Money, Credit, and Capital

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with the collaboration of
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ABOUT THE AUTHORS

JAMES TOBIN is Sterling Professor of Economics Emeritus at Yale University. He joined the Yale faculty in 1950 and formally retired in 1988.

Tobin was born in Champaign, Illinois, and attended the University High School in Urbana. He was graduated from Harvard College summa cum laude in 1939. His economics graduate study was interrupted by World War II; he served in the U.S. Navy as a destroyer officer in 1942–1946. He received his Ph.D. in economics from Harvard in 1947 and studied on a postdoctoral fellowship at Harvard and Cambridge England the next three years. In 1961–1962, on leave from Yale, he was a Member of the Council of Economic Advisers to President Kennedy in Washington, D. C.

In 1955, the American Economic Association awarded him the John Bates Clark medal for an economist under 40 years of age. He was elected to the National Academy of Sciences in 1972. In 1981 he received the Prize in Economic Science established by the Bank of Sweden in Memory of Alfred Nobel. He is author or editor of sixteen books and more than four hundred articles. His main subjects have been macroeconomics; monetary theory and policy; fiscal policy and public finance; consumption, saving, and investment; unemployment and inflation; portfolio choice and asset markets; econometrics; inequality and poverty. He has written for the general public as well as for professional readers.

He and his wife Betty celebrated their fiftieth wedding anniversary in 1996 in northern Wisconsin, where they were married and spend their summers. They have four children and three grandchildren. The family likes tennis, chess, sailing, fishing, canoeing, skiing, and seeing the world.

STEPHEN S. GOLUB was born in Chicago in 1953, and, as the son of two artists, grew up in Paris and New York. He graduated from Williams College in 1974 and obtained his Ph.D. from Yale in 1983, under the supervision of James Tobin. He first became acquainted with an early draft of *Money, Credit, and Capital* in Tobin's graduate course, Money and Banking, in 1976.

He has taught at Swarthmore College since 1981, where he is currently professor and chairman of the Economics Department. He previously worked at the U. S. Department of the Treasury and the Federal Reserve Board. He has held visiting positions at Columbia, Yale, and the University of California at Berkeley, and consulted for several organizations, including the International Monetary Fund and the Organization for Economic Cooperation and Development. He has written a number of articles in the area of international trade and finance on such topics as exchange-rate determination, international portfolio diversification, trade balances, and the effects of international differences in labor costs on trade patterns.

Steve is married to Kit Raven, a martial arts teacher and recreation director, and they have two daughters, Zoe and Celeste, ages 4 and 5. In addition to playing with his daughters, Steve's hobbies are playing soccer and swimming.

To
Our wives, Betty and Kit,
with love and appreciation.

PREFACE

Money, Credit, and Capital has been a long time in the making. I started writing it in 1958 while on a sabbatical year in Geneva. When I returned to Yale, I taught the several chapters in my graduate money course and added others. Initial drafts of most of the chapters were completed by the end of 1960. Mimeographed chapters were used for many years in graduate courses at Yale, and also at MIT and elsewhere. Copies circulated widely.

In the early 1960s I was distracted from the book by my sojourn in Washington and my continued involvement in public policy. I was also writing a series of monetary and macroeconomic journal articles with a focus related to but somewhat different from the book chapters. The book required revisions to keep up with the profession and with the world of affairs. I found them to be a daunting task, mounting with the passage of time and never finished to my satisfaction.

I did not give up the objective of completing and publishing the book. My good fortune was that Stephen Golub made it possible. He had studied the mimeo chapters as a graduate student at Yale and admired them. He spontaneously volunteered to help me put the book in publishable form. That he has done, these past years ever since 1990. He has contributed knowledge, wisdom, clarity, and judgment; he has believed in the book, and he has often saved me from myself. He has related our work to relevant modern literature and brought it closer to being up to date. The book has been inestimably improved by his participation.

Yet the approach, the thematic ideas, the shortcomings are my own for better or worse, dating back to 1958. Steve is not responsible for the idiosyncratic and perhaps anachronistic aspects of my approach.

In these final laps I have also been lucky to have the help of Joseph Boyer, now an advanced graduate student at Yale. He has read everything critically; checked mathematics, charts, and notations; warned against errors, inconsistencies, and obscurities; dug up statistics and facts of history, institutions, and literature. My debt to him is enormous. (He has also been an excellent teaching assistant for me in undergraduate macroeconomics.)

