BEHAVIORAL FINANCE IN THE DIGITAL AGE: HOW FINANCIAL APPS AFFECT OUR SAVING AND CONSUMPTION DECISION

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Abstract: *Digital financial apps, such as mobile banking and budgeting platforms, as well as robo-advisors and automated savings tools, have completely changed the way people manage their personal finances. Behavioral finance studies how psychological factors influence financial decisions. This requires an analysis of how technology influences investment, saving and consumption behaviors. Through a theoretical and exploratory approach based on literature and secondary sources, this paper aims to examine how financial applications influence people's decisions, reduce cognitive errors, and sometimes amplify irrational or impulsive behaviors. Digital nudging, decision architecture, fear of loss, financial procrastination and the illusion of control are all discussed in the context of digital interfaces. The article questions both the benefits of these tools - such as automating savings or increasing financial awareness - and the risks associated with gamifying financial decisions or overestimating the ability to control. The paper presents concrete examples of applications using elements of behavioral design, such as Revolut, Qapital, Mint or Robinhood. We consider that the article contributes to the understanding of how digital design can be used to incentivize sound financial behaviors, but also to the debate on the ethics of influencing economic decisions through technology.*

Keywords: *financial automation, digital nudging, cognitive errors, behavioral bias, loss aversion*

INTRODUCTION

The rapid digitization of the financial sector has led to major changes in the way people interact with money. Mobile apps for budgeting, investing and saving, as well as algorithm-driven trading platforms and robo-advisors, are examples of technology that have transformed personal finance management into a seamless, easily accessible and at least seemingly quite efficient digital experience. However, this liberalization of access to financial services is having a significant impact on the way people make economic decisions, particularly in terms of consumption and saving.

Behavioral finance has also emphasized that emotions, decision-making context, cognitive biases and momentary impulses influence people's economic decisions. Thus, the digital interface becomes not only a means of communication, but also a decision-making environment that has an important influence on user behavior. Financial applications, which include elements such as notifications, choice architecture, gamification or algorithm-based personalization, often function as digital nudging, influencing user decisions in a subtle but direct way [5,6,15].

Taking into consideration this context, in this paper we aim to analyze how financial applications influence the way users save and consume money. The paper explores how digital tools can reduce cognitive errors and amplify impulsive decisions or the illusion of control, drawing on literature in the field of digital interfaces and behavioral finance. We identify and discuss both the advantages of these applications, such as increasing financial awareness and automating healthy behaviors, and the disadvantages, such as decision accountability and behavioral manipulation. The aim of the article is to explain a growing phenomenon that influences people's financial stability. We also mention

that the paper is based on a theoretical-exploratory methodology and uses secondary sources and illustrative case studies.

MATERIALS AND METHODS

This paper is based on a theoretical-exploratory research, centered on a literature review in the fields of behavioral finance, financial technology (FinTech) and decision psychology. The methodological aim of the paper is to understand and explain how financial applications influence people's saving and consumption choices.

We chose to use a conceptual and documentary analysis, which allows to:

- identify repeated patterns in digitized financial behavior;
- represent the psychological mechanisms that work when interacting with apps;
- critically analyze the benefits and drawbacks of digital financial design.

The analysis was based on three main categories of secondary sources:

- scientific literature in the fields of behavioral finance, economic psychology, digital behavioral, human-computer interaction (HCI) and FinTech;
- technical reports and documentation provided by the applications analyzed (Revolut, Qapital, Mint, Robinhood), including public materials such as whitepapers, user guides, developer interviews and press articles;
- academic studies and reviews that have investigated the impact of financial apps on user behavior.

The four apps we analyzed (Revolut, Qapital, Mint, Robinhood) were chosen based on the following criteria:

- functional diversity (payments, saving, budgeting, investing);
- popularity and international accessibility;
- recognized implementation of behavioral design elements;
- availability of public documentation and independent analysis.

The analysis focused on observable behavioral elements (e.g., notifications, feedback mechanisms, defaults, gamification, personalization) and how they might affect consumption and saving decisions.

