Borrowing in Foreign Currency: Austrian Households as Carry Traders

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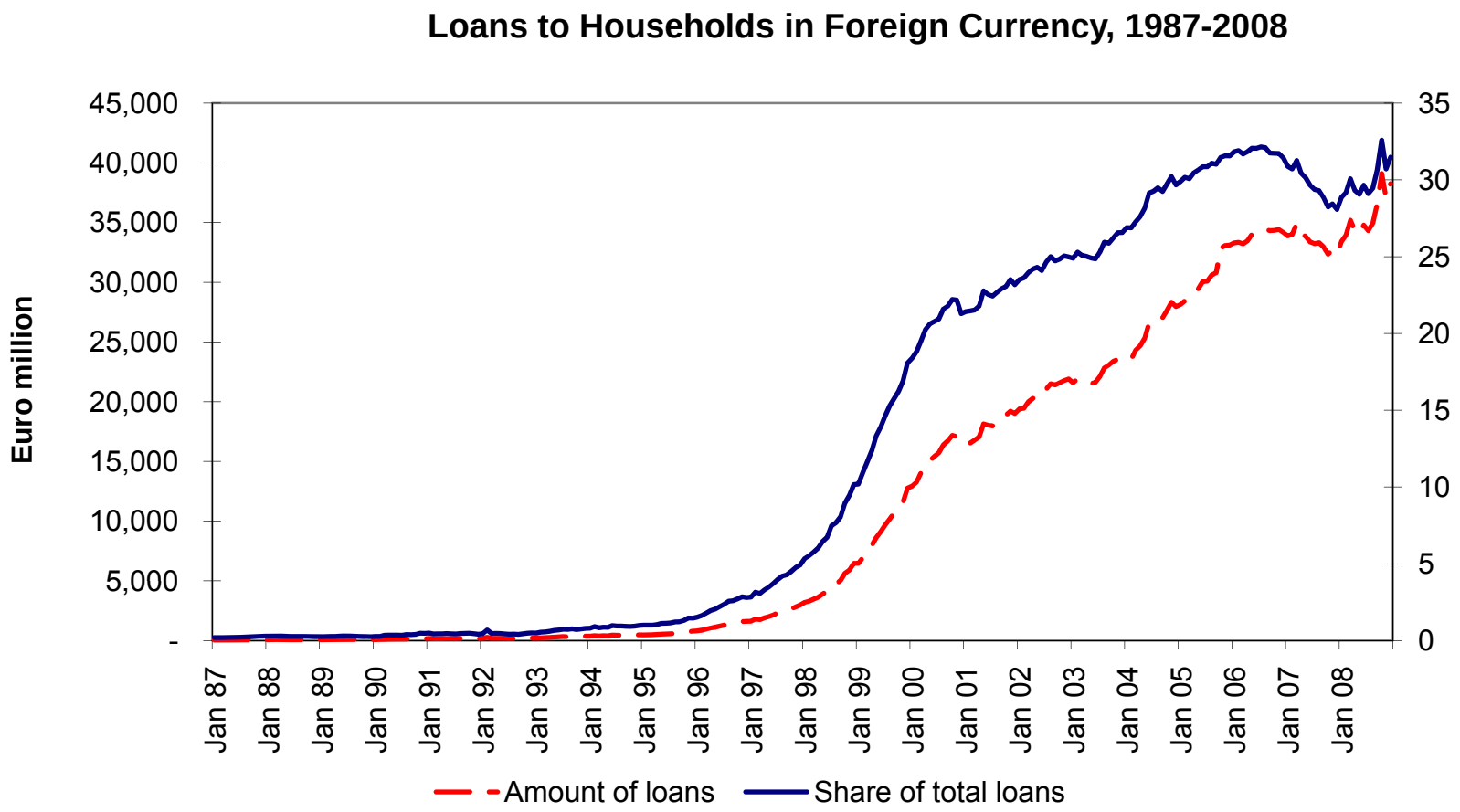
Introduction

- Household borrowing in foreign currency is a widespread phenomenon in Austria.
- Up to now, we know very little about the attitudes and characteristics of the household carry traders.
- The paper aims to fill the gap by analysing survey data to determine how financially educated, risk averse, and wealthy the household carry traders are.

