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STUDY OF INTERTEMPORAL DISCOUNTING ACCORDING TO INCOME GROUP, SAVINGS, AND LOANS

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Abstract:

The paper deals with the issue of intertemporal discounting from the perspective of income groups, savings, financial reserves, and loans. The study included a total of 599 individuals with an average age of 38.3 years (min. 16 and max. 82 years) who answered classical questions focused on time discounting and impulsive behaviour. In total, four possible scenarios were analysed: a small reward (CZK 100) with a delay of 1 day, a small reward with a delay of 1 month, a large reward (CZK 100,000) with a delay of 1 day and a large reward with a delay of 1 month. The delayed reward was always increased by 10% (i.e., CZK 110 or CZK 110,000). Using the three hypotheses, the analyses confirm that individuals with extremely low incomes have savings only in 26.4% of the cases, while individuals with the highest incomes have savings in 92.2% of the cases (p=0.0000). Furthermore, it was revealed that individuals with savings are approximately 1.7 times more likely to have higher patience than individuals without savings. Individuals with a financial reserve are approximately 1.9 times more likely to have higher patience than individuals without a reserve. Finally, individuals with no debt are 1.6 times more likely to have higher patience than individuals with debt. The paper also complements the conclusions with three reserve bands of subjective discount rates for the examined groups of individuals. The results have implications for the financial management of individuals and thus for defining the risk of poverty.

Keywords:

Savings, Loans, Subjective Discount Rates, low income, Intertemporal discounting, Time Delay Discounting, Decision Making, Delayed Reward.

JEL Classification: D19, D90

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1 Introduction

Under recent economic reality vast research has recently focused on changing dimensions of poverty with overlaps to many aspects of living. It has been revealed that housing is less affordable even for the middle class of population (Hromada, 2021), young and retired groups of population are at risk of energy poverty (Cermakova, 2022), young generation is at disadvantage on the labour market (Stanimir, 2020), the size of groups at socio-economic disadvantage is enlarging (Rakauskiene, 2019) having impacts on the health conditions of this population (Neethu, 2021) with environmental overlaps (Pala, 2020) and social risks. High inflation expectations (Cecrdlova, 2021), globally continuing fiscal easing (Jasova, 2021) and stagnation of real wages (Kaderabkova, 2019) contribute to a sharp but differentiated increase in households' indebtedness (Hromada, 2021) and changes in consumption behaviour and strategic behaviour of economic agents (Vorlicek, 2017) influencing the condition of the economy (Cermakova, 2021). Within this broader context of new dimensions of poverty this paper identifies by analysis of differences in impatience and propensity to save the groups most vulnerable to suffer from poverty soon.

Individuals' intertemporal decision-making is closely related to their willingness to save or incur debt. The subjective discount rate alone, which we use to express our impatience, does not necessarily imply that an individual has or does not have savings.

Discounting is affected by impatience, as well as the "subjective exchange ratio". The distinction between pure impatience as a psychological property of the agent and the subjective exchange ratio between present and future goods is a common mistake of many economists dealing with this issue. Indeed, the exchange ratio is influenced both by the aforementioned subjective discount rate and simultaneously by the elasticity of intertemporal substitution. Even if the agent is impatient, they may prefer future goods to present ones. It turns out that, for example, age and expectations of the future (positive or negative) play a large role in the subjective exchange rate.

This paper aims to determine the risk ratio (RR) and odds ratio (OR) for experimental groups of individuals: (a) a group of individuals with extremely low income; (b) a group of individuals with savings and reserves; (c) a group of individuals without loans.

The first group of individuals will be analysed in terms of savings and reserves, while the other two groups of individuals will be analysed in terms of impatience. Four experiments were set up for the purposes of this analysis.

2 Literature Review

The interest in the issue of intertemporal discounting, and its relationship to consumption, credit, and savings, has long been central to the interest of economists. From a general perspective, we can talk about two streams of research. The first and logically also older research focuses on the defence of the "degree of time preference", respectively. "Subjective discount rates" (see: Rae, 1834; Fisher, 1907; Frederic et al., 2002). In parallel with this research, controversy arose over the form of the subjective discount factor (β) model (see: Samuelson, 1937; Loewenstein, Prelec, 1992; Read, 2001; Streich, Levy, 2007).

