

# A study on Changing Role of Money

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**Abstract**—The paper aims at defining the concept of money. The study aims at searching various roles money plays in our economy. Money has been categorized in different forms according to the requirement of different situation. Now, money has evolved from conventional form to modern one

**Keywords**-Money, Token money, Bank remittance, Check money, Electronic cas, SWIFT

We frequently describe our present economic system as a monetary economy as large part of our daily live activities involve earning and spending of money. Almost all articles that enter into trade are bought and sold for a certain price in terms of money. Most of our financial transactions are executed on a monetary basis. Accounts and books of small and large organizations are kept in terms of money. The value of stocks of goods, human services, real estates, debts, mortgages, and all types of securities are expressed in money.

Carl Menger's account of the process by which money emerged, while wholly supported by the archaeological and historical evidence, appears strange to the modern mind, conditioned as it is to seeing money as a creation of states....Throughout virtually all of human history, up until 1971, money was some form of valuable and durable commodity, or a claim on such a commodity. The use of specific commodities to measure or value the worth of things is actually built into many languages (Steil and Hinds, 2009). John Kenneth Galbraith (1975) referred money as an "instrument of revolution" while describing about the role of money in financing the revolutions of America, Russia, and France.

## I. DEFINING MONEY

Money is any medium that is universally accepted in an economy by sellers of goods and services as payment and by creditors as payment for debts. Money serves as a medium of exchange; indeed, without money, we would have to resort to barter in doing business. (Woodbury, 2001)

Coin or other material used as a medium of exchange; banknotes, bills, promissory notes and other documents representing coin; wealth, property regarded as convertible into coin; coins of a particular country or denomination; receipts or payments are referred to as Money. The documents representing money, such as banknotes, promissory notes, bill

of exchange, or postal orders are known as paper money. (Perry, 1979)

Money is any commodity generally acceptable as a means of exchange in the payment of goods and services or in the settlement of debts. This notion of money general acceptability is the essential prerequisite before any commodity can be classified as money. People must know that they can use it both to buy goods and services which they require and also to settle any outstanding debts and obligations. It is on this basis of general acceptability that any monetary system rests and it is entirely a matter of confidence and convention. Though money may sometimes be considered as wealth, it is basically a means to wealth and is demanded not so much for its own sake but because of the demand for the goods which it will buy (Clarke, 1983).

Money is best defined as a man-made *social institution* at the center of our cash-flow economy. Money occupies this strategies place, because all our principal economic activities-exchange, production, credit – are nowadays organized as monetary circuits (Guttman, 2003). The most common definition of money focuses on its role as a means of payment. In this role, many things have served as money. Historical examples have included coconuts, cowry shells, rice, cattle, tobacco, cigarettes, and many other commodities, as well as gold and silver. The money role of a commodity has to be identified by the intent of the users. If the commodity is accepted with the intention of using it in exchange for something else, it is money (Smith, 1978).

Economists define *money* in terms of its specific functions within the financial system-by what it does.... The primary function of money, and the function that distinguishes it from all else in the financial system, is that it serves as a generally acceptable means of payment, or medium of exchange (Burton, 2009). Acceptability as a medium of exchange is furthered if the money has certain properties, such as divisibility into small units of account, indestructibility, stability of value, homogeneity and portability. Most of the commodities used as money in the past failed to satisfy some of these requirements and were superseded. Cattle and women for instance lack most of these properties. For a long time it was thought that money, had to have some intrinsic value, as cattle and slaves and skins undoubtedly had. Sometimes the

value was purely decorative as when beads and shells were used as money (Graham, 1983).

Money has four principal functions: as a medium of exchange, as which it has many advantages over the less sophisticated barter system; as a unit of account, which facilitates a pricing system; as store of value, because its durable qualities (unlike butter, for example) allow it to represent savings; and as a standard of deferred payment, whereby goods may be purchased against a fixed amount payable back over a term and to which an interest charge is added (Briggs, 1989).

Abraham Lincoln (1861-65), the Sixteenth President of United States of America once stated that “Money is the creature of law, and the creation of the original issue of money should be maintained as an exclusively monopoly of the National Government.”

Marcello de Cecco and Jean-Paul Fitoussi (1987) stated: “Money is, in its essence, a macrophenomenon, which needs a macrofoundation, to be derived from the institutional world...To be accepted as a universal medium of exchange, and simultaneously used as universal store of value, money must be instituted and maintained by a natural monopolist, and, in most cases, throughout history, this function has been performed by the State...the Austro-German socio-economic school have been aware for over a century, that money is ‘a social institution, and quite meaningless if restricted to one individual’. As a social institution, money contributes to the sustenance of a society based on markets and on exchange.”

One of the earliest sociological discussions of money can be found in Karl Marx’s 1844 manuscripts. In opposition to Hegel, who saw the realization of human personality in private property, Marx looked upon money as the alienated self of its professor. First, money transforms qualitative differences into quantitative differences and substitutes interchangeability for individual uniqueness. Second and here Marx anticipated Max Weber’s discussion of the spirit of capitalism the saving of money is only possible on the basis of deferred satisfaction and enjoyment (Palmisano, 2001). Marx also stated about the alienated effects of money. He concluded that the more one possess money, the greater his life becomes alienated. Human capacities are determined by money rather than wealth by human capacities. Possession of money determines the sociological factors like individual status or self-capabilities.