Growth of Foreign Currency Loans



The „Average“ Foreign Currency Loan

- Predominantly used for purchasing real estate
- Variable interest rate
- Balloon loan
- Customer: Option to switch to another currency
- Bank: Forced conversion option

Supply and Demand

- Supply:
  - Banks claim that the market is very demand driven
  - Independent financial advisers market foreign currency loans
- Demand:
  - Interest rate
  - Repayment vehicle
  - Fees

Survey Data

- Survey commissioned by the OeNB; conducted in summer 2004
- Survey contains questions about:
  - Households‘ socio-demographic characteristics
  - Types, amounts, and sources of asset and debt holdings
  - Information sources about financial market topics
  - Attitudes towards and knowledge of financial market issues
- Interview partner: household head or the household member with the most accurate knowledge about the household’s finances
- Analyzable data sets for 2,556 households collected

Dependent Variable

- Our dependent variable y_i is the choice by household *i* of one of the following loan categories:

y_i = 1: No loan	1,622 households
y_i = 2: Housing loan in EUR	655 households
y_i = 3: Housing loan in FX	89 households
y_i = 4: Other loan	333 households

Multinominal Logit Model

- We opt for the multinomial logit model because
  - The categories of the dependent variable cannot be ordered in any meaningful way
  - The explanatory variables comprise only household characteristics, no variables specific to the option being chosen
- For household *i*, the choice model for the loan category is written as

$$\Pr(y_i = j) = p_j = \frac{\exp(X_i \beta_j)}{\sum_{k=1}^{4} \exp(X_i \beta_k)}, \text{ for } j = 1,\ldots,4 .$$

Subjective Explanatory Variables

- Financial education
  - d(Indifferent)
  - d(Ignorant)
  - d(Negligent)
  - d(Passive)
- Risk aversion
  - d(Risk aversion)
  - d(Bank risk aversion)
  - d(Stock risk aversion)

Objective Explanatory Variables

- Distance to Swiss border
- Log of monthly income
- Log of financial wealth
- d(Top wealth class)
- Age and age squared
- Marital status
- Number of adults
- Number of children
- Occupation (civil servant, self-employed)
- Education

Univeriate Tests

Mean	All house-holds	Loan	No loan	Δ	Housing loan	Other loan	Δ	Housing loan in EUR	Housing loan in FX	Δ
d(Indifferent)	0.382	0.321	0.420	-0.099 ***	0.298	0.369	-0.071 **	0.297	0.259	0.038
d(Ignorant)	0.559	0.533	0.575	-0.043 **	0.533	0.552	-0.019	0.543	0.429	0.114 **
d(Negligent)	0.724	0.733	0.718	0.015	0.729	0.754	-0.025	0.740	0.618	0.122 **
d(Passive)	0.514	0.462	0.548	-0.086 ***	0.470	0.469	0.001	0.481	0.446	0.035
d(Risk Aversion)	0.820	0.788	0.841	-0.053 ***	0.803	0.757	0.046 *	0.812	0.702	0.110 **
d(Bank Risk Aversion)	0.778	0.736	0.805	-0.069 ***	0.750	0.688	0.062 **	0.754	0.698	0.056
d(Stock Risk Aversion)	0.829	0.809	0.841	-0.033 **	0.794	0.862	-0.068 ***	0.799	0.737	0.062
Distance to Swiss Border	4.114	4.025	4.171	-0.147 ***	3.915	4.283	-0.368 ***	3.941	3.186	0.755 ***
Income	2,470	2,793	2,265	528 ***	2,862	2,682	180 **	2,834	3,377	-543 ***
Wealth	54,666	51,841	56,461	-4,620	57,820	32,726	25,094 ***	55,448	75,126	-19,678
d(Top Wealth Class)	0.050	0.033	0.061	-0.027 ***	0.038	0.014	0.024 **	0.027	0.124	-0.097 ***
Age	50.7	44.9	54.3	-9.380 ***	45.2	44.4	0.799	45.5	40.9	4.603 ***
d(Married)	0.595	0.685	0.538	0.147 ***	0.713	0.640	0.073 **	0.700	0.895	-0.196 ***
Number of Children	0.412	0.611	0.286	0.325 ***	0.671	0.443	0.228 ***	0.663	0.973	-0.310 ***
Number of Adults	2.008	2.273	1.840	0.434 ***	2.326	2.190	0.135 *	2.321	2.370	-0.049
d(Civil Servant)	0.233	0.314	0.182	0.132 ***	0.314	0.312	0.002	0.312	0.366	-0.055
d(Self-Employed)	0.108	0.123	0.098	0.025 **	0.116	0.142	-0.026	0.110	0.192	-0.082 **
Education	1.988	2.045	1.952	0.093 ***	2.057	2.005	0.052 *	2.045	2.136	-0.091 **

