Introduction Chapter One

Recent technological developments in the areas of microelectronics, electronic data processing, and information retrieval and communications systems will revolutionize the American monetary system. The technical advancements that currently are being implemented by progressive bankers are on the verge of completely changing the traditional concepts of payment media and commercial banking. The officers of many large banks and some officials of the Federal Reserve System and the American Bankers Association already envision the elimination of what we now use for money, long-distance banking by remote tellers, banks' automatic payment of customers' reoccurring bills, automatic deposit and loan services, and preauthorized, computer-programed investment portfolios as part of the everyday services offered by the commercial bank of tomorrow.

In the not-too-distant future, money usage as it is known today largely will have disappeared, and the intricate process of settlement and deposit accounting will be conducted concurrently at and between two hundred to three hundred regional computer centers located throughout the country. The process will operate like a modified giro system, where the payor initiates the settlement process, but does so by communicating with his bank, not the payee. Under a fully implemented electronic funds-transfer system, deposit balances will be transferred instantaneously to any area of the country by means of electronic impulses.

If the prognostications advanced here appear unrealistic, let the reply to any skepticism be that nearly all of the innovations alluded to in the previous paragraphs are already in existence and in limited operation. Of course, the transition from present payment media to a future electronic funds-transfer system will not occur overnight. In the United States there are close to fourteen thousand commercial banks, nearly two million retail establishments, and over sixty million household units which eventually must become committed to the concept of a "cashless-checkless" society. The period of transition will be measured in years; however, citizens, bankers, businessmen, government officials, and monetary authorities' decisions in the very near future will need to

reflect the many changes during the period of development of a "computerized" monetary system. It is the evolution toward a future electronic funds-transfer system and the implications of such a system that form the central hypothesis and subject of the present study.

1.1. The Nature of Innovation in Payment Media Systems

Innovation is more than the development of new ideas and their implementation; it also involves new attitudes toward change. While the old stereotype of the banker reluctant to entertain new ideas was never entirely justified, many commercial bankers in recent years have developed a much more aggressive spirit of management. These same bankers are implementing the latest technological innovations and actively marketing new bank services. By virtue of the commercial banking system's central position in the payments mechanism, these developments will affect almost all financial transactions.

At the present time approximately 90 percent of the dollar volume of transactions in the United States are consummated with the use of the check. Last year over eighteen billion checks were written by Americans; the value of these transactions was close to four trillion dollars. And these figures are increasing at a rate between 6 and 7 percent annually. A good portion of the work in a modern commercial bank is that entailed in handling checks. It is estimated that each check on the average is transferred ten times. The elaborate organization for controlling the flow of checks not only consists of individual banks' bookkeeping departments but it also consists of the facilities of local clearinghouses, correspondent banks, and the Federal Reserve System. For the banking system, the annual cost of handling checks is estimated to be nearly three and one-half billion dollars. It would appear that the check as the major means of debt settlement has created a situation ready made for the application of electronic data-processing technology. There is an impressive need to innovate a new medium of payment.

There have been only four major innovations in payment media systems in history: (1) the barter system, the origin of which is buried in antiquity; (2) the use of full-bodied money and eventually metal coinage, which developed around the seventh century B.C.; (3) the use as a medium of ownership of written receipts, the forerunners of paper money, introduced by the goldsmiths and earliest banks in the Middle Ages; and finally (4) the use of checks, which were first used in the United States in 1681.

At the present time "money" is used ultimately for the settlement of nearly all debts. Money is part of the framework of the economy, and many aspects of human behavior are built around this framework. If

the monetary system changes, other things are affected, even if the connections among them are not readily seen. Because of the important functions money performs, it affects economic activity in a variety of ways that are related yet distinct. Money not only touches all aspects of the functioning economy, it is the intermediary through which Americans transmit most decisions about production, consumption, and the vast majority of economic matters.

To the modern economist, money is a social device that serves in many ways to increase economic productivity. At one time, money was thought of as little more than a passive medium used to achieve economic ends. Today, however, most economists agree that money itself can influence the real aspects of the economy. Through payments of money, the products and services that are the real end result of the economic process move from producers to ultimate consumers. Production, income, and welfare are influenced by changes in the stock of money and changes in the rate of speed with which money moves from one person or institution to another.

In addition to the economic aspects of human behavior that money influences, there are also social and psychological aspects. Today, there are many emotional attitudes that arise due to the social character of money. Not only are people concerned with what money will buy. They are concerned with money as an index of prestige, social status, security, and achievement. For many years Americans have associated money with a physical object either in coin, currency, or checkbook form. Psychologically, people have developed certain attitudes and patterns of behavior associated with specific forms of money with which they are familiar. Psychologists have found that individuals from middle-class families, more than individuals from other social classes, exhibit frustration manifested by dreams of finding money. Experiments have shown that coins appear larger in size to children from poor families than they do to children from more prosperous backgrounds.

