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## A STUDY OF THE ADVANTAGES AND LIMITATIONS OF BOTS IN TRADING

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### **Abstract**

Computer programs were originally used to solve computational problems that could only be solved by computers. However, computer programs have evolved into tools that are now utilized to solve a wide variety of problems for which humans cannot perform. These programs are used for number crunching, information retrieval, and social networking among other things. Bots can be used by traders whose aims include reducing the time required to analyse markets or simply seeking a safer means of profiting from trading. The current paper seeks to examine the advantages and limitations of using bots in trading, which are commonly referred to as robots. The paper begins by providing a preface of what bots are and how they work. Thereafter, it reviews both their advantages and limitations. The paper examines the advantages of using bots in the market, providing an analysis of the different types of bots. The paper also identifies several factors that should be considered before deploying bots in trading. The paper concludes by highlighting the significant possibilities presented to traders who employ bots in their operations.

**Keywords:** Bots, Daily Trading, Advantages and Limitations, Preface, Trading Analysis.

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### **1. Introduction**

The Bots as Trading Tools offers a detailed analysis of the advantages and limitations of incorporating them in trading portfolios. Within the paper, three types of bots are discussed: type 1, type 2 and robots; these are further differentiated into seven categories based on their use of software to replicate human behavior: technical bots, social bots, statistical bots, programmed bots (BI), robot advisors (robots), game-playing bots and personal assistants (PA). The paper then goes on to provide an overview of the different types of trading strategies that can be developed with each type. A comprehensive list is also provided to show how many traders have successfully implemented each strategy.

In addition to these, the paper also shows how bots are used to solve common issues in trading, including risk management and money management. Bots can also be used to solve other issues that arise in the trading process, depending on the specific needs of a trader. The paper concludes with factors that need to be considered before deploying a bot in a trading portfolio.

#### **1.1. What are bots?**

Bots are computer programs designed to perform automated tasks over the internet. They perform varying functions, from search engine optimization (SEO) – which helps websites achieve high rankings on search engines – to looking after customer service inquiries and protecting databases against hackers (Hobbs, 2012). Bots are particularly useful when dealing with repetitive and predictable tasks, such as statistics and data analysis. Bots can be integrated into trading software to perform automated functions that are too costly, time-consuming or difficult for a human trader to do (Ganeshram, Nair & Bangar 2010).

## 1.2. What do bots do?

Bots assist traders in finding the best time of day and the best place to trade based on variables such as market conditions, market activity and personal biases. They can also be used to provide information in various forms, including visual representations of stock curves and line graphs. Bots can also be utilized in order to monitor stocks that you're interested in trading on as they adjust their prices based on publicly available information (Kocherlakota 2009).

The advantages of using bots in trading depend on the specific requirements of each trader. For instance, type 2 and social bots are well-suited for the analysis and manipulation of market data, while robots can be used to analyze market data by looking at more variables at a time. Bots can also be used to find entry and exit prices, as well as monitor patterns in pricing over time (Kalkanis & Prasad 2010).

While there are many benefits that can enable a trader to use bots in trading, there are some limitations that should be taken into consideration before implementing them. Along with their individual behavioral traits, the common features of bots also need to be noted.

## 2. Review of Literature

The purpose of this paper is to provide a systematic review of literature for bots that are used by investors in daily trading. The paper also provides an analysis of how bots work and how they are used in trading.

In order to fully appreciate the limitations of using bots in trading, it is necessary to take into account their technological limitations. Bots are typically developed as computer programs written in a high level programming language, such as Python or Visual Basic .Net. They can also be created using significantly more complex programming languages, such as C++, Java and C#. In some cases – for instance when writing programs for the stock market – specific platforms must be utilized. For instance, traders interested in using bots need to consider the trading platform they intend to use.

When it comes to the programming process, all traders want their bots to perform accurately, yet there are many types of bots that are unable to provide precise results. This problem is inherent in their programming and cannot be avoided.

When a bot is able to provide precise results, a trader has perfect control over the bot's behavior. There are two classes of traders who can benefit from this: technical bots and those who seek more flexibility in their strategies; they tend not to have precise needs when it comes to useful features that have been discussed at length before this paper. Technical bots function by giving precise prices for an asset (e.g. purchasing an asset at a certain price point, selling at a certain price etc...) while they also help in breaking down information into its different elements. Technical bots can also be used to help traders identify trends in stock prices, as well as the differences between different assets and the possible accuracy of their predictions.

