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TIME VALUE OF MONEY IN THE LITHUANIAN CREDIT MARKET: A PRACTICAL ANALYSIS OF CONSUMER LOAN OFFERS

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Abstract: *This report uses the Time Value of Money (TVM) framework to evaluate and compare consumer loan offers from three Lithuanian credit providers: Inbank, Artea, and Saldo Bank. Focusing on a loan amount of €5000, the study examines repayment terms of 12, 24, and 36 months, each with different interest rates and administrative fees. By calculating key financial indicators such as monthly payments (PMT), total repayment, total interest paid, and present value (PV), the analysis identifies differences in the actual cost of borrowing. The results show that Inbank offers the most financially favorable terms overall, yet borrowers may still choose more expensive options based on short-term affordability. These findings emphasize the value of using TVM principles in personal finance and highlight the importance of transparent loan structures in helping consumers make informed financial decisions in the Lithuanian credit market.*

Keywords: *TVM, consumer loans, Lithuanian credit market, personal finance*

1. INTRODUCTION

In the recent decade, borrowing has become increasingly popular in Lithuania, explained by rising consumer demand and easy credit access through banks and non-bank lenders (Kanapickienė et al., 2022). According to publicly accessible data on TheGlobalEconomy website, total consumer credit in Lithuania has been recorded at 2.79 billion Euros in March 2025, with a clear positive trend. Lithuania has numerous credit companies offering varying interest rates, fees, and repayment terms. This environment of high lender variety and complex loan structures places importance on reliable evaluation methods. Consumers may be drawn to attractive monthly payments or promotional interest rates without fully understanding how additional fees or longer repayment periods affect the real cost of borrowing (Johnson, 2022). To address this problem, applying the Time Value of Money (TVM) concept may become instrumental. TVM allows individuals to assess the real value of future loan payments in today's terms, which enables them to compare offers by their full financial impact over time, not only surface rates (Kahn & Baum, 2019).

As borrowing becomes more embedded in everyday financial behavior, the ability to interpret complex loan structures can influence not only individual financial well-being but also broader economic stability (Lin & Bates, 2022). Additionally, financially informed consumers are less likely to become overindebted and are better equipped to make optimized borrowing decisions (Lusardi, 2019).

The purpose of this report is to apply the principles of the Time Value of Money (TVM) to evaluate and compare three consumer loan offers from Lithuanian credit providers - Inbank, Artea, and Saldo Bank. By analyzing loans of equal amounts (€5000) across varying repayment terms, the study aims to determine how differences in interest fees, administrative fees, and loan durations affect the total cost of borrowing. Through this assessment, the report seeks to

identify the most financially efficient loan offer and to demonstrate how the concept of TVM can serve as a tool for consumers to make informed borrowing decisions.

2. Literature analysis

The concept of the Time Value of Money (TVM) is a foundational principle in finance, which claims that a monetary unit in the present time is worth more than the same unit received in the future. The principle explains the potential of current funds earning returns over time, which is a central notion in financial decision-making (Fabozzi, 2021). In finance, the TVM is used not only as a theoretical foundation but also as a practical tool to evaluate loans, investments, and annuities - understanding TVM is necessary to accurately determine the value of financial assets with cash flows (Brigham & Ehrhardt, 2017).

Similarly, Ross, Westerfield, and Jordan (2003) present the TVM as a framework through which all future cash flows are evaluated, mainly in the context of investment appraisal and capital budgeting. The authors emphasize that without appropriate discounting of future values, financial analysis becomes flawed. To reinforce this perspective, Gitman and Zutter (2015) describe TVM as a foundation to financial rationality, a tool that allows decision-makers to track the trade-off between immediate consumption and deferred investment.