Psychological and social attitudes cannot be ignored since the ways that people feel about money have important implications for the way they permit it to perform its utilitarian functions. Between the sixteenth and nineteenth centuries, for example, monetary policies were greatly influenced by semimystical attitudes toward money. Bullionism led entire nations to subordinate their national economic goals to the accumulation of precious metals. In recent years, however, we have progressed further and further away from the notion that money must have some sort of "intrinsic worth."

The legal environment in which the banking and monetary systems operate exerts a powerful influence on the structure of institutions and

the implementation of new developments. Two years after the National Currency Act was passed in 1863, it was thought that this act had taxed the state banks out of existence by a punitive 10 percent levy on state bank notes. But the state banks survived by aggressively implementing the innovation previously referred to as checking accounts and demand deposits. Even though checks were introduced almost two centuries earlier, it was the passage of legislation that motivated the state banking system to promote the acceptance of the check as a major medium of exchange.

The nature of innovation in payment media systems is an extremely complex phenomenon having implications for nearly all sectors of the economy. Major innovations often are precipitated by a series of smaller developments. In recent years the stock of money has not been increasing as rapidly as the volume of transactions. This is partly because charge accounts, credit cards, bank credit cards, preauthorized payments, and other media have facilitated the use of short-term credit and greater monetary velocity. These developments represent key factors to be considered in a study of the next major innovation in payment media systems, an electronic funds-transfer system.

1.2. Statement of Need and Purpose

Computer and electronics technology is on the verge of completely changing the nature of many existing economic concepts and financial institutions. Innovations in technology are not only impressive from a technical point of view, but their major impact arises from the "chain reaction" of effects on industry, education, and society. It has been said that technological change is the most powerful factor in the American business environment today. In such a mercurial atmosphere, traditional business methodology, pedagogical techniques, and social institutions are made obsolete in a matter of a few years. There is no certain way of facing the problems introduced by large-scale innovations, but businessmen and educators must become more skillful in dealing with environmental changes by anticipating their effects, planning, training, and adapting successfully.

The need of business and industrial leaders for advanced information on future technical developments and innovations cannot be overstated. In recent years the degree of success of a business enterprise has been determined to a large extent by the ability of its managers to respond effectively to these changes. Insights into the impact of electronic money transference must be provided to business managers today in order for them to meet successfully the problems of tomorrow.

What is needed now is an exploratory research study designed to identify and evaluate the current and potential influences which will

effect the development and implementation of an electronic funds-transfer system. This study will apply the lessons of history and contemporary knowledge of money, credit, and financial institutions within a framework of socioeconomic theory to analyze recent developments leading toward a future "cashless-checkless" society. It will be important for this project to specify the significant and far-reaching effects of electronic funds transference on commercial banking and other industries which are heavily committed to various forms of credit transactions and operations in financial markets. This study will reveal some of the potential implications of a "computerized" monetary system for the current concept of "money," monetary velocity, the demand for money, and monetary policies aimed toward economic stabilization. It is also the purpose of this study to generate hypotheses, identify potential problems, and indicate areas for additional research.

1.3. Organization of the Study

While it is true that the American monetary and banking systems are experiencing a considerable amount of innovation at the present time, current innovation is only one more step in the long history of change in financial institutions and financial structure. A look at the past should provide many insights into the future. Accordingly, Chapter 2 begins with an examination of the evolution of innovation in payment media systems. Because every society will have developed during the course of evolution a unique set of institutions, laws, and customs that distinguishes its financial system from all others, it is important to present in Chapter 3 a more detailed description of the development of the monetary and banking systems of the United States. This record provides the foundation for an analysis of the current system of payment media in the United States, which is presented in Chapter 4. In this chapter the concept of payment media is broadened to include the recent and extensive use of credit to facilitate economic activity. Many of the latest financial developments have been directed toward the promotion of a greater utilization of credit in consummating transactions. One of these new devices is the credit card. The credit card represents a significant development by itself as a means of facilitating the payments mechanism. But it is of even greater importance to this study because electronic funds transference in all probability will be activated by a card similar to but more advanced than the bank credit cards now being issued in large numbers.

Chapter 5 is an analysis of the evolution and current status of the nonbank credit card. Besides indicating the major reasons for development and present volume and degree of utilization of nonbank credit cards, this chapter considers in some detail the costs and problems

experienced by credit-card issuers. The two major developments that have motivated recent speculations of a future "cashless-checkless" society are analyzed in Chapter 6; these are bank credit cards and preauthorized payment systems. These two developments in a more advanced state of implementation will lead the progression toward a future electronic funds-transfer system.

The first section of Chapter 7 is devoted to the construction of a theoretical model of a society without the benefits of a medium of exchange; its purpose is to establish the logical feasibility for the elimination of what we now use for money.

The second section of this volume presents a description of a hypothetical electronic funds-transfer system as it might evolve within the real-world constraints of financial, social, and economic variables. Chapters 8 and 9 are predicated on the assumption of a commercial bank-centered electronic funds-transfer system. Within this conceptual framework the former chapter presents an analysis of implications for commercial banking and other industries. The latter chapter presents the implications of electronic funds transference for monetary theory as they may affect economic stabilization policies. Chapter 10 contains the summary and conclusions of the study.