Through the use of such a program, it is possible for a trader to quickly analyze market activity and perform technical analysis that otherwise requires a significant amount of time to compile (Hanrahan 2011). This is because technical analysis requires data mining skills, which are not required when dealing with other types of trading strategies. The use of bots enables such traders to perform similar analyses in less time than they could have done before. Several studies that focus on the issue of efficiency have been done in order to come up with a viable solution to this problem. As it turns out, bots are still the perfect solution.

To further enable traders with highly sophisticated technical skills to use bots in their trading strategy, categorization and standardization should be considered. This can be done by developing

a common standard for such trading strategies, which would enable more traders to adopt them easily (Robinson 2011).

As bots are continuously evolving, it is important for traders to keep themselves up-to-date about the various developments taking place in this field. This can allow them to make better use of these programs in their trading strategy (Hanrahan 2011).

James (2016) highlights the diverse nature of bots and their specific biases. The problem that traders face when using bots can be reduced by the development of specific types of bots that are able to optimize their behaviors.

## 2.1. Robot Trading

A term frequently used in trading is "robots". That's where a trader creates an automated computer program or script to complete a task for them. The main feature of a robot trading software is that it will trade in your account without you having to do anything about it. If you want to start using robots, all you need to do is set up an account with one of the brokers who offers robots, a platform, and download some software (programs) which will allow you get started quickly (Diba 2011).

Robots can be very useful in terms of risk management and trading. They ensure that you are making the right decisions when trading the market. By automating the decision making process, there is a reduced chance of human error, which means more profits (Hanrahan 2011).

Robots can also be used as a tool for improving your market study skills. By using an automated trading system, you are able to learn about different trends in different markets at the same time, which enables you to gain more knowledge about what is going on in international financial markets (Diba 2011).

A difference between robots and discretionary systems is that robots do not change their strategy based on what the market does. They just follow the pre-set rules, regardless of changes in market conditions. Therefore, you will often see that robots are less risky than discretionary systems (Hanrahan 2011).

Robots only trade when the pre-set criteria match what is happening in the markets, which means that you will be notified when there are any matches and the robot can begin trading on your behalf (Diba 2011).

Robots are a good option for traders who want to integrate technical analysis into their trading but don't have enough time to study different financial instruments and indicators. By using robots, you will be able to save a lot of time while still being active in the markets (Hanrahan 2011).

Robots are very useful in helping you to identify repeating patterns in the market, as well as reversals. This means that robots will signal whether a certain trend is likely to continue or reverse. You can also use robots to signal when it is time for a reversal (Diba 2011).

You can use robots to help you understand which asset is going to perform best and for how long. This will help you decide on where you need to allocate your trading capital accordingly (Diba 2011).

As defined by James (2011), the essential features of a robot are: reliability, speed, and automation . That's because if the robot cannot deliver its promises, there is nothing it can do about it. This, in turn, leads to a loss of confidence in the trader's strategy. A trader who relies on robots will also be more likely to make mistakes (James 2011).

The most popular use for robots is for automated trading of equity securities. This means that the robot will send trades manually to the broker. If the robot fails to do what it is supposed to do, there is nothing it can do about it. This, in turn, leads to further loss of confidence (James 2011).

Robots are very useful for those who want technical analysis and automation in their trading strategy but don't want to spend a lot of time learning how to trade different markets and instruments individually.

After performing an extensive review of literature, the researcher has found the following advantages and limitations of trading bots.

### **3. Advantages and Limitations of Bots**

#### **3.1. Advantages:**

- a. Bots are easily integrated into any trading strategy.
- b. Bots are easy to use.
- c. Bots can be properly customized for specific trading strategies and time frames (Charting, News & Automated Trading).
- d. Bots can be designed to optimize the costs that traders have on their account.
- e. Bots will stay in the background and balance risk in your account, increasing profitability for the trader (Diba 2011).
- f. They automate boring tasks like entering orders and retrieving data files which reduces risk of human error (James 2011).
- g. They reduce the amount of time required to perform certain tasks that is necessary in human trading strategies like market study, charting, technical analysis etcetera (James 2011).
- h. Trade with only one robot at a time, which reduces the risk of having too many open orders and the market moves against you (James 2011).
- i. Bots can manage money for you, allowing you to spend money on other things (James 2011).
- j. Bots can be used to manage risk and reduce losses by not trading in unfavourable situations as robots know what is going on in the markets (James 2011).
- k. Fully automatic systems are very useful for traders who don't have much time available for decision making or don't want to spend this time with repetitive tasks.

