

AI and Personal Finance: Evaluating Rules of Thumb Generated by ChatGPT

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Overview

- **Purpose** –to evaluate the information quality generated by ChatGPT on rules of thumb in personal finance.
- **Design/methodology/approach** – Prompts were developed to ask ChatGPT questions regarding rules of thumb in personal finance. After several iterations, we selected seven rules of thumb and asked ChatGPT to provide more in-depth information. The information was evaluated by checking its accuracy and validity based on relevant peer-reviewed journal articles.
- **Findings** – We found both advantages and limitations of using ChatGPT for information search. The advantages include its speed of information generation, width of topic generation, adaptivity to information demands, and provision of information sources. The limitations include the fact that the information may be fake, inaccurate, inappropriate, too general, or lacking academic journal sources.
- **Originality/value** – This is the first attempt to use ChatGPT to generate relevant information regarding rules of thumb in personal finance, which provides experience and lessons for future researchers who will take similar approaches when conducting research.

Introduction

- This article is inspired by a study using ChatGPT to analyze personal finance cases ([Schlosky et al., 2024](#)).
- Rules of thumb are commonly used among financial service professionals ([Schwab.com, 2023](#)). For example, in retirement planning, even among economists, few spend much time calculating a personal optimal savings rate, given the uncertainties about future rates of return, income flows, retirement plans, health, etc. Instead, most people cope by adopting rules of thumb ([Benartzi and Thaler, 2007](#)).
- We chose to ask ChatGPT to search for information on rules of thumb in personal finance and evaluated the information quality provided by ChatGPT.
- We tried it for several times and learned a few things (see table 1 and 2): fast, comprehensive, adaptive, but no or few academic sources.

Table 1. Rules of thumb in personal finance generated by ChatGPT

Prompt 1: What are rules of thumb in personal finance?	Prompt 2: What are rules of thumb in personal finance with 3 sources in APA style?	Prompt 3: What are rules of thumb in personal finance?
<ol style="list-style-type: none">1. 50/30/20 Rule (Budgeting)2. The Rule of 72 (Investment Growth)3. The 4% Rule (Retirement Withdrawals)4. Emergency Fund (3–6 Months)5. Debt-to-Income (DTI) Ratio (Debt Management)6. Save 15% of Your Income for Retirement7. The 80% Rule (Retirement Income)8. 20/4/10 Rule (Car Purchase)9. The 110 or 120 Rule (Investment Allocation)10. One Month's Salary for Engagement Ring11. The 25x Rule (Retirement Savings)12. Home Price Rule (Housing Costs)13. The 10% Rule (Investing)	<ol style="list-style-type: none">1. 50/30/20 Rule (Budgeting)2. The Rule of 72 (Investment Growth)3. The 4% Rule (Retirement Withdrawals)4. Emergency Fund (3–6 Months)5. Debt-to-Income (DTI) Ratio (Debt Management)6. Save 15% of Your Income for Retirement 7. The 25x Rule (Retirement Savings)	<ol style="list-style-type: none">1. 50/30/20 Rule (Budgeting)2. The Rule of 72 (Investment Growth)3. The 4% Rule (Retirement Withdrawals)4. Emergency Fund (3–6 Months)5. Debt-to-Income (DTI) Ratio (Debt Management)6. Save 15% of Your Income for Retirement 7. The 25x Rule (Retirement Savings)

Source(s): Authors' compiled information generated from ChatGPT



Table 2. Rules of thumb in personal finance generated by ChatGPT with sources

Prompt 2: What are rules of thumb in personal finance with three sources in APA style?

1. 50/30/20 Rule (Budgeting: 50% goes to needs, 30% goes to wants, and 20% goes to savings)

Sources by ChatGPT

1. [Warren and Tyagi \(2005\)](#). *All your worth: The ultimate lifetime money plan*. Free Press
2. Kagan, J. (2021). The 50/30/20 rule: How to budget effectively. *Investopedia*. <https://www.investopedia.com/articles/financial-advisors/050516/503020-rule-how-budget-effectively.asp>
3. Guinn, M. (2020). The 50/30/20 rule: Is it effective for all financial situations? *SmartAsset*. <https://www.smartasset.com/financial-advisor/50-30-20-rule>

Verification

1. Verified
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Rules of Thumb Assessed

- In the following, first demonstrate the information provided by ChatGPT and then assess the information quality based on relevant research papers, most of which are from peer-reviewed journals.
- Rules of thumb assessed:
 1. The rule of 72
 2. The 50/30/20 Rule in Budgeting
 3. The 3–6 Month Income Rule for Emergency Fund
 4. The 36% Rule for Debt-to-Income (DTI) Ratio
 5. The 15% Income Rule for Retirement Savings
 6. The 25x Rule for Retirement Savings Adequacy
 7. The 4% Rule in Retirement Withdrawals

The rule of 72: GPT output

We asked: “What is the Rule of 72, who originally developed it, and what are its advantages and limitations? Provide answers with sources from academic research.”

