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Monetary Policy's Impact on European Listed Automobile Manufacturing Industry

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Abstract

A microeconomic subject, enterprises are extremely vulnerable to the influence of monetary policy, which heavily impacts their performances through financing costs and profits. This article introduces eight financial indicators in three aspects to evaluate the performance of enterprises. Through multiple linear regression that factors in interest rate, money supply and exchange rate as explanatory variables, GDP and inflation rate as control variables, this article aims to demonstrate how monetary policy impacts the performance of European listing automobile manufacturers. Further analysis shows a significant negative correlation between the impact of interest rates and company performance, and a significant positive correlation between money supply and the automotive manufacturing industry. The impact of exchange rates on the performance of automotive manufacturing companies however, is not significant. The findings prove that the interest rate policy, as the main means of monetary policy, influences the performance of enterprises through the control of enterprise costs.

Keywords

Business Performance; Principal Component Analysis; Monetary Policy; Multiple Linear Regression; Interest Rate.

1. Introduction

1.1. Background

As the backbone of the European economy, 13.8 million Europeans work in the automotive industry (directly and indirectly), accounting for 6.1% of all jobs in the EU. 11.4% of manufacturing jobs (about 3.5 million) in the EU are in the automotive industry. In the main European markets, motor vehicles account for €440.4 billion in taxes. The automotive industry has created a trade surplus of €84.4 billion for the EU. The turnover generated by the automotive industry accounts for more than 7% of the EU's GDP.

However, the number of cars rolled off the German production line this year has fallen by 12%, and export vehicles have fallen by 14% in 2019. According to data from the European Automobile Manufacturers Association, automobile sales in Germany declined 0.8% to 314,000 vehicles, while sales in the Spanish market fell 30.8% to 74,000 vehicles. Cumulative sales of European automobile from January to August fell 3.2% year-on-year to 10.831 million. The automobile manufacturing industry is an important part of the European economy. How the EU should use monetary policy to guide and revive the automobile industry, and how the automobile manufacturers can uplift company performance in the current macro environment is the purpose of this article.

1.2. Contribution

Based on the macro background and literature theory, the European automobile manufacturing industry is an important part of the European economy. Growth of the automobile manufacturing industry not only contributes to a healthy industry itself, but also contributes to

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the economic development of the entire society. This article has made some contributions in several aspects. First, there are not many studies of monetary policy on corporate performance. Most of the research is done on the impact of monetary policy on the output of the entire industry (Bernanke Gertler, 1995) (Scott, 1955) (Hayo Uhlenbrock, 1997) The existing articles on monetary policy are mostly based on the macro perspective. Although these articles analyze the impact of monetary policy tools from the effectiveness and the ultimate goal of monetary policy, the impact of it on enterprises cannot be reflected at the micro level (Kazuo Ogawa, 2000). My research analyzes the impact of monetary policy on the performance of the automobile manufacturing industry, which is more microscopic and targeted than existing studies.

In addition, this paper uses principal component analysis to calculate corporate performance. Most of the previous studies on the impact of monetary policy on companies use a single financial indicator, for example using ROA (Delios and Beamish, 1999), ROE (Grant, 1987), sales Net profit (Daniels and Bracker, 1989) or Tobin Q (Rajan and Zingales, 1996) as the only source of indicator, causing limitations to the evaluation of corporate performance. This article combines the research of (Azar and Motameni, 2005) (W.Wen, Y. Chen et al. 2008) (Edirisinghe, 2008) (Torkaman, 2012) and other scholars, selecting three aspects of corporate financial indicators as corporate Performance criteria. By using factor analysis in the multivariate statistical analysis method to conduct the calculation, the estimation of enterprise performance is more accurate compared to previous results.

2. Literature Review

2.1. Business Performance

Lebas (1995) believes that "performance" is an evaluation index that can effectively reflect the business decision-making goals of an enterprise. Enterprise performance evaluation refers to the use of mathematical statistics and operational research principles.