Goerg Simmel’s discussion of money is more ambivalent. On the one hand, he shared many of Marx’s concerns about the alienating effects of money. In his view, monetization has a leveling effect on social life, rendering it impersonal and “colourless.” The mediation of social interaction through money spreads egoism and rational calculation, changes the pace of life, and distances human beings from other persons, from objects, and from nature. On the other hand, if people in modern societies are able to “secure an island of subjectivity,” it is because “money relieves us to an ever-increasing extent of direct contact with things, while at the same time making it

infinitely easier for us to dominate them and select from them what we require”( Palmisano, 2001).

In a modern economy, money is whatever circulated as a means of payment, a unit of account, and a store of value. Money can be defined by its functions. G. Lakshmana Swamy (1955) in his book titled *Elements of Money and Banking: Food satisfies hunger, water thirst; but money satisfies many a thing!* (1955) broadly classified money into three forms:

1. Metallic Money,
2. Paper Money, and
3. Bank Money.

He further categorized Metallic Money into two forms i.e. Standard Money and Token Money. Others categorized money into standard, legal tender, and token money.

Standard money is that money the value of which regulates the values of all other kinds of money in the country. A standard money should have free coinage, i.e., the Government should undertake to coin bullion for the public. Therefore, barring the expenses of coinage, the value of a standard money as a coin should equal its metallic or intrinsic value. Such money is called ‘true money’. The rate at which gold bullion is converted into coins is called the mint-price of gold. In England an ounce of gold when presented at the mint should be turned into £3. 17s. 10 ½ d. Standard money should also be legal tender to any amount, i.e., the money must be by law accepted by a seller or a creditor in final discharge of debts (Mitra, 1930). In India, the *Rupee* is regarded as standard money, where as in America the Dollar is standard money.

Following important characteristics of standard money is mentioned by G. Lakshmana Swamy (1955) in his book:

- (a) “...it is the main unit of currency of a country in terms of which all transactions are conducted.”
- (b) The face value of standard money is usually equal to its intrinsic value.
- (c) The standard money is unlimited legal tender. That is, the creditor is bound to accept the standard money (coins) in as much as tendered. Suppose Mr. ‘X’ has debt of Rs 1,000 to Mr. ‘Y’ and offers him in settlement all one thousand rupee coins, then Mr ‘Y’ must accept. He cannot refuse and demand currency notes.
- (d) There is free coinage in standard money. It means any person is at liberty to bring bullion to the mint and have it converted into coins.

Any authorised coin or paper money that may lawfully be offered “tender” means “offer” in payment of a debt or other obligation and that creditor must accept as payment (Ammer and Ammer, 1984). In India the silver (rupya) was considered to be legal amount to any amount before the *British Raj*.

The English sovereign was made legal tender in India in 1893 at the rate of one sovereign for Rs. 15. A subsidiary coin or token money, such as the English shilling and the Indian anna bit, is limited legal tender. At that period, the shilling was legal tender up to forty shilling and the anna up to rupee. Token money is that money the face value of which is greater than its value as metal, which is neither freely coined nor is legal tender to any amount, and which is a subsidiary coin representing a fraction of the standard coin (Mitra, 1930). Following are the characteristics of token money:

1. Token money is not coined freely. It is generally issued when it is required by the public.
2. Token money consists of coins whose face value is more than the intrinsic value. If these coins are melted, the value of the bullion must be lesser than the face value of the coins. These coins are mainly used as subsidiary money for the purpose of small change.
3. Unlike the standard money (which is always unlimited legal tender), the token money is either limited legal tender or unlimited legal tender.

It may be asked now whether Rupee is Standard money or Token money. It is standard money. It is the accepted medium of exchange and in terms of Rupee the accounts are maintained, the purchasing power is expressed and debts are settled. But its intrinsic value is much less than its face value. Therefore some writers call the Rupee as the “Standard token” coin (Mitra, 1930).

Since banking regulation in the 1980s, financial systems have been changed a lot. Such changes have instigated many controversies among the economists regarding the definition of money and what really constitutes the money supply. Mervyn King, the economic adviser of the Bank of England in 1994 quoted: ‘Although economic theory has a good deal to say about the role that money plays in the economy, it remains uncomfortably vague about the appropriate definition of money’. Economists and central bankers have also conceived many different monetary aggregates. Monetary Aggregates includes monetary assets such as M-1 and M-2. It is monitored and tracked by the Federal Reserve System.

In response to various analysis made by economists, a more comprehensive analysis of money was formed. Money is now grouped into two broad divisions: (1) M-1, M-2, and M-3 represents money and NEAR MONEY; and (2) L represents longer-term liquid funds.