ChatGPT responded:

The rule: The Rule of 72 is a straightforward formula used to estimate the time it takes for an investment to double in value, given a fixed annual rate of return. By dividing 72 by the annual interest rate (expressed as a percentage), investors can approximate the number of years required for their investment to double. For example, with an 8% annual return, it would take approximately 9 years for the investment to double ($72 \div 8 = 9$).

Origin: The Rule of 72 is commonly attributed to the Italian mathematician Luca Pacioli, who mentioned it in his 1494 work.

Advantages: Simplicity, versatility, educational tool.

Limitations: Accuracy range, assumption of constant rate, compounding frequency, exclusion of external factors.

Sources: [en.Wikipedia \(n.d.\)](#), [investopedia.com \(2024\)](#), [web.stanford.edu \(n.d.\)](#).

The rule of 72: Assessment

- Rule: described accurately.
- Origin: endorsed by academic scholars.
- Advantages: Acceptable.
- Limitations: Accuracy range 6-10%; Other are relevant to assumptions.
- Sources: mainly from popular websites
- General discussion: GPT generated information is accurate and acceptable. The rule can be used in education due to its simplicity and versatility (not only investing, but also income, debt, and spending, or any problem involving double size given interest rate).

Table 3. Comparisons of years between the Rule of 72 and future value formula

A	B	C	B-C
Interest rate %	Year based on rule of 72	Year based on future value formula	Difference
1	72	69.66	2.34
2	36	35	1
3	24	23.45	0.55
4	18	17.67	0.33
5	14.4	14.21	0.19
6	12	11.9	0.1
7	10.29	10.24	0.05
8	9	9.01	-0.01
9	8	8.04	-0.04
10	7.2	7.27	-0.07
11	6.55	6.64	-0.09
12	6	6.12	-0.12
13	5.54	5.67	-0.13
14	5.14	5.29	-0.15
15	4.8	4.96	-0.16
16	4.5	4.67	-0.17
17	4.24	4.41	-0.17
18	4	4.19	-0.19
19	3.79	3.98	-0.19
20	3.6	3.8	-0.2

Note(s): Assume that the annual interest rate is used, compounded annually. The future value formula used is: $n = \ln(FV/PV)/\ln(1+r)$, where, n = number of periods, FV = future value, PV = present value, r = interest rate

Source(s): Authors' calculations

The 50/30/20 Rule in Budgeting: GPT output

We asked: “What is the rule of 50/30/20 in budgeting, who originally developed it, and what are its advantages and limitations? Provide answers with sources from scientific research.”

ChatGPT answered:

The rule: The 50/30/20 rule is a budgeting guideline that suggests allocating your after-tax income as 50% for needs, 30% for wants, and 20% for savings and debt repayment.

Origin: U.S. Senator Elizabeth Warren and her daughter, Amelia Warren Tyagi, in their 2005 book, “All Your Worth: The Ultimate Lifetime Money Plan”.

Advantages: Simplicity, flexibility, encourages savings.

Limitations: One-size-fits-all approach, oversimplification, potential underestimation of needs.

Sources: [Business Insider \(2024\)](#), [OppLoans \(2024\)](#), [John Hancock \(n.d.\)](#)

The 50/30/20 Rule in Budgeting: Assessment

- Rule: the rule itself is hard to apply: 20% for saving and repayment.
- Origin: controversial since scholars proposed the idea long time ago.
- Advantages: Can find academic supports.
- Limitations: Can be related to academic research papers.
- Sources: cannot find academic journal papers supporting it.
- General discussion: No academic papers endorse this rule. The rule is hard to apply due to income levels (more important for low income consumers in budgeting), family structure, emphasis (saving or debt reduction), and geographic locations.

Table 4. Distribution of U.S. household expenditures by consumer group

Categories	All consumers	Married couple only	Married couple with children	Other married consumer units	One parent, at least one child	Single person and other consumer units
Needs (housing, transportation, food, healthcare)	70.8	70.3	68.5	72.3	75.5	72.8
Wants (entertainment, other)	16.8	17.9	16.5	14.4	15.5	16.7
Savings (Personal insurance and pensions)	12.4	11.9	15.1	13.3	9	10.4

Source(s): Authors' calculations based on the budget share information provided in the [U.S. Bureau of Labor Statistics \(2024a, b\)](#)

The 3–6 Month Income Rule: GPT output

We asked: “What is the 3–6 months rule in emergency savings, who originally developed it, and what are its advantages and limitations? Provide answers with sources from scientific research.”

