International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

AI vs. Human Decision-Making in the Stock Market: A New Era of Intelligence, Risk, and Economic Transformation

Mr. Mauryen Saini

Gems New Millennium School.

Abstract

This study compares the decision-making abilities of artificial intelligence (AI) and human traders in the stock market. It examines the benefits and drawbacks of AI-based trading, assesses theoretical and empirical data, and emphasizes the effects on jobs in the financial industry. The study explores how, in some situations, AI-driven trading can beat humans while human intuition and flexibility are still useful, using actual data and case studies. It also takes into account the responsible use of AI in stock trading, it's possible future applications, and wider economic ramifications, such as employment displacement, market stability, and efficiency. Lastly, the study offers legislative suggestions for utilizing AI to boost the economy and investors.

Methodology: Okay, so basically what we're trying to do is figure out whether AI or humans are better at making stock market decisions. First off, we need to decide what market we're looking at—like NYSE or NASDAQ—and pick up a timeframe, maybe the last 5 years if we're back testing or a few months if we're doing some live-Ish simulation. Then, we need to think about who's participating. On the AI side, we could use something like a machine learning model that looks at past prices, maybe technical indicators, maybe even news sentiment if we want to get fancy. The AI would make predictions and decide when to buy, sell, or hold. On the human side, we'd have a group of traders or just normal investors, but they get the same info that the AI has up to that point—so no cheating with future knowledge.

We have to make sure both AI and humans start with the same amount of money and face the same trading rules, like transaction costs and limits, so it's fair. Then comes the fun part: actually making trades. AI will just spit out decisions based on its model, while humans will decide based on charts, news, gut feelings, whatever they normally use. Then we track how they do—like total returns, annualized returns, how risky their portfolios were, max drawdowns, Sharpe ratio, hit rate per trade, stuff like that. Also, it's important to see consistency—does AI do better in a bull market, humans in a crash, that kind of thing.

After we have all the numbers, we do some basic statistics to see if the differences are real or just lucky. Maybe t-tests or bootstrap simulations, nothing fancy but enough to see if AI actually beats humans or vice versa. Finally, we just compare everything, look at who made the most money, who took the least risk, who was more consistent, and maybe even dig into the mistakes to see patterns. And yeah, this whole thing could be messy—sometimes humans make weird intuitive calls that are surprisingly good. Sometimes AI is just cold and precise, so it's all about seeing the bigger picture.

Introduction

Artificial intelligence (AI) has revolutionized a number of industries, including the financial markets. AI

technologies, from deep learning models to algorithmic trading platforms, are increasingly making judgments in the stock market that were formerly made by human traders and analysts. This change brings up a number of important issues, such as whether AI can outperform humans in stock decisions. What are the dangers? In what ways will this alter the composition of financial jobs? What might the wider economic ramifications be? By contrasting AI and human decision-making, evaluating actual facts, and forecasting future trends, this article investigates these issues.

AI in Stock Trading

Approximately 60–70% of trades are now executed algorithmically, according to research from the London School of Economics.

Algorithmic trading uses computers to carry out trades automatically according to predetermined rules; many of these systems now include machine learning (ML) or artificial intelligence (AI).

AI-driven tactics include sentiment monitoring of news and social media, high-frequency trading (HFT), and predictive modeling.

Advantages of AI in Stock Decisions

Processing Data at Speed and Scale: Large amounts of organized (prices, volumes) and unstructured (news, social media) data may be ingested and analyzed by AI far more quickly than by humans.

Execution Speed: AI systems, notably HFT algorithms, may execute trades in milliseconds, capitalizing on very short-lived arbitrage or microstructure possibilities.

Objectivity and Consistency: AI is immune to emotional biases like fear, greed, and overconfidence, unlike humans.

Disadvantages and Risks of AI in Stock Decisions

Inability to Interpret

Transparency is lacking in many AI models, particularly deep learning models. Their decision-making process is frequently difficult to comprehend.

Model Risk and Overfitting

Overfitting can occur when AI educated on historical data performs well in back testing but poorly in actual, live markets.

Bias and Data Quality

The quality of AI depends on the data it uses to learn. Making bad decisions can result from biased, noisy, or malicious data (data poisoning).

Strengths of Human Traders / Analysts

Experience and Intuition

AI is currently unable to entirely replace the context, domain expertise, and judgment that humans bring. Humans may be better at evaluating qualitative aspects (political risk, attitude movements) in previously unheard-of circumstances.

Adaptability & Creativity
Traders can adapt strategies on the fly, pivoting in response to real-world events.
They may think creatively, not just follow statistical rules.

Accountability and Ethics
Humans are capable of weighing moral factors and making ethical decisions.
Transparency is supported by their ability to explain reasoning in ways that AI cannot.

disadvantages of humans making stock market decisions

1. **Emotions get in the way –** Humans can freak out when the market tanks or get overexcited when it's going up. That fear or greed can make you sell at the wrong time or take stupid risks. AI doesn't care about feelings, so it doesn't make the same mistakes.
2. **Emotions get in the way –** Humans can freak out when the market tanks or get overexcited when it's going up. That fear or greed can make you sell at the wrong time or take stupid risks. AI doesn't care about feelings, so it doesn't make those same mistakes.
3. **Slower to react –** Humans take time to process information and decide what to do, so we're always a few steps behind. When prices change in milliseconds or news breaks suddenly, AI can act instantly while we're still thinking it through.

