THE ROLE OF THE CENTRAL BANK AND INFLATION IN KOREA, 1945-1960

Thesis for the Degree of Ph. D.

MICHIGAN STATE UNIVERSITY

Nae Hoon Chung

1962

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Nae Hoon Chung

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of the requirements for

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Victor E. Smith
Major professor

Date Aug. 20, 196

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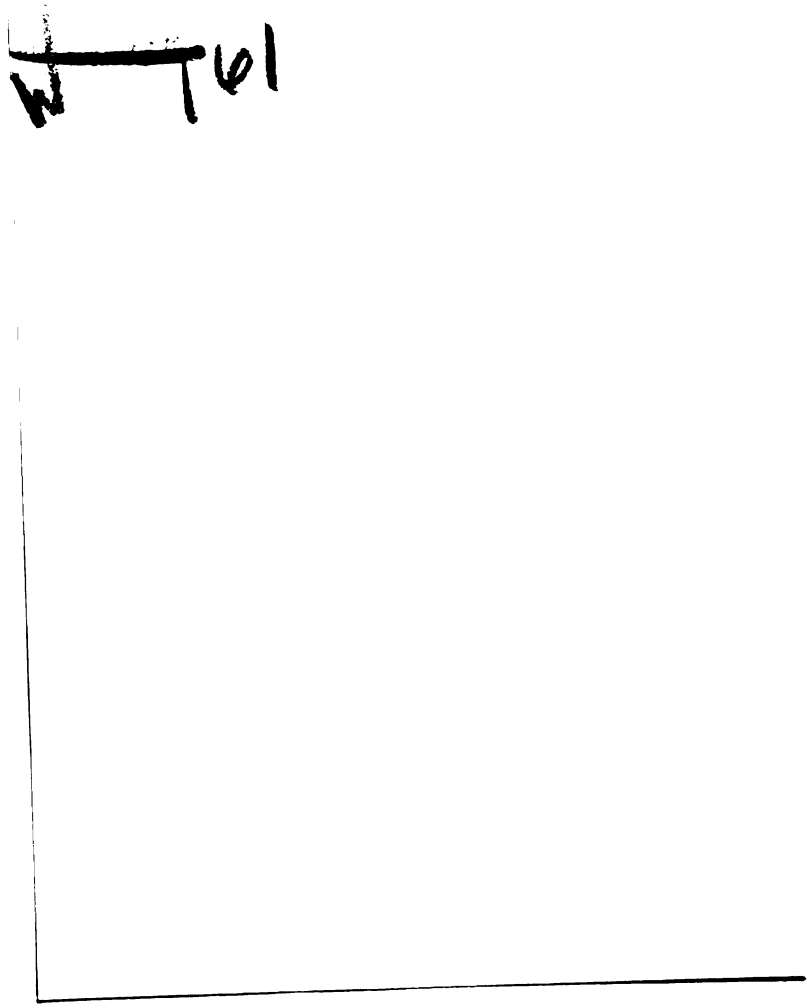

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A THESIS

Submitted to
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Department of Economics

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For computing

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to Mrs. Dorothy Alden

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N. H. Chung

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THE ROLE OF THE CENTRAL BANK AND INFLATION IN KOREA, 1945-1960

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Nae Hoon Chung

ABSTRACT

The purpose of this study is to investigate the problem of inflation in Korea with particular emphasis on the role of the Bank of Korea. Since persistent inflation is not possible without a continuous increase in the money supply, the role of the Bank of Korea has been important. The problem of inflation has attracted a great deal of attention in Korea, yet no systematic study has been made. This study, though exploratory in nature, aims at a systematic inquiry as to whether or not the Bank of Korea achieved the goals of monetary policy: Maintaining price stability and inducing economic growth.

As a criterion for judging the performance of the Bank of Korea, the optimum pattern of the money supply is estimated for the last fifteen years on the following theoretical basis: When the Fisherian equation is expressed in a differential form, we get $\frac{dM}{M} + \frac{dV}{V} = \frac{dP}{P} + \frac{dT}{T}$ ...(1), T being the real national income. When prices are stable, dP is zero; therefore, the optimum increase in the money supply (i.e., not contributing to inflation) is $\left(\frac{dM}{M}\right)_o = \frac{dT}{T} - \frac{dV}{V}$ ...(2). When dP is not zero, the actual increase in the money supply would be $\frac{dM}{M} = \frac{dT}{T} - \frac{dV}{V} + \frac{dP}{P}$ ...(3). By substituting equation (2) into (3), we get $\left(\frac{dM}{M}\right)_e = \frac{dM}{M} - \frac{dP}{P}$. This formulation indicates that an excessive increase in the money supply will be reflected directly in an increase in general prices. The elimination of this amount

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In caution, it must be mentioned that the optimal increase in money supply in this study is meant only to provide an approximate criterion in evaluating the performance of the Bank of Korea. The estimation of the optimal increase in the money supply is based on the actual behavior of velocity on the assumption that the difference in policy of the central bank would have no effect on the behavior of velocity. Though statistical evidence shows no dependent relationship between changes in the money supply and changes in velocity, the interpretation of the optimal increase in money supply is adjusted for possible changes in velocity.

The limitation of the formula above is the fact that it is based on a differential formula. Therefore, a modified formula, $\left(\frac{\Delta M}{M}\right)_o = \left[\frac{1 + \frac{\Delta M}{M}}{1 + \frac{\Delta P}{P}} - 1\right]$, is used in the estimation of the optimal increase in the money supply.

As price indices available in Korea are unreliable, an index of the average denomination of currency is computed. Comparison of indices indicates that the index of average denomination is preferable to the index of the Seoul wholesale prices for the purpose of this study. Although the theoretical formulation of the index of the average denomination is based on certain restricted assumptions, the index provides challenging insights in understanding the true movement of the price level.

The money supply since 1945 has been far greater than the optimum pattern of the money supply. Moreover, credit expansion

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attributed to the public sector alone has been greater than the optimum pattern during the period under study. This indicates that government deficits have been the major cause of inflation in Korea.

When bank credit to the public sector was greater than the safe rate of increase in money supply, the Bank should have attempted not only to prevent the subsequent credit expansion by requiring 100 per cent reserve requirements, but also should have contracted the equivalent amounts of credit in the private sector. There was no such attempt on the part of the Bank. Attempts only to restrain the credit expansion were made, yet the attempts were very ineffective. This strongly indicates that the Bank of Korea failed in achieving the goals of monetary policy.

One of the reasons for the failure of the Bank has been the government dominance in the banking system. The establishment of the Monetary Board was expected to bring a sharp break from conventional banking practices. However, the Board became an appendage of the Ministry of Finance in practice. Because of political pressures, commercial banks often made loans without any form of collateral, which consequently developed into delinquent loans.

The scope of monetary management is extremely limited in Korea. Due to the absence of money markets, traditional tools of monetary management are totally, or at least partially ineffective. Consequently, selective tools of control were heavily relied upon. The circumstances were not entirely propitious for reliance on

Abstract

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selective controls and, furthermore, their application was less than vigorous. At the beginning, the attempts were sporadic. Somewhat more systematic control measures were later developed.

The institutional arrangement seems to be very important. The reform equipped the Bank with wide and flexible discretionary powers and all available tools of credit control. This necessarily resulted in complications and confusion in monetary management. Furthermore, the conflicting uses of a variety of tools nullified the potential effects.

The conclusion of this study is that the Bank of Korea failed in achieving the goals of monetary policy and the conclusion lends supports of the "stability-first" argument. It also leads to a recommendation for a reserve requirements policy as high as 100 per cent for reasons of effectiveness and simplicity. Open-market operations can be used in expanding the money supply in order to foster the growth of money markets.

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CHAPTER I

INTRODUCTION

Since the birth of the Republic of Korea, inflation has been a constant and persistent ailment of the Korean economy. Since persistent inflation is not possible without a continuous increase in the money supply, the role of the Bank of Korea, the central bank, has been important. The purpose of this study is to investigate the problem of inflation with particular emphasis on the role of the Bank of Korea from 1945 to 1960. To be specific, this study purports to inquire whether or not the Bank of Korea succeeded in achieving the goals of monetary policy. This inquiry is important because the Bank of Korea was established in 1950 in an environment in which stopping inflation was the utmost goal of the national economic policy.

In regard to policies, there has been controversy about "reconstruction before stability" and "monetary stability before reconstruction". Yet, national policies, with few exceptions, supposedly have intended to stop inflation. From one regime to another, however, policies failed to reach their goals until the recent Military Revolution of 1961, which seems determined to achieve stability and economic growth at the same time. Though this study is not concerned with this controversy, findings of this study may provide an answer to this controversy.

In view of the scope of the problem, this study is necessarily a general type of inquiry. In particular, the exploratory nature of this study, rather than its problem solving nature, should be emphasized at the outset.

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When one studies economic problems of an underdeveloped country, the first thing to deal with is the problem of measurements. Without some sort of accurate measurements, precise reckoning is not possible. For this reason, some are inclined to say that use of theory for economic development is not feasible. Such is the case in Korea. Though data on the money supply are considered to be somewhat more reliable than other data available, there are no reliable data for national income, production, population and prices. The data for the money supply published by the Bank of Korea, with some adjustments, are used in this study. The index of the average denomination of currency is constructed for use as a price index. The index of prices so computed and the data for the money supply are key items on which this study is based.

Other data used in this study are either provided by government publications or computed by crude methods, as deemed necessary. In order to prove certain points, it was necessary to use an indirect method rather than the direct method. For example, in proving the relative constancy of velocity behavior, the behavior of the demand deposit velocity is used as an indirect method of gauging the behavior of velocity of money. These are the reasons why the exploratory nature of this study should be stressed.