We can find thousands research papers on this topic – some focused on the critique of the model for calculating β as such and others on empiricism or experiments. There are many studies whose authors use psychological experiments to look for the values of the subjective discount rate (ρ). This paper later also addresses this issue.

Ramsey (1928 p. 553) assumes that the subjective discount rate (ρ) is constant, but today it is known that it is not constant (see results below). It also assumes that it is the same for all agents: "*First of all, we will assume that everyone discounts future benefits for themselves or their heirs, at the same discount rate*" (Ramsey, 1928 p. 556). It describes the relationship between the real interest rate (r) and the subjective discount rate (ρ) as follows: if r > ρ, then "We save because we can in future consume more than today." Otherwise: ρ > r, then i.e.: "We borrow money because we expect higher income in future". Ramsey's contribution deals mainly with the theory of savings and interest rates.

In this regard, Rotschedl et al. (2021) state: *Important works concerning this issue also include the experiments and research of D. Kahneman and A. Tversky. In their psychological experiments, they demonstrated a discrepancy between models and actual decisions of individuals. It is worth noting their prospectus theory (Kahneman D. and Tversky A., 1979) and work focused on loss aversion (Kahneman D. and Tversky A., 1991), as well as "framing" (Kahneman D. and Tversky A., 1984) and other psychological aspects influencing the individual's decision-making.* The following text will develop the idea.

3 Methods[1]

The survey aimed at finding reward discounting was conducted on a total of 615 respondents in different age groups, genders, and education levels. The sample of respondents includes a total of 404 women (65.69%) and 211 men (34.31%). The average age of the examined sample is 38.3 years (min. 16 and max. 82 years).

Data collection took place in the form of a questionnaire in the course of 2016–2021 in two ways. 291 samples were collected by field survey of clients of non-profit organisations Finanční tíseň o.p.s and Dečko Liberec, o.p.s. Another 323 samples were collected by means of an online questionnaire at www.povertylife.com and with the support of non-targeted online promotion on the Internet and social networks.

3.1 Data and Measurements

Out of a total of 615 respondents, samples with missing data were excluded from the data set. The resulting sample size therefore equalled 599 respondents. The data were analysed using the STATA 16 statistical software. The respondents were further categorised into groups according to per capita household income as follows:

- Extremely low income: CZK 0 – 8,799 per person
- Low income: CZK 8,800 per person to the amount of the income poverty level (60 %)
- Medium income: From the income poverty level to CZK 19,999 per person
- High income: Over CZK 20,000 per person

Discounting was tested using two rewards (a small reward: CZK 100 / CZK 110 and large reward: CZK 100,000 / CZK 110,000) and in two-time horizons (today against a delay of 1 day; today against a delay of 1 month). The respondent was asked to decide whether they would prefer to receive the amount today or wait until tomorrow and in the second case today or wait for one month. The results of the experiments are processed for all 4 examined scenarios:

[1] *Source: Rotschedl, Mittwallyová (2021) and Rotschedl (2022).*

1. CZK 100 today or CZK 110 tomorrow (+1 day)
2. CZK 100 today or CZK 110 in a month's time (+ 1 month)
3. CZK 100,000 today or CZK 110,000 tomorrow (+1 day)
4. CZK 100,000 today or CZK 110,000 in a month's time (+ 1 month)

The paper distinguishes between savings and financial reserve. Savings are any assets of varying liquidity, and the financial reserve is narrowly defined as funds to cover three months of household expenses.

3.2 Analyses

The association study focused on the statistical analysis of the contingency table. First, we verified the fulfilment of the prerequisites for the use of the independence test in the contingency table (Pearson chí^2 test). The prerequisites (i.e. the frequency of the examined variable in the contingency table was not less than 5 and none of the expected frequencies was less than 1) were always fulfilled.

After performing the independence test, we continued by evaluating the strength of the relationship between the two variables. The Cramer's V was used to derive the strength of the relationship. If the Cramer's V was in the range of 0.10 - 0.3, the relationship was deemed weak. For the four-field table, we also evaluated the relative risk (RR) and chance of occurrence (OR), including the reliability interval.

