

# A Study on Effectiveness of Cognitive Computing for Risk Management in Portfolio Selection

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**Abstract:** Awareness and learning of financial instruments and company fundamentals is the first step for any investor to enter into capital markets. Basic knowledge of investment opportunities and strategies is essential for retail investors to avoid getting into incorrect selection of investment types and portfolio building. The probability of loss, i.e., Risk will always be there in all forms of investments to some extent. Risk management becomes most important in such a situation. With the development of Artificial Intelligence in the nearest future, fund managers can seek the help of permutations and combinations to suggest the best stocks and funds. Cognitive computing is more trusted than Artificial intelligence for investments since it is more to do with human behaviour pattern and Artificial Intelligence is only predesigned patterns which will not consider the fluctuations in value of underlying assets caused due to human sentiments during any unusual situations like pandemic, natural disasters, recession and so on.

**Keywords:** Artificial Intelligence, Risk management, Cognitive computing, Portfolio selection

## 1. Introduction

Cognitive computing helps in decision making process of investors and fund managers. Cognitive computing study also helps in creating algorithms to solve complex problems in a logical manner like as human brain thinks. Which means cognitive computing is the combination of Artificial intelligence and behavioural science. In order to choose an appropriate portfolio investor has to analyse the fundamentals of the company through SWOT analysis, company past performance through trend analysis, market sentiments about the company, nearest future projects and so on.

There are aggressive investors and passive investors. Aggressive investors are risk seeking and expecting more return for the additional risks they undertake. It is known as risk premium. Passive investors are risk averse and they just need safety and an avenue to park their funds. They focus on long term benefits than short term profits. Cognitive computing uses artificial intelligence and makes decisions with the capabilities of human brain. So, the risk management techniques should be different for different investors.

### Objectives

- To study the effectiveness of cognitive computing for risk management in portfolio selection.
- To understand the scope of cognitive computing in risk management.

### Hypothesis

- $H_0$  = Cognitive computing does not have impact on risk management.
- $H_1$  = Cognitive computing have impact on risk management.

## 2. Significance of the Study

After the New Economic Policy 1991, Liberalization - Privatization and Globalization became prominent. As a

result, new job opportunities and income level increased tremendously. Additionally, the COVID 19 pandemic has created a tension of emergency funds even in the local people. So, the investments have also increased. An investment portfolio should be a mix of debt and equity funds. This will create the opportunity of trading on equity or leveraged trading. Investors are becoming more conscious on choosing the best portfolio.

Changing environment and increased contingencies created the need of systematic and scientific selection of investments. Growth of information technology is paved way for development of cognitive computing. Gold is one of the best investment opportunities. But gold rate fluctuations due to oil price fluctuations and inflations discourage investors to go with this. Definitely interest rate fluctuations are also considered as significant for lack of investments in gold.

Cognitive computing uses artificial intelligence to generate and execute predesigned patterns which will not consider the value fluctuations of basic underlying assets. During recession and pandemic crisis, everyone will pull out money or stop investing and liquidate all investments due to the fear of losing money. But there is a huge group of people who looks it as a opportunity to invest at low and get comparatively huge returns irrespective of the challenging situations. This can be identified from cognitive computing.

### Research Methodology

Both primary and secondary data are used for the study. Primary data is collected through questionnaire and secondary data is collected through websites, journals, books and so on. Sample size is 50 and purposive sampling method is used for sampling.

### 3. Data Analysis

**Table 1.1:** Gender analysis

Category	Number of Respondents	Percentage of Respondents
Male	25	50
Female	25	50
Others	0	0
Total	100	100

**Table 1.2:** Type of investors

Category	Number of Respondents	Percentage of Respondents
Aggressive	15	30
Neutral	10	20
Passive	25	50
Total	100	100

**Table 1.3:** Whether using cognitive computing or not.

Category	Number of Respondents	Percentage of Respondents
Yes	35	70
No	15	30
Total	100	100

**Table 1.4:** Opinion on cognitive computing helps in risk management

Category	Number of Respondents	Percentage of Respondents
Strongly Agree	22	44
Agree	18	36
Indifferent	9	18
Disagree	1	2
Strongly Disagree	0	0
Total	100	100

### 4. Conclusion

From the detailed study report, it is clear that almost all investors are aware about the cognitive computing techniques and majority of them are using this for portfolio selection. Most of the investors are passive investors and they have resistance to loss. Hence, they will feel insecure to invest blindly. Cognitive computing is a useful weapon to create confidence in investors.

In very short, it is clear that  $H_1$  is proven and cognitive computing has effect on risk management.

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