Inasmuch as the problem is broad in this study, the focus of the study is based on a few crucial factors. For example, it is assumed implicitly that the study of inflation can be made, without much distortion, through the study of the behavior of the money supply.

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tional arrangements, economic environment and the mentalities of men who operate the institutions, in Chapters II and III an emphasis is put on elaboration of the institutional and historical factors. The scope of monetary management is analyzed in Chapter IV. In this chapter, an effort is made to evaluate the efficacy of the conventional tools of central banking in the particular environment of the South Korean economy. A brief, yet careful, description of the new model of central banking designed by Professor Arthur Bloomfield is made.

The behavior of the money supply is analyzed in Chapter V. A very rough comparison of the behavior of the aggregate money supply before and after the establishment of the Bank of Korea, seasonal behavior of the money supply and the behavior of the money supply for several periods are included in this chapter. The focus of the chapter is in investigating factors underlying the money supply.

In Chapter VI a theoretical analysis of the index of the average denomination of currency is made. The study of the movements of price level is based on this index of the average denomination in comparison with the Seoul wholesale price index.

In Chapter VII the relationship of monetary policy and economic development is presented in the context of the findings analyzed in previous chapters. In particular, this study attempts to estimate the optimal increase in the money supply. The optimal increase in money supply is defined as an increase in money supply that will not affect the price level in any way. In caution, it should be mentioned that no determination of the optimal increase in money supply can be made in a precise fashion. The optimal increase in money supply in this study is meant only to provide an approximate criterion in evaluating the per-

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On the basis of judgment about the performance of the Bank of Korea, possible changes in the use of monetary tools are recommended in Chapter VII.

The balance of payments and the exchange rate problem, worthy of greater attention, are considered only incidentally as they relate to the subject at hand.

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CHAPTER II

RECENT ECONOMIC DEVELOPMENT OF KOREA

1. General Remarks

South Korea is in an intermediate stage of economic development. More than fifty per cent of the population is making a living in agriculture, though a fair degree of light industry has developed. According to the 1959 national income statistics at 1955 prices, agriculture, forestry and fishery account for 38.8 per cent of the national income; manufacturing, 13.8 per cent; wholesale and retail trades, 15.1 per cent; construction 4.7 per cent; public utilities, communication and transportation, 4.5 per cent; insurance and real estate, 15.1 per cent; the rest of the world, 1.1 per cent; and government services, 4.5 per cent. Other types of services constitute the remainder of the economic activities.[1]

In this chapter a historical review of Korean economic development will be presented. In particular, emphasis is put on expounding the genesis of economic growth and the conflicting problems in the process of economic development in the last fifteen years. Economic development is closely related to political development in any country. In fact, the economic development of Korea is largely the by-product of political development. Politically, Korea is a most unfortunate country. On the eve of awakening from a long and self-contained dream of Confucianism, the Korean economy found itself in the midst of an international

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[1]Bank of Korea, The Economics-Statistics Annual, 1961 ed. (Seoul: Bank of Korea, 1961), p. 11.

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struggle for power. For almost forty years Korea was under Japanese control. After the defeat of Japan, Korea was divided into North Korea and South Korea as the consequence of the cold war between the West and East. Korea seems to be learning a new way of life the hard way and at the greatest expense.

The Communist invasion in 1950 brought the virtual collapse of the South Korean economy, which was then almost ready for a positive step of economic reorientation and reconstruction. Active combat below the 38th Parallel ended very early in 1951, yet the Korean economy of South Korea was able to begin functioning again, though very slowly for some time and at an increasing rate later. By the end of the 1953-54 fiscal year, the total output of goods and services reached roughly the level of the last fiscal year before the war.

Since the war, aid from various countries, especially the United States, has been a crucial factor in the survival of the South Korean economy. In the matter of policies for economic reconstruction, a close cooperation between the United States and the Republic of Korea was launched early in 1954. The rate of recovery, however, has been rather slow; the average rate of economic growth was little more than 4 per cent per annum. Thus, by 1960 the national income wasabout 25 or 30 per cent above that of 1953.[2]

2. Capitalism in Korea

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[2]There are no available data on either national income or production for the period earlier than 1953. Only rough indices of goods and services are presented in Chapter C, Appendix.

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1876 and later with the United States, China, Germany, Russia and France, Korea was the "Hermit Kingdom." The village was the basic economic unit, primarily dependent upon agriculture and small-scale handcrafts. Korea was a stable, orderly and economically self-sufficient nation. The feudalistic society lacked the dynamics of technology and a middle class and in turn, social changes and economic growth. The so-called "Asiatic stagnation" of feudalism persisted throughout the centuries with little change in the social and physical phases of life. Perhaps the most important reason for the stagnation of Korean economy in that period was the peculiar institutional environment in which a Confucian bureaucracy was rigidly maintained and in which a highly stratified aristocratic political institution bound men to the land through strong feudalistic personal ties.

After the Kwanhwa-do Treaty, the Hermit Kingdom became a pawn in the power politics of capitalism in the Far East. Rivalry for the control of Korea led to the Sino-Japanese War of 1894-1895 and the Russo-Japanese War of 1904-1905. Japan soon emerged victorious from both wars, established a protectorate over Korea in 1905 and forcefully annexed Korea to Japanese capitalism in 1910.

After 1905 there was a wide-scale infiltration of Japanese influence in politics and economics. In 1912 the Japanese governor-general promulgated a series of laws. The most important one was "The Real Estate Certificate Ordinance," which established private land ownership. This ordinance made the Japanese governor-general the largest land-owner in Korea. The land was later sold to

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Japanese companies at a low price or distributed to Japanese imigrants free of cost. The Japanese governor-general implemented a series of reforms of the currency, taxation, budget and others. The Japanese also built a fine network of railways, roads and other communication systems.

Until 1930 the design of the Japanese policies was strictly anti-industrialization[3], the classical example of colonial policies prevailing in earlier days. The Japanese policies were to exploit the land in order to supply food for the Japanese empire and to extract the mineral resources for the growth of Japanese manufacturing. At the same time, Korea served as a market for Japanese industries.

During World War I the Japanese economy experienced a great expansion. The rapidly expanded industries on the Japanese mainland during World War I, however, faced a precipitous crisis after the war. This crisis led to a stronger grip on Korea and led to the invasion of Manchuria in 1931. The invasion of Manchuria made the Korean economy a bridge between Japan and Manchuria. This basic shift in the function of the Korean economy was accompanied by the gradual inflow[4] of the Japanese capital into Korea so that Japan could economize locational advantage and minimize transportation

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[3]As to the Japanese policies in Korea, there is much literature. See: Jerome B. Cohen, Japan's Economy in War and Reconstruction (Minneapolis, University of Minnesota Press, 1949), pp. 33-47. See also: G. C. Allen, Japanese Industry: Its Recent Development and Present Condition (New York: Institute of Pacific Press, 1940)

[4]Japanese net investment in Korea totaled about $800 U.S. million for the years 1937 through 1944 according to the estimate of net trade balance. See: UNKRA, An Economic Programme for Korean Reconstruction (Prepared by Robert R. Nathan Associates, Inc., New York: 1954), p.24.

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[5] Henry G. Aub

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[7] UNKRA, ibid.

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costs. By the time Japan was involved in World War II, the Korean economy had become completely integrated into the Japanese economic nexus.

When Japan was defeated in 1945, about 2,400 business and industrial units and more than 160,000 residences passed into the hands of U.S. Military Government in Korea, and were later transferred to the Korean government as vested properties. Most of the vested properties were sold to the public by the Korean government.

In Pakistan, business enterprises abandoned by fleeing Hindus after the partition of India and Pakistan provided entrepreneural opportunity to Pakistanese.[5] The business properties abandoned by the Japanese, likewise, were an important foundation upon which the new entreprenuerial experience in Korea took place after 1945.

Thus, the Nathan Report states that Korea has probably enjoyed more industrial development than any of its neighbours in the Far East with the exception of Japan.[6]

The assessment of economic development of Korea under Japanese control is controversial. Some western economists and Japanese[7] argue to the credit of Japan, while Koreans unanimously

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[5]Henry G. Aubrey, "Industrial Investment Decisions": A Comparative Analysis", Journal of Economic History, XV, No.4, December, 1955, p. 349.

[6]UNKRA, op. cit., p. 36.

[7]UNKRA, ibid., p. 25, also John P. Lewis, Reconstruction and Development in South Korea (National Planning Association Publication: Planning Pamphlets No.94: Washington, D.C., 1955), p. 9.

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[8] Kwan Sook Pa

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decry this proposition and argue against the Japanese occupation.[8] In the Korean argument, perhaps, the non-economic factors have a greater weight than economic factors. The fact remains that the genesis of development was clearly rooted in the soil of Korea and the capitalistic method of economic growth in Korea was implemented by the Japanese occupation. It is also true that the development of Korea by the Japanese was geared to the requirements of the Japanese economy. As the consequence of this policy, the pattern of economic development was unbalanced and crippled when the Korean economy was viewed as an economic entity.

It also should be mentioned that entrepreneurs in Korea today are not comparable to those of the western countries. The western entrepreneurs climbed up from the middle class positions through thrift and innovating actions, while those in Korea are mostly the remnants of the feudal elite aided and abetted by the modern government. To this extent, they lack the dynamic necessary for economic growth.

3. Divided and War Economy

When the United States Army occupied South Korea in September 1945, South Korea was in a chaotic situation. The economy was run down, not only because of the Japanese exploitation, but also because of repatriation of the Japanese and the division of the peninsula into South and North.