Empirical Evidence

1. **Deep Learning Traders Outperforming Humans**: According to research, a deep learning neural network was able to watch to a successful human trader in simulated limited-order-book market, pick up on their behavior and ultimately trade more profitably than the original human.
2. **Simple Models Outperforming AI:** not all AI is better, though. According to one study, certain public domain AI trading techniques were frequently outperformed by a very basic "zero intelligence' strategy.
3. **Multi-Agent Forecasting Improvement**: recent research on multi agent systems showed better prediction accuracy than conventional techniques, indicating the sophisticated AI architectures can provide real forecasting advantages.
4. **Institutional Cost Savings**: By employing AI to optimize trade execution, Norway sovereign wealth fund, which executes millions of trades annually, hopes to save $ 400 million annually.

Discussion: Why Hybrid Systems Outperform

The most convincing evidence from both research and real market performance points to one clear conclusion: the most successful investment approach today comes from blending human judgment with artificial intelligence rather than relying on either side alone. AI brings clear advantages — it works fast, handles huge amounts of data without getting tired, and sticks to the plan when markets get shaky. But humans bring something that machines still can't imitate: the ability to interpret real-world events, notice subtle shifts in sentiment, think creatively, and understand the "story" behind a company or an economic change. When these strengths are combined, the weaknesses of each side fade. AI helps investors stay disciplined and avoid emotional mistakes, while humans guide the strategy, make sense of complex news, and step in when markets behave in ways algorithms weren't trained for. This teamwork makes the overall system more adaptable and steadier during everything from quiet market periods to sudden crashes or

global shocks. Because of this balance, hybrid human-AI investing consistently proves more resilient, more flexible, and ultimately more effective than depending on either humans or algorithms alone.

How AI Will Take Over Human Jobs in Stock Market

In recent years, it's become pretty clear that a lot of the work people used to do in finance is slowly being taken over by AI systems, mostly because these tools can handle big amounts of information faster than anyone on a team could. Jobs that once kept junior analysts busy for hours — like sorting through reports, checking numbers, or tracking market updates — are now done by software in minutes. Trading floors have changed a lot too. Instead of rows of people reacting to every price jump, most of the trades are now handled by automated programs that respond almost instantly. Because of this shift, even the mid-level work in finance — things like adjusting portfolios or keeping an eye on potential risks — is starting to lean more on machine-learning systems that run quietly in the background all day. That doesn't mean people are no longer important, but the kind of work they handle is definitely changing. Instead of doing the routine tasks themselves, they spend more time trying to understand odd situations, checking whether the system output actually makes sense, and stepping in when a decision needs real-world judgment. In the end, AI is taking over the more repetitive, number-focused parts of the job, while humans are moving toward roles that depend on interpretation, experience, and the kind of thinking that isn't easy to turn into code.

Will AI Replace Human Investors?

AI is improving really fast in finance, but I don't see it fully replacing human investors anytime soon. Sure, machines are quick, can deal with tons of numbers at once, and never get tired or stressed, but that doesn't mean they can do everything people can. That said, the market isn't just numbers. There are sudden events, politics, human reactions, and weird situations that AI can't always make sense of. Humans notice those things, sometimes without even thinking about it — you can call it experience or intuition — and that still matters a lot when making investment decisions.

What's really happening is that AI is starting to take over the boring, repetitive parts of the job. Things like going through reports, tracking trends, or checking the same data again and again are now handled by machines. That actually gives people more time to focus on the thinking side of things — like figuring out what to do when something unexpected happens, double-checking what the AI suggests, or looking at the bigger picture. Humans are still the ones making judgment calls and understanding context, stuff that computers just can't do on their own.

In the end, AI isn't going to completely take over humans; it's mostly handling boring, repetitive stuff. People are still the ones making plans, interpreting the information, and making the final decisions, especially when the market gets messy or unpredictable.

Who Wins in the Stock Market - man or AI

Honestly, asking who "win" between AI and humans in the stock market will is kind of missing the point. AI is insanely fast, can spot patterns, and process more data than any human could ever dream of. Humans, though, bring creativity, judgment, and gut instincts—things AI just can't replicate. So, it's not really about one defeating the other; it's about how they work together. The truth is, humans who know how to use AI will have a huge advantage, while AI on its own can't handle the messy, unpredictable side of the market. The real "winner" is whoever figures out how to combine brains and speed in the smartest way.

Conclusion.

Honestly, when you look at it, there's really no clear winner between AI and humans in the stock market. AI is crazy good at crunching numbers, seeing patterns, and making decisions without getting scared or greedy, so it does well when things are kind of normal and predictable. Humans, honestly, are kind of unpredictable in a good way—they can just react on the spot, pick up on weird little things that no spreadsheet or algorithm would ever notice, and sometimes just go with their gut. And yeah, that can actually pay off big when the market does something totally unexpected. AI, on the other hand, is super-fast, never panics, and just sticks to the plan no matter what, which is great, but it can't really improvise like a human can. So, in the end, neither is perfect. Probably the smartest move is to use both—let the AI handle all the heavy number-crunching and routine stuff, and let humans step in when experience, intuition, or a gut feeling counts. Because let's face it, the stock market is messy and unpredictable, and no matter how clever your system is—human or machine—you're always rolling the dice a little.