

## The Effectiveness of Robo-Advisor Implementation in Bareksa: a Netnographic Study

Nanda Septi Lebryo<sup>1</sup>, Ike Purnamasari<sup>2</sup>

Mulawarman University, Samarinda, Indonesia.

 Corresponding author: ike.purnamasari@feb.unmul.ac.id

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### Abstract

This study examines the effectiveness of robo-advisor implementation in Bareksa, one of Indonesia's leading digital investment platforms, using a netnographic approach to analyze real user experiences shared across online investment communities. Grounded in Modern Portfolio Theory (MPT) and the Technology Acceptance Model (TAM), the research explores how perceived usefulness, ease of use, trust in algorithmic recommendations, risk profile alignment, and overall user experience shape investor perceptions. Data gathered from social media discussions, forums, and review platforms reveal that users appreciate the accessibility and simplicity of Bareksa's robo-advisor, yet express concerns regarding algorithm transparency, performance consistency, and perceived risk during market volatility. Findings suggest that effectiveness is influenced not only by technical accuracy but also by digital literacy and community-driven sentiment, highlighting the importance of trust and social dynamics in driving acceptance of fintech innovations in emerging markets.

**Keywords:** Robo-advisor; Fintech; Bareksa; Netnography; Technology Acceptance Model; Modern Portfolio Theory; Digital Investment Behavior.

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## INTRODUCTION

The quick development of financial technology, or fintech, has completely changed how people handle their finances. Among various fintech innovations, robo-advisors have emerged as one of the most transformative tools in digital wealth management. These automated platforms utilize algorithms and data-driven models to provide portfolio recommendations, risk assessments, and investment management with minimal human intervention (Sironi, 2016). The growing demand for low-cost, accessible, and user-friendly investment solutions has positioned robo-advisors as a key player in promoting financial inclusion, especially among young and first-time investors (Jung et al., 2018).

In Indonesia, the adoption of robo-advisor services is growing rapidly in parallel with the expansion of the digital investment ecosystem. Bareksa, one of Indonesia's leading online investment platforms, has integrated robo-advisory features to assist users in making more informed investment decisions based on their risk profiles and financial goals. This technological innovation aligns with the increasing awareness of investment diversification and the government's push toward a digital economy (OJK, 2023).

Despite its growing popularity, the effectiveness of robo-advisor implementation in Indonesia remains underexplored. Most existing studies on robo-advisors have been conducted in developed markets such as the United States and Europe (Phoon & Koh, 2018; Sironi, 2016), leaving a research gap in understanding how users in emerging markets perceive and interact with these technologies. Cultural factors, financial literacy levels, and trust in digital financial platforms may significantly influence user experiences and perceived effectiveness (Lim et al., 2018).

This study employs a netnographic approach to explore user experiences and perceptions toward the implementation of robo-advisors in Bareksa. Netnography, a qualitative research method adapted from ethnography, focuses on analyzing online communities and user interactions in digital environments (Kozinets, 2010). By examining user discussions, reviews, and engagement within Bareksa-related online communities, this research aims to uncover the nuanced perceptions of investors and evaluate the practical effectiveness of robo-advisor implementation in fostering informed, confident investment behaviors.

Through this approach, the study contributes to the growing body of literature on fintech adoption and offers insights into how robo-advisor technology can be optimized in Indonesia's digital investment landscape. The findings are expected to benefit fintech developers, policymakers, and investors seeking to understand the evolving relationship between technology and investment decision-making in emerging economies.

## Literature Review

### Robo-Advisors and the Transformation of Investment Management

Robo-advisors represent one of the most significant technological innovations in the financial services industry, reshaping how investors manage portfolios and make financial decisions. Defined as automated platforms that provide algorithm-driven financial planning and investment services with minimal human supervision (Sironi, 2016), robo-advisors leverage modern portfolio theory, artificial intelligence, and behavioral analytics to deliver personalized recommendations at scale. According to (Phoon & Koh, 2018), the primary appeal of robo-advisors lies in their accessibility, transparency, and affordability compared to traditional financial advisors. These features democratize investment opportunities for a broader demographic, particularly millennials and first-time investors who prefer digital interactions (Jung et al., 2018).

