

AUTOMATION OF ALGORITHMS IN CAPITAL ANALYST PORTFOLIOS

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This problem situation was written by Raymundo Díaz Robles (raymundo.diaz @tec.mx), with the purpose of serving as discussion material in the classroom; it does not intend to illustrate good or bad administrative practices.

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Tecnológico de Monterrey
Escuela de Negocios



Capital Analyst Investment

The Capital Analyst Company is an independent investment consultancy located in Mexico. It is registered in the National Banking and Securities Commission and has several offices throughout the country. The company uses different trading platforms and brokerage accounts in Mexico and the USA, according to investors' profiles and their levels of risk and return. Its main operating instruments are shares in Mexico and the US, and sometimes shares in the International Quotation System of the Mexican Stock Exchange, along with connections to the US market such as the NYSE.

Nowadays, with the growing number of investors with long-term investment objectives, risk parameters must be highly controlled. Analysts send orders directly through an interface using tools like R Studio or Python to maximize the returns of their portfolios, while maintaining the legal requirements of the investor profile presented by the National Banking and Securities Commission.

To achieve this, Capital Analyst has developed various algorithms that automate interfaces between R Studio or Python with platforms like Interactive Brokers. These algorithms are updated based on fundamental analysis, automated signals from technical analysis, indicators such as MACD, RSI, and quarterly reports of listed companies, aiming to exceed the annual returns of benchmarks like the IPC, S&P500, Dow Jones, Nasdaq, etc.

The brokerage team and the analysts at Capital Analyst use tools like machine learning to provide quick and easy access for the search and analysis of portfolios. The algorithms must be able to execute transactions in the market, and also to incorporate strategies based on Market Anomalies, backtesting, and behavioral markets.

According to one of the analysts, Mr. Sánchez, generating reports on various sectors and countries requires a lot of power and could take a long time. Therefore, to optimize their operation, they need to develop a tool that can generate... an aggregated portfolio report from various markets and provide the option of executing a stock transaction automatically. The next step is to generate a portfolio management solution that can follow a strategy based on the analyses carried out with the current project.

Image. Capital Analyst offers investment management and advice in accordance with the law of the stock market.



Source. Geralt in Pixabay, 2016.

Capital Analyst Credit

In addition, Capital Analyst has opened a new area of financing and corporate credit. One of the directors aims to use a default prevention system for debt payments, for which Capital will issue bonds in the American market to obtain resources. The funds will then be distributed among authorized credits.

As such, there are a few things that need to be considered:

When Capital Analyst issues bonds in the USA to obtain financing in dollars and the credits to be granted, will these be in Mexican pesos as well as in American dollars? Will coverage be necessary according to each placement or amount to be lent?

How can advice be given to the Director through a linear regression model and a logistic regression model using R studio? For example, databases of Refinitiv, Yahoo Finance, Bloomberg, Infosel, FRED, Banxico, etc., can be used to ensure the quality of the data for processing.