The quantitative foundation of TVM comprises several key formulas that enable the valuation of cash flows occurring at different points in time. Present Value (PV) reflects the current worth of money that will be paid or received in the future. The calculation of PV involves discounting the future cash flows back to today's terms by accounting for the opportunity cost of capital or interest rate (Brealey et al., 2000). Future Value (FV) represents the amount an initial investment will grow to at a specified point in the future, assuming it earns interest or returns over time. It captures the compounding effect, where interest is earned not only on the original principal but also on accumulated interest from prior periods (Gitman & Zutter, 2006). Payment (PMT) explains the regular, fixed amount of money paid or received in each period of a financial agreement, such as a loan or an annuity. It is calculated based on the loan amount or investment principal, the interest rate per period, and the total number of payment periods (Bracker & Lin, 2018). Interest rate is used to discount or grow money over time. It represents the cost of borrowing or the return on investment, and is expressed as an annual percentage, though in most cases it needs to be adjusted to match the frequency of the payment (monthly, quarterly, etc.) (Westerfield et. al., 2019). As for Total Repayment and Total Interest Paid, the former is the sum of all payments made over the entire term of a loan or investment, representing the full amount returned by the borrower to the lender, and the latter indicates how much additional money is paid over the original amount borrowed or invested, due to interest accumulation (Mishkin & Eakins, 2018).

The concept of TVM is implemented in structuring loan repayment schedules. Once a borrower takes out a loan, the lender will use TVM principles to calculate the fixed periodic payments needed to fully repay the loan over time, factoring in the interest rate and the number of payment periods, which ensures that the lender recovers both the interest and the principal (Dahlquist & Knight, 2022). Borrowers are often faced with multiple loan options with differing interest rates, fees, and payment terms. Applying TVM principles allows them to differentiate between lenders by calculating the present value or effective cost of each loan, revealing which loan is truly less expensive when accounting for timing and size of payments (Gould, 2021).

3. Study Sample

Three consumer credit companies – Inbank, Artea, and Saldo Bank – were selected for their active presence in the Lithuanian lending market and diverse consumer loan offerings. On

each of their websites, an amount of 5000 EUR was chosen and found their annual interest rates respectively: 7.90%, 9.90%, 12%. Although this paper analyses three different repayment periods (36 months, 24 months, 12 months) for the same three companies, the annual interest rate did not change for all three terms. Additionally, all three companies have administration fees: Inbank – monthly 0.29% of the borrowed amount; Artea – monthly 0.25% of the borrowed amount; Saldo Bank – 8,95 € / month.

4. Methodology

This analysis applies Time Value of Money (TVM) principles to evaluate and compare three consumer loan offers from Inbank, Artea, and Saldo Bank. All three companies were analyzed assuming an identical loan amount of 5000 EUR, with varying repayment terms (36,24, and 12 months) and their fixed annual interest rates. The goal was to assess how loan structure affects total repayment cost and the financial burden on the borrower over time.

To conduct the comparison, the following financial indicators were calculated:

Periodic Payment Amount (PMT)

The amount the borrower must pay each month to repay the loan. Calculated using the standard formula:

$$PMT = PV \times \frac{r(1+r)^n}{(1+r)^n - 1}$$

PV – present value
r – monthly interest rate
n – number of periods

Real PMT

Most credit companies have administration fees that are added each month to the PMT and influence the total repayment amount. Calculated by simply adding:

$$Real\ PMT = PMT + fees$$

Fees – monthly administration fees found on each company's website

Total Repayment

The total amount repaid over the life of the loan. In this study, real PMT is used because of the monthly fees. Calculated:

$$TR = real\ PMT \times n$$

Total Interest

The total cost of borrowing. Calculated:

$$TI = TR - PV$$

Present Value

Used to confirm that the value of all three loan offers, when discounted at different rates, results in the same financial value at the time of borrowing. This analysis does not include external costs. PV is also used to illustrate how future payments are valued today using:

$$PV = PMT \times \frac{1 - (1+r)^{-n}}{r}$$

By calculating and comparing these values, the analysis demonstrates how the loan term affects the total cost to the borrower when the present value is constant but interest rates are different. All calculations were performed manually and cross-verified using a financial calculator and Excel.

