# 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*)

- The science of getting computers to act without being explicitly programmed. (*coursera.org*)

- A type of artificial intelligence (AI) that provides computers with the ability to learn...similar to that of data mining. (*whatis.com*)

- ML solves problems that cannot be solved by numerical means alone (*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*)

Worlds 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)*

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

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