



U.S. Securities and Exchange Commission

# The Hope and Limitations of Machine Learning in Market Risk Assessment

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# What is Machine Learning?

## Google says

- The scientific discipline that explores the construction and study of algorithms that can learn from data. ([wikipedia.com](https://en.wikipedia.org))
- The science of getting computers to act without being explicitly programmed. ([coursera.org](https://www.coursera.org))
- A type of artificial intelligence (AI) that provides computers with the ability to learn...similar to that of data mining. ([whatis.com](https://www.whatis.com))
- ML solves problems that cannot be solved by numerical means alone ([toptal.com](https://www.toptal.com))
  - *Supervised: train on a predefined set of examples*
  - *Unsupervised: give program a bunch of data to find patterns*
- A computer's way of learning from examples ([businessinsider.com](https://www.businessinsider.com))

World's first machine learning program by a pioneer in AI research:

Arthur Samuel, 1959. Some Studies in Machine Learning Using the Game of Checkers. *IBM Journal* 3 (3): 210–229.



# SEC Risk Assessment Activities

## SEC Mission

- Protect investors, maintain fair, orderly, and efficient markets, and facilitate capital formation

## Role of Risk Assessment

- Identification of Misconduct
  - *Statutory and rule violations and fraud*
- Disclosure review
  - *Forms and filings made by SEC registrants*
  - *Facilitate market evaluation of investment risk*
- Evaluation of Market-wide Risks
  - *Financial stability (FSOC, FSB)*



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