



Frank Hespeler (Autor)


## **Electronic Money and the Monetary Transmission Process**

Frank Hespeler

---

### **Electronic Money and the Monetary Transmission Process**

---

 Cuvillier Verlag Göttingen

<https://cuvillier.de/de/shop/publications/1299>

Copyright:

Cuvillier Verlag, Inhaberin Annette Jentsch-Cuvillier, Nonnenstieg 8, 37075 Göttingen,  
Germany

Telefon: +49 (0)551 54724-0, E-Mail: [info@cuvillier.de](mailto:info@cuvillier.de), Website: <https://cuvillier.de>

# Contents

List of Figures	IX
List of Tables	XI
Acronyms and Abbreviations	XIII
Mathematical Notation	XVII
List of Variables used in Chapter 4	XIX
List of Variables used in Chapter 4.1 . . . . .	XIX
List of Variables used in Chapter 4.2 . . . . .	XX
List of Variables used in Chapter 4.3 . . . . .	XX
List of Variables used in Chapter 4.4 . . . . .	XXI
List of Variables used in Chapter 6	XXII
<b>1 Introduction</b>	<b>1</b>
<b>2 Electronic Money</b>	<b>3</b>
2.1 The History of Electronic Money . . . . .	3
2.2 Electronic Money . . . . .	4
2.3 Electronic Money and its Components . . . . .	5
2.4 Subsumption into the Payments System . . . . .	7

2.5	Separation from Financial Products . . . . .	10
<b>3</b>	<b>Economic Characteristics of Electronic Money</b>	<b>13</b>
3.1	Transaction Costs . . . . .	13
3.1.1	Transaction Costs for the Payor . . . . .	15
3.1.2	Transaction Costs from the Perspective of the Issuer . . . . .	22
3.1.3	Transaction Costs in the Payee's Point of View . . . . .	27
3.1.4	Aggregate Transaction Costs . . . . .	33
3.2	Electronic Money as Regulated Payment Media . . . . .	35
3.2.1	Regulation and Costs . . . . .	35
3.2.2	Survey of the Regulation with respect to the Payments System . . .	38
3.2.3	Regulation Costs . . . . .	45
3.3	Reconsidering Total Transaction Costs . . . . .	49
<b>4</b>	<b>Transaction Costs in Partial Equilibrium Models</b>	<b>51</b>
4.1	Demand for Payment Instruments and Transaction Costs . . . . .	51
4.2	Transaction Costs and the Payee-Payor Relation . . . . .	60
4.3	Price Setting of Issuers . . . . .	65
4.4	Model of the Market for Payment Instruments . . . . .	70
4.5	Transaction Costs and Payment Instruments in General Equilibrium . . . .	75
4.6	The Consequences of Lower Transaction Costs: Brief Summary . . . . .	77
<b>5</b>	<b>Theories of the Monetary Transmission</b>	<b>79</b>
5.1	Static Demand-side Mechanisms . . . . .	80
5.2	Static Supply-side Mechanisms . . . . .	88
5.3	Dynamic Transmission Mechanisms in General . . . . .	92
5.4	Dynamic Demand-side Mechanisms . . . . .	94

5.5	Dynamic Supply-side Mechanisms . . . . .	99
5.6	Transmission Channels and Transaction Costs: Summarizing the Results .	103
<b>6</b>	<b>Variations in Transaction Costs and the Monetary Transmission Mechanism</b>	<b>105</b>
6.1	Structure of the Economy . . . . .	106
6.2	Households . . . . .	107
6.2.1	Expenditure Minimization . . . . .	108
6.2.2	The Intertemporal Maximization Problem . . . . .	113
6.3	Firms . . . . .	119
6.3.1	Optimal Corporate Debt Contracts . . . . .	121
6.3.2	The Optimization of Consumption Good Producers . . . . .	122
6.3.3	Optimization of Payment Media Issuers . . . . .	131
6.3.3.1	Intertemporal Optimization . . . . .	132
6.4	Market Clearing Conditions . . . . .	135
6.5	Inflation Dynamics . . . . .	137
6.6	Linearizing the Household Side of the Model . . . . .	140
6.7	Linearizing Market Equilibrium Conditions . . . . .	143
6.8	The Central Bank . . . . .	144
6.9	Exploring and Calibrating Steady States . . . . .	150
6.10	Simulation Results . . . . .	154
6.10.1	Transmission Mechanism of Monetary Shocks . . . . .	155
6.10.2	Persistent Productivity Shocks on the Payment Services Sector . . .	159
6.10.3	Robustness . . . . .	161
6.11	Discussion of Results . . . . .	163
<b>7</b>	<b>Discussion</b>	<b>167</b>

## VIII

7.1	Connecting the Results to the Literature . . . . .	167
7.2	Consequences for Monetary Policy Implementation . . . . .	173
<b>8</b>	<b>Conclusions</b>	<b>177</b>
<b>A</b>	<b>Addendum to Chapter 4</b>	<b>181</b>
A.1	Optimality Condition to Sect. 4.1. . . . .	181
A.2	Optimality Conditions to Sect. 4.2. . . . .	185
A.3	Optimality Conditions to Sect. 4.3 . . . . .	190
A.4	Optimality Conditions to Ch. 4.4. . . . .	192
A.5	Proof of Claims in Chapter 4.5 . . . . .	194
<b>B</b>	<b>Addendum to Chapter 6</b>	<b>201</b>
B.1	Households' Optimality Conditions in Ch. 6 . . . . .	201
B.2	Coefficients in Producers' First Order Conditions . . . . .	203
B.3	Derivation of the Welfare Loss Approximation . . . . .	205
B.4	Derivation of Steady State Relationships . . . . .	213
B.5	Solution for the Parameters within the Firm Solution . . . . .	217
B.6	Simulation Results corresponding to Robustness Checks . . . . .	219
<b>C</b>	<b>German Summary</b>	<b>223</b>
	<b>Bibliography</b>	<b>233</b>