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[8]Kwan Sook Park, "Some Criticisms on Japanese Claims for Properties in South Korea", Koreana Quarterly, III, No. 1 (Seoul: Summer, 1961), pp. 42-51. Also see: Moon Hwan Choi, "The Path to Democracy", ibid., pp. 52-70.

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[9] UNKRA, op.

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April, 1948, by

Percy H. Johnston, P

Korea. See: Kyung C

Co., 1956), p. 101.

[11] The Bank of

The sudden segregation of Korea from the Japanese economic orbit brought about a chaotic situation in production and trade. The repatriation of Japanese left the country with broken-down machinery without administrators and skilled technicians. Traditional market channels and sources of supply were cut off completely or disorganized thoroughly. Food production declined sharply largely because of the unavailability of chemical fertilizers. Korea, a former exporter of rice, no longer had supplies adequate even to meet the domestic needs. "Thus, benefits derived from lifting the yoke of Japanese control were more than offset economically, by the departure of a large portion of the managerial and technical personnel responsible for the operation of the Korean economy. Furthermore, the Japanese took some ships and possibly other movable assets. Also the repatriation of many Korean citizens from Japan added to the immediate post-war problem of readjustment."[9]

Perhaps the greatest blow to the Korean economy was the division of Korea into South and North, which left little hope for South Korea's development into a prospering self-sufficient economic entity.[10] The distribution of industrial resources and industrial production, before the liberation, between North and South is shown by Table 1.[11] North Korea is primarily an industrial zone, while South Korea is predominantly an agricultural area with a modest amount of light industry.

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[9]UNKRA, op. cit., p. 37.

[10]The importance of unification and need for continued aid to reconstruct industries in Korea were stressed in the report submitted in April, 1948, by the Johnston Committee, which was composed of Percy H. Johnston, Paul G. Hoffman, Sidney H. Scheuer, and Robert F. Loree. See: Kyung Cho Chung, Korea Tomorrow, (New York: MacMillan Co., 1956), p. 101.

[11]The Bank of Korea, Monthly Bulletin, No. 68, op. cit., p. 11.

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TABLE 1, A.

PERCENTAGE DISTRIBUTION OF SOME MINERALS AND MINERAL PRODUCTS (1945)

	South Korea	North Korea
Gold	29.5	70.7
Gold and Silver Mines	27.3	72.5
Iron Ore	0.1	99.9
Refined Iron	-	100.0
Tungsten	21.5	78.5
Graphite	29.0	71.0
Coal	2.5	97.7

TABLE 1, B.

ELECTRICAL GENERATING CAPACITY (1945)

	kw	per cent
South Korea	79,500	8
North Korea	909,200	92

TABLE 1, C.

INDUSTRIAL PRODUCTION, (PER CENT) (1945)

	South Korea	North Korea
Metal Products (Light)	73.0	27.0
Machinery Products (Light)	69.4	30.6
Chemical Products	14.3	85.7
Textiles	76.8	23.2
Foods	60.7	39.3
Gas	29.7	70.3
Miscellaneous	63.8	36.1

The complementary relationship between the North and South was cut off completely and opposite "isms" were implemented ruthlessly in each region. Neither the North or the South has been able to utilize the country's resources to a maximum degree. Furthermore, even the

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[12] John P. Lew

existing facilities of production were on the verge of extinction because of this structural separation. For example, the major portion of electricity, about 92 per cent, came from the North. After August, 1945, the North continued to furnish the South with electric power for a while, but in November, 1947, that supply was cut in half. In May, 1948, it was shut off completely. With a lack of power, most industries in the South were virtually idle for a period and households were rationed to a few hours of electricity at night.

Relative shortages of consumers' goods due to the decline of production were increased by the inflow of about 2 million refugees from the North.

Contrary to such pessimism, a very optimistic view was expressed by Professor John P. Lewis:

> It is particularly important to realize that the southern half of the peninsula does have sufficient human and natural resources to support a very heavy productive expansion. It is true that the whole peninsula, with the North's richer fuel, energy, and forest resources and its sparser native population, would be capable of greater development than the South is separately. But it is not true, as President Rhee sometimes likes to suggest for bargaining purpose, that partition left South Korea with a complex of resources in which it somehow is constitutionally incapable of being developed to a level of respectable self-support.[12]

At any rate, the need for structural reorientation in South Korea was, indeed, urgent and imperative. During the military government administration lines of policy as to how to deal with North Korea and South Korea were confused. Naturally, the primary purpose of the military government was to keep or establish political order. Although

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[12]John P. Lewis, op. cit., p. 22.

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statistical reports show considerable variation, approximately $400 U.S. million were spent during the period of the military administration. Perhaps it was impossible or premature to attempt a vigorous reorientation in the South Korean economy. At any rate, primary emphasis was put on the relief work of importing food grains, medical supplies and fertilizers. A limited amount of repair work on some strategic industries was made. Also, two floating Army power units were installed in order to increase the deficient supply of electricity. Officially, elaborate price control devices were eliminated in 1945. However, some price control on essential commodities was restored in 1946. Vested properties, owned by Japanese previously, were subsequently sold at auction. During the period of the military government, the percentage of farm tenancy declined from 73 per cent to 40 per cent of cultivated land. This was largely due to the sale of former Japanese-owned land.[13] At the same time the growing desire on the part of absentee Korean landlords to sell out their holdings grew because of declining returns and political sentiment in favor of land redistribution. Also, the improved economic status of tenant farmers made it possible for them to purchase some holdings. A major factor contributing to the improved status of the tenant farmers was a nearly 50 per cent reduction in maximum farm rents decreed by the military government shortly after the liberation.

On August 15, 1948, the Republic of Korea was established, and

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[13]Arthur I. Bloomfield and John P. Jensen, Banking Reform in South Korea, (New York: Federal Reserve Bank of New York, March, 1951), p. 15.

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the administrative control was almost completely transferred from the United States Military Government to the Republic of Korea by the end of 1948. In the meantime American economic aid policy shifted its emphasis from relief to economic rehabilitation by signing an agreement on December 10, 1948. Based on the Economic Cooperation Agency (ECA) aid the Korean government agreed, among other things to balance its budget, control the amount of money and credit, and to establish a realistic rate of foreign exchange as soon as possible. The agreement also provided for the establishment of a "counterpart fund" in the Bank of Chosen, the central bank before banking reform of 1950, into which the Korean government was to deposit the won equivalent of all U.S. aid made available to South Korea.

With the establishment of the Republic of Korea there emerged a clear sign of political stability. Economically, however, some discouraging sign appeared as the tempo of inflation started to pick up. The Korea government now set up and financed a sizeable military force, which was previously paid out of U.S. Army appropriations. The government also attempted an ambitious plan of economic rehabilitation.

The rising spiral of inflation brought critical attention from the public and the U.S. aid authorities. Largely by the persuasion of the latter, the Korean government initiated the Fifteen Points of Stabilization Programs, which basically reinforced the 1948 agreement between the U.S. and the Republic of Korea.

The interwar period was one of most significant progress for the South Korean economy. The U.S. contribution of approximately

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[14] Kyung Cho

$100 U.S. million, which was managed very efficiently through the E.C.A., helped to achieve significant progress in over-all industrial production. Grain output was raised by more than 25 per cent and the industrial output by 1950 seemed, over all, to have increased by more than one-half above its disorganized period of liberation. Strategic supplies like coal and electric power increased several times above the level of 1945. By the beginning of 1950, consequently, the Korean economy showed hopeful signs of rehabilitation and economic reconstruction.

Efforts for economic stabilization and reconstruction on the part of the E.C.A. and the Republic of Korea turned into ashes after the invasion of the North Korean communists of June, 1950. Much of the territory of South Korea was fought over two or three times during the first year of war. Production, trade, transportation, communication, administrative machinery were all disrupted. Physical damages far greater than imagined resulted from the war. "The war damage in Korea was greater in proportion than in any other country in modern history. The national economy today may be likened to a flower garden in the wake of a steamroller. Little is left but the root."[14] According to a U.N. source, the damage amounted to something above $1.8 U.S. billion at 1952-53 prices. Roughly 43 per cent of industrial facilities, 41 per cent of power facilities, and over 50 per cent of mines were reported to be damaged besides housing, public buildings, ships and others. The Office of Public Information of the Korean government, on the other

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[14]Kyung Cho Chung, op. cit.,

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hand, released estimates of war damage amounting to $3 billion.[15]

Although the damage resulting from the war defies a reliable quantitative estimate, available information suggests a vital blow to the Korean economy.

4. The Period of Recovery and Reconstruction

Post-war Korea was caught in a tight shortage of all kinds of goods, especially of capital goods. This was due not only to the little replacement of capital under Japanese control and during the Korean War, but also because of damage from the war. A crucial question, therefore, was whether or not a sizable and timely transfusion of capital was available so that the South Korean economy could heal the scars of the war.

The United States was undertaking wade-scale assistance activities through its Army command. The transfusion of goods was largely done by this U.S. aid. From the war until 1952, however, economic aid was expedient and a piece-meal type of patching operation rather than reconstruction work followed.

In 1950 when General MacArthur gained the prospect of victory, the United Nations established the U.N. Commission on the Unification and Rehabilitation of Korea as a small policy-advising body and later the United Nation Korean Rehabilitation Agency (UNKRA), a full-time program and administrating organization. In the meantime the Korean government also worked out a detailed, somewhat over-ambitious plan of reconstruction in 1951.

Despite its early start reconstruction planning remained slow, uncertain and hesitant. By the end of 1952 no unified plan for reconstruction was formed.

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[15] Bank of Korea, Monthly Bulletin No. 66, (April, 1954), p. 13.

