THE ESSENTIALS OF MONEY AND BANKING

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for Christa and Martina,
and in Memory of Eva, Dora, and John

PREFACE

Bismarck is said to have once remarked that if he knew he were going to die he would remove himself to Mecklenburg—because everything happened fifty years later in Mecklenburg. The introduction of "received" economic analysis in introductory textbooks often has something in common with events in Mecklenburg. In the case of money and banking textbooks, the lag has been especially acute and, to some extent, this book is designed to fill this gap.

Product differentiation is the backbone of toothpaste, diet drinks, and economy car markets. It is also a characteristic of new books dealing with money, banking, and economic policy. *The Essentials of Money and Banking* is no exception and, like numerous other entries, it is designed as a textbook for use in undergraduate courses in money and banking, monetary theory, and monetary policy. All of the traditional topics of money and banking courses are covered here, but a number of novel and (we hope) useful and innovative features are included as well.

The principal novelty and main feature of this text is the integration of modern concepts of monetary, macroeconomic, and inflation theory with the institutions of money and banking so as to produce an orderly and sound view of contemporary economic policy. This integrative approach is accomplished in five parts. Part I (Chapters 2 and 3) is a general introduction to the study of money and its basic functions. Economic policy and policy-making institutions have no meaning without the organizing force of economic theory. Thus the core of a very contemporary approach to macroeconomic and monetary theory is presented as Part II (Chapters 5 through 8). The cumbersome *IS-LM* construction of total expenditures and macroeconomic equilibrium is not used here. Rather, a more modern and useful variant of the "liquidity preference" approach to total expenditures is developed, with an alternative "loanable funds" structure presented in an Appendix to Chapter 5. Inflation is treated as an integral part of monetary economics in a theoretical presentation rather than an issue that is "tacked on" to the structure as it is in so many other texts. Inflation is identified not with simple increases in the price level in our conception, but with a persistent and continuous process of *rising* prices. (Our approach eliminates the necessity of requiring "outside" readings in order to deal with the matter of inflation.) In spite of these differences, the total theoretical package that we present is no more formidable than the typical fare served up to the average undergraduate reader. In our approach, moreover, students are rewarded with mastery of a useful synthesis of Keynesian and post-Keynesian

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developments in macro and monetary theory *in which inflation plays a major role*.

Parts III and IV are devoted to the mechanisms, institutions, and instruments of the banking and financial systems. In Chapters 9, 10, and 11, the commercial and central banking systems and their functions in macropolicymaking are examined. A simple money supply model developed in Chapter 9 is used (a) to analyze the instruments of the Federal Reserve System's (the U.S. central bank) control over the money stock in Chapter 11, and (b) to interpret aspects of monetary history and the history of monetary policy in Chapter 16. Other financial institutions and their functions in the U.S. monetary system are the subject of Chapters 12 and 13. The (ultimate) blurring of the functions of banks and other financial institutions fixed in law by the "Depositary Institutions and Deregulation Act of March, 1980" is a prominent feature of discussion in Parts III and IV.

Finally, the three chapters (14, 15, and 16) comprising Part V may be read separately but are all applications of the theoretical and institutional structure developed earlier. Chapter 14 is a discussion of recent monetary and macroeconomic policy—a direct application of the theoretical and institutional parts of the book. Chapter 15 is a straight-forward projection of our theoretical model of the "closed economy" to international trade and finance (that is, to the "open economy"), along with a discussion of the institutions related to international markets. Chapter 16, a brief historical account of twentieth century monetary policy up to 1960, concludes the book, but, like the other chapters of Part V, it integrates the theoretical system presented with some of the facts of U.S. economic history.

The material of this book may be presented in sequence, or, if preferences dictate, Parts III and IV may be reversed with Part II; that is, banking and financial institutions may be taken up before theory. In either sequence, Part IV on financial intermediaries and markets may be deleted without disturbing the continuity of the text.

Several other points deserve attention. We take no position on the presently antiquated Keynesian versus Monetarist controversy. Both views are presented and, indeed, integrated. If the Monetarists appear to receive higher marks in our conception of theory and policy, the reason in part lies in the fact that they have had a great deal more to say about inflation—a persistent problem facing advanced nations in modern times.

We have designed this book with students foremost in mind. Wherever possible, concepts in policy and theory are presented in equivalent verbal, graphical, and algebraic forms. This kind of repetition may be called upon to produce a sounder understanding of the more difficult points. Calculus is *not required* for mastery of *any* of the materials in this book, although those students trained in mathematics will recognize the correspondence between

formal mathematical expressions and the algebraic forms we use to express monetary and macroeconomic theory. (Economics, we should always remember, is a *social science*, not a branch of applied mathematics.) Footnote references to further reading on some topics covered in the text are provided as an aid to students. Lists of "Key Concepts" and sets of "Questions for Discussion" follow each Chapter. No material is presented which requires previous exposure to economics beyond an ordinary Principles of Economics course taught at virtually all colleges and universities. A review of some basic concepts that are useful in money and banking comprises the second half of the introductory chapter, Chapter 1, as does a list of symbols used in this text.