5. Results

Monthly Payment (PMT) and Administration Fees

The tables present the monthly payment amounts (PMT) and the monthly payment, including administrative fees for a €5000 loan over 36, 24, and 12-month terms from Inbank, Artea, and Saldo Bank.

Table 1. *PMT and Real PMT of a 36-month repayment term*

Term	Company	PMT (€)	PMT incl. admin (€)
36 months	Inbank	156.45	170.95
36 months	Artea	161.1	173.6
36 months	Saldo bank	166.07	175.02

Table 2. *PMT and Real PMT of a 24-month repayment term*

Term	Company	PMT (€)	PMT incl. admin (€)
24 months	Inbank	225.91	240.41
24 months	Artea	230.49	242.99
24 months	Saldo bank	235.37	244.32

Table 3. *PMT and Real PMT of a 12-month repayment term*

Term	Company	PMT (€)	PMT incl. admin (€)
12 months	Inbank	434.71	449.21
12 months	Artea	439.35	451.85
12 months	Saldo bank	444.24	453.19

Data shows a consistent pattern throughout all three loan terms (12, 24, and 36 months): Saldo Bank offers the highest base monthly payments (PMT) due to its higher interest rate, while Inbank generally has the lowest PMT. However, when administrative fees are included, the total monthly cost differences narrow, and in some cases, the company with the lowest interest rate does not offer the lowest total monthly burden.

Total Repayment and Interest Paid

Table 4. *Total Repayment and Total Interest Paid of a 36-month repayment term*

Term	Company	Total Repayment (€)	Total Interest Paid (€)
36 months	Inbank	6154.25	1154.25
36 months	Artea	6249.65	1249.65
36 months	Saldo bank	6300.78	1300.78

Table 5. *Total Repayment and Total Interest Paid of a 24-month repayment term*

Term	Company	Total Repayment (€)	Total Interest Paid (€)
24 months	Inbank	5769.80	769.80
24 months	Artea	5831.85	831.85
24 months	Saldo bank	5863.62	863.62

Table 6. *Total Repayment and Total Interest Paid of a 12-month repayment term*

Term	Company	Total Repayment (€)	Total Interest Paid (€)
12 months	Inbank	5390.53	390.53
12 months	Artea	5422.16	422.16
12 months	Saldo bank	5438.33	438.33

The tables show that while all three companies offer the same amount of €5000, the total repayment and interest paid increase with both the loan term and the interest rate. Saldo Bank consistently has the highest total cost, while Inbank offers the most cost-effective option across all terms. Shorter terms significantly reduce the total interest paid, demonstrating that borrowers who can afford higher monthly payments benefit from lower overall loan costs.

6. Discussions and Recommendations

6.1 Financial Evaluation Using Time Value of Money

Based on the Time Value of Money (TVM) calculations, Inbank is the most financially favorable option across all repayment periods. Despite having slightly higher administrative fees than its competitors, Inbank consistently offers the lowest base monthly payment (PMT) and lowest total interest paid, which directly translates to a lower total cost of borrowing when measured in present value terms. Since all three loans have an equal present value, the differences in total repayment are solely influenced by interest rates, repayment terms, and administrative fees. This confirms the central TVM insight that the longer and more expensive the repayment schedule, the greater the overall costs.

Saldo Bank, in contrast, offers the least favorable loan terms, with the highest interest rate (12%), leading to the highest PMTs and total repayment values. Artea falls between the two but remains closer to Saldo Bank in overall cost than to Inbank.

6.2 Likely Consumer Behavior

From a behavioral standpoint, typical consumers may prioritize monthly affordability over total cost. In this case, Saldo Bank's longer-term loans with lower apparent administrative fees may seem attractive, despite being more expensive in the long run. Borrowers focusing on short-term financial comfort might choose a 36-month option, where monthly payments are more manageable, even though it leads to higher cumulative interest paid. Thus, while Inbank is financially optimal using TVM, a typical borrower might still choose a less cost-effective option due to cash flow constraints or a lack of awareness about the real cost of borrowing.