The global robo-advisory market has experienced rapid growth, driven by rising investor interest in digital finance and increasing trust in algorithmic decision-making (OECD, 2020). However, the effectiveness of robo-advisors depends not only on their algorithmic accuracy but also on user trust, perceived ease of use, and the overall user experience (Belanche et al., 2018). These behavioral and technological dimensions are crucial when evaluating adoption in emerging economies like Indonesia.

## **Theoretical Frameworks: Modern Portfolio Theory and Technology Acceptance Model**

### **Two key theoretical perspectives often guide research on robo-advisors: Modern Portfolio Theory (MPT) and the Technology Acceptance Model (TAM)**

According to (Markowitz, 1952), MPT proposes that investors can construct optimal portfolios that maximize expected returns for a given level of risk through diversification. Robo-advisors operationalize this theory by using algorithms to automatically allocate investments based on user risk profiles, financial goals, and market conditions. This automation reflects the theoretical foundation of efficient portfolio construction in a digital context (Sironi, 2016).

Meanwhile, (Davis, 1987) Technology Acceptance Model (TAM) provides insights into how users adopt and use new technologies. The model emphasizes two critical factors: perceived usefulness (PU) and perceived ease of use (PEOU), both of which influence behavioral intention to use technology. Studies such as (Lim et al., 2018) and (Lee & Jae, 2018) found that trust and perceived security significantly moderate the relationship between these factors and adoption intention in fintech contexts. Applying TAM to robo-advisors helps explain why users in Indonesia where financial literacy and digital trust are still developing may exhibit differing levels of acceptance toward algorithm-based investment tools.

### **Robo-Advisors in Emerging Markets and the Indonesian Context**

While robo-advisors are well-established in developed markets, their implementation in emerging economies faces unique challenges. Research by (Duarte & Baptista, 2025) highlights that users in emerging markets are often more cautious about automation in finance due to limited understanding of algorithmic processes and data privacy concerns. Similarly, cultural attitudes toward risk and digital trust influence adoption rates (Lim et al., 2018).

In Indonesia, the rise of fintech platforms such as Bareksa, Bibit, and Ajaib has significantly increased public participation in investment activities. According to (OJK, 2023), digital mutual fund investors reached over 10 million accounts, with a majority being under 35 years old. Bareksa's robo-advisor feature aims to simplify investment decision-making by offering personalized fund recommendations aligned with investors' goals and risk tolerance. However, limited empirical research has examined how users perceive and evaluate the effectiveness of these algorithmic recommendations in the Indonesian market.

### **Netnography in Fintech Research**

Netnography, introduced by (Kozinets, 2010), is a qualitative research methodology adapted from ethnography to study online communities and digital consumer behavior. It allows researchers to analyze naturally occurring discussions, user-generated content, and interactions within online platforms. In fintech research, netnography provides a unique lens to explore how users share experiences, express trust or skepticism, and construct meaning around technological innovations (Xiao & Białowolski, 2022).

Recent studies have applied netnography to investigate user sentiment toward financial apps, crypto platforms, and investment communities (Dremel et al., 2018). This approach captures the lived experiences of users in their authentic online contexts, making it highly relevant for studying Bareksa's robo-advisor users, who actively engage in online investment forums and social media groups.

## **METHOD**

### **Research Design**

This study employs a qualitative research design using a netnographic strategy to investigate how Bareksa users perceive and experience the effectiveness of robo-advisor features within natural online environments. Netnography, introduced by (Kozinets, 2010), is a qualitative research method specifically intended to study digital communities, online interactions, and user-generated content. This approach is considered appropriate because discussions surrounding investment apps, including Bareksa, predominantly occur in digital spaces where users freely express their experiences, concerns, and evaluations.