Being a documentary research, the paper does not include primary data collected from users and does not empirically validate the hypotheses formulated. Also, some sources - especially those coming from app marketing - may be subjective. In addition, a full understanding of the logic of personalization and behavioral influence is limited because we did not have access to the algorithms of the apps analyzed.

Despite these limitations, we believe that the method we have chosen has allowed us to build a relevant picture of the field and a useful framework for future research that may include quantitative analysis.

RESEARCH RESULTS

1. Fundamentals of behavioral finance in the digital context

Based on the assumption that people always act logically and in clearly defined self-interest, behavioral finance has replaced classical financial theory. Instead, this field argues financial decisions are influenced by a host of psychological and emotional elements, which violates economic logic. A person's economic behavior is influenced by cognitive biases, decision heuristics, and the context in which decisions are made.

Despite theoretical knowledge of the meaning of these concepts, financial procrastination is a central concept in the field and is commonly encountered when people delay making investment or saving decisions. Other phenomena that are relevant include loss aversion, or fear of loss, in which losses are felt more strongly than equivalent gains;

and the anchoring effect, which causes people to make decisions based on arbitrary reference values.

In the digital age, these psychological mechanisms are intensively exploited or countered through what is called choice architecture - the way in which a digital interface offers the user choices. Tools such as digital nudging have become essential when it comes to financial application design. These methods, which are inspired by the work of Thaler and Sunstein, use subtle cues, such as contextual messaging, suggestive colors, pre-selected defaults or real-time visual feedback, to guide user behavior [1,3].

Modern technology adds additional complexity to these processes through the use of artificial intelligence and behavioral algorithms. Financial apps can modify content and recommendations based on the user's behavioral profile [2,4,7]. This creates a personalized but also manipulative decision environment. For example, Qapital and Robinhood use automated "saving rules" that track past behavior, while platforms such as Robinhood increase transaction frequency using gamification mechanisms, even if this is not to the benefit of the user.

Our analysis assumes that financial apps are not behaviorally neutral. However, they can serve both as a means to discipline and provide financial assistance, and as a source of incentivizing impulsivity, mistakes or overconfidence in decisions.

2. The digital architecture of financial decision-making: between influence and autonomy

Transforming the decision-making environment through technology is not just a technical change; it's a behavioral change. In the digital financial world, users' interactions with mobile apps, budgeting platforms and investment systems are mediated by what's called choice architecture - the structure and the way financial options are presented. This interaction framework is not neutral: it can influence or even distort a person's economic behavior.

In this respect, digital nudging is a key concept. Based on the work of Richard Thaler and Cass Sunstein, nudging involves subtly shaping the decision-making context to influence decisions, without imposing or prohibiting choices. This can be seen in financial apps through contextual notifications, saving buttons that are visually highlighted, chosen options for financial plans, or messages that provide immediate feedback when making decisions.

For example, the Qapital app gives users the ability to create "saving rules" that are based on their personal behaviors. These can include, for example, automatically setting savings when avoiding an expense or reaching a goal. This logic uses emotional anchoring and makes saving feel good and linked to a sense of control.

However, robo-adviser or investment apps, such as Robinhood, offer confetti to complete a trade, specific sounds and instant feedback, all based on reward psychology. Studies show that people who are exposed to such stimuli may have a misperception of risk, mistaking the frequency of an action for expertise or control.

Defaults, or default options, are another important mechanism. If the user does not actively change them, they become default behaviors. Automatic saving is turned on from the start in apps like Digit and Acorns, which pretty much increases the likelihood that users will adopt this behavior. Researchers have found that decisional inertia or analysis paralysis prevents many people from changing their default settings; this can be beneficial in more complicated or risky circumstances, but is problematic in more complicated situations.

In addition, the choice architecture in AI-based applications is dynamic. This is because algorithms can modify the interface, suggestions and notifications based on how

the user has acted before. Based on a person's psychological profile and history, it creates a hyper-personalized financial experience that can predict behaviors and incentivize certain decisions. While this can help reduce spending, it raises questions about algorithmic transparency and even user decision autonomy [8,9,10].