There are a large number of generous people to thank for having helped with this book. Professors Ray Battalio and Jerry Dwyer (Texas A&M), Ed Price (Oklahoma State), Richard W. Ault (Louisiana State), Richard Rivard (University of South Florida), Bob Hebert and Steve Morrell (Auburn), David Spencer (Washington State), Stephen M. Miller (The University of Connecticut), James T. Lucas, Jr. (Virginia Polytechnic Institute and State University), Herbert M. Kaufman (Arizona State University), James Barth (The George Washington University), John D. Ferguson (Miami University), Walter Johnson (University of Missouri), Dennis R. Murphy (Emory University), Mark L. Ladenson (Michigan State University), David A. Schauer (University of Texas at El Paso), and Claus Wihlborg (New York University) all made valuable suggestions on many earlier drafts. Two very special debts of appreciation in this regard are owed David Saurman (Auburn) and Jack Tatom (St. Louis Federal Reserve). None of these friendly critics should be held responsible for anything contained in the final product. Research assistance was ably provided by Paul Cleveland, Roy Cordato, Katherine Graves, and Charles Thompson. Typists Paula Altieri, Kathy Berry, Sherri Boney, Pat Watson, and Bess Yellen performed, often under the duress of deadlines, with great efficiency. Richard Esposito and the staff of John Wiley (and, earlier, P. J. Wilkinson) were most helpful and supportive. We earnestly hope that the result is useful to students in learning the workings of one of the most important and least understood economic institutions affecting society's well being.

March 1981

Leonardo Auernheimer
Robert B. Ekelund, Jr.

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CHAPTER 1

INTRODUCTION The Essentials of Money and Banking

The subject of this book is money and, in particular, the reasons why money is important in our economy. Because banks and other financial institutions perform an important role in money creation and in the transmission of economic policy, they are also a major ingredient in the study of money. Money and its role in the economy are a fascinating study and the number of riddles and seeming contradictions to be resolved is a large part of the fascination. If the application of economic analysis to everyday life is an exercise in unraveling fallacies, then economics is at its best in the field of money. But better things are more costly, and in the study of money a higher price is to be paid in the form of material more difficult than in the study of, for example, supply and demand analysis in a single, isolated market such as dog food or diamonds.

The study of anything entails costs and benefits. In the study of money some of the costs arise simply because it is a complex phenomenon. Economists have been concerned with the role of money for hundreds of years and economics certainly has many simple (and correct) insights into its role. Nevertheless, no rigorous, well-structured, single theory concerning what money is and why people hold it is accepted by all economists (not, certainly, to the extent that economists agree about reasons why people are willing to consume eggs or to own machines). Another reason why a study of the role of money in the economy is more difficult than other aspects of economics is that it is a study of a *macroeconomic nature* for which a large number of variables are to be taken into consideration. Thus, the need for simplification and, sometimes, for "unrealistic" assumptions becomes more important. From the viewpoint of the learning process, the main difficulty is that the parts can be understood only as they relate to the whole, but the whole cannot be described without reference to the parts.

So much for the bad news. The good news is that the understanding of some very elementary points in monetary economics may help provide answers to some of the puzzles that cross the mind of anyone who reads the daily newspapers. So many important issues seem impossibly complex, the most

basic being the explanation of the workings of the aggregate economy itself. Specific and well-publicized issues are as perplexing. Why, for instance, has the inflation rate during the 1970s and early 1980s approached those commonly found only in less developed countries of the world? Do rising oil prices, foisted upon Western countries by OPEC, cause inflation? If so, why do countries such as Switzerland (a nation that imports *all* of its oil) experience much lower rates of inflation than the United States? If Gross National Product has doubled in less than ten years, why do economists and Presidents continue to issue grave forebodings concerning the future of the US economy? Is there a trade-off between unemployment and inflation as so many news reports indicate? More fundamentally, does a study of the economics of money and banking have anything to offer in understanding and dealing with these vexing questions?

We believe that the answer to the last question is definitely affirmative. Those who conquer the simple principles of money and banking are in a far better position to judge the actions of policymakers and politicians than, say, even very well-educated laymen. The provision of reasoned and sound answers to all of the above questions (and to many more) is the primary purpose of this book. In order to understand policy questions, however, the organizing essentials about the economy must be thoroughly understood. Without these, policy and issues remain imponderable.