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As the prospect of a truce became brighter, increased activity in planning for reconstruction was apparent. In December, 1952, the UNKRA released Nathan's Report, the first comprehensive general blueprint of the reconstruction program. The Tasca[16] mission visited Korea in April, 1953. Upon the submission of the Tasca report, President Eisenhower requested and the U.S. Congress granted an emergency appropriation of $200 million as the first installment of South Korean relief and rehabilitation.

At the same time there was a series of reforms on the part of Korea in order to accomplish a comprehensive over-haul of the economic structure. The most important among them was the currency reform of February, 1953, which aimed to absorb the excess liquidity in the economy and reduce the size of denominations of outstanding currency.

The truce agreement at Panmunjum was signed after severe conflicts between President Rhee and the U.S. Department of State. The government as well as civilians returned to Seoul after the truce agreement. The Combined Economic Board (CEB) was established with a joint memberships of the United States and the Republic of Korea. Aid agencies, with the exception of UNKRA, were put under the direction of the C.E.B. The C.E.B. has been the main body of economic programming and policy-advising.

The new departure for reconstruction, however, was sadly disappointing. In the Fall of 1953 overt conflict between the United States and the Korean government concerning the general

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[16]This was a special U.S. Presidential economic mission under the leadership of Henry J. Tasca.

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economic policy became evident. The rest of the year was devoted to the negotiation of the new official hwan-dollar exchange rate. This issue was settled at the end of 1953 by increasing the exchange rate from 60 hwan to 180 hwan[17] per dollar with an agreement about financial stability and economic reconstruction. The exchange rate problem has been one of the most serious issues in economic policy in Korean economy. The issue was reopened in the middle of 1954. Negotiations broke down once again until a new agreement was reached in November, 1954.[18]

The basis of the conflict was whether or not monetary stability should precede economic reconstruction. The United States was in support of the monetary stability argument while the Korean government was in favor of the reconstruction-first argument.[19]

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[17]Hwan is an accounting unit of Korean currency, which is equivalent to 100 won in old currency before the currency reform of February, 1953.

[18]A rate of exchange applicable to the advances to the U.N. military authorities was raised to 500 hwan per U.S. dollar. In August, 1955, the official rate of exchange was raised to 500 hwan per U.S. dollar, which replaced the multiple rates of exchange existing previously.

[19]The monetary stability argument might have appeared to the Korean government to be the acceptance of permanent stagnation of the wartorn economy of South Korea, in view of the fact that American aid didn't appear to be sufficient to the need of the Korean economy as is indicated by John J. Lewis:

1. Despite the "bold approach" of 1953, U.S. policy still reflects a basic conflict between the size of Korea's minimum aid requirements for successful reconstruction and Washington's diminishing tolerance for foreign assistance spending.
2. Partly because of budgetary austerity, we persist in trying to buy two things - extraordinary R.O.K. military strength, and economic reconstruction - for little more than price of one in Korea.
3. Reconstruction progress is still harried by inadequate joint planning and a record of inept inter-governmental relations.

Cf: John P. Lewis, <u>op. cit.</u>, pp. 41-46.

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In general, the enthusiastic beginning of reconstruction was hesitant in 1951 and 1952 and practically collapsed in 1953 until the middle of 1954. A systematic plan of recovery, coordination of policy between the United States and Korea and an aggressive reconstruction effort backed by a bold investment of economic aid was lacking.

From 1955 on, however, the situation gradually improved. The over-all program of economic reconstruction and the plan for sources and uses of funds were under the guidance and control of the C.E.B. By 1954 industrial production showed a significant improvement. At the same time the Korean government enforced an austerity policy in fiscal and monetary spheres especially after the exchange rate depreciation in August, 1955. After 1958 the economic aid declined to a noticeable degree and severely restricted the Korean government's fiscal operation.

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CHAPTER III

FINANCIAL INSTITUTIONS

1. Introduction

At the present the Korean banking system consists of the Bank of Korea (central bank), the Korean Reconstruction Bank, and four commercial banks. These banks maintain more than 300 branch banks in major cities of the country. Considering the Korean economy, the banking system is rather well developed, in fact, over developed.[1]

In addition, there is the Agricultural Bank, which maintains 162 branch offices and 388 sub-branch offices. These branch and sub-branch offices of the Agricultural Bank, which used to be the financial cooperatives, are located in major cities and rural areas and serve development projects of industries, commerce, fishery and agriculture,

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[1]Professor Koh Seung Jae quotes S. G. Panadikar's Banking in India (1954), in which the ratio of population to the number of banking offices is used as the index of degree of development of banking institutions. According to his method, population per bank office is as follows:

U.S.	3,056	India	387,000
U.K.	4,816	Korea	111,063
Japan	9,496		

This index can be used as a rough index at the risk of serious logical defects. However, this index does not tell if the banking institutions are adequate to a particular economy. In the case of Korea, banking institutions served not only the Korean economy, but also for Manchuria, China, and the Japanese mainland to some extent. After the separation of Korea from the Japanese economic orbit, naturally some excess banking facilities were left idle. Evidence to support this hypothesis is the fact that in 1954, about 28 branch offices were closed. Many branch offices continue to operate at a loss. See Jae Jeung (Seoul: Jae Jeung Sa, April, 1955), pp. 50-85.

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The existence of capital markets is still in the infant stage of development, though some government security and a few corporate stocks are traded in an unorganized security market. The call-loan market or other short-term money markets are virtually non-existant in the accepted sense of the terms. Most of the short-term and some of the intermediate loans are financed through informal markets.

The formation of the present day Korean banking system, in its technical and structural framework, was taken after the Japanese system. The year 1950 is called the "era of banking reform in South Korea." A series of banking reform measures were carried out largely on the basis of recommendations made by Arthur I. Bloomfield and John P. Jensen of the Federal Reserve Bank of New York. Yet the ever-all structure of the banking system in South Korea did not change appreciably by these reform measures, except the adoption of the central banking system, which was patterned to a large extent after the Federal Reserve system of the United States. The establishment of the central bank in Korea, although it is somewhat belated, was an act of conformity with the general tendency of the revival of monetary policy after 1945.

2. Banking Institutions Before 1945

A. The Bank of Chosen

The development of the central banking system dates back to

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1878 when the Daiichi Bank of Japan set up a branch office in Pusan. The purpose of the Pusan branch office of the Daiichi Bank of Japan was to smooth trade between Korea and Japan by providing loans and engaging in exchange business.

In the midst of a political tangle, Mr. Toshitaro Megata, of Japan, became a financial advisor to the Ministry of Finance of the Korean Government in 1905. The vulnerable Korean financial situation allowed the Daiichi Bank of Japan to infiltrate into the Korean government, banking system, industries, and agriculture. From 1883 to 1909 the bank functioned as the fiscal and note-issuing agency of the Korean Government.[2] On the part of the Korean indigenous bankers, there was an attempt to establish a central bank in 1899, but their plans did not materialize.

In 1909 the Daiichi branch office in Seoul became the head office of the Bank of Korea, a central bank, and the branch offices of the Daiichi Bank became the branch offices of the Bank of Korea in respective cities.

Toward the end of the Yi Dynasty, the last dynasty in Korea, the banking system in Korea faced a crisis, the so-called "nickel inflation."[3] By an arrangement made by Megata, a loan agreement was

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[2]This seemed to happen together with a series of reform measures; tax reform, currency reform, etc., which were advised by Megata. See: Bank of Chosen, Economic History of Chosen (Seoul: Bank of Chosen, 1921), pp. 37-42, 43-57, and 58-71.

[3]Two types of coins, nickel and copper, were circulating in Korea as the medium of exchange. The Korean government over-issued nickel coins (16 different kinds), and an enormous amount of counterfeits were prevailing until hundreds of different kinds of coins were in circulation. Cf: Bank of Chosen, ibid., p. 49.

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made between the Korean government and the Daiichi Bank of Japan, under which the Daiichi Bank of Japan controlled the Korean National Treasury and acted as a central bank in 1909 in return for three million yen of the loan.[4]

In 1911 the Bank of Korea was named the Bank of Chosen. The Bank was under the complete control of the government, especially after the enactment of the National General Mobilization Law.

Apart from the privilege of issuing legal tender currency in Korea, the Bank of Chosen performed other traditional central banking functions, namely, holding reserves and rediscounting for other banking institutions, and acting as banker and fiscal agent for the government. The Bank also conducted the ordinary banking and trust business as follows:[5]

a. Discounting bills of exchange and other commercial paper;
b. Making loans on reliable security and granting advances;
c. Making loans without security to public bodies;
d. Purchasing government bonds, bonds issued by prefectures and municipalities and other negotiable securities;
e. Engaging in foreign exchange business and purchasing and selling gold and silver;
f. Receiving deposits and providing safe custody for precious metals (gold, silver, etc.), and documents;
g. Conducting trust business;
h. Acting as agent for other banks and collecting bills for companies and merchants maintaining regular business relations with its offices;
i. Engaging in any other business as ordered by the government.

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[4]Seung Je Koh, "The Development of the Modern Banking System in Korea," Koreana Quarterly II, No. 4 (Seoul: Spring, 1960), p. 87. The Daiichi Bank also undertook the currency readjustment business which was to substitute the Korean coins for new coins of the Bank of Chosen.

[5]U.S. Department of Army, Japan, Section 3: Money and Banking (Civil Affairs Handbook, Army Service Forces Manual, M 345-5; Washington, D.C., November, 1944), p. 41.