An important aspect is also the influence on vulnerable users, such as young people, people with low financial literacy or with tendencies towards addictive behaviors. In such situations, a decision-making strategy based on quick incentives and pretty looks can encourage impulsive tendencies and lead to financial decisions that are not beneficial for long-term financial health.

Next we have made a comparative table summarizing:
- the behavioral mechanisms (nudging, defaults, gamification, etc.),
- the applications in which they are found,
- the effects observed on the user.

Table 1.

Behavioral mechanisms in financial application design

Behavioral mechanism	Typical applications	Effect on the user
Nudging digital	Qapital, Acorns	Stimulates saving through enabling environments
Defaults	Digit, Revolut	Increases the likelihood of keeping recommended settings
Gamification	Robinhood, Revolut	Can induce impulsivity and risky decisions
Visual & symbolic feedback	Mint, Qapital	Activates motivation and perceived control
Algorithmic personalization	Revolut, Robinhood	Generates persuasive but potentially manipulative experiences

Source: made by the author based on conceptual analysis of the literature (Huebner et al., 2020; Savitha & Hawaldar, 2022; Yadav & Banerji, 2024) and models applied in the design of digital financial applications

The following graph shows the estimated level of behavioral impact for the most common mechanisms used in digital financial applications.

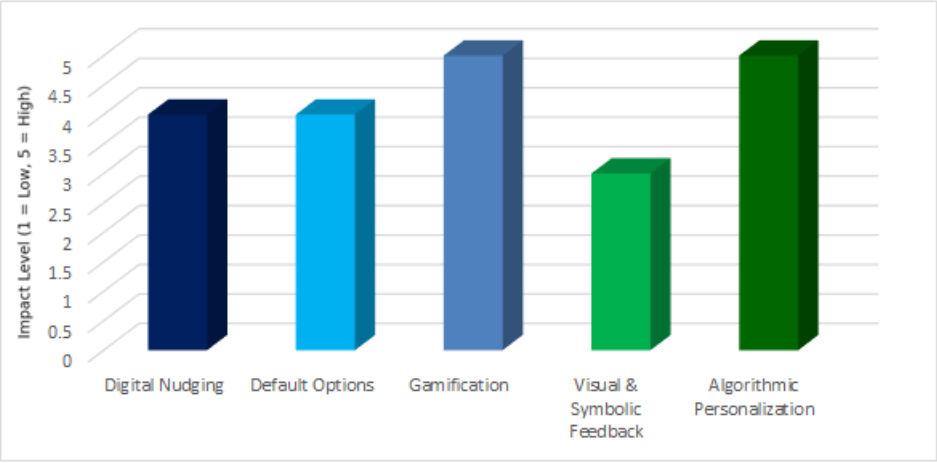

Figure 1. Estimated Behavioral Impact of Digital Mechanisms

Source: made by the author based on conceptual analysis of the literature (Huebner et al., 2020; Savitha & Hawaldar, 2022; Yadav & Banerji, 2024) and models applied in the design of digital financial applications

In conclusion digital architecture of financial applications is essential for shaping individual economic behavior. Despite the fact that this mechanism might be designed to

promote sustainable behaviors and decisions, such as consistent saving, responsible budgeting and debt avoidance, the same mechanisms can be used commercially to take advantage of cognitive errors. Therefore, the distinction between an interface that manipulates and one that guides is becoming increasingly blurred, and the debate on the moral responsibility of both regulators and developers is becoming essential in the behavioral digital economy.

3. Study on financial applications: examples of behavioral influence

To understand how the principles of behavioral finance are being integrated into digital environments, this section takes a documentary look at four popular financial apps: Revolut, Qapital, Mint and Robinhood. These platforms differ in purpose, functionality, and target audience, but they share in common the deliberate use of behavioral influencing mechanisms through digital design. The analysis is based on sources such as official reports, scientific articles, literature and product reviews.

3.1. Revolut - minimalist design with powerful effects on consumer behavior

Revolut is a multifunctional financial application with a global user base, combining payments, foreign exchange, savings, investments and cryptocurrencies. In terms of user behavior, Revolut implements a number of subtle influence mechanisms:

- weekly personalized reports, which act as financial feedback and induce a sense of control and self-monitoring.
- rund-up savings (automatically round-up payments and transfer the difference to a "vault") - an automated form of savings based on cognitive inactivity (passive nudge).
- simple interface that removes friction in spending - an element that can lead to normalization of micro-consumption.