The qualitative approach allows for the exploration of complex, contextual, and subjective perceptions that cannot be adequately captured through quantitative measurements alone. As (Creswell, J.W.Creswell, 2018) emphasize, qualitative research seeks to understand meanings constructed by individuals or groups regarding social or human problems, prioritizing depth, nuance, and the lived experiences of participants. In line with this perspective, netnography enables the researcher to observe authentic user expressions “in the wild,” without intervening in or altering naturally occurring online interactions.

This study applies an inductive analytical logic, allowing theoretical insights to emerge from empirical observations rather than imposing predefined hypotheses. Through iterative coding and thematic development, recurring patterns in user narratives are identified and interpreted to construct a grounded understanding of how robo-advisors operate from an investor’s point of view. Such inductive reasoning aligns with (Kozinets, 2010) argument that netnographic inquiry develops conceptual insights “from the ground of digital interactions,” allowing researchers to capture genuine meaning-making processes within online investment communities.

Unlike traditional case studies, netnography emphasizes virtual immersion in communities relevant to Bareksa including forums, social media groups, app reviews, and public comment sections. The goal is not statistical generalization but rather to generate rich, contextualized, and realistic interpretations of user experiences. The insights produced from this digital ethnographic engagement are expected to contribute both to the academic literature on robo-advisor effectiveness and to practical understanding of user-centered fintech service design.

### **Data Analysis Method**

Data were analyzed using a qualitative descriptive approach following the interactive model proposed by (Miles et al., 2014), which consists of data collection, data reduction, data display, and conclusion drawing.

Data collection involved systematically gathering user-generated content from selected digital platforms over a specified observation period. Screenshots, copied texts, and captured discussion threads were archived for analysis. The collected data were organized using NVivo 15, a Computer-Assisted Qualitative Data Analysis Software (CAQDAS), which facilitated efficient coding, theme development, and visualization.

During data reduction, only content relevant to robo-advisor performance, usability, user satisfaction, and investment decision-making was included. Coding was conducted through an iterative process consisting of:

- Open coding, to identify initial concepts emerging from user expressions;
- Axial coding, to establish relationships between categories;
- Selective coding, to formulate core themes reflecting collective user perceptions.

Data displays were generated in the form of word cloud, Hierachy chart, and cluster visualizations to illustrate patterns and relationships within user narratives. Through iterative interpretation, conclusions were drawn to understand the perceived effectiveness of Bareksa’s robo-advisor and the underlying factors influencing user experiences.

Credibility of analysis was strengthened through triangulation across multiple online sources and types of discourse (e.g., reviews, forum posts, comments).

### **Data Trustworthiness**

To ensure the validity and reliability of the findings, this study adheres to the trustworthiness framework introduced by (Lincoln & Guba, 1985), consisting of credibility, transferability, dependability, and confirmability.

Credibility was achieved through methodological triangulation, comparing user narratives across various digital platforms and data types. Prolonged engagement in online communities allowed the researcher to gain familiarity with discourse patterns and contextual nuances. Peer debriefing was conducted by discussing emerging themes with academic colleagues to ensure interpretive accuracy.

Transferability was supported by providing detailed descriptions of digital contexts, platform characteristics, types of investment communities, and the nature of the observed interactions. These thick descriptions allow readers to assess whether findings can be applied to similar contexts within Indonesia's fintech environment.

Dependability was ensured by maintaining a complete audit trail documenting data collection decisions, coding procedures, software-generated outputs, and analytical steps. NVivo 15 further ensured transparency by preserving coding structures and thematic development.

Confirmability was strengthened through careful documentation of all empirical evidence, ensuring that interpretations were grounded in verifiable user statements rather than researcher bias. Reflexivity was practiced throughout the research process to minimize subjective influence, acknowledging the researcher's position when interpreting digital discourse.

By applying these trustworthiness strategies, the study ensures methodological rigor, analytical transparency, and ethical integrity, ultimately producing reliable insights into the effectiveness of Bareksa's robo-advisor based on authentic user experiences shared in online environments.