3.3 Hypotheses

Based on the above considerations, the following hypotheses will be established in this chapter:

- H1: Individuals with extremely low incomes are more likely to have no savings or reserve for three months' expenses than individuals with higher incomes.
- H2: Individuals with savings or a reserve for three months of household expenses are more likely to be more patient than individuals without savings or reserves.
- H3: Individuals without loans are more likely to be more patient than individuals who are in debt.

Hypotheses on patience are to be tested using 4 scenarios.

4 Results

4.1 Hypothesis H1 – Income Groups in Relation to Savings and a Financial Reserve

The analysis of savings confirms hypothesis H1 that individuals with extremely low incomes have a higher probability or higher incidence of being without savings. In the extremely low-income group, 26.4% of individuals have savings, while the same applies to 92.2% of individuals in the upper income group (Cramer's V = 0.5011, p=0.0000).

The analysis of the relationship between income groups and the reserve to cover expenses over three months shows a lower relationship than savings alone, i.e. the Cramer's V = 0.4089. In the extremely low-income group, only 18.2% of individuals have the above reserve, while in the upper income group the proportion of individuals with a reserve is 72.2%, i.e. 20 p.p. less.

Thus, 92.2% of the respondents in the upper income group had savings, but only 72.2% had enough savings to cover 3 months of living expenses. The scenario analyses confirmed hypothesis H1 on the sample of the respondents.

Tab 1: Results of the Analysis, Hypothesis 1 – Income Groups and Savings

Savings	Income Groups				
	Ext. Low	Low	Middle	Upper	Total
Savings YES	29	70	107	178	384
	70.8	90.7	98.4	124.1	384.0
	7.55 %	18.23 %	27.86 %	**46.35 %**	100.00 %
Savings NO	81	71	46	15	213
	39.2	50.3	54.6	68.9	213.0
	38.03 %	33.33 %	21.60 %	**7.04 %**	100.00 %
Total	110	141	153	193	597
	110.0	141.0	153.0	193.0	597.0
	18.43 %	23.62 %	25.63 %	32.33 %	100.00 %

Pearson chi2(3) = 149.8900 Pr = 0.000
likelihood-ratio chi2(3) = 163.0473 Pr = 0.000
Cramer's V = 0.5011
Fisher's exact = 0.0000

Source: own calculations, SPSS 16

4.2 Hypothesis H2 – Impatience in Relation to Savings and a Financial Reserve

Scenario 1 – savings

It may be expected that the analysis of the relationship between impatience and provisioning for three months' expenditure will produce similar results to the savings-impatience relationship. In the case of the experiment with a small amount of money in a short period of time, the result is as follows: individuals who have savings are 1.56 times (RR=1.5581; p=0.0000) more likely to be more patient than individuals who do not have savings. Individuals with savings are 2.86 times more likely (OR=2.8602; p=0.0000; Cramer's V=0.2204) to be more patient than individuals without savings.

Scenario 2 – savings

In the case of a small amount over a longer time distance, individuals with savings are 1.15 times (RR=1.1506; p=0.0302) more likely to be patient than individuals without savings. Individuals with savings are 1.509 times more likely (OR=1.5094; p=0.0302) to be more patient than individuals without savings. The analyses of this scenario in other contexts (see previous chapters) were often not significant, as for a small amount, each individual's decision to have it paid out (today or next month) was always very similar. The analysis suggests that higher impatience plays a key role in savings generation.

Scenario 3 – savings

In the case of experiments with higher amounts, the results were significant, as the high amount resulted in more pronounced changes in the behaviour or decision-making of the individuals. The

same applies to the analysis of this scenario and savings. Individuals who have savings are 2.09 times (RR=2.0907; p=0.0000) more likely to be more patient than individuals without savings. In other words, individuals with savings are 4.49 times more likely (OR=4.4930; p=0.0000; Cramer's V=0.2493) to be more patient than individuals without savings.

Scenario 4 – savings

If we delay a large amount from 1 day to 1 month, then individuals with savings are 1.52 times (RR=1.5169; p=0.0000) more likely to be patient than individuals without savings. Individuals with savings are almost 3 times (OR=2.9035; p=0.0000; Cramer's V=0.2454) more likely to be more patient than individuals without savings.