ChatGPT answered:

The rule: The 3–6 months rule in emergency savings is a financial guideline recommending individuals to set aside funds equivalent to three to six months’ worth of living expenses. This reserve aims to provide a financial cushion for unexpected events such as job loss, medical emergencies, or significant unforeseen expenses.

Origin: The 3–6 months emergency savings guideline has been widely recommended by financial experts, though its precise origin is unclear. It is considered conventional wisdom to maintain savings covering 3–6 months of living expenses. For example, Vanguard advises keeping this amount in an emergency fund for financial resilience.

Advantages: Financial security, peace of mind, flexibility in crisis.

Limitations: One-size-fits-all approach, economic variability, opportunity cost.

Sources: investor.vanguard.com (n.d.), [marketwatch.com](https://www.marketwatch.com) (2025)

The 3–6 Month Income Rule: Assessment

- Rule: described accurately.
- Origin: GPT did not provide a specific source.
- Advantages: Supported by academic research.
- Limitations: Some academic research support.
- Sources: mainly from popular websites, even academic publications are available.
- General discussion: GPT generated information is acceptable. The rule may be helpful for some special populations such as those with less stable income and low income. For some people, even 6-month income is inadequate.

The 36% Rule for DTI Ratio: GPT output

We asked: “What is the 36% rule in debt-to-income ratio, who originally developed it, and what are its advantages and limitations? Provide answers with sources from scientific research.”

ChatGPT answered:

The rule: The 36% rule is a financial guideline used to assess an individual’s capacity to manage debt. It suggests that a person’s total monthly debt payments should not exceed 36% of their gross monthly income. This metric, known as the debt-to-income (DTI) ratio, is calculated by dividing total monthly debt obligations by gross monthly income and multiplying by 100 to obtain a percentage.

Origin: The 36% threshold is part of the broader 28/36 rule, a traditional lending standard that has been utilized by financial institutions to evaluate borrowers’ creditworthiness. There is no exact record for the origin of the 28/36 rule.

Advantages: Financial prudence, lender confidence, budgeting framework.

Limitations: Individual variability, exclusion of non-debt expenses, credit score considerations, economic fluctuations.

Sources: [Investopedia.com](https://www.investopedia.com) (2024)

The 36% Rule for DTI Ratio: Assessment

- Rule: defined variously in academic literature.
- Origin: no specific source.
- Advantages: For both borrowers and lenders.
- Limitations: Echoed with academic research.
- Sources: popular websites
- General discussion: GPT generated information is acceptable but less academic. The rule can be used as a debt control tool for consumers. Based on FRB, 40% DTI can be considered financial burden.

The 15% Income Rule for Retirement Savings: GPT output

We asked: What is the 15% income rule in retirement savings, and what are its advantages and limitations? Provide answers with sources from scientific research.

ChatGPT answered:

The rule: The 15% income rule is a retirement savings guideline recommending that individuals allocate 15% of their annual gross income toward retirement savings. This percentage often includes both personal contributions and any employer matches. The goal is to accumulate sufficient funds to maintain one's standard of living during retirement.

Origin: The exact origin of the 15% savings recommendation is not attributed to a single source.

Advantages: Simplicity and clarity, adequate retirement funding, employer contributions.

Limitations: Individual variability, late starters, income fluctuations.

Sources: [Munnell et al. \(2014\)](#), [schwab.com \(2023\)](#), [troweprice.com \(2025\)](#).

The 15% Income Rule for Retirement Savings: Assessment

- Rule: itself is hard to apply since it includes both personal and company contributions.
- Origin: from a university research brief. Based on [Munnell et al. \(2014\)](#), under several assumptions, the 15% rule is only appropriate for middle-income consumers.
- Advantages: Company match is not an advantage.
- Limitations: Individual variability. Did not cover macro factors.
- Sources: mentioned Munnell et al. (2014) and popular websites.
- General discussion: GPT generated information is less accurate and confusing. The rule can be applied to only a special population with several assumptions and a specific income range.

The 25x Rule for Retirement Savings Adequacy: GPT output

We asked: What is the 25x rule in retirement savings adequacy, who originally developed it, and what are its advantages and limitations? Provide answers with sources from scientific research.