## **RESULT AND DISCUSSION**

The qualitative analysis using NVivo 15 generated three major themes that illustrate users' perceptions regarding the effectiveness of robo-advisor implementation in the Bareksa platform. These themes were developed through systematic stages of open coding, axial coding, and selective coding, supported by NVivo visualization tools such as word clouds, hierarchy charts, & cluster analysis. The dataset consisted of naturally occurring online conversations within the Bareksa investment community, including user comments, discussions, and shared experiences related to robo-advisor features, mutual fund performance, risk profiles, and portfolio management. NVivo 15 enabled structured coding and theme development, revealing that investment decision-making, personalization & risk management, and platform credibility & performance emerged as the most dominant themes in user discourse.

Prior to conducting the coding phases, a word frequency analysis was carried out using word cloud visualization to identify the most recurring terms in the dataset. This helps determine the initial conceptual direction before the data is broken down into detailed codes and categories. The word cloud results are presented in Figure 1 below.



This suggests that the robo-advisor is perceived as reducing cognitive load and uncertainty aligning with prior research (Sironi, 2016) stating that automated advisory tools increase decision confidence among novice investors.

**Personalization and Risk Management**

This theme emerged strongly through terms such as personal, risk, profile, and advisor. Users frequently discussed how Bareksa tailors recommendations to their financial goals, risk appetite, and investment horizon. Personalization was described as a critical factor that differentiates robo-advisors from manual self-selection of mutual funds.

An example from community discussions stated:

“I only choose recommendations after checking the risk profile the robo generates it really helps me stay consistent.”

This finding aligns with the Technology Acceptance Model (TAM), particularly the dimensions of perceived usefulness and perceived ease of use, as users view personalized robo-advice as improving the quality and accuracy of their investment decisions.

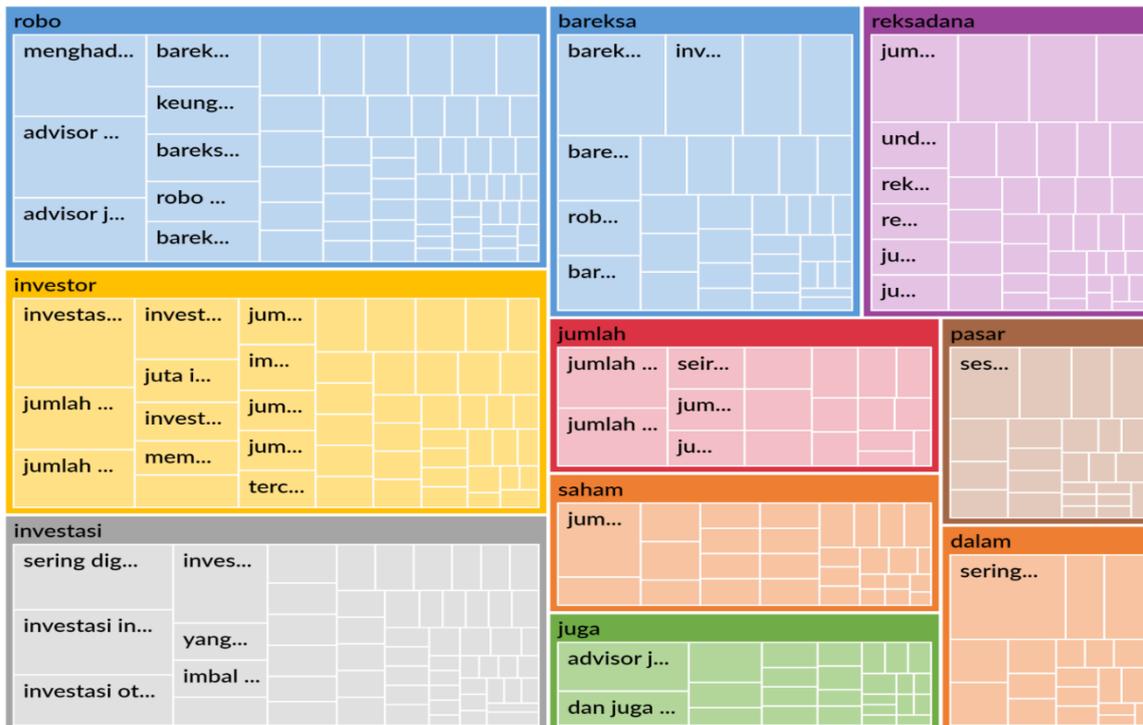
**Platform Credibility and Performance**

This theme highlights the role of regulatory assurance, platform reputation, and perceived financial security in shaping user trust. The frequent appearance of OJK, KSEI, finance, organization, and community underscores that many investors evaluate Bareksa based on its regulatory backing and institutional legitimacy.