The testing of the hypothesis is extended to the analysis of the relationship between the reserve and patience. The reserve means savings of at least three months of household expenditure. Achieving such reserves is more challenging, therefore the number of respondents with savings in the amount needed for the reserve is lower and hence the results have higher significance.

Scenario 1 – reserve

Individuals with a reserve are 1.83 times (RR=1.8335; p=0.0000) more likely to be more patient than individuals without a reserve. Individuals with a reserve are 2.77 times more likely (OR=2.7789; p=0.0000; Cramer's V = -0.2037) to be more patient than individuals without a reserve.

Scenario 2 – reserve

The result of the analysis of the second scenario is repeated, as in the case of savings. Again, the results are significant, and the table presents a heterogeneous distribution of values. Even in the case of reserves and postponing a small amount of money for a longer period of time (1 month), individuals with reserves are 1.39 times (RR=1.3878; p=0.0000) more likely to be patient than individuals without reserves. The chances of individuals with reserves being more patient are almost 2 times (OR=1.9372; p=0.0000) higher than in the case of individuals without reserves.

Scenario 3 – reserve

Again, the results are more significant and tangible in scenarios where a high amount (100,000 CZK) was used. Individuals with a reserve are 2.16 times (RR=2.1555; p=0.0000) more likely to be patient than individuals without a reserve. Individuals with a reserve are more than 3.3 times (OR=3.3607, p=0.0000; Cramer's V = -0.1824) more likely to be more patient than individuals without a reserve.

Scenario 4 – reserve

The experiment with a large amount and with a delay of 1 month shows significant differences. Individuals with a reserve are almost 2 times (RR=1.9321; p=0.0000) more likely to be more patient than individuals without a reserve. In other words, individuals with a reserve are 3.17 times more likely to be more patient (OR=3.1731; p=0.0000; Cramer's V = -0.2613) than individuals without a reserve.

The results of the analyses of patience for savings and reserves for three months of household expenditures demonstrate the validity of Hypothesis H2 on the sample of the respondents. As a result, if an individual is patient, they tend to save, while a slight increase in the intensity of patience in relation to higher savings (i.e. the amount of savings increases with increasing patience) may be inferred from examining both savings and reserves. Individuals with savings are approximately 1.7 times more likely to be more patient than individuals without savings, and

individuals with reserves are approximately 1.9 times more likely to demonstrate increased patience than individuals without reserves.

4.3 Hypothesis H3 – Impatience in Relation to Loans

Scenario 1 – loans

The association of patience (for small amount experiments) with respondents' loans was not demonstrated (p=0.225). The data in the table is homogeneous and individuals without loans were not statistically different from individuals with loans in their decision to accept the reward.

Scenario 2 – loans

The result for Scenario 2 is similar to Scenario 1. The difference in the decision to accept the reward today or with a delay of 1 month was not confirmed (p=0.532).

Scenario 3 – loans

Significant differences in individuals' decision making were found for larger amounts (CZK 100,000), although the relationship between the variables is very weak. Individuals who do not have loans are 1.61 times (RR=1.6049; p=0.0146) more likely to be more patient than individuals who have loans. Individuals without loans are twice (OR=1.9923; p=0.0146; Cramer's V=0.1005) more likely to be more patient than individuals with loans.

Scenario 4 – loans

The most significant relationship between loans and patience is obvious in Scenario 4. Individuals without loans are 1.54 times (RR=1.5383; p=0.0005) more likely to be patient than individuals with loans. The chances of demonstrating increased patience are almost twice as high (OR=1.9295; p=0.0005; Cramer's V=0.1443) for individuals without loans than for individuals with loans.

Hypothesis H3 was confirmed in only two of the four scenarios, namely in the experiments with higher amounts (CZK 100,000/110,000). Thus, on the sample of the examined respondents, it was confirmed that individuals without loans are more likely (approximately 1.6 times) to be more patient than individuals with loans.

5 Discussion

Intuitively, it may be assumed that patience (or impatience) plays a key role in family financial decision-making. This assumption was confirmed by these analyses. The results indicate that individuals' patience leads to more frequent savings and lower frequencies of debt. Impatience/patience serves as an important determinant of family financial management.