6.3 Limitations of the Analysis

This study is based on clear, objective TVM metrics, but it does have several limitations. Subjective weights were not assigned to factors such as risk tolerance, income stability, or borrower preferences. The analysis does not account for penalties, early repayment conditions, or promotional offers, which may affect the real cost It assumes borrowers are fully rational, while consumer behavior is often influenced by emotions, financial literacy, or marketing tactics. Monthly administrative fees were treated as fixed, though in practice, they may vary based on conditions not publicly disclosed.

6.4 Recommendations

For borrowers: If financial flexibility allows, choosing shorter-term loans — especially from Inbank — results in lower overall borrowing costs. Borrowers should not focus solely on monthly payments but should also compare total repayment amounts and interest paid.

For lenders: Transparency about total cost, including fees, can build trust. Providing visual comparisons or TVM-based breakdowns may improve financial literacy and client satisfaction.

For future research: Including qualitative assessments, borrower profiles, or simulations with varying income levels would provide a more comprehensive picture of borrowing decisions.

7. CONCLUSIONS

This report applied the Time Value of Money (TVM) framework to compare three consumer credit offers from Inbank, Artea, and Saldo Bank. Although each company offered the same loan amount (€5000), differences in interest rates, repayment terms, and administrative fees significantly influenced the total cost of borrowing. The analysis showed that Inbank consistently provided the most cost-effective option, while Saldo Bank was the most expensive, particularly over longer terms.

The findings confirm that both the length of the loan and the interest rate are critical in determining a loan's true financial impact. While borrowers often prioritize low monthly payments, this study highlights the importance of considering total repayment and interest paid over time. By using TVM principles, borrowers can make more informed financial decisions and better evaluate the real cost of credit.

REFERENCES

1. Bracker, Kevin, and Fang Lin. "–Time Value of Money." Business Finance Essentials (2018).
2. Brealey, Richard A, and Stewart C Myers. Principles of Corporate Finance / Richard A. Brealey, Stewart C. Myers. 6th ed. Boston [Mass.] [etc: Irwin/McGraw-Hill., 2000. Print.
3. Fabozzi, Frank J., and Francesco A. Fabozzi. Bond markets, analysis, and strategies. MIT Press, 2021.
4. Gould, Marie. "Time Value for Money." (2021)
5. Johnson, Alicia M. The Effects of Consumer Loan Application Formats and Advertised Terms on Consumer Borrowing Decisions. University of Arkansas, 2022.
6. Jordan, Bradford D., Stephen A. Ross, and Randolph W. Westerfield. "Fundamentals of corporate finance." (2003): 167.
7. Julie Dahlquist, Rainford Knight. (2022). Principles of Finance. Houston, Texas: OpenStax.
8. Kahn, Marc J., and Neil Baum. "Time Value of Money, or What Is the Real Financial Value of an Opportunity?." The Business Basics of Building and Managing a Healthcare Practice. Cham: Springer International Publishing, 2019. 9-12.
9. Kanapickienė, Rasa, et al. "Macroeconomic determinants of credit risk: evidence on the impact on consumer credit in central and Eastern European countries." Sustainability 14.20 (2022): 13219.
10. Lawrence, Gitman J., and Chad J. Zutter. Principles of: Managerial Finance. Pearson Addison Wesley, 2006.
11. Lin, Chien-An, and Timothy C. Bates. "Smart people know how the economy works: Cognitive ability, economic knowledge and financial literacy." Intelligence 93 (2022): 101667.
12. Lusardi, Annamaria. "Financial literacy and the need for financial education: evidence and implications." Swiss journal of economics and statistics 155.1 (2019): 1-8.
13. Mishkin, Frederic S., Eakins, Stanley G.. (2018). Financial markets and institutions (9th ed.). Milan: Pearson.
14. Westerfield, Randolph W., Ross, Stephen A., Jordan, Bradford D.. (2019). Fundamentals of Corporate Finance, 12th ed. (12). New York: McGraw Hill Education.