ChatGPT answered:

The rule: The *25x rule* is a retirement planning guideline suggesting that individuals should aim to save an amount equal to 25 times their anticipated annual retirement expenses. This approach is designed to provide a sustainable income throughout retirement, based on the assumption that withdrawing 4% of the retirement savings annually will suffice to cover living expenses. This rule is closely associated with the *4% rule*, which posits that withdrawing 4% from a retirement portfolio annually is a sustainable strategy over a 30-year retirement period.

Origin: The 25x rule is derived from the 4% rule, which was introduced by financial advisor *William P. Bengen* in 1994.

Advantages: Simplicity, goal setting, flexibility.

Limitations: Market variability, inflation considerations, individual variability, early retirement.

Sources: [Bengen \(1994\)](#).

The 25x Rule for Retirement Savings Adequacy: Assessment

- Rule: described accurately.
- Origin: identified accurately.
- Advantages: Straightforward.
- Limitations: Can be applied to other rules too.
- Sources: a professional journal article. No other research papers on this topic can be found.
- General discussion: GPT generated information is accurate and acceptable. The rule is hard to apply due to within and between individual variabilities.

The 4% Rule in Retirement Withdrawals: GPT output

We asked: What is the 4% rule in retirement savings withdrawal, who originally developed it, and what are its advantages and limitations? Provide answers with sources from scientific research.

ChatGPT answered:

The rule: The *4% rule* is a retirement planning guideline that suggests retirees can withdraw 4% of their initial retirement portfolio in the first year, adjusting the amount annually for inflation, to sustain withdrawals over a 30-year period without depleting their savings. This approach aims to provide a steady income stream while preserving the portfolio's longevity.

Origin: The rule was introduced by financial advisor *William P. Bengen* in 1994.

Advantages: Simplicity, historical validation, inflation adjustment.

Limitations: Market variability, rigid withdrawals, longevity risk, economic assumptions.

Sources: [Wikipedia contributors \(Trinity Study\) \(n.d.\)](#), [Wikipedia contributors \(Williom Bengen\) \(n.d.\)](#), [Scott et al. \(2009\)](#), [wcu.edu \(2023\)](#), [wsj.com \(2024\)](#).

The 4% Rule in Retirement Withdrawals: Assessment

- Rule: described accurately.
- Origin: identified accurately.
- Advantages: Inaccurate since the later two are not advantages.
- Limitations: Similar to other rules. Several studies provided alternative estimations on this topic.
- Sources: a professional journal article. No other research papers on this topic can be found.
- General discussion: GPT generated information is accurate in terms of its source. The rule is hard to apply due to within and between individual variabilities. For long-term saving goals, any rule of thumb may not work well.

GPT Advantages and Limitations

- GPT advantages:

1. It can generate information fast;
2. It can generate many items that summarize the literature it has access to;
3. It can provide information we need if we revise prompts to seek the answer we need;
4. It can provide information sources with valid links.

- GPT limitations:

1. The information summarized by ChatGPT may not be accurate;
2. The information provided by it may not be from original scientific sources;
3. Sometimes it generates fake information;
4. Information generated by ChatGPT sometimes is too general and less specific;
5. Its summary of information may not be appropriate as indicated in our assessment.

Conclusion

- In conclusion, using ChatGPT is efficient to generate items on a certain topic, but the information quality is questionable and needs to be verified. We may treat ChatGPT as a naive research assistant and ask it to do initial idea generation work. Researchers and teachers need to do their own research through other tools to verify the accuracy of the information in research and teaching.
- In this article, our intention is not to conduct a comprehensive literature review on the validity of several personal finance rules of thumb, but just to point out the advantages and limitations of these rules based on the limited literature review. All of these rules may deserve separate comprehensive literature reviews for a better understanding of their applicability and limitations.

Implications

- This article has implications for researchers who are interested in doing research with ChatGPT or other similar tools, especially literature reviews. It provides experiences and lessons for future researchers using similar approaches.
- The findings of this study also have implications for practitioners such as educators in personal finance. Teachers in personal finance may learn from here how ChatGPT generates information, and advantages and limitations of the information generated by ChatGPT. Also, even though this is not a comprehensive assessment of the rules of thumb examined in this article, it may also allow teachers to know the existence of the rules on popular websites. Being aware of limitations of these rules, the rules can be used as a teaching tool in personal finance courses, especially teaching students who believe personal finance courses are math-intensive courses and are intimidated by them ([Xiao et al., 2024](#)).

Thank you for your attention

- Questions?
- For more information, contact: jjxiao@uri.edu