The following calculations of the proportion of more and less patient individuals could be derived for both small and large amounts (for savings and reserves). For loans, there were significant differences only for the large amount. The hypotheses set out in this paper were confirmed on the sample of the examined respondents.

The following tables show the bands for subjective discount rates and the different representation of individuals in these bands. Table 2 shows only the results of those experimental and control groups that were significant for the small amount (CZK 100) scenarios.

Tab 2: The share of various subjective discount rates (ρ) in the analysed groups (a small reward CZK 100)

Groups	ρ < 120%	120% < ρ < 3600%	ρ > 3600%	Total
YES savings	37.34%	46.51%	16.15%	100%
No savings	28.30%	36.19%	35.51%	100%
	(p=0.0302)		(p=0.0000)	
YES Financial reserve	41.75%	44.21%	14.04%	100%
NO Financial reserve	27.01%	41.78%	31.21%	100%
	(p=0.0000)		(p=0.0000)	

Source: own calculations, SPSS 16

Table 3 presents the resulting frequencies of individuals in the different bands of the subjective discount rate analysed at the large amount (CZK 100,000).

Tab 3: The share of various subjective discount rates (ρ) in the analysed groups (a large reward CZK 100.000)

Groups	ρ < 120%	120% < ρ < 3600%	ρ > 3600%	Total
YES savings	74.74%	18.75%	6.51%	100%
No savings	50.47 %	25.70 %	23.83 %	100%
	(p=0.0000)		(p=0.0000)	
YES Financial reserve	78.95 %	14.73 %	6.32%	100%
NO Financial reserve	54.17 %	27.36 %	18.47%	100%
	(p=0.0000)		(p=0.0000)	
YES Loans	60.86 %	24.13 %	15.01%	100%
NO Loans	75.00 %	16.86 %	8.14%	100%
	(p=0.0005)		(p=0.0146)	

Source: own calculations, SPSS 16

Among the groups tested, the results in Table 3 show greater differences than those in Table 2. This confirms that individuals discount small amounts differently from large amounts.

6 Conclusion

The paper aimed to derive the RR and OR for different experimental groups in relation to savings or impatience. The most significant conclusions include the following. Firstly, the representation of more impatient individuals with savings or reserves (~15%) is twice (savings: RR = 1.5581, OR = 2.8602, p = 0.000; reserves: RR = 1.8335; OR = 2.7789; p = 0.000) as low compared to individuals without savings/reserves (~33%). This applies to the experiment with a small amount of CZK 100 and one-day delay. Moreover, the representation of more impatient individuals with savings or reserves (~6.5%) is 3 times (savings: RR = 2.0907, OR = 4,4930, p = 0.0000; reserve: RR = 2.1555, OR = 3.3607, p = 0,0000) lower than for individuals without savings/reserves (~21%). This applies to the experiment with a large amount of CZK 100,000 and one-day delay.

Lastly, the representation of more impatient individuals without loans (~8%) is almost twice (loans: RR = 1.6049, OR = 1.9923, p = 0.0146) as low compared to individuals with credit (~15%). This applies to the experiment with a large amount of CZK 100,000 and one-day delay. The higher the income of individuals, the more likely they are to have savings or reserves.

The results of the analyses indicated that the level of impatience differs for small and large amounts and that it is crucial for the financial health of family budgets. The results therefore have an overlap with the issue of poverty and its origins.

Based on the analyses, it was confirmed that extremely low-income group does not have savings more often. It showed that the lower their income, the less often they have savings (savings: p = 0.0000, Cramer's V = 0,5011; reserve: p = 0.0000, Cramer's V = 0.4089).