2.1.1. Influencing Factors of Corporate Performance

Sean (2016) studied the impact of monetary policy on corporate performance under different bank concentrations. Yang(2015) studied the mechanism of how monetary policy affects corporate performance through the combination of resource-based view and transaction cost theory. Selcuk (2018) pointed out that the degree of financial restraint of enterprises will be affected by monetary policy. Globally, we see a rising awareness level of the impact of monetary policy on various industries, with growing fundings and resources pouring into the research.

2.1.2. Evaluation Factors of Corporate Performance

Torkamani (2012) constructed a performance evaluation model mainly used to measure the sustainable development of the organization, and selected financial and non-financial indicators. Among them, financial indicators include thirteen indicators such as debt ratio, return on assets, and quick ratio. Based on his research, the range of services provided by the companies and their future potential have significant impact on company performance. Bassioni, Price, Hassan (2014) analyzed a case study in the construction industry and proposed that both internal and external factors contribute to corporate performance. In additions, reliability, relationship management, as well as trust based on consumer perception would also affect the evaluation of corporate performance.

2.1.3. Model Analysis of Corporate Performance

Karimi (2018) used the DEA model method based on the financial data of seventy-two listed companies in Tehran. Of which, he found fifty-eight high performing companies with an indicator of 1, and twenty low performaning companies with an indicator less than 1. However, the DEA model method cannot quantify and assign specific value to evaluate corporate

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performance, therefore not suitable for the regression model for my research. Eyad Aldalou (2019) uses the fuzzy multi-criteria decision-making (MCDM) method to evaluate the financial performance of companies listed on the Istanbul Stock Exchange Food and Beverage Index. This method use less quantitative data and more qualitative data, so it is not convinced.

2.2. Monetary Policy

2.2.1. Influencing Factors of Corporate Performance

Bernanke and Boivin (2003) and Blinder (2007) have proved through research that credit channels and currency channels controlled the money supply in the market, in order for the monetary policy to act on the Real economy and exert its effectiveness. Based on Levi's research, there is a significant positive correlation between the money supply and corporate performance. In other words, an increase in the money supply can effectively improve corporate performance, while a decrease in the money supply will lead to decline in corporate performance (Levi, 1980) (Dedda and Lippi, 2005).

2.2.2. The Impact of Interest Rates on Enterprises

Many scholars (Gertler, 1994) (Horváth, 2006) have pointed out that changes in interest rates have stronger policy effects on companies because of their limited financing channels. Changes in interest rates have little effect on short-term borrowing and a much larger impact on corporate performance for long-term borrowing(Song, 2015). Fernald, Spiegel, and Swanson (2014) deep dived into previous studies, and discovered that changes in interest rates have a continuous impact on economic activities. Through the empirical analysis, the interest rate is regarded as the optimal monetary policy tool that would generate the most impact.

2.2.3. The Impact of Exchange Rates on Companies

Eleanor (2001) used Irish export data of UK from 1979 to 1992 to investigate the impact of fluctuations in exchange rate and real exchange rate on corporate export performance. The empirical results showed that the appreciation of both the nominal and real exchange rates has a significant negative impact on Irish exports. Forbes (2002) used sample data from more than 13,500 companies to study the impact of exchange rates on company performance. The study found that exchange rate depreciation has a significant impact on corporate performance measured by sales revenue, but insignificant impact measured by return on assets. Therefore, Forbes concluded that the impact of exchange rate changes on the company is insignificant.

3. Methodology

3.1. Corporate Performance Evaluation

Currently, there are many commonly used performance evaluation methods, such as the ratio analysis method, the input-output method, the DEA method and so on. Ratio analysis and data envelopment analysis are both input-output evaluation methods, which do not apply to this paper. The analytic hierarchy process is a more subjective evaluation method for weighting. Compared to the analytic hierarchy process, the analysis process of the principal component analysis method is simpler and the weighting process is more objective. Therefore, for the purpose of this paper, I choose the main analytic hierarchy process as the method to calculate comany performance.

