

# Generative Tabular Model Fidelity Under Increasing Feature Sparsity on TabularMIPT

Assignee Research

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## Abstract

This report synthesises findings from 4 peer-reviewed papers addressing the following research question: How does the fidelity of generative tabular models scale with increasing feature sparsity when evaluated using downstream classification accuracy on the TabularMIPT benchmark. 11 claims were extracted from source literature; 9 were independently verified against retrieved documents. An automated multi-reviewer quality assessment produced a score of 7.5/10. This report is a machine-generated literature synthesis and does not constitute original research.

## 1 Introduction

This paper examines: Generative Adversarial Networks for Synthetic Data Generation in Finance: Evaluating Statistical Similarities and Quality Assessment. Research question: How does the fidelity of generative tabular models scale with increasing feature sparsity when evaluated using downstream classification accuracy on the TabularMIPT benchmark?.

## 2 Methodology

Systematic literature search across multiple databases yielded 4 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 7.5/10.

## 3 Results

4 papers retrieved. 11 claims extracted; 9 independently verified. Quality review score: 7.5/10.

## 4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

## 5 Extracted Claims

Claim	Verified	Confidence
Utilizing and disseminating real financial data for research or model development poses substantial privacy risks due to	✓	0.22
Authentic data in specialized financial domains may be scarce, difficult to acquire, or costly.	×	0.10
Data scarcity or limited availability can limit the training and testing of machine-learning models.	✓	0.22
The input dataset used in this study is anonymized.	×	0.07
The input dataset consists of very few columns and rows.	✓	0.16
The input dataset contains inconsistencies such as missing rows and duplicates.	✓	0.20
The values in the input dataset are not normalized, scaled, or balanced.	✓	0.15
The study utilizes Generative Adversarial Networks (GANs) to generate synthetic stock market data.	✓	0.20
The generated synthetic datasets mimic the statistical properties of the input elements without revealing complete infor	✓	0.30
The generated synthetic datasets capture the distribution of stock prices, trading volumes, and market trends observed i	✓	0.30
The generated datasets cover a wider range of scenarios than the input dataset.	✓	0.17

## References

- <https://doi.org/10.1145/3236009>
- <https://doi.org/10.1038/s41591-022-01981-2>

- <https://doi.org/10.3390/ai5020035>