A STUDY ON THE RELATIONSHIP BETWEEN THE DEVELOPMENT OF THE STOCK MARKET AND ECONOMIC GROWTH IN CHINA

Li Tan

Hunan University of Humanities, Science and Technology, China

ABSTRACT

This paper mainly studies the relationship between the Chinese stock market development and economic growth, through the VAR model of time series analysis. The analysis shows that the economic growth and development of the stock market appears China weak correlation.

Keywords: Stock Market, Economic Growth, Relationship, VAR Model

1. INTRODUCTION

The relationship between development of stock market and growth of economic has been a problem for economists. In the view of Western economists, the stock market has been playing a "barometer" role, but not necessarily applicable in our country. What is the relationship between the stock market and economic development in China? Is it positively correlated or negative? These issues also need us to further analysis and discussion. The article collects the data to establish the regression model, and analyzes the relationship between the development of the stock market and the economic growth.

2. MODEL

2.1 Vector Autoregressive (VAR) Model

Vector independent regression (VAR) is a model based on the statistical characteristics of the data. The model constructs the model as a function of the lag value of all the endogenous variables in the system. It is a multivariate time series variable model. The general form of the model is as follows.

\[ y_t = \alpha_1 y_{t-1} + \ldots + \alpha_p y_{t-p} + \beta x_t + \varepsilon_t \quad t = 1,2, \ldots, T \]

\( X_t \) is the exogenous variable column vector, \( Y_t \) representing the k dimension endogenous
variable, \( T \) is the number of samples, \( p \) representing the lag order. \( \varepsilon_t \) are the perturbation vectors, they can be related in the same period, but cannot be related to the variables on the right side of the equation and their own hysteresis values. \( \beta \) is the coefficient matrix to be estimated.

### 2.2 Co-integration Test

Co-integration is defined as follows: \( y_t = (y_{1t}, y_{2t}, \ldots, y_{kt}) (t = 1, 2, \ldots, T) \). Representation of \( k \) dimension vector time series. The sequence of components is called order co-integration, which is assumed to be satisfied:

1. \( y_t \sim I(d), y_t \) is the order of the single.
2. There is a nonzero vector \( \beta, \beta' y_t \sim I(d-b), 0 < b \leq d; \)
3. \( y_t \) is co-integrated, where the vector \( \beta \) is a co-integration vector.

### 3. VARIABLE SELECTION AND DATA SOURCE

The sample was selected from the first quarter of 2001 to the fourth quarter of 2016, where quarterly data was used to increase the number of samples in order to reduce the error. On behalf of the economic growth indicators selected quarterly real GDP, the stock market indicators selected capitalization rate (CAP), trading rate (VAL) and turnover (TUR). The data comes from Chinese statistics.

### 4. EMPIRICAL RESULTS AND ANALYSIS

#### 4.1 Co-integration Test Results

This paper carries out Johansen co-integration on the stock market and the indicators of economic growth. The test results are shown in the following table.
Table 1: co-integration test results

<table>
<thead>
<tr>
<th>No. of CE(s)</th>
<th>Eigen values</th>
<th>T value</th>
<th>Critical value</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>None *</td>
<td>0.561891</td>
<td>115.2476</td>
<td>88.80380</td>
<td>0.0002</td>
</tr>
<tr>
<td>At most 1 *</td>
<td>0.446211</td>
<td>67.38086</td>
<td>63.87610</td>
<td>0.0246</td>
</tr>
<tr>
<td>At most 2</td>
<td>0.281704</td>
<td>33.10452</td>
<td>42.91525</td>
<td>0.3312</td>
</tr>
<tr>
<td>At most 3</td>
<td>0.141430</td>
<td>13.91386</td>
<td>25.87211</td>
<td>0.6647</td>
</tr>
<tr>
<td>At most 4</td>
<td>0.083696</td>
<td>5.069591</td>
<td>12.51798</td>
<td>0.5864</td>
</tr>
</tbody>
</table>

From the above table we can know that at a significant level of 2%, there is a co-integration relationship among the five variables, indicating that there is a long-term equilibrium relationship between GDP and CAP, TUR, VAL and DLNM2.

4.2 Impulse Response Analysis

[Graphs showing impulse response analysis]

Figure 1: Impulse response results

It can be seen from Figure 1, TUR have a negative impact on dlnm2, CAP have a positive impact on dlnm2 firstly, but resulting in a negative impact. DLNGDP has a significant negative impact on DLNM2, because when the economy is in a state of upward, the state adopt a prudent monetary policy, while when the economy is more depressed, the state adjust the money supply to stimulate the economy.

5. CONCLUSIONS

On the whole, there is no obvious causal relationship between stock market development and economic growth. The development of China's stock market is weakly related to economic
growth.

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REFERENCES