3.1.1. Principal Component Analysis Mathematical Model

Principal component analysis is a very useful and common analysis method in statistics. It was first proposed by Karl Pearson (1901) and later enhanced and promoted Hotelling. The core idea is to reflect the principle with fewer independent principal components. There are most information about variables.

ISSN: 1813-4890

According to the financial performance evaluation index system obtained by indicator selection, the original data matrix is constructed to evaluate the financial performance level of the enterprise. There are p original variables $\boldsymbol{X_1}, \boldsymbol{X_2}, \boldsymbol{X_3}$,... and each variable may be standardized. Each original variable is represented by a linear combination of k (k<p) principal components $\boldsymbol{f_1}, \boldsymbol{f_2}, \boldsymbol{f_3}$,..., $\boldsymbol{f_k}$, then we can get: $\mathbf{a_1}$,

$$\begin{cases} X_1 = \mathrm{a}_{11}f_1 + \mathrm{a}_{12}f_2 + \mathrm{a}_{13}f_3 \ldots . \mathrm{a}_{1k}f_k, +\xi_1 \\ X_2 = \mathrm{a}_{21}f_1 + \mathrm{a}_{22}f_2 + \mathrm{a}_{23}f_3 \ldots . \mathrm{a}_{2k}f_k, +\xi_2 \\ X_3 = \mathrm{a}_{31}f_1 + \mathrm{a}_{32}f_2 + \mathrm{a}_{33}f_3 \ldots . \mathrm{a}_{3k}f_k, +\xi_3 \\ \cdots \\ X_P = \mathrm{a}_{p1}f_1 + \mathrm{a}_{p2}f_2 + \mathrm{a}_{p3}f_3 \ldots . \mathrm{a}_{pk}f_k, +\xi_p \end{cases} \quad (1)$$

The above formula be expressed in the form of a matrix asL

$$X=AF+\xi \quad (2)$$

Through the method of coordinate exchange, the original related variables are standardized and linearly combined, and converted into another set of unrelated variables y, leading us to the following matrix:

$$\begin{cases} y_1 = \mathrm{u}_{11}f_1 + \mathrm{u}_{12}f_2 + \mathrm{u}_{13}f_3 \ldots . \mathrm{u}_{1k}f_k, +\xi_1 \\ y_2 = \mathrm{u}_{21}f_1 + \mathrm{u}_{22}f_2 + \mathrm{u}_{23}f_3 \ldots . \mathrm{u}_{2k}f_k, +\xi_2 \\ y_3 = \mathrm{u}_{31}f_1 + \mathrm{u}_{32}f_2 + \mathrm{u}_{33}f_3 \ldots . \mathrm{u}_{3k}f_k, +\xi_3 \\ \cdots \\ y_P = \mathrm{u}_{p1}f_1 + \mathrm{u}_{p2}f_2 + \mathrm{u}_{p3}f_3 \ldots . \mathrm{u}_{pk}f_k, +\xi_p \end{cases} \quad (3)$$

Among them, y_i and y_j are not related (i, j=1, 2, 3....p)y1 is X_1, X_2,X_3 .... X_P with the largest variance among all linear correlations. y2 is the largest of all linear correlations of X_1,X_2,X_3 .... X_P that are not related to y1, and so on. yp is the largest variance of all linear combinations ofX_1,X_2,X_3 .... $X_P$that are not related to y_1,y_2, y_3... y_{p-1}. Variables determined according to the above principles y_1, y_2, y_3... y_p becomes the original variable X_1, X_2, X_3 .... X_P,s1,2,3...p Principal components.

Among them, y1 occupies the largest proportion of the total variance, and it has the strongest ability to integrate the original X_1, X_2, X_3 .... X_P, and the remaining proportions of y_2, y_3... y_p in the total variance successively decrease, meaning the ability of the remaining principal components to integrate the original variables gradually weakens. In the practical application of principal component analysis, it generally refers to the selection of the first few principal components with larger variance. This method reflects most of the information with fewer principal components and number of variables.