Discussions often referenced safety of funds, transparency of transactions, and the presence of expert-backed analysis within the platform:

“Since all transactions are recorded through KSEI, I feel safer using Bareksa’s robo.”

This supports the argument by (Gomber et al., 2018) that regulatory clarity and institutional trust are among the strongest predictors of robo-advisor adoption in emerging economies. This can be seen also in Figure 2 below.



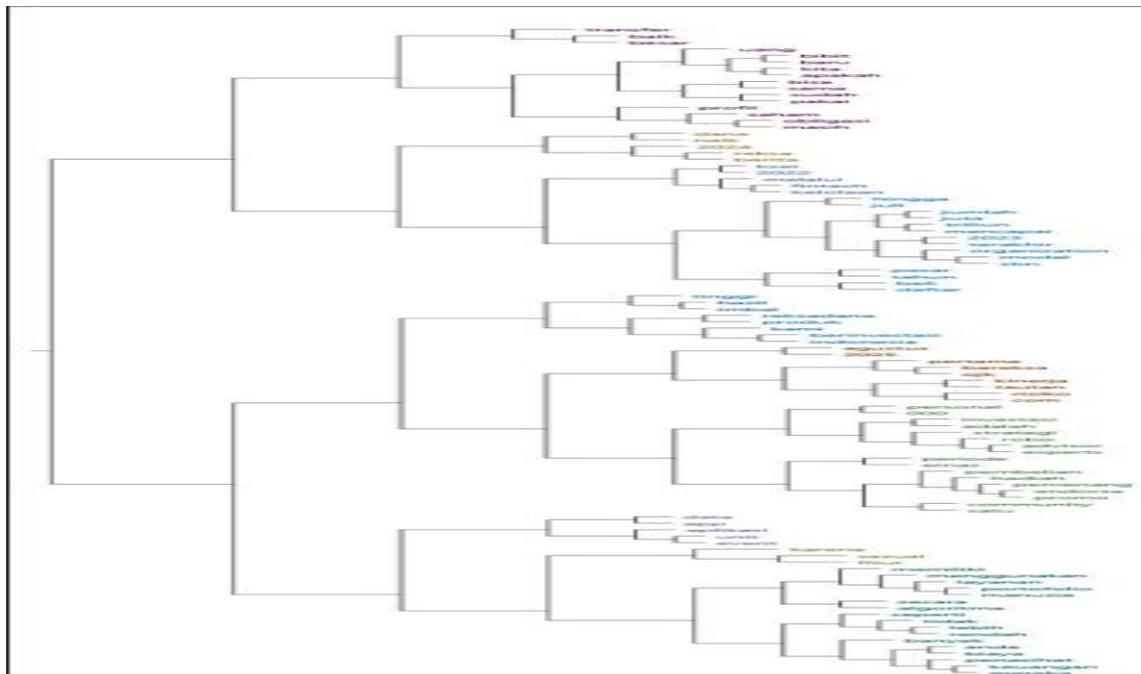
**Figure 2. Coding Reference Visualization Results Using Hierarchy Chart**  
**Source: Processed Results of NVivo 15, 2025.**

As shown in Figure 2, the Hierarchy Chart visualization illustrates the proportional distribution of coded references across the major categories derived from the open coding stage. In this study, the visualization highlights several clusters of dominant concepts frequently mentioned by users in their online discussions about Bareksa and its robo-advisor features. The clusters with the largest coding areas include “robo,” “bareksa,” “investor,” “jumlah,” “reksadana,” and “investasi,” indicating that these topics were the most substantial themes within user interactions and digital narratives.