Multivariate Tests

	Mlogit 1				Mlogit 2			
Dependent Variable	No Loan	Other Loan	Housing Loan in EUR	Housing Loan in FX	No Loan	Other Loan	Housing Loan in EUR	Housing Loan in FX
d(Indifferent)	9.44***	-1.48	-7.83***	-0.12	9.08***	-1.40	-7.52***	-0.16
d(Ignorant)	-2.06	0.37	1.71	-0.01				
d(Negligent)	-0.73	-0.21	1.08	-0.13				
d(Passive)	-0.07	-0.06	0.36	-0.24				
d(Risk Aversion)	5.07*	-3.30**	-0.91	-0.86**	5.72**	-3.47**	-1.20	-1.05**
d(Bank Risk Aversion)	6.05**	-3.00**	-2.62	-0.43*				
d(Stock Risk Aversion)	3.20	0.61	-3.53	-0.27				
Distance to Swiss Border	2.39***	0.92*	-2.92***	-0.40***	2.21**	1.00*	-2.81***	-0.40***
Log(Income)	-15.87***	4.72***	10.66***	0.50**	-15.96***	4.79***	10.62***	0.54***
Log(Wealth)	6.09***	-4.19***	-1.99***	0.09	6.27***	-4.29***	-2.08***	0.10
Age	-3.12***	1.27***	1.75***	0.10	-3.11***	1.29***	1.73***	0.10
Age^2	0.04***	-0.02***	-0.02***	0.00**	0.04***	-0.02***	-0.02***	0.00**
d(Married)	1.10	1.12	-3.00	0.79**	1.25	1.10	-3.15	0.80**
Number of Children	-2.76**	-0.80	3.43***	0.14	-2.72**	-0.80	3.40***	0.12
Number of Adults	-3.31**	0.39	2.98***	-0.07	-3.31**	0.40	2.99***	-0.09
d(Civil Servant)	0.94	-0.17	-0.73	-0.04	1.10	-0.27	-0.78	-0.05
d(Self-Employed)	4.41	-0.11	-4.65*	0.34	4.10	-0.13	-4.42*	0.45
Education	-1.74	0.73	0.85	0.16	-1.45	0.62	0.66	0.17
Log Likelihood	-2,250				-2,260			
Wald Chi2	483***				474***			
Pseudo R2	0.13				0.13			
Number of observations	2,688				2,688			

Caveats

- Data do not allow us to disentangle demand and supply effects
- The multivariate model is a simple reduced form
- Information on credit-rationing is not available
- We do not have any information on the loan
- Characteristics of the household may have changed since loan was obtained

Conclusions

- 12% of all Austrian households reporting a housing loan have borrowed in foreign currency
- Risk-loving, married, high-income households are more likely to take a housing loan in foreign currency
- Findings may partially assuage potential policy concerns about household default risk
- But risks to financial stability remain:
  - Current situation in financial markets may have drastically reduced the value of the repayment vehicle
  - Appreciation of the CHF has increased debt service burden