

Financial Constraints and Household Heterogeneity in the Macroeconomy

Master Thesis Presented to the
Department of Economics at the
Rheinische Friedrich-Wilhelms-Universität Bonn

In Partial Fulfillment of the Requirements for the Degree of
Master of Science (M.Sc.)

Supervisors: Prof. Dr. Keith Kuester
Dr. Gregor Böhl

Date of Submission: 24th August 2023
Author: Andreas Koundouros
Matriculation Number: 3466868

Master Thesis Research Idea

Financial Constraints and Household Heterogeneity in the Macroeconomy

My aim is to study the dynamic implications of a tightening of the household-level borrowing constraint in a macroeconomic model with heterogeneous agents (HA). My work follows and extends the analysis by Guerrieri and Lorenzoni (2017), who consider a permanently tighter borrowing limit in a model without an aggregate state space. My extension would thus pertain to adding a medium-scale New Keynesian (NK) structure to their model. In doing so, I aim to include some form of aggregate financial frictions, potentially along the lines of the recent work by Chiang and Zoch (2022).

Having obtained a full HANK model, I will investigate the non-linear transition dynamics from an initial steady state to a state of permanently tighter credit and thus shed light on aggregate and household-level consequences of such a structural change.

The model and its dynamics will be solved using the Python package Econpizza by Boehl (2023) and the methods therein.

To-Do's

- read literature
- think about the relevance of the model (might it be a good idea to have some data as exposition in the thesis?)

Table of Contents

1	Introduction	1
2	Related Literature	1
3	Model	1
4	Implementation and Calibration	1
5	Results	1
6	Conclusion	1
	References	I
	Appendices	i
A	Description of Computer Codes	i

List of Figures

List of Tables

List of Abbreviations

HA	Heterogeneous Agent
HANK	Heterogeneous Agent New Keynesian
NK	New Keynesian

Abstract

Abstract goes here.

1 Introduction

Households face limits to borrowing. This almost trivial observation has a plethora of implications not only for households themselves but also for the aggregate economy.

Outline

The remainder of this thesis is structured as follows. Section 2 reviews the related literature. Section 3 lays down the macroeconomic model, the numerical implementation and calibration of which is discussed in section 4. Thereafter, section 5 presents the results and section 6 concludes.

2 Related Literature

The work that is most closely related to the present one is Guerrieri and Lorenzoni (2017). The authors, building on the working paper version, take a household-centered approach to study the transitional effects of an unexpected and permanent tightening in the household-level borrowing limit.

3 Model

4 Implementation and Calibration

5 Results

6 Conclusion

References

Boehl, G. (2023). Robust Nonlinear Transition Dynamics in HANK. Retrieved 20th April 2023, from https://gregorboehl.com/live/hank_speed_boehl.pdf.

(Cited on page 1)

Chiang, Y.-T. & Zoch, P. (2022). *Asset Supply and Liquidity Transformation in HANK* (Working Paper No. 2022-038). St. Louis Fed. Retrieved 20th April 2023, from <https://research.stlouisfed.org/wp/more/2022-038>.

(Cited on page 1)

Guerrieri, V. & Lorenzoni, G. (2017). Credit Crises, Precautionary Savings, and the Liquidity Trap. *The Quarterly Journal of Economics*, 132(3), 1427–1467. <https://doi.org/https://doi.org/10.1093/qje/qjx005>.

(Cited on page 1)

Appendices

A Description of Computer Codes

Statement of Authorship

I hereby confirm that the work presented has been performed and interpreted solely by myself except for where I explicitly identified the contrary. I assure that this work has not been presented in any other form for the fulfillment of any other degree or qualification. Ideas taken from other works in letter and in spirit are identified in every single case.

Andreas Koundouros

Bonn, the 24th August 2023