3.1.2. Principal Component Analysis Mathematical Model

When the principal components are determined, the specific values of each principal component on each sample can be calculated. These values are called principal component scores. The principal component score can be described by the original variables, which can be regarded as the weighted sum of the original variable values. The importance of the original variable to the principal component is expressed as the size of the weight, bringing us to:

$$F_i = w_{i1}x_1 + w_{i2}x_2 \ldots w_{ip}x_p (\mathrm{i} = 1, 2 \ldots . \mathrm{p}) \quad (4)$$

ISSN: 1813-4890

The above is called the principal component score function, where F_i is the score of the i-th principal component. $w_{i1}, w_{i2}, w_{i3} \ldots w_{iP}$ is the principal component value coefficient between the first principal component and the original variables, and the principal component value coefficient can be passed.Calculate through the following formula:

$$w_j = A'_j R^{-1} \tag{5}$$

Where w_j=$w_{i1}, w_{i2}, w_{i3} \ldots w_{iP}$,R is the correlation coefficient matrix of the original variables, A'_jIs the load of the original variables on the i-th principal component. According to the scores and weight coefficients of the above principal components, the comprehensive score of each sample can be calculated according to the following formula, and the final evaluation formula can be obtained:

$$F=W_1F_1+W_2F_2+W_3F_3 \ldots W_KF_K \tag{6}$$

3.2. Data Description and Descriptive Statistics

3.2.1. Enterprise Performance Data Selection

In order to ensure the authenticity of the data and the reliability of the results, this paper obtains the financial book data of the European listed automobile manufacturing industry from 2000 to 2019 through the Orbis database. Based on the previous literature analysis, this article selects eight financial indicators to measure the overall company performance.

Table 1. Company management performance evaluation index system

First level	Second level	Third level
Profitability	ROA	x1
	NPM	x2
	ROE	x3
Solvency	QR	x8
	CR	x9
	IR	x10
Development ability	GINT	x11
	SOGR	x12

3.2.2. Multiple Linear Regression Data Selection

Table 2. Explanatory variables in this Paper

Category	Variable	Symbol
Explained variable	Performance score	y
Explanatory variables	Deposit Facility Rate	X1
	Exchange Rate against USD	X2
	M3	X3
	GDP Growth Rate	X4
	Inflation Rate	X5
	Unemployment Rate	X6

Data Source:

GDP Annual Growth Rate: https://www.nationmaster.com/.

Inflation Rate: https://www.statista.com/.

Unemployment Rate: https://www.nationmaster.com/.

ISSN: 1813-4890

The study uses data collected from a 20-year window from 2000 to 2019 from 36 different automobile companies in Europe. The sample includes a total of 665 data points.

Monetary policy should be predictable for market participants and should influence planning and decision making. Hence six variables that may reflect the change in the monetary policy are proposed and the variables are defined as following in Table 2. Performance scores of each company are calculated using Analytic Hierarchy Process from the previous section.

4. Corporate Performance Evaluation

4.1. Principal Component Analysis to Evaluate Performance

Karl Parson (1901) first proposed the principal component analysis method, and later Hotelling (1993) extended this concept from non-random to random variables. The essence of the principal component analysis is to develop a new matrix with the combination of original data to replace the original matrix. By doing so, this method is able to reflect more information of the original data with fewer comprehensive indicators.

4.2. KMO and Bartlett Test

Because factor analysis extracts and synthesizes the overlapping information from the original data and factors in many variables, it requires a strong correlation between the original variables. In this regard, we should first examine whether there is a certain linear relationship between the standardized variables and whether the data set is suitable for factor analysis. Here, the analysis is carried out with the help of the correlation coefficient matrix of the variables, the Bartlett sphericity test and the KMO test method. The results of the test are shown in the table 3.

Table 3. KMO and Bartlett Test

KMO sampling appropriateness quantity		0.503
Bartlett sphericity test	Approximate chi-square	1154.393
	Degree of freedom	28
	Significance	0.000

The KMO test value is between 0.5 and 1, making the principal component analysis possible. Bartlett's sphere test is also used to test the correlation coefficient between variables. Usually the significance level is p = 0.01. When the significance of the test is less than 0.01, the data is considered suitable for principal component analysis. Using SPSS13.0 software to test the 720 samples in this article, the KMO test value is 0.503, and the Bartlett sphere test significance p=0. 000, indicating that the sample is sufficient and suitable for the principal component analysis method for listed automobile manufacturing companies.