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The Bank of Chosen was the largest commercial bank and the largest development bank making long-term loans to the government as well as to the private sector. In fact, the Bank of Chosen was the appendage of the government. Consequently, the policy of the Bank was characterized by the extreme degree of expansionism of that period. For example, after the annexation of Korea to Japan, the Bank faced a constant deficit in the balance of payments. The Bank, however, did not conduct a contractionary monetary policy. "A raising of the bank rate was sure to relieve the Bank of this difficulty by calling home [the Japanese mainland] capital and discouraging imports. ...But this could not be done without interfering with the industrial progress then going on, for which cheap money policy was most necessary."[6]

B. Commercial Banks

Following the establishment of the Pusan branch of the Daiichi Bank of Japan in 1878, infiltration of other Japanese banks occurred rapidly. The infiltration of Japanese banks in Korea necessarily spurred the growth of Korean-owned banks, such as the Chunil Bank (1896), the Hansung Bank (1900), and the Hanil Bank (1906).[7] After the establishment of the Bank of Chosen, the Japanese held a complete grip over the Korean

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[6]Bank of Chosen, op. cit., p. 204.

[7]Most Korean-owned banks except the Hanil Bank suffered from insufficient capital for their operations. The Governor-General of Korea issued a decree which was to increase the bank's capital. The Kanjo Kyodo Storage Company, set up in 1905, and the Kanjo Tegata Guild, set up in 1904, supplied loans to the Korean-owned banks, and eventually exercised an immense authority over the management of banks. The Korean-owned banks were soon subject to approval by the Governor-General of Korea of the bank's operating function, appointment of executives and distribution of dividends.

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financial system. The Korean banks with meager capital were forced to merge with Japanese banks or companies. For example, the Kanjo Kyodo Storage Company took over the Chunil Bank in 1912, and started the Chosen Commercial Bank, which is the most important commercial bank in Korea. In the middle of 1940 it had 44 branches and agencies in Korea. There were six commercial banks with 115 branches in major cities of Korea.

C. Industrial Banks

In June, 1906, the Korean government put into force a decree establishing agricultural and industrial banks in six major provincial cities of Korea. To supplement the agricultural and industrial banks, a total of 50 provincial financial cooperatives were established in 1908. The cooperatives were to contribute toward smoothing the turnover of farming funds and help facilitate agricultural development. (The number of these cooperatives increased to 338 in 1919 and 729 in 1929.)

In 1918 the agricultural and industrial banks, which were established in six major cities, were unified as the Chosen Industrial Bank. At the same time, 58 branch offices in Korea and two in Japan were established. The Chosen Industrial Bank was primarily concerned with a long-term development of agriculture, industry, mining and fisheries, with close cooperation of the Toyo Development Company, set up in 1908, and various cooperatives in local regions.

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office, the Federation of Financial Cooperatives, located in Seoul. Financial Cooperatives, since its establishment in 1908, has become more and more prosperous through several changes in its structure and has been playing an important role in Korean agriculture, fisheries and small-scale manufacturing.

D. Savings Institutions

Well-organized networks for tapping savings from the public were developed in Korea. In 1929 the Chosen Savings Bank was founded as a subsidiary of the Industrial Bank.

In 1931 twenty-one trust companies existed in Korea (only five were registered and permitted to continue their business). In 1932 the Governor-General of Chosen promoted the founding of the Chosen Trust Company, which in 1933 merged with three of the five trust companies and in 1934 purchased the remaining two. Later this was called the Chosen Trust Bank. The Banks had few branch offices in major cities. At the end of 1938 eighteen Mutual Aid companies were established, which later became a single Mutual Aid Bank.

Finally, another important savings institution is the postal savings system which was set up in 1875, being modeled after the British and Belgian systems. After the annexation of Korea the postal savings system was introduced in Korea. It maintained more than 1,000 branch offices throughout the country. The purpose of the postal savings system was to tap the small sources of savings.

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3. Financial Institutions After the Liberation

After the liberation the structure and pattern of the Korean banking system remained as it was before, except that the Korean Foreign Exchange Bank was established under the United States Military Government and that the names of various banks were changed. All branches of the Japanese banks were closed. Thus the existing banks were all owned either by the Korean Government or by Koreans. When the branches of foreign banks are important to a country's banking system, the monetary authority has only indirect control over money and credit. However, this weakness did not exist in the Korean banking system.[8]

The sudden separation of Korea from Japan brought about a severe dislocation and rapid change in the structure of the Korean banking system. For example, the existing banking system was loaded with uncollectible assets and invalid liabilities on the eve of the liberation because over half of the investments and loans of the banking institutions were securities of and loans to the Japanese government, Japanese companies and individuals. The bisection of Korea also brought about a similar problem.

The basis for the establishment of banking institutions is the existence of economic activities. The decline of economic

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[8]Andrew Brimmer, "Banking and Finance in the Sudan," in the South African Journal of Economics, XXVIII, No. 1 (Sudan: March, 1960), pp. 24-25. He states, "the commercial banking system in the Sudan is similar in many respects to that in other underdeveloped countries. For example, all banks are branches of foreign institutions over which there is only moderate and indirect control."

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activities due to the dislocation and structural change of the Korean economy made the Korean financial institutions a somewhat fictitious structure. For example, before the liberation the Industrial Bank was engaged primarily in lending intermediate and long-term capital to industries, agriculture, commerce and fisheries with funds acquired from the sales of debentures in the Japanese market, especially the Do-Yo Development Company. After the liberation, however, the Industrial Bank lost the funds needed for long-term lending. Therefore, practically all banks, including the Industrial Bank, depended on the central bank for loans for their banking operations.

The loss of funds for banking operations, the access of various banking institutions to advances from the central bank and continuous inflation after the liberation brought about the despecialization of the banking institutions in Korea. During the Japanese occupation the Korean banking system had developed a fairly high degree of specialization of banking and financial institutions. The Industrial Bank, primarily engaged in medium and long-term loans, was also conducting a regular commercial banking operation. The long-term lending operations were greatly reduced after the liberation and the scope of the commercial banking operations increased relatively and absolutely. The specialized functions of the Trust Bank, the Mutual Aid and the Savings Bank declined to almost an insignificant degree because of continued inflation and the loss of funds. Shortly after the liberation, the Savings Bank, the Trust Bank, and the Mutual Bank requested

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p. 63 and p. 66.

[10] Ibid., p. 3.

and were permitted to engage in commercial banking in addition to their other functions.

Thus Bloomfield and Jensen state:

> All the existing banking institutions are engaging predominantly in a regular commercial banking business....Evidence which we have gathered points to the existence in Korea today of an excess of ordinary commercial banking facilities relative to the country's present needs. Despite the 25 per cent reduction in the number of bank branches in July, 1947, there still appears to be more branches than the country really needs.[9]

In addition, the Korean banking system was operating on the basis of cumbersome and outmoded rules and regulations which reflected the economic climate which prevailed under the Japanese control, and which were not longer at all pertinent to the Korean situation.[10]

After the liberation the Korean Government took possession of vast vested properties. The controlling shares of all Korean banking institutions, except the Financial Associations and the Chcheung Bank, passed directly and indirectly into the hands of the Government. This brought serious concern regarding the effectiveness of monetary policy. Because the government held the controlling shares of the banking system, the banking system, in fact, was the appendage of the Ministry of Finance. Lack of an independent banking system in Korea naturally created the limitation of credit control; that is, it was impossible to enforce credit control independent from political pressures.

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[9]Arthur I. Bloomfield and John P. Jensen, Banking Reform in South Korea (New York: Federal Reserve Bank of New York, March, 1951) p. 63 and p. 66.

[10]Ibid., p. 3.

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4. Banking Reform: The Model for a New Central Bank

Banking reform was necessary in many aspects of the Korean banking institutions. In particular, reform was undertaken in the environment in which stopping inflation was the most important goal of economic policy. It was urgent to reorient and strengthen the South Korean banking system as a whole and to promote greater efficiency in its function. The specialization of banking functions, which was a significant characteristic of the Korean financial institutions before the liberation, had to be restored in the light of the new economic environment. Therefore, the central bank was placed in the position of leadership of reorganizing the banking system under the direction of the Monetary Board as stipulated by the Act of Establishing the Bank of Korea and the General Banking Act.

The budget deficit has been the major cause of the Korean inflation since 1945. The Government had to rely exclusively on borrowing on overdraft from the central bank in order to finance its deficit. The fact that the Government and its agencies have been the chief borrowers from the banking system has also weakened the ability of the Bank to control credit adequately. Important provisions in the Act, therefore, are those relating to advances and loans to government and government agencies.

The provision about the amount and maturity of advances that the central bank can make to the government is liberal in Korea. The Act[11] provided that there is no limitation on the amount of advances which the bank could make to the government or to the length of time

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[11] The Act Establishing the Bank of Korea, Article 83.

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that such advances will be outstanding. The only restriction was that the advances outstanding at any time must not exceed the amount of indebtedness which, in conjunction with any borrowings by the government from other sources, has been duly authorized.

Until 1955 the central bank had also made large loans to Government Agencies.[12] Loans to Government Agencies were for periods not to exceed one year, if the loans were for purposes other than purchasing agricultural and other products for sale and distribution to the public. They might be renewed only once and for a period not exceeding one-half of the original period. No formal limitations were placed on the amounts of these loans, but such loans had to be authorized by the National Assembly and guaranteed by the government as to payment of principal and interest.[13] In the General Banking Act, it was provided that all loans to Government Agencies by other banking institutions must likewise be guaranteed by the National Assembly.[14]

The most important objective of the Act of the Bank of Korea was to convert the central bank, at that time the Bank of Chosen, into a genuine central bank. As was described, the Bank of Chosen conducted the business of the commercial bank, the trust bank and even the development bank. The Bank also performed the traditional

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[12]Government Agencies comprise all "judicial persons designated by the Government to execute, on its behalf, projects or functions of a public character in the fields of production, purchase, sale or distribution." The Government Agencies were abolished in 1955.