M-1 contains the “monetary” assets that people use in transaction. It is the currency in hands of the public, in addition to the checkable deposits. All components of M-1 are means of transaction money (payment). M-1 is the concept of money in a narrow form, which includes cash in circulation and current deposits made at the bank or other financial intermediaries. M-2 includes everything in M-1 plus some

other highly liquid assets, which can be transformed to the items in M-1 very easily without loss of value for the principal. M-2 consists of highly liquid assets such as small savings and time deposits, individual money market mutual funds, and Money Market Deposit Accounts (MMDAs). M-2, M-3, M-4 and so on is definition of broader monetary aggregates that include deposits, which can be withdrawn only after a certain period of time. Monetary aggregates vary from one nation to another. Movements in these aggregates are used by Central banks either as indicators of policy targets or what is happening or what will happen to the economy.

Hartley Withers (1909) classified monetary transactions in modern economy into three main categories:

- (1) Those in which money is exchanged for any kind of commodity or service; ordinary buying or selling operations.
- (2) Those in which money down is exchanged for the promise of money some day; these include all kinds of loan operations, from the discounting of a bill due sixty days hence to an issue of a war loan by the British Government.
- (3) Those in which money here is exchanged for money somewhere else; and these are exchange operations, which have been crudely exemplified by the purchase of a postal order, but are by far the most complicated kind of monetary business, including such transactions as turning sovereigns into Shanghai taels, composed of silver, or into inconvertible paper notes, issued by some South American Republic.

Exhibit 1 illustrates a detailed breakdown of all four categories of monetary aggregates.

## II. CONVENTIONAL PAYMENT SYSTEMS

The payment mechanism is the means by which transactions are consummated -that is, how money is transferred in an exchange (Buton and Brown, 2009). In conducting any business procedure, acceptance of payment is one of the key components.

‘Methods of payment’ and ‘Terms of payment’ are two expressions sometimes used synonymously. But Anders Grath (2005) in his book *The Handbook of International Trade and Finance* separated these two terms. He stated: ‘Methods of payment’ represents the defined form of how the payment shall be made, i.e. an open account payment terms through a bank transfer, or through documentary collection or letter of credit. ‘Terms of payment’ defines the obligations of both commercial parties in relation to the payment, detailing not only the form of payment and when and where this payment shall be made by the buyer, but also the obligations of the seller; not only to deliver according to the contract, but also, for example, to arrange stipulated guarantees or other undertakings prior to after delivery.

Depending on the objectives, 'Methods of payment' can be classified in varied ways. This is often based on the commercial aspect in terms of security, which is usually experienced from an exporter's perspective.

Grath (2005) listed the following basic methods of payment :

- cash in advance before delivery;
- documentary letter of credit;
- documentary collection;
- bank transfer (based on open account trading terms);
- other payment mechanisms, such as barter or counter-trade.

Bank transfer (also referred to as bank remittance), documentary collection (also referred to as bank collection), letter of credit (also referred to as documentary credit), and check (also referred to as cheque) payment are few methods of payment usually made by financial institutions.

#### A. Bank transfer/remittance

Cash forms the greater part of the money supply. It is the most popular form of payment in the bricks-and-mortar world. All offline stores, varying from the largest department stores to small café shop accept cash.

Cash is generally anonymous (that is, it supports transactions in which the identities of the paying and receiving parties are unknown), can support individual-to-individual transactions, and can increase customer convenience. Cash transactions have the appeal of allowing two people or organizations to make final payment without the direct, on-line involvement of any bank or other intermediary third party; the transaction involves no credit risk and the payment is final. Such transactions therefore represent no direct cost to the transacting parties, although there are indirect costs of storing and handling the cash before and after the transaction (Schutzer, 1998).

Payment system has changed a lot due to many inconvenient factors. The most important source of changes in the supply of money is in the variations in the supply of cash. The cash may be metal or government notes or more frequently both together. The changes in supply can take place due to mining of the precious metals, or foreign trade in them, or changes in the government issue of notes. Apart from these, cash has several disadvantages: one requires exact change to pay for something. Cash provides little customer protection if once cash is lost or stolen one cannot recover it. Cash holder loses a float period, because one cannot earn interest on the cash he or she is carrying around. Paying by cash also makes it more difficult to prove that the party actually received payment. One has no accounting trail and no proof of payment without a receipt.

Paper currency came into the picture because coins and bullion were cumbersome media of exchange. As long as the banks that issued the currency could redeem it in "real money" the underlying metal paper currency was acceptable in trade and served as a more convenient means of payment (Ritter and Silber, 1989).

The first and most obvious method of transferring value is the use of cash. This evolved from bartering of universally sought-after commodities such as salt or gold into today's system involving notes and coins issued by national governments. In most countries in the world, cash is used for some 80% of day-to-day transactions. It is very versatile in that it can be used for payment to merchants or simply from one individual to another without the need to involve a financial intermediary such as bank. There is no need for prior trust to be established between the parties, although where this is an issue, the payee will likely examine the notes very carefully before accepting them. Very low-value transactions can be carried out, limited only by the smallest denomination on the coinage; indeed the fact that the average cash transaction in the United States is around \$11 demonstrates its main realm of applicability (O'Mahony, 2004)

Bank transfers are often termed as 'clean payments,' predominant both in size and number. More than 80 percent of all commercial international payments are estimated to be occurred through banks.

