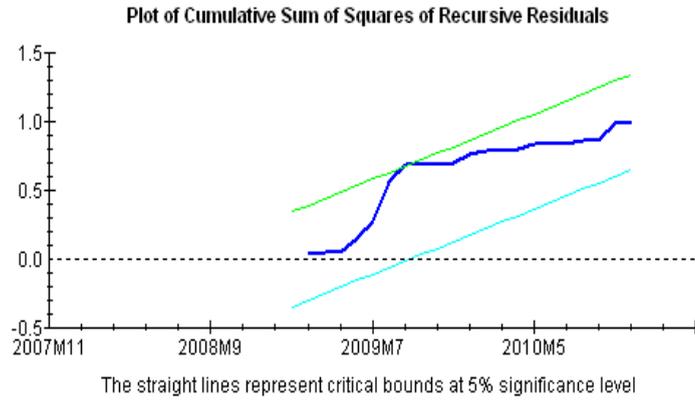


Figure 2: CUSUMSQ test - July 2007 to November 2010

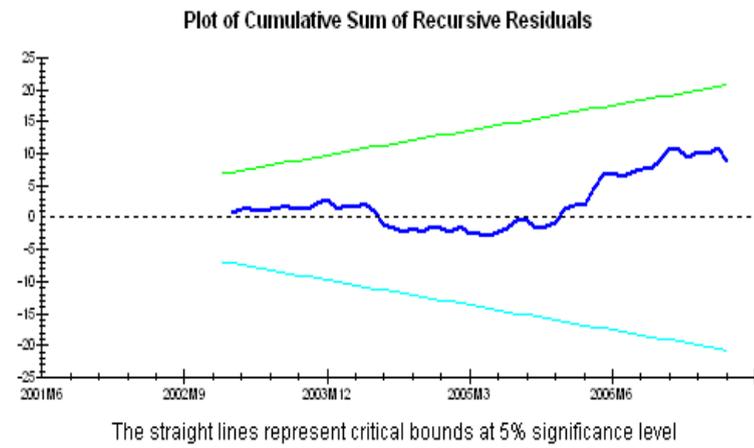


Figure 3: CUSUM test - January 2001 to June 2007

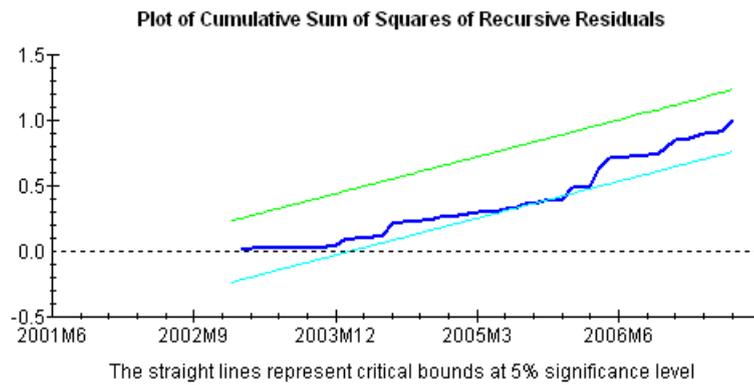


Figure 4: CUSUMSQ test - January 2001 to June 2007

between critical bounds for the sample period of 2001 to June 2007 is show by Figure 1 and Figure 2.

The plots of CUSUM and CUSUMSQ tests indicate a consistent and stable pattern in all respective countries. These consistent and stable patterns demonstrate that in long run, all countries have stable relation.

### 3.2.3 Long Run Co-integration

The results of long run estimated equations of ARDL model based on Akaike Information Criteria (AIC) for the sample period of July 2007 to November 2010 and ARDL model based on Akaike Information Criteria (AIC) for the sample period of 2001 to Jun 2007 for China are reported in Table 3.

Results of Table 3 show that in the sample period of July 2007 to November 2010 industrial production index has strong and positive impact on stock exchange prices and this relation is significant on 10% level. This result is consistent like previous studies of Sohail and Hussain [26], Mahmood and Dinniah [18], Humpe and Macmillan [14] as they also report a positive relationship between industrial production index and stock exchange prices.