4.3. Calculate the Comprehensive Score

According to the SPSS software, the validity test is carried out, and the initial solution of the common factor variance of the index per share is obtained. We get eight indicators, and the values are all valid data above 60% of the valid standard. The extraction effect is also relatively good. This article uses factor analysis The effect of the method is significant.

When judging the number of principal components, it is necessary to consider the contribution rate of the jth eigenvalue and the contribution rate of the first m eigenvalues. ej is the contribution rate of a certain eigenvalue, and Em is the sum of the contribution rates of the first m eigenvalues. Subsequently, I observe the number of principal components, meaning how many eigenvalues are found under the condition that the eigenvalue is greater than 1 and the

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sum of the contribution rate is greater than 70%. After extracting the principal components, analyze the principal component loads. The purpose is to explain the principal components economically. Each principal component is composed of the original index, but the load between the principal component and each original index is different. The greater the absolute value of the load, the closer the relationship between the principal component and the index.

Table 4. Component Matrix(a)

	Ingredient			
	1	2	3	4
ROA	0.695	0.018	-0.086	-0.379
NPM	0.621	-0.384	0.627	-0.355
ROE	0.755	-0.067	-0.02	0.477
QR	0.158	0.781	0.134	-0.117
CR	0.026	0.911	0.048	0.103
IC	-0.518	-0.029	0.045	0.501
GINT	0.171	0.195	-0.73	-0.343
SOGR	0.023	-0.042	-0.061	0.439

Based on the findings listed in Table 4, the first and third main factors are determined by X1, X2, and X3. Their load values are 0.695, 0.755 and 0.627 respectively, reflecting the company's profitability. The second main factor is composed of X4 and X5, and their load values are 0.781 and 0.911 respectively. The second main factor reflects the company's solvency. The fourth main factor is determined by x8, and its load value is 0.439. The fourth main factor reflects the development level of the company.

Among them, F is the comprehensive financial performance score, j represents which public factor 4 takes (1, 2, 3, 4), dj is the weight of each public factor in the comprehensive financial performance score.From this we can get the formula for calculating the comprehensive score of the financial performance of listed manufacturing companies as:

Performance=(26.503%fac1+20.413%fac2+14.136%fac3+13.535%fac4)/74.587%

4.4. Performance Calculation Results

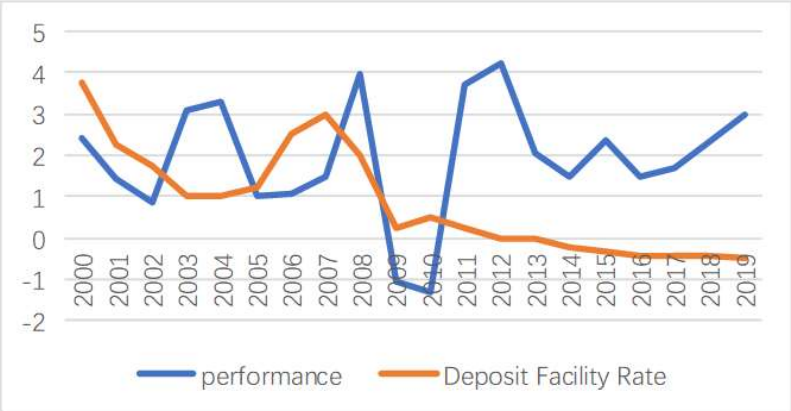

Figure 1. Performance and deposit facility rate 2000-2019

This section mainly uses factor analysis to evaluate the financial performance of listed companies in the European automobile manufacturing industry based on the constructed evaluation index system, acting as the foundation for the subsequent impact of monetary policy on corporate performance. At the same time, through calculating performance, we have obtained the overall performance changes of the European automobile manufacturing industry from 2000 to 2019. Figure 1 can be used to obtain the overall decline in corporate performance