Before a summary of the content of the book, some remarks about method are in order. The first concerns the role of theory and models. In the study of economics, as in any scientific discipline, the aim is to discover the truth behind all sorts of complications which are not fundamental to the essence of the problem at hand. An economic model used to discuss a problem is nothing other than a stylized, simplified version of the real world from which nonessential factors or elements have been eliminated. The art of the economist, then, is the ability to detect and separate factors that are not essential from those that are and to make appropriate assumptions conveniently eliminating the former. The reader will find, throughout this book, that many of these simplifying assumptions are used again and again. We all know, for example, that money is not introduced into the economy in the form of gifts (left to individuals at their doorsteps, or dropped from airplanes or helicopters). But, because the essential effects of changes in the quantity of money are the same no matter how money is introduced, such an assumption conveniently disposes of an unnecessary complication. Thus, the reader should not be disturbed by the lack of realism of some of the assumptions. Such lack of realism is a necessary ingredient in theory, and it is the precise element that separates theory from mere description. The real test of theory comes when it must predict and explain, and there is no such a thing as being "correct in theory, but not in practice." Theory is a guide in putting some order into a world of conceptual traps and fallacies, filled with complicating, non-essential details.

Most of economic theory (which might be clear from introductory economics) can be explained either by words, by graphs, or through simple (at our level) arithmetic. We have used all three methods. The very simple arithmetic expressions used in the text are repeated as often as necessary, explained verbally, and, whenever possible, backed up with graphical representation. Arithmetic expressions, as well as graphs, are not intended as an "extra assignment," but as another, alternative but equivalent manner in which to express what has been said in words—an aid to understanding rather than an additional burden.

PLAN OF THE BOOK

After these preliminaries, the different topics comprising the essentials of money and banking, the manner in which they relate to each other, and the reasons for their particular placement are introduced. The book is divided into five parts. Parts I and II discuss the fundamental concepts concerning money and its role and importance in the economy, that is, how and why the quantity of money influences prices, the level of production of goods and services, and other economic variables. These are the bulk of monetary economics, in which the quantity of money is simply taken to be whatever the monetary authority (the government, or more correctly, the Federal Reserve System, an arm of government) decides it to be. A good deal of monetary economics and many important and contemporary real world themes may be understood very well without even mentioning banks. But, because banks are in fact an important ingredient in the process of money creation, this topic is taken up in Part III. Part IV, on financial intermediaries in general and on financial markets in particular, is a necessary digression from the main theme. Finally, Part V includes three concretely applied topics in monetary economics: monetary policy, the case of an open economy, and a brief monetary history of the United States.

Part I establishes the fundamentals. Chapter 2 introduces the basic concepts of money, the problems involved in defining money, and the functions of money. There is a brief historical account of the evolution of monetary systems, as history is very illuminating regarding some of the features of current monetary systems and *current monetary problems.* In addition to a discussion of the difficulties of a conceptual definition of money, several possible working definitions of money are analyzed. After deliberations over definitions, the money stock will be identified as the sum of all currency (dollar bills and coins, produced by government) and all transactions account balances (produced by commercial banks and other financial institutions). Chapter 3 is a treatment of the fundamental concept of the demand for money. The public at all times owns, or "holds," a certain stock of money, and the theory of the demand for

money is simply an investigation of the factors that will determine the stock of money the public desires to hold. This is accomplished in much the same way as the theory of demand for ravioli explains how the quantity of ravioli people wish to purchase depends on certain variables such as their income and the price of ravioli.

Part II, which presents basic macroeconomic and monetary theory, consists of an investigation of how the level of the money stock can affect the level of prices, real production of goods and services, and interest rates. Chapter 4 is an introduction to the manner in which the classical economists (those economists writing up to the end of the 1930s) treated the problem. The general features of the attack on the classical position by the British economist John Maynard Keynes and his followers are also briefly discussed, as is the counterattack of the modern synthesis by today's monetarists.

Chapters 5 and 6 present the modern analysis of expenditures, income, and prices. The first of the two is a discussion of how and why the level of the money stock as well as the level of government expenditures is a determinant of total expenditures (that is, the sum of government expenditures and private expenditures on all kinds of goods and services). The second, Chapter 6, considers how changes in the level of total expenditures can affect the level of prices, production of goods and services, and employment.

Chapters 7 and 8 carry the analysis one step further. Instead of simply asking about the influence of the level of the money stock on the level of prices and production, one must analyze the effects of repetitive changes in the level of the money stock (in the form of a continuous rise in this stock, at some constant rate of change, such as 5, 10, or 15 percent per year) on prices and the level of production and employment. Chapters 7 and 8 deal with the causes of inflation, that is, with the widely experienced phenomenon of *permanent*, *continuous rises* in the level of prices. Chapter 7 considers the long-run consequences of a policy of monetary expansion, and Chapter 8 analyzes the initial, transitional effects of such familiar policies. These two chapters are the corollary of the basic theory discussed in Chapters 4, 5, and 6 and will provide some simple explanations to some of the most important and familiar real-world economic events of today.