The prominence of the “robo” cluster reflects the centrality of discussions surrounding the performance, reliability, and decision-making capabilities of Bareksa’s robo-advisor system. Similarly, the “bareksa” cluster captures user evaluations of the platform’s features, ease of use, and credibility as a fintech investment service. Meanwhile, the “investor” and “investasi” clusters show that conversations were strongly oriented toward user experiences, investment strategies, and financial expectations. The frequent mentions of “jumlah” and “reksadana” indicate active discourse about investment amounts, returns, fund performance, and the suitability of various mutual fund products recommended by the robo-advisor.

From the size of each coding block, it is evident that discussions about robo-advisor performance such as accuracy of recommendations, portfolio adjustments, and risk profiling occupy the largest portion of user-generated content. This suggests that the effectiveness of robo-advisor implementation is perceived primarily through practical user experiences, investment outcomes, and the level of trust placed in algorithm-based financial decision-making. The visualization also emphasizes how investor preferences, market conditions, and product-specific considerations interact to shape overall perceptions of robo-advisor effectiveness on the Bareksa platform.

This analysis is further supported by the Cluster Analysis visualization shown in Figure 3 below.



**Figure 3. Cluster Analysis Visualization Results Using Dendrogram**

**Source: Processed Results of NVIVO 15, 2025.**

As illustrated in Figure 3, the dendrogram generated by NVivo 15 offers a deeper understanding of the relational patterns between frequently occurring words within the dataset. Cluster Analysis groups terms based on similarity and co-occurrence, revealing how specific concepts tend to appear together in the informants’ narratives. The hierarchical clustering structure displayed in the dendrogram clearly shows several

keyword groupings that correspond to the central themes of this study: robo-advisor functionality, investor behavior, platform features, and risk–performance considerations.

The upper clusters predominantly group words related to transactional and portfolio activities, such as transfer, uang, bibit, baru, beli, saham, and obligasi, indicating frequent discussions about investment flows and asset allocation practices among users. This cluster suggests that informants commonly associate robo-advisors with ease of transaction, portfolio composition, and the purchasing of investment instruments.

Meanwhile, the middle clusters show strong associations between terms such as reksa, fintech, pasar, tahun, modal, and jumlah. This grouping reflects conversations related to market conditions, capital growth, and industry trends, highlighting that users view Bareksa not only as an investment tool but also as part of the broader fintech ecosystem. The presence of terms like 2024, 2025, and agustus indicates references to market updates, regulatory developments, and economic changes that influence investor decisions.

Another notable cluster includes words such as kinerja, risiko, ojk, pertama, and bareksa, emphasizing concerns related to performance, regulatory oversight, and platform credibility. These terms reflect user attention to platform reliability, compliance under OJK regulation, and the perceived safety of Bareksa's advisory recommendations key aspects in evaluating robo-advisor effectiveness.

Toward the lower clusters, terms like futur, menggunakan, unit, aplikasi, algoritma, biaya, and keuangan frequently appear together. This reveals user emphasis on platform usability, algorithm-based recommendations, service fees, and digital personalization. The clustering suggests that users perceive Bareksa's robo-advisor as a technologically driven service that combines algorithmic precision with practical financial management tools.

Overall, the dendrogram visualization reinforces the patterns identified through word frequency and hierarchy chart analyses. The clustering structure reaffirms that discussions about Bareksa's robo-advisor revolve around four interconnected dimensions: (1) transactional and portfolio activities, (2) market and fintech ecosystem context, (3) risk, performance, and regulatory trust, and (4) platform features and algorithmic personalization. These clusters collectively support the emergence of the three core themes robo-advisor functionality, investor experience, and investment performance highlighting the coherence and consistency of the qualitative findings.

## **Discussion**

The findings from the netnographic analysis reveal that user discussions surrounding Bareksa's robo-advisor consistently revolve around several dominant themes: convenience, risk management, portfolio automation, cost efficiency, performance consistency, and trust in algorithmic decision-making. These themes appeared prominently in the word cloud and were reinforced by the high-frequency codes identified in the coding comparison. Such patterns indicate that investor experiences with Bareksa's robo-advisor are shaped not only by financial outcomes but also by perceptions of technological reliability, platform usability, and transparency.