Though, several innovative modes of payments have been invented, but still banknotes in most countries are regarded as a large part of the money supply i.e. total stock of money in a country.

Most trade transactions, particularly in regional international trade, are based on so called 'open account' payment terms. This means that the seller delivers goods or services to the buyer without receiving cash, a bill of exchange or any other legally binding and enforceable undertakings at the time of delivery, and the buyer is expected to pay according to the terms of the sales contract and the seller's later invoice. Nowadays, most banks transfer are processed through an internal bank network for international payments and messages, the so-called SWIFT (Society for Worldwide Interbank Financial Telecommunications) system, in which more than 8,000 financial institutions around the world participate. This network is cooperatively owned by the participating banks, which have created a low-cost, secure and very effective internal communication system for both payments and messages (Grath, 2005). The use of the dollar internationally created a necessity for a secure international system through which banks could send and receive instructions for payments at distant place.

SWIFT, the Society for Worldwide Interbank Financial Telecommunications, is a private electronic message transfer system to which some depository institutions and central banks belong (Samansky, 1984). SWIFT was established in 1973 at Brussels to serve as such international information system. It provides communication services all financial markets through member banks.

It has over 3,000 members and provides services for over 5,600 financial institutions in 151 countries. Sub-members and participants include brokers, investment managers, securities deposit and clearing organizations and stock exchanges. In 1997, 812million messages were processed through the system. At peak times, it processes more than 4,000,000 messages in a day. Around 70 percent of these are payments

messages. S.W.I.F.T provides or is involved with several national real-time gross settlements systems (e.g., in Belgium, Ireland and France) and netting systems (e.g., ECHO). Examples of S.W.I.F.T messages are the MT 202-General Financial Institution Transfer, MT 100 Customer Transfer and MT 950 Statement message. An MT 100 Customer Transfer can be used in two ways: either the sending bank instructs the receiving bank to make a payment in favor of a beneficiary customer's account, using their bilateral account relationship; or the sending bank instructs the receiving bank to make a payment in favor of a beneficiary customer's account, telling the receiver that cover will be sent to their correspondent(s) (Hudson, Colley, and Largan, 2000).

The usage of cash is declining due to advent of other payment systems. Today, most business organizations prefer non-cash payment systems instead of cash. Exhibit 2 shows the way usage of various countries adopted these means of payment for transactions.

### B. Check Money

A check is simply an instruction to the payer's bank to transfer funds to the payee. It is fundamentally dependent on the presence of a financial intermediary, usually a bank, and unless everyone in the community shares the same bank, there must also be a clearing and settlement mechanism to connect the two banks involved. The payment instrument can be used to transfer values of any amount, but the involvement of at least one intermediary coupled with a considerable amount of paper processing means that the transaction charges are likely to be around (U.S.) \$1 (O'Mahony, 2004).

A cheque is a bill of exchange payable on demand. A bill of exchange...is an order from A to B to pay a sum either to himself, A, or to a third party, C. When it is payable forthwith it is a cheque and bears a penny stamp; when it is payable at a future date it is a bill of exchange and bears a stamp *ad valorem*, varying with the amount of the sum named (Withers, 1909). The bill of exchange is divided into two categories: checks and bills of exchange.

Clearing involves the transmission, exchange and settlement for payments between banks. There are clearing systems for both paper (for example cheques) and electronic clearing (Valdez, 2010).

The emergence of a National Checking Network wouldn't be possible without railroads. U.S was increasingly integrated over the last half of the nineteenth century. Thus, inter-regional commercial transactions increased. Local banks received a greater number of out-of-town checks from merchants. The problem wasn't the way to present the check in person or by mail. Checks drawn on distant banks seemed to be bouncing back. So it became harder to collect checks from the travellers, and hardest for the law to catch a bad-check artist on the move. Banks could not address the issue of trustworthiness of the payer since at that time the technology for check verification and guarantee was far in the future. Due to unavailability of secure technology, banks did attend clearing-and-collection services by setting up the respondent-correspondent system.

U.S. banks issued and accepted three media of exchange: bank notes, drafts, and checks by the mid-nineteenth century. Gradually, checks superseded the less flexible notes and drafts. Like all payment media, checks have two groups of customers, both of which must be on board for the medium to work: those who are willing to pay by check, and those who are willing to accept checks for payment. Checks are more useful if they are widely accepted.

The convenience of the cheques follows from its safety; if bank-notes are being sent, it is necessary to note all the numbers and register the packet; a cheque, protected by being crossed and marked "not negotiable," goes safely in an ordinary envelope. The words "not negotiable" do not make a cheque not negotiable, but their effect is, that no holder of a cheque so marked can pass on a better title to it than he has himself; consequently, if it is stolen, anyone who takes it from the thief cannot claim on it. Further, the fact that it can be drawn to the exact amount required is a great advantage, and its return to the drawer through his bank, when it has done its work and been cancelled, is an additional convenience, and makes the cheque a record and receipt, as well as a form of payment (Withers, 1909).