Table 3: Long Run Estimated Equations by using ARDL Co-integration Approach

Countries	Long Run Estimated Equations
July 2007 to November 2010	$LPSE = 8.2334 + 3.4057 (LIPI) - 0.41540 (LI) - 3.3984 (LCPI) - 0.017956 (X) + 0.031827 (M)$ <p style="text-align: center;">(0.42676) (1.8909)* (-.92327) (-1.2199) (-1.5181) (2.2707)**</p>
January 2001 to Jun 2007	$LPSE = 112.6155 + 29.1060 (LIPI) - 12.3579 (LI) - 49.3120 (LCPI) - 1.4293 (X) - 0.60604 (M)$ <p style="text-align: center;">(0.39865) (0.34348) (-.45370) (-.37232) (-.43945) (-.44465)</p>

Note: \*, \*\* and \*\*\* are indicates that co-efficient are statistically significant at the level of 10%, 5% and 1% respectively.

Imports are positively and significantly co-related with stock exchange prices as the value of the co-efficient indicates that if imports increase by 1% than the prices of Shanghai stock exchange increase by 0.031827 units.

In the sample period of January 2001 to Jun 2007 in China, in the long run, industrial production index, imports, rate of interest, inflation and exports have no significant impact on Shanghai stock exchange prices so these variables cannot be used to predict the stock exchange movement.

### **4.3 Short run dynamics**

Short run relationship between economic factors (inflation rate, imports, exports, interest rate and industrial production index) and stock exchange prices in all respective time periods of July 2007 to November 2010 and January 2001 to Jun 2007 is shown by the table 4. The error correction model represents the short run dynamics of the model. The explanations of both samples are given below.

The error correction model represents the short run dynamics of the model and the results of error correction model shows that during and after the global recession (July 2007 to November 2010), previous stock prices have negative and significant affect on present stock exchange prices. Industrial production index has strong and positive but insignificant impact on stock exchange prices. The magnitude of interest rate shows that interest rate has negative effect on stock exchange prices but T-Ratio indicates that this relation is not statistically significant. The results of error correction model indicate that on 3<sup>rd</sup> lagged value on inflation rate has positive and significant influence on stock exchange prices. The results of study show that if exports increase by 1% than Shanghai stock exchange decrease by 0.0073591 units. The value of the co-efficient indicates that exports of China has negative and neglect able influence on stock prices and we reject this relation as T-Ratio shows that this relation is significant on 9%. Imports are positively co-related with stock exchange prices as the value of the co-efficient

indicates that if imports increase by 1% than the prices of Shanghai stock exchange increase by .0051190 units.

Table 4: Error Correction Representation

	Sample periods	
	July 2007 to November 2010	January 2001 to Jun 2007
Variables	Co-efficient (T-Ratio(Probe))	Co-efficient (T-Ratio)
dLPSE1	-.54819 (-2.9388(.007))***	
dLIP	1.3958 (1.574[.128])	-.98311 (-3.2181[.002])***
dLI	.23650 (.70364[.488])	-.01472 (-.056608[.955])
dLI1	-.55389 (-1.2818[.212])	-.27850 (-1.1505[.255])
dLI2		-.20894 (-.92836[.357])
dLI3		-.10381 (-.45384[.652])
dLI4		-.89593 (-3.6099[.001])***
dLCPI	4.9192 (1.7551[.091])*	3.0693 (2.6023[.012])***
dLCPI1	-1.6341 (-.60947[.548])	
dLCPI2	.72775 (.25820[.798])	
dLCPI3	8.0535 (2.8440[.009])***	
dX	-.007359 (-1.7579[.091])*	-.001676 (-.84237[.403])
dX1		-.020505 (-3.1752[.002])***
dX2		-.013629 (-3.3088[.002])***
dX3		-.004835 (-2.5548[.013])***
dM	.0051190 (1.9463[.063])*	.0037958 (2.4860[.016])***
dC	3.3743 (.43161[.670])	-1.4257 (-.88305[.381])
ecm(-1)	-.40983 (-3.4584[.002])***	.01266 (.43697[.664])
R-Squared	.68452	.53815
F-stat.	4.3395(.001)***	4.8402[.000]***
DW-statistic	1.9750	1.9157

Note: \*, \*\* and \*\*\* are indicates that co-efficient are statistically significant at the level of 10%, 5% and 1% respectively.