Some of the chapters of this book found their way into journals or edited volumes. In particular, much of Chapters 3 and 4 was published in Tobin (1965) and Chapter 7 was published in Tobin (1982b) virtually as it had been circulating in draft and as it now appears here. Likewise, as noted throughout the book, ideas and materials from my journal articles have been used, adapted, and referred to. This book is not at all, however, a collection of essays. The book has its own integrated theme and development, in some ways narrower and in some ways broader than my other works.

This project was originally commissioned by Seymour Harris, a professor, mentor, collaborator, and dear friend of mine at Harvard. My friendship with him and my debt to him are expressed in my tribute at the memorial service for him in 1975 (Tobin, 1996). Seymour was an entrepreneur, always organizing forums, editing books

and journals, writing and getting others to write on important current topics of theory and policy. He was editor of a series of economics handbooks for McGraw-Hill. My book was to be the handbook on money. I felt bad for disappointing Seymour Harris, and I still do. When this book was finally approaching submission for publication, I thought I owed McGraw-Hill the right to publish it as originally agreed if they wished to do so after so long a delay, though they surely had no obligation. I was pleased that Lucille Sutton did want the book, and I am grateful for her interest, encouragement, and patience.

Over the years, a sequence of student research assistants and others have helped me with the project, doubtless to their frustration. Their contributions are embodied in this final version; often they may still be quite recognizable. My first research assistant was Donald Hester. Don was a sophomore in Yale College in 1954 when I found him. He began working on the book chapters in 1959. As he became a Yale graduate student and faculty member, I continued to rely on him. Don has been a distinguished scholar and writer in monetary economics in his own right; he has spent most of his career at the University of Wisconsin. During those same years another loyal graduate student, Leroy S. Wehrle, contributed painstaking research and many ideas.

I am indebted to many other students and colleagues at Yale for help at various stages of the manuscript: among them, Roger Grawe, the late Koen Suryatmodo, and Gary Smith.

Ever since William C. Brainard came to Yale as a new graduate student in 1957, I have been running up intellectual debts to him, many of them on the subjects of this book. Arthur Okun, tragically cut off in the prime of life, was always an inspiration. I was fortunate to have as a faculty colleague the late Raymond Goldsmith, the world's leading authority on worldwide financial institutions and national balance sheets throughout history. Experts who critically examined chapters for my benefit included Ralph Young and Stephen Axilrod at the Board of Governors of the Federal Reserve System, Jerome Stein, Henry Wallich, and Karen Johnson. Emilio Barone called my attention to a subtle error in (Tobin, 1982b), corrected in Chapter 7 herein.

I honor the memories of Althea Strauss and Laura Harrison, who long before the days of word processing accurately typed one draft chapter after another. Recently Glena Ames has been my trouble-shooting technical word processor. Emre Deliveli, a talented undergraduate, has quickly solved a variety of last-minute troubles with tables and figures. In the transition from our manuscript to a printed product, Kris Engberg and her colleagues at Publication Services saved us from errors and improved our book.

At various stages, the Rockefeller, Sloan, and National Science foundations have supported research related to this book. McGraw-Hill paid for a research assistant one summer. Above all, the Cowles Foundation for Research in Economics at Yale University, my professional home since its coming in 1955, has always supported my work with funds, service, friendship, and inspiration.

James Tobin

New Haven
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INTRODUCTION

The vision of the financial system portrayed in this book has several characteristic themes:

1. The actors in the economy are wealth owners (not necessarily wealthy) who are managing their portfolios, their balance sheets. They face menus of assets and debts with various properties, differing, for example, in liquidity, risk, and return. The menus offer assets that run the gamut from hand-to-hand currency to reproducible capital goods. These assets and debts are substitutes for one another, but generally imperfect substitutes. The microeconomic foundations here tell how these actors, who differ from each other in circumstances and preferences, go about making these portfolio decisions.
2. Financial markets and institutions enable agents to buy and sell assets and in the process generate asset prices and interest rates, a whole structure of them. Banks are important intermediaries, largely because they are the fulcrum for central bank monetary policies. They and similar institutions are, like the general public, portfolio managers. They "monetize" capital in the sense that their monetary liabilities correspond to nonmonetary assets like loans to businesses to finance real investments. But the macroeconomic interface between financial markets and the real economy is much broader than the direct activities of banks. The book pays particular attention to the relation between the valuations of claims on real capital assets and the replacement cost of the capital itself. This "q" ratio is in principle an influence on new real investment activity.
3. The mechanisms of Federal Reserve monetary policies are analyzed in detail. They relate to federal debt in its various forms, and they depend upon legal institutions and on the central bank's operating procedures. The point is to link Federal Reserve policy moves to real investment activity via q and via the interest rates and credit lines offered private borrowers.

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