This combination of functionality and minimal feedback can simultaneously lead to involuntary saving and increase the frequency of digital spending based on the user's behavioral profile [12].

3.2. Qapital - saving through behavioral rules

Qapital is a savings application based on principles from decision psychology. It allows users to create automatic rules for saving, such as:

- "Save 10 lei every time you give up your morning coffee";
- "Save when your favorite team wins";
- Or rules based on external conditions, such as the weather or steps traveled.

These rules activate positive anchoring, the association between saving and enjoyable activity, and the gamification of financial goals. Saving thus becomes an unconscious, automated behavior that involves no visible sacrifice - a stark contrast to traditional approaches based on restraint and rational planning [14].

3.3. Mint - budgeting through visual feedback and cognitive anchors

Mint is a budgeting and expense tracking application with a focus on visualizing financial data in a clear and intuitive way. Its behavioral functionalities include:

- Displaying progress against budget as colorful graphs;
- Real-time notifications when a spending category is exceeded;
- Personalized recommendations to reduce spending and optimize budget.

These mechanisms act on selective attention by helping users notice trends and intervene on them. However, visual over-information can generate financial anxiety among users less familiar with managing budgets [11].

3.4. Robinhood - democratization of investments or gamification of risk?

Robinhood is a highly popular investment platform among young people, promoted for democratizing access to stock markets [13]. However, many have criticized its design, which:

- Uses animations, confetti and visual rewards after each trade;
- Offers a user experience similar to gaming apps rather than traditional investment platforms;
- Includes frequent push notifications that incentivize continued activity on the platform, regardless of portfolio performance.

The research community has identified in this approach an increased risk of compulsive trading, influenced by overconfidence and availability bias (the tendency to overvalue visible or easily accessible options). Although Robinhood provides easy access to investments, it raises serious questions about the behavioral responsibility of digital design in the financial context. The following graph comparatively illustrates the perceived behavioral level of risk for each app analyzed above.

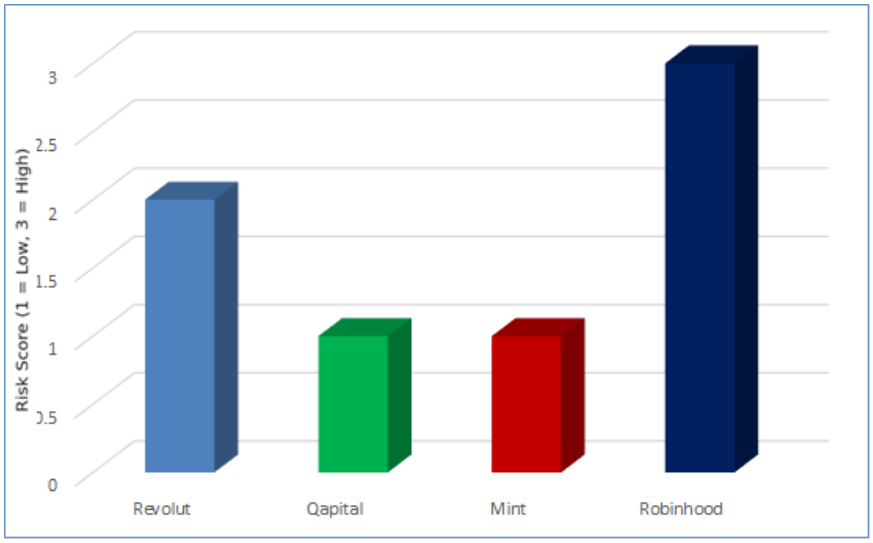

Figure 2 Behavioral risk level of financial applications

Source: made by the author based on literature review (Savitha & Hawaldar, 2022; Frisancho et al., 2023; Yadav & Banerji, 2024; Huebner et al., 2020) and official documentation of Revolut, Qapital, Mint and Robinhood apps

In the following table we have made a comparative summary between the functionalities, behavioral techniques and risks for the four applications (Revolut, Qapital, Mint, Robinhood).