Part III recognizes the presence of commercial banks and their crucial role in the process of money creation. As mentioned earlier, one can understand much of monetary economics as well as some important contemporary issues in monetary policy by ignoring the banking system and by assuming that the money stock is made up entirely of currency printed by the *monetary authority or central bank*. (The monetary authority in the United States is the Federal Reserve System, an agency of the federal government charged with control of the money stock and with regulating banks and other financial institutions.) But this approach is possible only in reference to the influence of a

given monetary stock (or rate of change in the stock) on prices and production. To assume away all the interesting and important problems raised by the existence of commercial banks is far too simplistic. Banks help to determine the money stock, and their influence in determining the stock is very much a part of monetary economics.

The first chapter in Part III (Chapter 9) discusses the manner in which commercial banks create money. Chapter 10 is a description of the institutional framework in which the US banking system operates under the surveillance of the Federal Reserve System. Chapter 11 discusses concrete channels or *instruments* through which the quantity of money is regulated in the US (and in most countries) and some of the problems encountered in managing the money stock.

Part IV (Chapters 12 and 13) is a digression in the sense that it touches on topics that are both interesting and important, but that are not essential for the global understanding of the manner in which money influences the economy. Chapter 12 concerns the nature and importance of various kinds of financial intermediaries, that is, firms and institutions that act as intermediaries between lenders (buyers of financial instruments) and borrowers (sellers of financial instruments). Chapter 13 considers the particular markets in which financial instruments are exchanged and analyzes in detail a few technical and peculiar aspects of both markets and instruments.

Finally, the three chapters comprising Part V may be read independently of each other, but all of them are concrete applications of much of the theory. In particular, Chapter 14, on monetary policy, is a rather lengthy treatment of some of the practical and complex problems of implementation of monetary policy in the real world, as well as an account of the US policy experience during the last twenty years. Chapter 15 considers the international economy; it accounts for the existence of sales and purchases (of both goods and services and financial instruments) to and from other countries. Chapter 16 is a brief study of some of the main events in US monetary history up to 1960; the account applies and interprets as many of the concepts and theories in this book as possible.

Thus, this book proceeds from the simple to the more complex, from the theory of money and monetary institutions to the realm of monetary policy. In this manner, a logical sequence of concepts is used to present the essentials of money and its importance in influencing economic quantities and events. (Mastery of the basic concepts contained in the remainder of the present chapter, along with the key concepts and discussion questions presented at the end of each chapter, will aid the reader in understanding the more difficult points.) There is an undeniable cost to the study of money and banking, but the payoff is a better understanding of one of the most talked about, but least understood, human contrivances in history.

CONCEPTS FREQUENTLY USED IN MONETARY ECONOMICS

The remainder of Chapter 1 is a mix of some very loosely related topics. Their only connection is that all of them (and there are others which could be added) are particularly relevant to the economics of money. Mastery of these concepts will contribute to the learning of money and banking. (In addition, a list of symbols used in this book is provided for handy reference.)

A QUESTION OF SEMANTICS (OR, A WARNING ON HOW WE CAN DEFINE WORDS AS WE PLEASE, PROVIDED WE STICK TO THE DEFINITIONS)

The reader is undoubtedly aware of how many discussions could have been made easier (or avoided altogether) if the words used by the discussants were well defined. Disciplines other than economics (in particular, the physical and biological sciences) have solved the problem, in most instances by inventing new words. Economics, perhaps because it is a relatively young discipline, still uses many words also used by the layman. Even though those words are precisely defined in technical discussions among economists, they create for the novice a great deal of confusion. Some expressions used in economics have a different meaning from the one assumed in everyday language. Moreover, depending on the context the same expression often has different meanings in everyday life. We say, for example, that Rockefeller "has a lot of money," and also that "Smith had to wash dishes at the restaurant because his date ordered expensive dishes and his funds were insufficient." In the first case, we are clearly saying that Rockefeller possesses a great wealth, not necessarily in the form of money. In the second, we mean exactly what we say: that Smith, though he may be quite wealthy, did not have enough money with him at the time. In this book, as in any textbook in economics, many words used in everyday language—words such as money, wealth, income, and investment—will be used in an economic context. In each case, the reader is strongly encouraged to approach such words cautiously, both in reading and in reasoning. Terms are defined specifically in this book and the reader should make every attempt to interpret and to use expressions consistently.

DIMENSIONS, STOCKS, AND FLOWS

Economics, as everyday life, is full of statements about the level of certain variables. For example, we say that there are ten students in a class, that we have eighteen dollars in our pocket, or that we pay a rent of ninety dollars per month. Each of these statements comprises a pure number (ten, eighteen, ninety) and a variable (students, dollars, dollars per month). Because in economics and in everyday conversations, only variables expressed in the same

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