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in 2008 due to the financial crisis. During that time period, the European Central Bank decided to lower interest rates to stimulate investor investment and consumption, and in turns stimulate economic growth. In the next few years, we can see an increase in corporate performance. It can be initially noticed that changes in interest rates are related to corporate performance

5. Corporate Performance Evaluation

This research used Multiple Linear Regression with Ordinary Least Squared to study how changes in monetary policy impact the performance of the auto companies. Monetary policy, influencing the supply and demand for money, is applied by central banks of the countries with the goal of managing inflation.

5.1. Model Regression

This study will evaluate how different macroeconomic variables that reflect monetary policy, affect automobile companies in Europe using regression analysis. However, due to lack of sufficient data and variables not being able to be identified or quantified, there are certain other variables that have an impact on the performance score of the automobile companies but are not contained in this study. Based on previous studies and that have used variables found to be relevant, eight macroeconomic variables are identified initially. Once the assumptions check and correlation tests are completed, six quantitative factors are finalised using a sample of 655 data points.

Implementation of ordinary least squares is used to fit the full model, i.e. the model where all the regressor variables are used.

$$y = \beta 0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \beta 4x4 + \beta 5x5 + \beta 6x6 + \varepsilon \quad (7)$$

where y = performance score of each company, x1= deposit facility rate, x3 = exchange rate against USD, x4 = M3, x5 = inflation rate, and x6 = unemployment rate.

5.2. Model Analysis and Validation

A regression analysis has been performed using the statistical programming language R. A multiple regression model has been constructed with all of the 6 different regressor variables. The full model did suffer from regressors with low significance. The methodology of transformation and outlier analysis are then used to construct the model. A Box-Cox transformation is a way to transform non-normal dependent variables into a normal shape. Normality is an important assumption for many statistical techniques; if the data does not distribute normally, applying a Box-Cox enables the running of a broader number of tests. Also, a comprehensive study on the outlier analysis was performed in order to remove some outliers.

Table 5. Results of Regression

	Estimate	Std. Error	t-value	Pr(>|t|)	
(Intercept)	-20.7752	16.8961	-1.23	0.22037	
Deposit facility	-6.3694	2.1571	-2.953	0.00355	***
Exchange rate against USD	7.2661	12.7466	0.570	0.56932	
M3	1.9661	0.8576	2.293	0.02297	**
Inflation	3.7249	2.0612	1.807	0.07232	.
GDP	0.2748	1.1099	0.248	0.80470	
Unemployment	0.6562	0.5169	1.270	0.20578	

ISSN: 1813-4890

The final model is:

$$y = -20.7752 - 6.3694^* x1 + 1.9661 * x2 + 3.7249 * x3 \quad (8)$$

where x1 is the deposit facility rate, x2 is the M3 and x3 is the inflation rate.

5.3. Regression Analysis

Through regression analysis, we can see that monetary policy has a significant impact on corporate performance. The interest rate policy has the most significant impact on corporate performance and is negatively correlated, and exchange rate changes have no significant impact on corporate performance. The p-value of the entire model is important at a 5% confidence level. It should be noted that some explanatory variables are not of high importance, which means that the linear relationship of each variable cannot be determined. The p-values of the remaining explanatory variables are satisfactory. The deposit convenience rate is significant at a confidence level of 1%, M3 is significant at a confidence level of 5%, and the inflation rate is significant at a confidence level of 10%. However, despite the overall importance of the model, the R-squared value of the regression model is 11.241%. In our regression, the explanatory power of macroeconomic variables is only relatively low. One of the possible explanations is that there are not enough choices of these variables or that monetary policy is not the most important factor affecting corporate performance. Besides, the use of multiple linear regression analysis to evaluate the significance of regressor variables relationship with a response variable has been adequate. There are nevertheless multiple restrictions and complications that can arise when performing regression, as is evident in this thesis.