Table 2.

Financial applications and behavioral influence

Application	Main functionality	Behavioral techniques used	Behavioral risk
Revolut	Pay, save, invest	Visual feedback, automatic rounding, defaults	Medium (frequent spending)
Qapital	Automatic saving by rules	Positive gamification, personalized rules, nudging	Low (positive automation)
Mint	Monitor budget & expenses	Alerting, graphical visualization, budgeting anchors	Low (possible over-information)
Robinhood	Investing & share trading	Gamification, confetti, frequent notifications	High (impulsivity & risk)

Source: made by the authors based on literature review (Savitha & Hawaldar, 2022; Frisancho et al., 2023; Yadav & Banerji, 2024; Huebner et al., 2020) and official documentation of Revolut, Qapital, Mint and Robinhood applications

4. Between decision support and behavioral risk

Our analysis of the four financial apps - Revolut, Qapital, Mint and Robinhood - emphasized that digital design not only facilitates communication with personal finance, but also shapes it in detail. A decision structure involving interfaces, notifications, choice structures and behavioral feedback mechanisms simultaneously influence how users decide to save or spend money.

On the other hand, however, the analysis identifies a number of behavioral and ethical issues related to these applications.

In the following we have compiled a comparative table of the behavioral benefits of these mechanisms and the risks associated with each.

Table 3.

Behavioral benefits and risks of digital financial applications

Size analyzed	Behavioral benefits	Behavioral risks
Automatic saving	Increases likelihood of saving without conscious effort	Automation dependency, loss of conscious control
Investment Gamification	Increases financial motivation and engagement	Impulsivity, excessive risk taking
Personalized feedback	Supports awareness and control	Overconfidence or distorted self-assessment
Default	Reduces decision friction	Automatic acceptance of suboptimal choices
Overformatting & excessive visualization	Improves visibility of financial behavior	Financial anxiety, decision paralysis
Algorithmic personalization	Provides tailored and relevant recommendations	Behavioral manipulation, erosion of autonomy

Source: made by the author based on a synthesis of the behavioral finance and digital design literature (Thaler & Sunstein, 2008; Huebner et al., 2020; Savitha & Hawaldar, 2022; Zhang et al., 2021; Yadav & Banerji, 2024)

From an ethical perspective, the problem of informational and cognitive asymmetry between end-users and application developers also needs to be addressed. It thus becomes essential to have regulatory mechanisms in place in this context where organizations are aware of users' behavioral weaknesses and can take advantage of them.

CONCLUSIONS

The paper analyzed how digital financial applications influence users' saving and consumption behavior from a theoretical-exploratory perspective. We demonstrated, starting from the premises of behavioral finance, that the digital architecture in which they operate significantly affects personal financial decisions. This can be seen in the way options are presented, the frequency of notifications and symbolic rewards.

Ultimately, the conclusion is that digital financial interfaces are not neutral; they are decision systems that influence the emotions and thoughts of the user. Apps can be beneficial because they promote savings through automated mechanisms, provide positive feedback and reduce the difficulties in decision-making. Examples like Qapital and Mint show that a well-calibrated behavioral design can promote healthy financial habits and even help financial education indirectly. However, the paper draws attention to the potential dangers that these applications can present when designed with the aim of maximizing engagement at the expense of financial well-being.

Impulsive decisions or addictive behaviors can be triggered by investment gamification, constant notifications and over-personalization, especially for those who are financially vulnerable. In this sense, Robinhood's analysis serves as an example of the fragile divide that exists between "democratizing finance" and promoting practices that encourage impulsivity, overconfidence and excessive risk-taking.

The paper thus makes a twofold contribution: it provides an interpretative basis for how digital interfaces can influence people's economic behaviors, and secondly, it opens up a vital discussion about the moral responsibility of financial app developers.

In conclusion, in this age, where personal finance is increasingly controlled by technology, it is essential to understand the behavioral dimension of digital apps. In addition to advancements in technology, our ability to design and use these tools with care, compassion and responsibility are essential to the future of finance.

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