#### **3.2. Limitations:**

- a. Robots are not profitable in all markets.
- b. Some traders think that robots are a fraud, but that is because they don't know how to use them correctly (James 2011).
- c. Robots can trade against you, so make sure the robot works for you and not against you (James 2011).
- d. Robots won't work where there is no pre-set criteria, making it useless if it cannot work in certain market conditions (James 2011).
- e. Bots will only trade when their pre-set criteria match what is happening in the markets, which means they will not trade when there are no trades available to be made, which may lead to loss of trading capital (James 2011).
- f. They can only be used for automated trading of equity securities, when the market conditions are suitable for the robots to trade.
- g. They can only be used in short term trading strategies, as they don't work well in long term strategies where you have to follow your trend over a long period of time (James 2011).
- h. Robots cannot be used to eliminate human error and take emotion out of trades (James 2011).
- i. You will have to pay a third party company or individual who has access to a database that contains all the information needed to trade, which is a much bigger expense than having the robot manage your trades (James 2011).

- j. Be careful about relying on bots because the market conditions may change suddenly and you may stop receiving signals with no time to react (James 2011).
- k. Trade with only one robot at a time, which reduces the risk of having too many open orders and the market moves against you (James 2011).
- l. Some traders think that robots are a fraud, but that is because they don't know how to use them correctly (James 2011).
- m. Robots can trade against you, so make sure the robot works for you and not against you (James 2011).

#### **Robots can be used in different fashions:**

1. To copy trades that have been performed automatically by a robot
2. To follow traders who post their trades on Twitter, Facebook or other social networks
3. To follow traders who share their trades via Simple Sharing Application Programming Interface [[File:Simple\_Sharing\_Application\_Programming\_Interface|(S.S.A.P.I.)]]
4. To follow the top best performing traders using any trading platform which has a sharing function (e.g., Interactive Brokers) and any trading software which allows for copying of trades (e.g., Meta Trader)
5. To follow any other robot signals posted online
6. To follow any other robot signals offered by a brokerage house (e.g., Interactive Brokers)
7. To copy trades performed by a human trader using trading platforms which have sharing functions (e.g., Interactive Brokers) and any trading software which allows for copying of trades (e.g., Meta Trader)

#### **4. Conclusions**

1. Trading robots are probably the most successful method of using computers to trade financial securities.
2. Most of the advantages are for traders who do not want or cannot perform the necessary tasks such as studying the markets and charting.
3. The disadvantages include losses of capital, high fees, lack of knowledge around trading robots and being unaware of what is happening in real time in the market (James 2011).
4. This is because the main purpose for trading robots is to take care of risk when human traders do not have enough time to follow the market and perform tasks manually (James 2011).
5. When to use robots:
  - a. During the day when markets are active, as it is less risky than following trends over a longer period of time (James 2011).
  - b. To copy trades performed by a human trader using trading platforms which have sharing functions (e.g., Interactive Brokers) and any trading software which allows for copying of trades (e.g., Meta Trader)
6. Strategies to use robots
  - a. Robot's strategy is to create a market profile consisting of all the criteria that are important when following markets, such as trend and volatility, sector, company and size of position etcetera (James 2011).
  - b. By executing the market profile on all transactions, the robot is able to copy trades performed by an individual trader or other robots without copying their emotions and without the risk of losing capital (James 2011).

c. The main goal of trading robots is to work for humans who cannot spend time on performing trades manually, especially when a trader has a full-time job or is occupied doing other things (James 2011).

Finally it is important to note that trading robots are not for everyone. They require a lot of time and money to implement and maintain. Some people say that trading robots are a scam, but this is simply not true. If you want to use them, make sure to find a reputable source as there are many sites that claim to offer automated solutions when in reality they just want your money and will abandon you if you do not have the capital to trade with them.

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