

The Impact of Spot Trading Price Fluctuations of Carbon Emission Allowances on Enterprises' Ability to Obtain Cash

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Introduction

According to the existing researches, in view of the fact that the carbon emissions of the five industries of chemical industry, steel, cement, power and heat account for 95%, this paper selects five enterprises and uses the grey correlation method to conduct empirical research, and the results show that the fluctuation of spot trading prices of carbon emission allowances has a great impact on chemical enterprises and steel enterprises.

Research Questions

The fluctuation of the spot trading price of carbon emission allowances has an impact on the cash acquisition capacity and cash flow of cement enterprises, steel enterprises, thermal power enterprises, electric power enterprises and chemical enterprises, respectively.

Methodology

Grey correlation method

Table

TABLE 2. Growth Rate of Price Fluctuations^{e1}

Year ^{e2}	Growth rate ^{e2}
2017 ^{e2}	0.119336548 ^{e2}
2018 ^{e2}	-0.132390063 ^{e2}
2019 ^{e2}	1.121462394 ^{e2}
2020 ^{e2}	-0.852041882 ^{e2}
2021 ^{e2}	3.724707188 ^{e2}

Mathematical Formulas

$$ROA = \frac{\text{Net Profit}}{\text{General Assets}} \quad (1)^{e1}$$

$$x_i(k) = \frac{X_i(k)}{X_i(1)}, k = 1, 2, \Lambda, n; i = 0, 1, 2, \Lambda, n \quad (2)^{e1}$$

$$\xi_i(k) = \frac{\min_k |y(k) - x_i(k)| + \rho \max_k |y(k) - x_i(k)|}{|y(k) - x_i(k)| + \rho \max_k |y(k) - x_i(k)|} \quad (3)^{e1}$$

$$r_i = \frac{1}{n} \sum_{k=1}^n \xi_i(k), k = 1, 2, \Lambda, n \quad (4)^{e1}$$

Figure

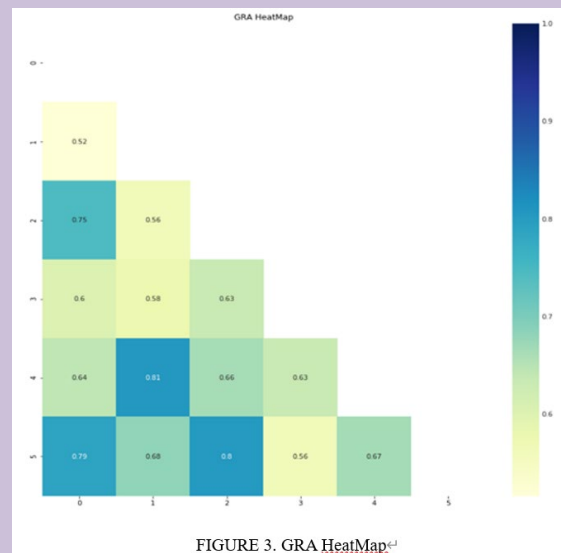


FIGURE 3. GRA HeatMap^{e1}

Conclusion

The fluctuation of the spot price of carbon emission allowances has the greatest impact on the cash acquisition capacity of the steel industry and the chemical industry, and the impact on the cement industry, power industry and heat industry is also significant.