Paying by cheques was once a common form of payment, but following the introduction of more cost-effective and faster ways of processing international bank transfers, this is no longer case. Perhaps not more than a few per cent of all international payments are now processed by cheque. In countries where this form of payment is commonly used in domestic trade, for example in the UK and the United States, the situation may be different, and cheques may for that reason be more frequently used for payment in international trade. Sometimes, the buyer prefers to pay with their own cheques for cash management purposes, as opposed to through a 'bank cheque' (banker's draft). The corporate cheque (usually post-dated and mailed at due date by the buyer) will not be paid to the seller until it is received and presented to the seller's bank, usually with a considerably delayed value date. This will delay the receipt of liquidity for the seller and often incur additional fees, but the payment will also be subject to the cheque being honoured later on by the buyer's bank when sent back to them for reimbursement. Only at that late stage will the cheque be charged to the buyer's own account with a profit for the buyer of many interest free days (Grath, 2005).

The use of debit cards, to some extent, is similar to the electronic version of writing checks. In both cases, the source of funds as well as flow of information is similar. Typically, in case of debit card, some kind of authorization is required at the point of sale, to ensure that the card is not stolen one and also to verify sufficient fund is available. .

Horace White in his book *Money and Banking* described about the early origin of Check-money. While describing about the early functioning of the Bank of Amsterdam, he mentioned that "All bills of exchange payable in Amsterdam were required by law to be paid in bank money. Transfers of such money were at first made by the payer to the payee personally in the bank, but this method was afterward superseded by

orders in writing; and here, perhaps, we find the origin of the bank check.” (White, 1936).

The Federal Reserve System (Fed) created by Congress in 1913, look after all financial activities in the United States. According to the Fed’s *Survey of Consumer Finances*, 87 percent of all Americans had at least one checking account in the year 2001. Although innovations in the financial service industries have permitted clients to write checks against their money market or mutual fund accounts, most Americans still relied on their local banks as their prime financial intermediary. The checking account at the local bank is the cornerstone of the finances of the typical American households. This scenario is not different in other nations. But households in other industrialized countries make wider use of electronic methods for withdrawing money out of their checking accounts.

In France, for example, it is routine for a household to pay periodic bills from a telephone bill to a mortgage by allowing vendors to make withdrawals via electronic transfers from the household’s checking account. Americans, in contrast, make virtually all of their regular payments by check, although that is gradually changing. Americans are also more likely than the residents of many other countries to carry their checkbooks with them and write checks for a variety of purchases. For instance, checks were used for 23 percent of all U.S. supermarket and grocery store purchase in 2001. On average, Americans write more than 125 checks per year. By comparison the French write 71 checks per year, Canadians 51 checks, Italians 10 checks, and Germans 4 checks (Evans, and Schmalensee, 2005).

One of the major problems in check payment is the risk associated with the *returned item* or *bounced check*. Though such incident are very minimal, the fact that it can happen at all associates high risk, make checks unacceptable in many transactions.

Initially, banks in United States had greater incentives to develop an efficient checking system because banks were smaller and more spread out than banks in other nations. The fragmented banking system in U.S. might be the root of clients’ reliability on the checks. But, with time several competing payment media have started restricting the U.S appetite for checks.

The share of consumer payment made with checks has fallen from 51 percent in 1990 to 41 percent in 2001, based on dollar volume. The remarkable growth of debit cards during that period from irrelevance to challenging credit cards in importance played a major role in checks’ decline. People who want to pay with money in their checking account have a more convenient method for doing so swiping a card rather than writing a check. The share of consumer payments made with a debit card has increased from 0.4 percent in 1990 to 7 percent in 2001. The electronic funds transfer system the “Automated Clearinghouse”(ACH) system has gained in

popularity as well. Between 1990 and 2001 the share of consumer payments made through the ACH system increased from 0.8 to 3.6 percent. According to the Survey of Consumer Finances, the proportion of households using direct debit an electronic transfer out of an individual’s checking or savings account via the ACH system, generally to pay recurring bills increased from about 22 percent in 1995 to about 40 percent in 2001. (Some industry sources put the 2003 number at about 50 percent.) (Evans, and Schmalensee, 2005).

In the US, until recently, the Federal Reserve ran 45 cheque clearing centres. In February 2003, the 12 Federal Reserve Banks announced an initiative to align their infrastructure with the declining use of cheques by reducing the number of locations at which they process cheques. Since then, they have discontinued cheque operations at many of their 45 cheque processing centres and expect to be processing these at only one full-service cheque processing site by the end of 2009. There are also private clearing centres and arrangements made mutually between groups of banks. Approximately 30% of cheques are cleared internally by the banks on which they were drawn, 35% are cleared by private centres and mutual arrangements, and 35% are cleared by the Federal Reserve (Valdez and Molyneux, 2010). Cheque usage is falling there were just over 4.4 million cheques issued each day in the UK in 2007 compared with 11 million in the peak year of 1990, and the clearing body UK Payments Administration Ltd noted that this had fallen to 3.6 million by 2008. Nowadays, just under 3% of retail spending by value is still paid by cheque, compared with over 65% by debit or credit card. On 16 December 2009, the Payments Council announced that it had taken the decision to set a target date of 31 October 2018 to close the UK’s central cheque clearing, ‘effectively bringing an end to the cheque as we know it’ (Valdez and Molyneux, 2010). Exhibit 3 depicts the early predictions about the decline of paper-based transactions in financial sectors.