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The paper publishes several selected results of doctoral thesis of author: Rotschedl (2022)

Attachment

Tab. 4: Results, hypothesis H2, scenario 1 – savings

Saving	+1 DAY	TODAY	Total
YES	322	62	384
	295.4	88.6	384.0
	83.85 %	16.15 %	100.00 %
NO	138	76	214
	164.6	49.4	214.0
	64.49 %	35.51 %	100.00 %
Total	460	138	598
	460.0	138.0	598.0
	76.92 %	23.08 %	100.00 %

Pearson chi2(1) = 29.0394 Pr = 0.000
likelihood-ratio chi2(1) = 28.1223 Pr = 0.000
Cramér's V = 0.2204
1-sided Fisher's exact P = 0.0000
2-sided Fisher's exact P = 0.0000

	Point estimate	[95% Conf.	Interval]	
Risk difference	.2507246	.1577663	.343683	
Risk ratio	**1.558065**	1.283096	1.891959	
Attr. frac. ex.	.3581781	.2206352	.4714473	
Attr. frac. pop	.3003472			
Odds ratio	**2.860215**	1.93814	4.221033	(Cornfield)

Source: own calculations, SPSS 16

Tab 5: Results, hypothesis H2, scenario 2 – savings

Savings	+1 MONTH	TODAY	Total

YES	143	240	383
	130.7	252.3	383.0
	37.34	62.66 %	100.00
NO	60	152	212
	72.3	139.7	212.0
	28.30	71.70 %	100.00
Total	203	392	595
	203.0	392.0	595.0
	34.12	65.88 %	100.00

Pearson chi2(1) = 4.9559 Pr = 0.026
likelihood-ratio chi2(1) = 5.0311 Pr = 0.025
Cramér's V = 0.0913
1-sided Fisher's exact P = 0.0159
2-sided Fisher's exact P = 0.0302

	Point estimate	[95% Conf.	Interval]	
Risk difference	.0921886	.0130278	.1713494	
Risk ratio	**1.150575**	1.021552	1.295893	
Attr. frac. ex.	.1308691	.0210974	.2283313	
Attr. frac. pop	.0488624			
Odds ratio	**1.509444**	1.050231	2.169214	(Cornfield)

Source: own calculations, SPSS 16

Tab 6: Results, hypothesis H2, scenario 3 – savings

Savings	+1 DAY	TODAY	Total
YES	359	25	384
	335.2	48.8	384.0
	93.49 %	6.51 %	100.00 %
NO	163	51	214
	186.8	27.2	214.0
	76.17 %	23.83 %	100.00 %
Total	522	76	598
	522.0	76.0	598.0
	87.29 %	12.71 %	100.00 %

Pearson chi2(1) = 37.1643 Pr = 0.000
likelihood-ratio chi2(1) = 35.5049 Pr = 0.000
Cramér's V = 0.2493
1-sided Fisher's exact P = 0.0000
2-sided Fisher's exact P = 0.0000

	Point estimate	[95% Conf.	Interval]

	Point estimate	[95% Conf.	Interval]	
Risk difference	.3587921	.2459299	.4716542	
Risk ratio	**2.090728**	1.508686	2.897318	
Attr. frac. ex.	.5216977	.3371716	.6548532	
Attr. frac. pop	.487733			
Odds ratio	**4.493006**	2.699516	7.47568	(Cornfield)

Source: own calculations, SPSS 16

Tab 7: Results, hypothesis H2, scenario 4 – savings

Savings	+1 MONTH	TODAY	Total
YES	287	97	384
	253.9	130.1	384.0
	74.74 %	25.26 %	100.00 %
NO	107	105	212
	140.1	71.9	212.0
	50.47 %	49.53 %	100.00 %
Total	394	202	596
	394.0	202.0	596.0
	66.11 %	33.89 %	100.00 %
Risk	.7284264	.480198	.6442953

	Point estimate	[95% Conf.	Interval]	
Risk difference	.2482284	.1665243	.3299325	
Risk ratio	**1.516929**	1.298304	1.77237	
Attr. frac. ex.	.3407735	.2297642	.4357836	
Attr. frac. pop	.2546927			
Odds ratio	**2.903459**	2.038578	4.135397	(Cornfield)

Pearson chi2(1) = 35.9029 Pr = 0.000
likelihood-ratio chi2(1) = 35.3299 Pr = 0.000
Cramér's V = 0.2454
1-sided Fisher's exact P = 0.0000
2-sided Fisher's exact P = 0.0000

Source: own calculations, SPSS 16

Tab 8: Results, hypothesis H2, scenario 1 – finance reserve

Reserve	+1 DAY	TODAY	Total
YES	245	40	285
	219.3	65.7	285.0
	85.96 %	14.04 %	100.00 %
NO	216	98	314
	241.7	72.3	314.0