This positive relation illustrates that imports advance technology, capital goods, services of experts and raw material stimulate to the economy and have positive influence on stock prices. The value of the co-efficient indicates that this relation is weak and is significant on 6%. The co-efficient of ECM(-1) is negative and significant, indicating a rapid adjustment process to the equilibrium and demonstrates that during and after the global recession (July 2007 to November 2010) a long run relationship exist between the said variables.

The results of error correction model show that before the global recession (July 2007 to November 2010), in the short run, Industrial production index has strong and negative impact on stock exchange prices. Interest rate has negative effect on stock exchange prices but this relation is not statistically significant but only the 4<sup>th</sup> lagged value of interest rate has significant influence on stock exchange prices. It demonstrates that four month previous interest rate has negative, strong and significant influence on stock exchange prices. It shows that people want risk free return thus, if rate of interest increase people invest more in interest based bonds, securities and banks deposits rather than to invest in risky stock. The results indicate that inflation rate has positive and significant influence on stock exchange prices. It illustrates that as the inflation rate increase the general prices level of goods and services also increase it stimulates the economy and increase corporate earnings and consistently it'll positively impact on stock prices. The exports of China have negative and significant impact on Shanghai stock exchange. The value of the co-efficient indicates that exports of China have weak and neglect able influence on stock prices. Imports are positively and significantly co-related with stock exchange prices as the value of the co-efficient indicates that if imports increase by 1% than the prices of Shanghai stock exchange increase by .0037958 units. This positive relation illustrates that imports advance technology, capital goods, services of experts and raw material stimulate to the economy and have positive influence on stock prices. The value of the co-efficient indicates that this relation is very weak and not note able. The co-efficient of ECM(-1) is

positive and insignificant, indicating a divergences process to the equilibrium and demonstrates that before the global recession (January 2001 to Jun 2007) no long run relationship exist between the said variables.

## 5 Conclusion

Results show that in the sample period of July 2007 to November 2010, in the long run, industrial production index has strong and positive impact on stock exchange prices and this relation is significant on 10% level. Imports are positively and significantly co-related with stock exchange prices as the value of the co-efficient indicates that if imports increase by 1% than the prices of Shanghai stock exchange increase by 0.031827 units. This positive relation illustrates that imports advance technology, capital goods, services of experts and raw material stimulate to the economy and have positive influence on stock prices. And during the sample period of January 2001 to Jun 2007, in the long run, industrial production index has strong and positive impact on stock exchange prices, but T-Ratio indicates that this relation is not statistically significant. This result is consistent like previous studies of Ahmad and Imam [2], Tursoy, Gonsel and Rjoub [27] as they also report that indices of stock market returns are not significantly correlated with industrial production index. Thus in the sample period of January 2001 to Jun 2007 in China, in the long run, industrial production index, imports, rate of interest, inflation and exports have not significant impact on Shanghai stock exchange prices so in the long run, these variables cannot be use to predict the stock exchange movement.

As in the long run, industrial production index and imports have significant impact on stock exchange prices and can be use to predict the movement of stock exchange thus, industrial production index and imports are important factors for stock exchange prices and policy makers should give more attention to these

variables. As more imports of advance technology, capital goods, services of experts and raw material, stimulate to the economy and have positive influence on stock prices. Similarly, growth of industrial production index stimulates to the economy and has positive influence on stock prices.

For the short run; past stock prices, industrial production index, previous inflation rate and interest rate are important determinants for stock exchange prices. Results of the study suggest that if central bank of China cut interest rate than stock exchange prices will decrease as people want risk free return thus, if rate of interest increase people invest more in interest based bonds, securities and banks deposits rather than to invest in risky stock. The study also suggest that in the short run as the inflation rate increase the general prices level of goods and services also increase it stimulates the economy and increase corporate earnings and finally it has positively influence on stock prices.

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