### C. Modern Money

Data from the Federal Reserve Payments Study titled “The 2007 Federal Reserve Payments Study: Noncash Payment Trends in the United States:2003-2006,” showed a continuing shift away from paper-based transactions, such as payments by cash and check, and toward electronic transactions, in particular, automated deposits and payments and payments by debit card. Consumer access to the financial services has increased due to evolution in financial service industries such as establishment of brick-and-mortar bank branches and availability of e-banking services. The wages of the most American workers are paid via electronic fund transfer. Retail transactions are dominated by credit and debit cards. We use special purpose plastic cards to pay for mobile calls and domestic goods, creating a special form of currency that is growing in acceptance among merchants of all types. Abolition of cash has many non-trivial implications....Movement to an electronic cash culture would clearly save governments the cost of printing, tracking, safeguarding and disposing of cash. The handling of cash

represents a substantial portion of the expense of payment management for retailers and bankers. The central bank in countries such as India support e-purse as one mechanism to trim the cost of producing low-value coins and bills. In these countries inflation has rendered coins and smaller denominations of paper currency more expensive to produce than their actual value justifies (Wilson, 2001).

In the 1970s, technology was publicized to set not only a checkless but a cashless society. Debit cards and electronic fund transfers have been much popular in less check-reliant industrialized countries. Money no exists in its physical form alone. It can be measured by electronic pulses. This has revolutionalized the process of monetary transactions and facilitates the use of information technology in banking operations. The electronic automation of work process has made banking- a global process. Now, it takes seconds to perform banking transactions. This is what has engrossed many people into the world of Internet banking.

Technology is reducing the role of financial intermediaries in the payments mechanisms, as well. One of the emerging technologies that are driving economic change is Integrated Circuit Cards (ICCs), which is also known as chip cards or smart cards. As a technology, the smart card' embedded chip, when deployed as part of an overall intelligent network or system, provides portable computing power to the individual. This technology permits the delivery of a wide variety of card-based products and services.

MasterCard, for instance, has invested millions in the development of an electronic (E-cash) system known as Mondex. The system's smart cards have tiny microchips embedded that store personalized electronic data that will allow consumers remote access to their funds at anytime, anywhere. Hence, as pointed out by David Shaw, an investment banker, increasingly new technology implies greater change, and "The whole financial industry will likely be turned upside down, with shrinkage in some areas and perhaps some outright failures among those firms that are unable to use technology effectively." As noted by a recent Federal Reserve Bank of Kansas City study, the ATM (automated teller machine) and debit card industry has undergone significant change. Point-of-sale debit card transactions (where funds are automatically taken from an individual's bank account, similar to smart cards) have grown in the United States, while annual transactions per ATM have gone down. Nonbank ATM networks have gone up, suggesting greater involvement of nonbanks in the payment process, which could be a risk issue for the banking system, since nonbanks are subject to far less supervision (Ramo, 1998).

The current products and technological innovations addressed new business opportunities and new markets such as electronic commerce. The position of money has been changed in terms of exchange, production, and credit. New form money (digital money) has been raised to the fore as the world is now preparing itself for the next generation of automated money. Today, we are facing a situation where paper money is shifted to electronic money. Central bank notes and bank checks are

replaced with electronic fund transfers, plastic cards, and automated clearing-houses.

American Express, Discover, MasterCard, and Visa are the major "brands" of signature-based payment cards and together they account for 90 percent of all purchase volume on general-purpose payment cards....The four brands are also the major operators of payment card "systems." Each system consists of a distinct set of computers and rules for processing transactions, seeking verification, getting approval, transferring funds, and capturing billing information. The new kids on the block are the EFT networks. They account for the remaining 10 percent of purchases made with payment cards, but their share is growing. The largest of these new kids, the STAR system, itself accounts for 5 percent and is slightly larger than Discover (Evans, and Schmalensee, 2005).

Electronic commerce conducted on the Internet is bound to encourage a variety of online-payment mechanisms and consequently, the use of electronic money has been increased in financial marketplace for transactions. Exhibit 4 depicts the relative share of plastic card purchase volume in 2002.