The coding results demonstrate that users appreciate the automated portfolio rebalancing, risk profiling, and simplicity offered by Bareksa. These insights align with previous evidence showing that robo-advisors enhance user confidence by simplifying investment processes and reducing behavioral biases (Sironi, 2016). Many users reported that the platform helped them avoid emotional decision-making, consistent with studies highlighting the role of automation in improving disciplined investing (Acunto et al., n.d.).

Furthermore, the cluster analysis indicates that concepts such as risk profile, algorithm, investment strategy, and financial goals frequently appear together. This suggests that Bareksa users perceive robo-advisory effectiveness through the lens of personalization how well the system aligns recommendations with their financial needs. This finding is similar to prior research demonstrating that tailored recommendations significantly enhance the perceived value of robo-advisory services (Jung et al., 2018).

Another strong theme is cost efficiency, which appears repeatedly across coding clusters. Users often compare robo-advisors to human financial planners, emphasizing the advantage of lower fees. This mirrors broader literature arguing that the low-cost structure of robo-advisors is one of the primary factors driving their adoption in emerging markets (Phoon & Koh, 2018). Within the Bareksa context, discussions frequently highlight fee transparency and reduced reliance on human intermediaries, reinforcing the platform's position as an efficient alternative for beginner and mid-level investors.

However, concerns also emerged regarding performance consistency, market volatility, and algorithmic limitations, suggesting that users remain cautious about fully delegating investment decisions to AI systems. The concerns identified echo findings from empirical studies noting that trust in robo-advisors can be fragile, especially during periods of market turbulence when automated portfolios may underperform benchmarks (Chua et al., 2022). Some users questioned whether algorithmic advice could adapt effectively to rapid macroeconomic changes an issue widely discussed in the literature on fintech adaptability and model rigidity (Belanche et al., 2018).

Taken together, the NVivo analysis indicates that the perceived effectiveness of Bareksa's robo-advisor is shaped by a combination of functional benefits (automation, cost savings, ease of use) and psychological factors (trust, perceived expertise, safety during volatility). These insights confirm that user acceptance of robo-advisors is influenced not only by technological capabilities but also by socio-emotional factors, consistent with the Technology Acceptance Model (TAM) and related fintech adoption theories.

Overall, the findings support the view that Bareksa's robo-advisor is perceived as effective in delivering simplified, low-cost, and personalized investment experiences but that its perceived limitations during volatile markets highlight a continued reliance on human judgment and hybrid advisory approaches.

## **CONCLUSION**

The results of this netnographic study demonstrate that the effectiveness of Bareksa's robo-advisor is shaped by a combination of technological functionality, user perceptions, and contextual market dynamics. User-generated discussions reveal that automation, ease of use, personalized investment recommendations, and cost efficiency are the primary attributes driving positive evaluations of the platform. Many users perceive Bareksa's robo-advisor as a practical and accessible tool that simplifies investment processes and supports disciplined, long-term portfolio management.

However, the study also finds that concerns regarding market volatility, algorithmic rigidity, and performance consistency continue to influence user trust. These concerns show that while robo-advisors are accepted as valuable tools, users still hesitate to fully replace human financial judgment particularly during turbulent market conditions. Overall, the findings indicate that Bareksa's robo-advisor is effective in delivering fundamental advisory functions and democratizing investment access, yet still requires further refinement to address user expectations in dynamic economic environments.

## **Research Limitations**

This study is limited by its exclusive reliance on netnographic data, which captures only the perceptions of users who actively participate in online discussions and may not represent the broader investor population. Because the analysis focuses solely on Bareksa, the findings cannot be generalized to other robo-advisor platforms in Indonesia with different features or user dynamics. The data also reflect a specific time period, meaning that shifts in market conditions, regulatory changes, or platform updates occurring afterward may influence user sentiment differently. Additionally, the absence of direct interviews restricts the depth of insight into individual motivations and experiences, as interpretations are based entirely on publicly shared comments, which may contain biases or incomplete information.

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