[13]Ibid., Article 86, 87 and 88.

[14]The General Banking Act, Article 23.

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functions of the central bank. It had, however, never performed to any significant degree the role of controlling the money supply and credit in the interest of achieving and maintaining monetary stability.

> Largely, the failure of the Bank to carry out this role had been due to a lack of appropriate control powers, an adequate appreciation of its special functions and responsibilities as a controller of credit, and a chronic subservience to other authorities, the Japanese Government, the United States Military Government, or the Ministry of Finance of the Republic of Korea, which have prevented it from pursuing an independent credit control of its own.[15]

The most important change in the Korean banking system was the establishment of a monetary board. The Monetary Board is composed of a seven-man group of representatives of different interests. The Act stipulates that the Bank of Korea shall function under the general direction of the Monetary Board and the Board shall "formulate monetary, credit, and exchange policies and shall be responsible for the general direction and supervision of the operation, management, and administration of the Bank."[16]

This is a sharp break from the past banking tradition in Korea under which the formulation and implementation of monetary policy were placed under the direct control of the Ministry of Finance. According to Bloomfield, the author of the Act, a central bank is much too strategic and vital a factor in a country's financial and economic welfare to be guided by any one man or any one narrow group, no matter how well intentioned.[17] This idea was

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[15] Bloomfield and Jensen, op. cit., p. 43.

[16] The Act Establishing the Bank of Korea, Article 7.

[17] Bloomfield and Jensen, op. cit., p. 44.

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a tradition set by the Federal Reserve System, and recently incorporated into many central banks of underdeveloped countries. The introduction of this principle was to make the Korean banking system democratic and independent from political influences. However, the provision of a necessary degree of "independence" of the Bank from political pressures is somewhat doubtful because of the membership of the Board. The Minister of Finance is an ex-officio member of the Monetary Board and is charged with the responsibility of presiding over the meetings of the Board.[18] The Minister of Finance hoped to provide an avenue of communications between the government and the Bank of Korea and to ensure the coordination of two organizations. It is felt in many countries, however, that the presence of the Minister of Finance or his deputy on the Board is likely to have an undesirable political influence. This was observed by Bloomfield later when he revisited Korea in 1952 to investigate the performance of the Bank of Korea. He states:

> Although the Bank of Korea Act explicitly provided that the determination of the monetary, credit and exchange policies of the Republic of Korea would be the exclusive responsibility of the Monetary Board--the Minister of Finance being but one of seven members, although the most important single member--it was, of course, recognized that some time would probably have to elapse before this notion would be fully understood and accepted in a country where tight Ministry of Finance domination of the banking system had so long been the tradition and the rule. There is in fact some evidence that the Ministry of Finance has not as yet fully adjusted itself to the new democratic principle incorporated in the institution of the Monetary Board.[19]

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[18] The Act Establishing the Bank of Korea, Article 8 and 9.

[19] Arthur I. Bloomfield, Report and Recommendations on Banking in South Korea (Seoul: Bank of Korea, 1952), p. 23.

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The Monetary Board is, at any rate, given extremely wide powers over the management, administration, and operations of the banking system as a whole. The major powers of the Board are discussed below.

A. The Monetary Board is empowered to fix and alter the minimum ratios of reserves to deposits. Minimum reserve ratios may not be less than 10 per cent or normally more than 50 per cent, but in periods of pronounced inflation the Board may require other banking institutions to maintain 100 per cent reserves against any subsequent increases in deposits above the amounts outstanding on the date on which such requirements become effective. The Board may also fix different minimum reserve requirements for different classes of deposits.[20]

B. The Monetary Board will also be able to exert a measure of control over the credit operations of other banking institutions by altering the rates of discount.[21]

C. Due to the ineffectiveness of the discount rate policy in the underdeveloped money market, the Monetary Board is empowered with flexible rules of eligibility quite contrary to the rigid rules of eligibility of the traditional policy of a central bank. This provision of flexible rules of eligibility is to emphasize the role of discount as an instrument of selective control, rather than a tool of credit control. The discretionary power of the Bank, therefore, to accommodate credit to the banking institutions is

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[20] The Act Establishing the Bank of Korea, Articles 56, 57 and 58.

[21] Ibid., Article 72.

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a. The Bank is authorized to rediscount, discount, buy, and sell promissory notes, bills of exchange and other credit documents with maturities of not more than six months, acquired as a result of operations associated with the importation, exportation, purchase, sale, or transport of readily saleable products, and with the storage of non-perishable goods insured and deposited in authorized warehouses.[22]

b. The maturity of eligible documents is extended to one year from the date of their acquisition by the Bank and such credit will cover the documents associated with the production or processing of agricultural, pastoral, mineral, fishery, or industrial products.[23]

c. Moreover, the Bank is authorized to grant advances in periods of grave emergency when monetary and banking stability is directly threatened against the security of any assets which the Monetary Board, by a vote of at least five of its members, defines temporarily as acceptable collateral.[24]

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[22] Ibid., Article 69 (a), 2, 3.

[23] Ibid., Article 69 b.

[24] Ibid., Article 69 c.

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[25] Ibid., Ar+ic

[26] Ibid., Ar+ic

[27] Ibid., Ar+ic

[28] Ibid., Ar+ic

d. A further point of interest is Article 72 which prescribes the duty of the Monetary Board to fix the Bank Rate in such broad terms that a preferential scale of discount rates can be applied to the types of loans considered as essential to the national interest.

D. Sales and purchases of securities by the central bank in the open market are also the domain of the Monetary Board. The Act provides "the economic climates in which the open market operation should be conducted."[25] This provision is for the long-run purpose rather than immediate practical uses because it is impossible to conduct open-market operations due to the lack of security markets. For this reason, the Bank is equipped with a stronger power to issue its own "stabilization bonds" which can be used in carrying out open-market operations.[26]

E. The most powerful and frequently used instrument of credit control is ceilings on the aggregate volumes of loans, advances and investment of banking institutions.[27]

F. The Board may require, in periods of pronounced inflation, that all applications for loans in excess of specified amounts made to banking institutions by their customers be submitted to the Board for prior approval either for the purpose of quantitative or qualitative control of credit.[28] The Article 66 of the Act does not

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[25] Ibid., Articles 90 and 91.

[26] Ibid., Article 92.

[27] Ibid., Article 66.

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[29] Ibid., Article

[30] R. S. Sayers

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specifically refer to the rediscount ceilings. However, the Act provided the Monetary Board with sufficient authority to impose such ceilings in periods of inflation.[29]

Besides the above major provisions essential for the control of money and credit, the Board is given the power when it deems necessary to fix maximum rates of interest which other banks may charge for loans and advances to their clients. The Board is also empowered to authorize other banks to accept government deposits and to order that such deposits be transferred to the central bank at any time.

One may note the wide scope of discretionary powers of the Bank of Korea. This reminds us of the statement of R. S. Sayers which strongly argues for the discretionary nature of the central bank. "The central bank is the man who exercises his discretion, not the machine that works according to rule."[30] Such is the case of the Bank of Korea. The model and techniques of monetary management are characterized by an extremely discretionary nature. It is often said that the discretionary power of the central bank in an underdeveloped country should be wider and more flexible than those of a developed country because of the absence of a money market and external factors affecting the money supply.

The argument for discretion is not free from criticism, especially from the "Rule" school. Criticizing the monetary manage-

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[29] Ibid., Article j.

[30] R. S. Sayers, Central Banking after Bagehot (London: Oxford University Press, 1957), p. 1.

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ment of the Federal Reserve System, for an example, Professor Friedman states as follows;

> The haphazard assortment of tools reflects mainly historical accident. Tools have been added from time to time; none have been substracted except for the lapsing of temporary power to control consumer and real estate credit. The resulting collection is poorly adopted to the tasks of controlling the money supply, and renders that more difficult.[31]

Friedman's statement brings out several important questions regarding the model of Korean central banking. Obviously, Friedman is in criticism of discretionary policies, and in favor of automatic rule for manetary management. Professor Friedman's argument is quite opposed to Professor Sayer's.

The fact that the argument for the "rule" has been developed our of the long experience of American banking, and the impression that many American bankers who helped establish the central banks in underdeveloped countries completely neglected the "rule" aspect of central banking, seem to provide good reasons for exploring the possibility of implementing the "rule" approach.

This study is not designed to explore this possibility. However, the findings of this study may point out the undesirable consequence of extreme degree of discretionary policies in Korea.

Though minor it may be, the banking reform also brought attention to the fact that banking institutions prior to the reform had many uncollectable assets and meaningless liabilities on their books.

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[31]Milton Friedman, A Program for Monetary Stability, (New York: Fordham University Press, 1959), p. 25 and pp. 84-6.

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The uncollectible assets and meaningless liabilities encumbering the existing banking system were to be cleared in order to have sensible management of banking institutions.

Somewhat of greater importance was to sell the shares of the vested banking institutions in order to have sound and democratic banking operations independent from the influence of government. As described in Section 3, all commercial banks except one, Choheung Bank, were practically the branches of the Ministry of Finance. Despite the early suggestions of Bloomfield and stipulations made in the General Bank Act, the Korean government had been reluctant to sell the shares of vested banking institutions until 1954. The sale of shares of the vested banking institutions was started in 1954 and almost completed by 1957.

The General Banking Act, as a companion measure of the Act of Establishing the Bank of Korea, was primarily designed to strengthen and improve the efficiency of the existing banking system. As criticized by Bloomfield, the Korean government, however, put off the implementation of the Act until 1954, four years after the Act was passed in the Congress.[32] The Act vaguely defined banking operations so that commercial banks could engage in short- and long-term lending operations,[33] contrary to the original draft of the Act. Commercial banks, however, now engage primarily in the

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[32]Arthur I. Bloomfield, op. cit., pp. 20-21.