Just a decade ago, the idea of moving money that quickly and cheaply would have been ridiculous. Checks took ages to clear. Transferring money from one bank account to another could take days, as banks leisurely handed off funds, levying fees nearly every step of the way. Credit cards made it a little easier to pass money to a friend provided that friend owned a credit card reader and didn't mind paying a few percentage points in fees or waiting a couple of days for the payment to process....Square, a new company founded by Twitter cocreator Jack Dorsey, lets anyone accept physical credit card payments through a smartphone or computer by plugging in a free sugar-cube-sized device no expensive card reader required. A startup called Obopay, which has received funding from Nokia, allows phone transfer money to one another with nothing more than PIN. Amazon.com and Google are both distributing their shopping cat technologies across the Internet, letting even the lowliest etailers process credit cards for less than the old price, cutting out middlemen, and figuring out ways to bundle payments to sidestep the credit card companies' constant nickel-and-diming. Facebook appears to be building its own payment system for virtual goods purchased on its social network and on external sites. And last March, Apple gave iTunes developers the ability to charge subscription fees through their applications, making iTunes the gateway for an entirely new breed of transaction. When Research in Motion announced a similar initiative last fall at a session of the BlackBerry Developer Conference in San Francisco, programmers crowded the room, spilling out into the hallway. About 20 percent of all online transactions now take place over so-called alternative payment systems, according to consulting firm Javelin Strategy and Research. It expects that number to grow to nearly 30 percent in just three years (Roth, 2010).

Despite a decline of almost 50 percent in the number of banks between 1980 and 2007 due to industry consolidation, the number of bank branches has climbed steadily, at a compound

annual rate of growth of 2.7 percent. Growth in the number of ATMs has been even more rapid, with a compound annual growth rate of 12.2 percent. In particular, the growth of off-premises ATMs (ATMs not located within a bank branch) has allowed consumers greater access to their accounts (Bell, Hogarth, and Robbins, 2009). Cash is declining in popularity as a form of payment in the United States. Exhibit 5 depicts changes in cash usage and growing application of electronic cash instead of cash.

There would be vast changes in financial infrastructure with the growth of plastic money. Cash is generally kept in huge and expensive vaults. Armored cars are used for transportation. Teams of retailers and bankers count it, safeguard it, track it, and recount it. It has properties of shrinkage. But one of the most inconvenience features of paper money is its sizeable quantity. A cashless society might reduce violent attacks on citizens.

But cash is a social as well as an economic lubricant. It remains a passport to maneuverability. It helps to enable anonymity a percept of privacy. Indeed, the removal of cash as an instrument of commerce has dramatic privacy implications. Each decade, technological innovations and infrastructure change-out move us a little bit closer. The reality is that it is already technologically feasible to eliminate cash in most developed countries. But it may not be culturally feasible (Wilson, 2001).

### III. CONCLUSION

Our present financial system has evolved from a primitive state and will continue to move forward in near future. This rapid advancement of financial system has been drastically influenced by modern technologies. The payment system in our economy has also been developed from the conventional one to electronic. The modern payment trilogy includes three criterions: stored-value (pay before), complements debit (pay now) and credit (pay later) transactions. In the past, payment has been based on an exchange of value for goods and services. Today, the payment transaction is a key opportunity for an exchange of information.

The explosive growth of the Internet had a profound impact on many markets, and open wide opportunities to develop new products and services in the area of international trade. The competitive environment in the payment industry, especially for bankers, is shifting rapidly, spawning new, intense competition from previously non-competition organizations. Many e-Commerce transactions are still made on open account terms with payment after delivery, either by ordinary bank transfers or by checks. Most banks realized that their relationships with their clients are becoming virtual, and they work harder to earn the clients' continued patronage. Financial intermediaries and other institutions are providing new benefits based on transaction information to form customer loyalties and achieve competitive advantage. In case of international payments, most e-Commerce businesses want to see transmission of the actual money before shipping the

goods. Banking customers are demanding services that are faster, easier to execute across financial institutions, and with more personal control. Technological advancements are making such improved services possible, with or without banks. Individuals and corporations are increasingly turning to online services over the Internet to conduct electronic commerce, electronic banking, and electronic collaboration. New technologies and separate e-Commerce payment systems created both secure and reliable background for international e-Commerce transaction worldwide. These are based on payments via credit or debit cards, particularly in areas like travel, leisure, and other segments of the retail shops where card payments have been the norm for many years. This picture is quiet different in case of business-to-business (B2B) transactions. Here first customer relations are formed, the amount being transacted are normally larger, and the payment terms are often based on open account or documentary payment terms. Even when sales and marketing are based on e-Commerce as an alternative or complement to other sales channels, actual trade payments between business organizations are generally performed via banks, based on the established SWIFT system.

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Exhibit 1: **Money Supply**

Classification	Components
M-1	Currency in circulation Commercial bank demand deposits NOW and ATS (automatic transfer from savings) account Credit union share drafts Mutual savings bank demand deposits Non bank travelers checks M-1
M-2	Overnight repurchase agreements issued by commercial banks Overnight Eurodollars savings accounts Time deposits under \$100,000 Money market mutual funds shares M-2
M-3	Time deposits over \$100,000 Term repurchase agreements M-3 and other liquid assets such as:
L	Treasury bills Savings bonds Commercial paper Banker’s acceptances Eurodollar holdings of United States residents (non bank)

Source- Downes, John and Elliot, Jordan: *Dictionary of Finance and Investment Term*, (2006), Seventh Edition, pp-431.