	68.79 %	31.21 %	100.00 %
Total	461	138	599
	461.0	138.0	599.0
	76.96 %	23.04 %	100.00 %

Pearson chi2(1) = 24.8554 Pr = 0.000
likelihood-ratio chi2(1) = 25.5715 Pr = 0.000
Cramér's V = -0.2037
1-sided Fisher's exact P = 0.0000
2-sided Fisher's exact P = 0.0000

	Point estimate	[95% Conf.	Interval]	
Risk difference	.2415983	.1532532	.3299434	
Risk ratio	**1.833514**	1.392885	2.413532	
Attr. frac. ex.	.4545992	.2820659	.5856695	
Attr. frac. pop	.3907958			
Odds ratio	**2.778935**	1.845752	4.183127	(Cornfield)

Source: own calculations, SPSS 16

Tab 9: Results, hypothesis H2, scenario 2 – finance reserve

Reserve	+1 MONTH	TODAY	Total
YES	119	166	285
	97.1	187.9	285.0
	41.75 %	58.25 %	100.00 %
NO	84	227	311
	105.9	205.1	311.0
	27.01 %	72.99 %	100.00 %
Total	203	393	596
	203.0	393.0	596.0
	34.06 %	65.94 %	100.00 %

Pearson chi2(1) = 14.3958 Pr = 0.000
likelihood-ratio chi2(1) = 14.4367 Pr = 0.000
Cramér's V = -0.1554
1-sided Fisher's exact P = 0.0001
2-sided Fisher's exact P = 0.0002

	Point estimate	[95% Conf.	Interval]	
Risk difference	.163815	.0802984	.2473317	
Risk ratio	**1.387827**	1.178525	1.634301	
Attr. frac. ex.	.2794492	.1514816	.3881176	
Attr. frac. pop	.1166823			
Odds ratio	**1.937249**	1.374645	2.730069	(Cornfield)


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Source: own calculations, SPSS 16

Tab 10: Results, hypothesis H2, scenario 3 – finance reserve

Reserve	+1 DAY	TODAY	Total
YES	267	18	285
	248.8	36.2	285.0
	93.68 %	6.32 %	100.00 %
NO	256	58	314
	274.2	39.8	314.0
	81.53 %	18.47 %	100.00 %
Total	523	76	599
	523.0	76.0	599.0
	87.31 %	12.69 %	100.00 %

```
         Pearson chi2(1) =  19.9267   Pr = 0.000
likelihood-ratio chi2(1) =  20.9785   Pr = 0.000
              Cramér's V =  -0.1824
1-sided Fisher's exact P =   0.0000
2-sided Fisher's exact P =   0.0000
```

	Point estimate	[95% Conf.	Interval]	
Risk difference	.2736741	.1689295	.3784188	
Risk ratio	**2.155513**	1.427359	3.255129	
Attr. frac. ex.	.5360733	.2994053	.6927925	
Attr. frac. pop	.5022161			
Odds ratio	**3.360677**	1.937739	5.825288	(Cornfield)

Source: own calculations, SPSS 16

Tab 11: Results, hypothesis H2, scenario 4 – finance reserve

Reserve	+1 MONTH	TODAY	Total
YES	225	60	285
	188.1	96.9	285.0
	78.95 %	21.05 %	100.00 %
NO	169	143	312
	205.9	106.1	312.0
	54.17 %	45.83 %	100.00 %
Total	394	203	597
	394.0	203.0	597.0
	66.00 %	34.00 %	100.00 %

```
         Pearson chi2(1) =  40.7576   Pr = 0.000
```

```
likelihood-ratio chi2(1) =  41.7159   Pr = 0.000
            Cramér's V =  -0.2613
1-sided Fisher's exact P =   0.0000
2-sided Fisher's exact P =   0.0000

                |      Point estimate    |    [95% Conf. Interval]
                |------------------------+------------------------
Risk difference |         .2754995       |    .1959493    .3550496
     Risk ratio |         1.932107       |    1.536716    2.429229
Attr. frac. ex. |         .4824302       |    .3492617    .5883468
Attr. frac. pop |          .380866       |
     Odds ratio |         3.173077       |    2.212093    4.551175 (Cornfield)
                +-------------------------------------------------
```