[33]The General Banking Act, Article 15.

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short-term lending operations associated with trade and inventories of business.

Several banking institutions which developed after the banking reform should be mentioned in this connection. As a specialized agency for agricultural finance, the Agricultural Bank, formerly Federation of the Financial Cooperatives, was established in 1956. The Korean Reconstruction Bank (formerly the Industrial Bank) was established as the specialized agency for the long-term industrial lending operations in 1954. The Bank was established on the basis of a special act which deviates from the basic principle of the Act of Establishing the Bank of Korea and the General Banking Act.[34] The Korean Reconstruction Bank is a government-owned industrial development bank subject to the close control of the Ministry of Finance. Furthermore, the Korean Reconstruction Bank is subject to neither the stipulations of the Act of Establishing the Bank of Korea nor the General Banking Act. Inasmuch as the sources of funds are the loans from the government and the issue of its own "Industrial Debentures", which were sold to the Bank of Korea, the Korean Reconstruction Bank emerged as the strong engine of inflation in Korea.

5. Informal Financial Institutions

A brief description of informal financial institutions should be made in this section. They comprise various types of

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[34]Arthur I. Bloomfield, Report and Recommendations on the Korean Reconstruction Bank (Seoul: The Korean Reconstruction Bank, 1960), p. 35 and p. 58. See also Yun Dang, "The Start of the Korean Reconstruction Bank, "Monthly Bulletin (Seoul: The Korean Reconstruction Bank, October, 1954), pp. 4-10.

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money lenders who follow non-standardized or informal practices in financial transactions. In Korea the informal institutions have a long history, and the institutions developed in a rather diversified pattern.[35] Most are short-term money lenders. Before land reform, landlords and merchants performed the main role of money lenders. After the land reform, however, merchants emerged as the principal money lenders.

The family is an important financial institution as it is in many underdeveloped countries. "Jeun Dang Po" or "Mortgage House" also plays an important role. The most important is "Kei". "Kei" is an institution of ancient origin in Asia, which is a micro-scaled mutual aid bank. In this "Kei", family, friends, merchants and various occupational groups are all integrated into a powerful institution.

The "Kei" was superceded by financial cooperatives after 1910. In 1950, however, the Japanese administration used the "Kei" organization as the sub-structure of the financial cooperatives. During World War II the "Kei" virtually ceased to function as an official organization. After the liberation of Korea, the "Kei" grew rapidly. Today, hundreds of different types of "Kei" exist.[36]

It was said that the total transactions of these "Kei" were

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[35]Koum Yoong Sa; "History of Financial Institutions" in Koum Yoong (Seoul: Koum Yoong Sa, June, 1954), p. 145.

[36]Kim Sam Soo, "History of Kei" in Jae Jeung (Seoul: Jae Jeung Sa, date unavailable), p. 69.

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September, 1951), pp

greater than those of commercial banks in 1955.

The term "informal" may connotate the indigenous or non-money sector of the economy in which the public lacks the contact with the formal types of financial institutions. When the need for money arises, the only access is the informal institutions. An unique characteristic of these informal money markets is an unusually high rate of interest, primarily due to the inelasticity of demand and limited supply. Furthermore, markets are imperfect due to customs and other sociological reasons. Because of this, the rates of interest vary widely depending on localities and the interest rate structure is unintegrated.[37] An implication for the efficacy of monetary management is that these markets are very insensitive to the actions of the central bank.

Far more important institutions, other than these indigenous types of money lenders, are the ones that are located in city areas. If informal institutions imply only those existing in the non-money sector, it is a gross misunderstanding in the case of Korea. The "Kei" located in city areas are the sources for consumer credit and for the funds associated with high-profit earning and speculative business activities. That is to say, these are the short-term money markets in Korea. As will be seen in the next chapter, bank funds have been allocated only for the uses of productive investment and government deficit. In formal money markets short-term credit is

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[37]For a detailed description see U. Tun Wai, "Interest Rate Outside the Organized Money Markets of Underdeveloped Countries," Staff Papers VI, No. 1 (Washington, D.C., International Monetary Fund, September, 1951), pp. 80-142.

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not normally available except for the arrangement of overdraft.

These informal money markets have grown rapidly because of inflation in Korea. The persistent inflation has diverted the funds from productive activities into speculative and high-profit activities. "Despite a formal prohibition on loans for speculative purpose, moreover, a large part of the bank loans, especially those to private individuals and enterprises, is believed to have been used to finance the hoarding of commodities."[38] A particular importance of these markets is that they are very sensitive to changes in the price level. Interest rates are high and move together with the price level. The high interest rates continue to attract the funds from other less profitable activities to high-profit activities. At the same time the high interest rates squeeze the incentive for productive business activities. So long as inflation persists, there will be a big discrepancy between the rates of interest in informal and formal markets. It is this discrepancy of interest rates that makes the discount rate policy ineffective as will be seen in the next chapter. The actions of the central bank have only indirect impact upon these markets.

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[38]Arthur I. Bloomfield, op. cit., p. 38.

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CHAPTER IV

THE SCOPE OF MONETARY MANAGEMENT

1. Introduction

There are no universal rules or techniques of monetary management. Conventionally, the primary concern of a central bank policy has been to influence or control the conduct of the commercial banks and other closely related financial institutions, as observed in the United States Federal Reserve System and the Bank of England.

Monetary policy in underdeveloped countries will not work as it does in the developed countries if policies are based on the conventional tools. The central bank in Korea faces different types of problems which are absent in developed countries. The stage of economic development and socio-political institutions constitute the setting in which the central bank must function. The choices of techniques and the patterns of control, therefore, must be relevant to prevailing circumstances.

In this chapter attention will be focused upon the techniques of monetary management. The analysis will include the effectiveness of the mechanism established by the various banking reform measures in comparison with conventional norms of central bank techniques, with a particular emphasis on the lack of money markets. So doing, a description of the scope of monetary management in Korea will be given.

2. The Uses of Funds and Implications for Monetary Policy

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of assets of commercial banks from 384.4 million hwan in 1949 to 206,329 million hwan in 1960. The rise of the value of assets was due to inflation, sales of vested shares of commercial banks at the reassessed values and the reassessment of the fixed assets of banks.[1]

Loans of commercial banks comprised 67.6 per cent in 1949 and 55.6 per cent of total assets in 1960. The ratio of loans is somewhat higher than in developed countries. For example, loans of United States commercial banks were about 42 per cent of total assets in 1956. Loans, throughout the period under study, have exceeded the domestic sources of the banks' funds. Other deposits comprise foreign currency deposits at the Bando Branch Office, Choheung Bank.

Demand deposits and time deposits are main sources of funds, besides the time capital stock of the banks. Since both demand and time deposits increase as the loans are made, the size of demand and time deposits overstate the genuine sources of domestic funds. The fact that commercial banks make loans beyond their own sources of funds is a common criticism in Korea. For example, in the first quarter of 1952 about 80 per cent of loans for industrial plants and equipment were reported to be made by banks on the basis of rediscount at the Bank of Korea.

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[1]Since the liberation Korean banks have maintained their fixed assets at pre-liberation values despite the rapid inflation. Following the recommendation made by Bloomfield and Jensen, an Appraisal Committee for Reassessment was established. But the action was delayed until 1954 due to the reluctance on the part of the government.

[2]The Bank of Korea, "Quarterly Recommendation by the Monetary Board," in The Five Years of the Bank of Korea (Seoul: The Bank of Korea, 1955), p. 111.

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TABLE 2

STATEMENT OF CONDITIONS OF ALL COMMERCIAL BANKS[2]

ASSETS	1949	1955	1960
Currency & Checks	75.22 (19.5%)	15,996 (30 %)	55,218 (26 %)
Currency	20.03	1,338	3,791
Checks & Bills	20.77	4,706	33,869
Deposits with domestic banks	34.42	9,952	17,558
Investment		1,697 (3.2%)	13,649 (6.6%)
National Bonds		1,691	2,981
Securities		6	7,168
Industrial Financial Debentures			3,560
Loans	260.15 (67.6%)	30,815 (57.8%)	114,726 (56 %)
Bills discounted		519	1,444
Loans on Bills		29,540	107,790
Loans on Deeds		3	
Overdrafts		753	5,492
Other Assets	49.4 (12.8%)	808	22,736
	384.8	53,313	206,329

*This includes foreign currency deposits at the Bando Branch Office, Choheung Bank. Government Agencies' deposits range 20-25%.

**This includes loan funds from the counterpart funds, UNKRA small Industry Loans and other. Loans to Government Agencies range 20-25%.

[2]For 1949, Bloomfield's statistics, in Banking Reform in South Korea, p. 79. For 1955 and 1960, The Economic Statistics Annual, 1961, pp. 40-43.

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Deposits	3
Demand Deposits	3
Time Deposits	
Others*	
Borrowings	
From Bank of Korea	
Others**	
Vest Prop.	
Other Liabilities	
Capital Accounts	
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TABLE 2 Continued

LIABILITIES	1949		1955		1960	
Deposits	333.8	(84.2 %)	36,910	(69.2%)	141,011	(68.3%)
Demand Deposits	323.9		25,261		67.648	
Time Deposits			2,975		40,984	
Others*	9.9		8,674		32,379	
Borrowings	26.52	(6.9 %)	13,443	(25.2%)	36,186	(17.5%)
From Bank of Korea	26.43		13,020		26,668	
Others**	.09		423		5,418	
Vest Prop.					4,100	
Other Liabilities	23.9	(6.2 %)	2,970.5	(5.6%)	10,954	(5.3%)
Capital Accounts	.52	(.13%)	91.5	(.2%)	18,178	(8.8%)
	384.8		53,313		206,329	

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The ratio of loans, however, shows its declining tendency throughout the period. This is largely due to the loan ceiling policy which has been in force in various forms from 1950. The policy has been very strict since 1955.