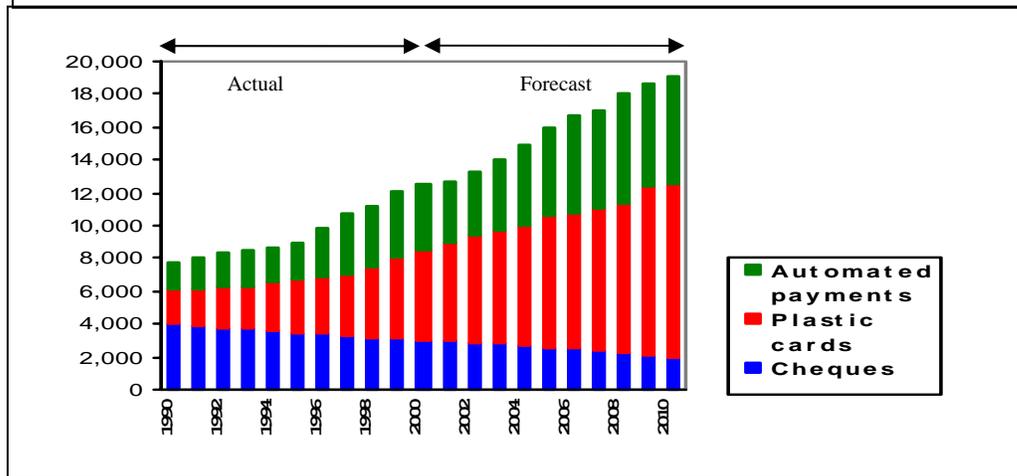
Exhibit 2:

Consumer Preferences in Non-Cash Payment Methods by Country in 2000

COUNTRY	USE OF CHECKS	USE OF CREDIT TRANSFER (GIROS)	PAYMENT CARDS	DIRECT DEBITS
U.S.	58%	4%	35%	2.2%
Netherlands	0.4%	39.7%	29.9%	29%
U.K.	26%	17.9%	36.6%	19.4%
Germany	3%	49.1%	9.6%	38%
Turkey (1997 figures)	6.9%	2.6%	83.9%	---
Namibia (1996 figures)	75%	14%	Not provided by local banks	9%
Angola (1996 figures)	75%	25%	Not provided by local banks	---

Source- O'Mahony, Donal: "Electronic Payment" in: Bidgoli, Hossein (editor-in-chief): *The Internet Encyclopedia* (2004), Vol-I, Table-1, pp-637.

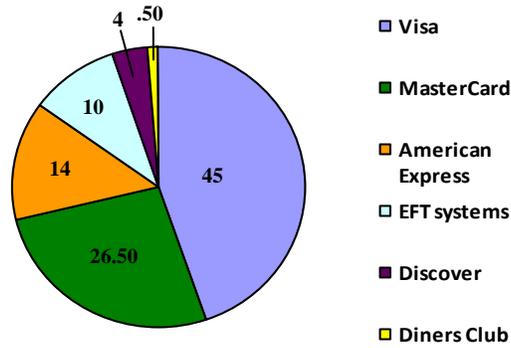
Exhibit 3: UK cheque, plastic card and automated transaction volumes, 1990-2010



Original Source: Association for Payment Clearing Services, UK, July, 1999

Source- Valdez, Stephen and Molyneux, Philip: *An Introduction to Global Financial Markets*, 2010, Figure-4.1, pp-91.

Exhibit 4: System share of U.S. general-purpose card purchase volume, 2002 (%)



Source: The Nilson Report (various 2003 issues).

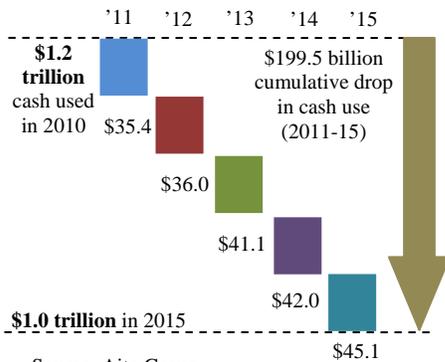
Source- Evans, David S. and Schmalensee, Richard: *Paying with Plastic: The Digital Revolution in Buying and Borrowing*, (2005), Second Edition, Figure-1.2, pp.15.

Exhibit 5: How are you going to pay for that? Not with cash but with cards and on mobile devices.

Cash is declining in popularity as a form of payment in the United States.

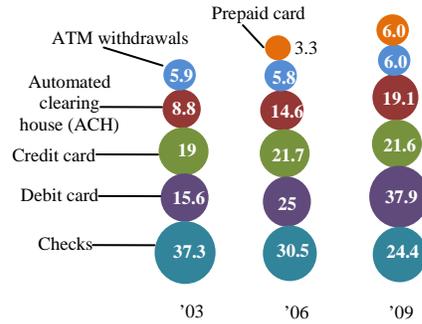
Credit card use is growing at the expense of checks.

**Forecast change in cash use, 2011-2015**  
 (All figures in billions)



Source: Aite Group

**Volume of noncash payments in the U.S., 2003-2009**  
 (billions of transactions)



Source: 2010 Federal Reserve Payments Study

Source- Pontin, Jason: "The New Money" in Rotman, David (editor): *Technology Review*, (March/April, 2011), Vol-114, Number-2, pp-44.