Source: own calculations, SPSS 16

Tab 12: Results, hypothesis H3, scenario 1 - loans

```
 Loans          |    +1 DAY       TODAY  |     Total
 ---------------+------------------------+----------
             NO |       177          44  |       221
                |     170.8        50.2  |     221.0
                |     80.09 %    19.91 %  |    100.00 %
     ----------+--------------------------+----------
            YES |       282          91  |       373
                |     288.2        84.8  |     373.0
                |     75.60 %    24.40 %  |    100.00 %
     ----------+--------------------------+----------
          Total |       459         135  |       594
                |     459.0       135.0  |     594.0
                |     77.27 %    22.73 %  |    100.00 %
         Pearson chi2(1) =   1.5911   Pr = 0.207
likelihood-ratio chi2(1) =   1.6126   Pr = 0.204
              Cramér's V =   0.0518
           Fisher's exact =   0.225
```

Source: own calculations, SPSS 16

Tab 13: Results, hypothesis H3, scenario 2 - loans

```
 Loans          |  +1 MONTH       TODAY  |     Total
 ---------------+------------------------+----------
             NO |        79         141  |       220
                |      75.4       144.6  |     220.0
                |     35.91 %    64.09 %  |    100.00 %
     ----------+--------------------------+----------
            YES |       124         248  |       372
                |     127.6       244.4  |     372.0
                |     33.33 %    66.67 %  |    100.00 %
     ----------+--------------------------+----------
          Total |       203         389  |       592
                |     203.0       389.0  |     592.0
                |     34.29 %    65.71 %  |    100.00 %
         Pearson chi2(1) =   0.4071   Pr = 0.523
```


likelihood-ratio chi2(1) = 0.4059 Pr = 0.524
Cramér's V = 0.0262
Fisher's exact = 0.532

Source: own calculations, SPSS 16

Tab 14: Results, hypothesis H3, scenario 3 - loans

Loans	+1 DAY	TODAY	Total
NO	203	18	221
	193.5	27.5	221.0
	91.86 %	8.14 %	100.00 %
YES	317	56	373
	326.5	46.5	373.0
	84.99 %	15.01 %	100.00 %
Total	520	74	594
	520.0	74.0	594.0
	87.54 %	12.46 %	100.00 %

Pearson chi2(1) = 6.0033 Pr = 0.014
likelihood-ratio chi2(1) = 6.3417 Pr = 0.012
Cramér's V = 0.1005
1-sided Fisher's exact P = 0.0089
2-sided Fisher's exact P = 0.0146

	Point estimate	[95% Conf.	Interval]	
Risk difference	.1471414	.0407752	.2535076	
Risk ratio	**1.604915**	1.058752	2.432817	
Attr. frac. ex.	.3769139	.0554921	.5889539	
Attr. frac. pop	.346215			
Odds ratio	**1.992289**	1.144672	3.465508	(Cornfield)

Source: own calculations, SPSS 16

Tab 15: Results, hypothesis H3, scenario 4 - loans

LOANS	+1 MONTH	TODAY	Total
NO	165	55	220
	145.4	74.6	220.0
	75.00 %	25.00 %	100.00 %
YES	227	146	373
	246.6	126.4	373.0
	60.86 %	39.14 %	100.00 %
Total	392	201	593
	392.0	201.0	593.0
	66.10 %	33.90 %	100.00 %


```
         Pearson chi2(1) =  12.3518   Pr = 0.000
likelihood-ratio chi2(1) =  12.6582   Pr = 0.000
              Cramér's V =   0.1443
1-sided Fisher's exact P =   0.0003
2-sided Fisher's exact P =   0.0005
                |      Point estimate    |    [95% Conf. Interval]
                |------------------------+------------------------
Risk difference |          .1472865      |     .0686276    .2259454
     Risk ratio |          1.538265      |     1.193928    1.981912
Attr. frac. ex. |          .3499171      |     .1624286    .4954367
Attr. frac. pop |          .2624378      |
     Odds ratio |          1.929515      |     1.334957    2.788533 (Cornfield)
                +-------------------------------------------------
```

Source: own calculations, SPSS 16

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