6. Results and Discussion

6.1. Corporate Performance Evaluation

In the comprehensive evaluation of the financial performance of listed manufacturing companies, this article uses factor analysis in the multivariate statistical analysis method. Through factor analysis of financial performance evaluation indicators, three public factors are extracted. These three factors are interpreted and translated as profit factor, debt repayment factor, and growth factor. Public factor score of each listed company is then calcuated according to the factor score table. Calculation of their weight through the variance contribution rate lead to the total factor score of each listed company. As an indicator to measure the financial performance of listed companies, this evaluation of corporate performance is more accurate compared to previous analysis and research.

6.2. Monetary Policy Impact

6.2.1. The Influence of Money Supply

M3, as an intermediate indicator of the overall effect of monetary policy, has a significant impact on corporate performance. A moderate increase in the money supply can improve corporate performance.

The European Central Bank implements monetary policies through adjusting refinancing interest rates, marginal lending instrument interest rates, changes in deposit instrument interest rates, and public sector securities asset purchase plans. As a capital-intensive enterprise, the automobile manufacturing industry is more sensitive to changes in the money supply. At the same time, with the continuous development of the automobile manufacturing industry, product differentiation dimishes while the market becomes more competitive and saturated. It is often emphasized that mass production is used to reduce production costs in order to gain a competitive advantage. While the emphasis on mass production effects makes

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the development of the manufacturing industry more dependent on capital, thus enhancing the sensitivity of monetary policy to manufacturing.

Concurrently, although the EU has some small structural problems, it is a balanced market economy with an overall unit structure. Aggregate-based regulation can help improve the efficiency of its monetary policy.

6.2.2. The Impact of Interest Rates

Changes in interest rates have a significant impact on the automobile manufacturing industry, proving that H2 is correct. Monetary policy always directly affects interest rates and is often used as a tool to stimulate demand and consumption. When the deposit interest rate rises, certain fund-raising activities might be inhibited, resulting in reduced profits and reduced returns. On the other hand, when the loan interest rate drops below 0, this may stimulate certain corporate loan activities, causing the performance score to rise. However, there may be exceptions when the monetary policy normalizes deposit rates during the expansion period. Inflation happens when there is a decline in purchasing power due to price increase in the entire economic system. Inflation requires prices to rise in a "package" of goods and services. The prices increase of involuntary and impossible commodities (such as food and fuel) would have affect inflation on their own.

6.2.3. The Impact of Exchange Rates

The impact of exchange rates on the automobile manufacturing industry is not significant, which proves that the third hypothesis is safe to assume. According to the analysis of the principles of economics, fallen exchange rate will cause price drops of the local automobile manufacturing industry, thus increasing the competitiveness of export products and company performance. At the same time, the increase in exports will lead to increase in both foreign exchange reserves and foreign exchange holdings. This results in an increase in money supply and a decrease in interest rates, which reduce the production costs of enterprises. However, the insignificant effect of exchange rate on the performance of the automobile manufacturing industry is inconsistent with economic reasoning. One possible explanations is that most European listed automobile manufacturing industries are multinational companies. These companies generally would adopt financial hedging methods such as currency derivatives and operational hedging methods such as futures hedging, which can respond to exchange rate functions more proactively. In addition, the decentralized business network also reduces risk of the level of exchange rate.

6.3. Overview

Monetary policy can affect company performance by affecting money supply, bank loans, and interest rates. The company’s financing amount is related to company operations and whether it investment decisions are successful or not. Under the tightening monetary policy, the available lending capital of banks has decreased. When corporate loans face restrictions, this results in a lack of funds for normal operations and a widening funding gap. Simultaneously, lacking of investment funds might lead to under-developed investment projects. When investment output is greatly reduced, company performance will in turn suffer. Adjusting the micro market through monetary policy is not only a necessary condition for the healthy development of the financial market, but also a requirement for optimizing resource allocation and effectively guiding the macro economy. Reasonable use of monetary policy tools can effectively boost company performance and promote economic development. This is also an inevitable way to improve the effectiveness of monetary policy implementation.

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