Except for overdrafts, most loans have maturities of not more than one year; and a few, up to three years. Many of the loans, however, are delinquent.

> Although most of the bank loans to private parties and to Government Agencies were ostensibly granted only for periods of up to one year, an apparently large fraction of them remained outstanding for longer periods, and in effect became long-term loans, in view of lax attempt at loan collection and easy renewal policies on the part of banks. (The rice loans are a conspicuous exception.) Despite a formal prohibition on loans for speculative purpose, moreover, a large part of the bank loans, especially those to private individuals and enterprises, is believed to have been used to finance the hoarding of commodities.[4]

Another study made by an American banker seems to indicate that the loans which were made on the basis of government guarantee are hard to collect, and those loans, in effect, became the permanent loans.[5]

Another disturbing aspect of commercial bank lending is the alarmingly high ratio of loans unsecured by any form of collateral; the average ratio of such loans appear to be over 50 per cent.[6]

The proportion of investments increases steadily and rapidly.

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[4]Arthur I. Bloomfield, A Report and Recommendations on Banking in South Korea (Seoul: Bank of Korea, 1952), p. 38.

[5]Bank of Korea, Economic Annual, 1955, pp. 1-534.

[6]Bloomfield, op. cit., p. 38.

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In 1949 there was no investment in government bonds, industrial finance debentures or other securities. National bonds are compulsorily sold to the commercial banks by the central bank on the occasion of advances or rediscount at the central bank. Securities are composed of the "certificates of land-sales" issued on the event of land reform, bonds issued by the local governments and by some corporations. The financial debentures are issued by the Korean Reconstruction Bank guaranteed by the Government. All of them are long-term bonds. It is obvious that there is little attempt to strike a balance between the banks' needs for safety, solvency, and liquidity in the composition of a bank's portfolio, as is so often described in conventional money and banking texts.

This simple study of the uses of funds by the commercial banks brings out an important point in the context of monetary management. The inclination of the banks for inflationary financing is evident. In a non-inflationary economy, the banking system transfers savings accumulated by householders into investment activities.[7] A well-developed banking system facilitates the behavior of saving. To some extent, a banking system can expand credits more than what householders desire to save in order to enforce forced saving. However, the degree observed in the Korean situation seems very great.

In this connection, the absence of the short-term markets and its effect on the effectiveness of monetary management should

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[7]D. Robertson, Essays in Monetary Theory (London: Staples Press, 1956), p. 53.

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Except for the overdraft practices, there are no short-term loan markets, such as call-loans, commercial bills, and banker's acceptances in formal markets. Most of the demand for the short-term loans are financed by the informal money markets over which the central bank has only indirect and remote control. Government securities are issued exclusively in forms of long-term securities. The shortening of maturity of bonds provided existence of the short-term bonds, which markets, however, are narrow and unorganized.

Money and capital markets do not develop in a vacuum. Even though there exists a somewhat well-developed banking system, the lack of economic activities, especially trade, hinders the growth of the markets. Another limitation, perhaps the fundamental one, for the growth of the capital markets in Korea, lies in the low rate of personal and business saving. Besides, some savers prefer to hold the savings in the forms that remain directly under their control, such as real estate, foreign exchanges and gold.

Conventional tools of monetary control which developed out of the London market can be effectively used only when there exist well-developed short-term markets, which in turn have sensitively structured sub-markets. When such markets exist, as in London or New York, the strain on the banking system is first felt in periods of pressure. The central bank, therefore, usually confine its operations to the short-term money markets. The existence of such money markets enables the banks to maintain a fixed and minimum ratio between their deposits and reserves. The central bank thus can control the money

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markets merely by watching and adjusting the cash balance and liquidity conditions of the commercial banks.

The agricultural characteristics of the Korean economy and the absence of money markets make the maintenance of a fixed deposit reserve ratio by the banks impossible, as is true in other underdeveloped countries.[8]

Currency composes a high proportion of the total money supply, varying between 35 per cent and 65 per cent. Agricultural sectors typically do not use checks; we have seen the preponderance of this sector in Korea. Consequently, the use of currency is great and fluctuating. For example, the ratio of currency over demand and some time deposits which are included in the definition of money supply was 2.8 in 1945 and 3.8 in 1960. This indicates that the use of currency has been increasingly important in the Korean economy.

Thus, bank holdings of currency vary greatly. In fact, any flow of currency into and out of the banks causes simultaneous changes in the reserve positions of the banks. The banks, therefore, habitually keep a high ratio between their cash reserves and the deposits. Professor Bloomfield states that the reserves and reserve ratios underwent substantial fluctuations during 1945-1951, the latter generally fluctuating between 15 per cent and 30 per cent.[9]

Suppose there are well-developed money markets in Korea, the ratio would be lower because banks would certainly invest idle funds,

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[8] A. Bloomfield, "Monetary Policy in Underdeveloped Countries", Public Policy (A Yearbook of the Graduate School of Public Administration, Harvard University Press, 1951), p. 241.

[9] A. Bloomfield and J. Jensen, Banking Reform in South Korea (Seoul: Bank of Korea, 1951), p. 39.

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3. Open-market Operations

Open market operations of some forms are considered the most powerful tools of credit control in money and banking textbooks. The essence of these operations is that the central bank goes into the market on its initiative and buys and sells its assets in order to change the supply of funds in the market through the changes in the reserve position of commercial banks and to bring about desired changes in the money rates and credit conditions.

Outside the United States, however, open market operations are a full-fledged credit policy instrument in only a few countries, notably the United Kingdom and Canada. In Korea open market operations have never been conducted. The provision of open market operations is only for the long-run purpose.

The fact that open market operations have never been conducted in Korea basically reflects the lack of institutional arrangements. First of all, the lack of well-developed money and security markets makes it impossible for the Bank of Korea to buy and sell securities on a considerable scale in order to affect the reserve positions of commercial banks without affecting security prices seriously. The essential element of open market operations is that the operations bring the central bank into "contact"[10] not only with the volume of available bank reserves, but also with the portfolio of all classes

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[10] R. V. Rosa, "Interest Rates and Central Banks," in Money, Trade and Economic Growth, (New York: MacMillan Co., 1960), p. 280.

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Co., 1956), p.

of lenders. The absence of the money and security markets provides no basis of contact between the central bank and commercial banks.

The absence of short-term liquid assets in organized markets makes the liquidity preference function interest inelastic. Some even argue that there is no speculative demand for money in underdeveloped countries and the demand for money is strictly for transaction purposes.[11] "If the liquidity function were not interest-elastic, open market operations would be impracticable."[12]

It was pointed out that commercial banks have not sought to keep a fixed ratio between their cash reserves and the deposits. In this circumstance central bank securities sales may merely reduce the banks' excess reserves and may thus fail to restrict the availability of credit from the commercial banks.

Even if there is a basis for open market operations, there are additional obstacles. The operations must be on a large scale in order to affect the reserve positions of commercial banks. This necessitates a wide fluctuation in security prices which is detrimental to the growth of the security market. Conventionally, commercial banks in Korea have heavily relied on the central bank for advances and discounts. This may also nullify the potential effect of open market operations.

Open market operations in developed countries work in both

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[11] S. Ghosh, Inflation in an Underdeveloped Economy (Calcutta, World Press, Ltd., 1959), P. 48.

[12] J. M. Keynes, A Treatise on Money (New York: Harcourt, Brace Co., 1956), p. 197.

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directions: in contracting and expanding the money supply. However, open market operation can not be used in contracting the money supply in Korea within a foreseeable future. Since the Korean war the Korean government issued about 128,772 million hwans of national bonds and about 55,000 million hwans of industrial reconstruction bonds. Only about 30,000 million hwans of both bonds were redeemed by the end of 1961.[13] It is not difficult to carry out the purchase transactions even in a limited market. But the matter would be entirely different when a policy of contraction has to be enforced not only because of the narrowness of markets, but also because of the low rate of private and business savings. Most of the bond issues are held by the banking system and only a small portion of the bonds are sold to the public in the manner of compulsion. In this circumstance, finding the buyers would be more difficult than finding the sellers. Despite the limitation and weakness of implementing open market operations, the provisions regarding the operations in the Act of the Bank of Korea is the most important contribution for the future monetary management in Korea. Judicious uses of the operations will provide greater monetary stability in Korea. This specific point will be elaborated in Chapter VIII with recommendations on the techniques of monetary management.

4. Discount Policy

The discount rate is the primary means used to influence the

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[13] The Bank of Korea, The Economic Statistics Annual, 1961. (Seoul: Bank of Korea, 1961), pp. 130-131.

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amount of discounting. The discount policy is therefore generally regarded as being concerned exclusively with setting the discount rate. There are essentially two roles of the bank rate in performing monetary control. One is as an instrument of credit control, which the traditional theory of central banking focused on, and the other is as an instrument of credit accommodation, which is a recent argument.

It follows from the underdeveloped money and capital markets that the interest rate structure is largely unintegrated and that interest rates are relatively insensitive, over the large part of economy, to the actions of the Bank of Korea.

In the literature of central banking, the discount rate has been seen as serving some or all of five purposes that Professor Sayers states:[14]

A. As a penalty rate, operating as a fine on unreasonable timidity;
B. As a governor of international capital movements;
C. As a check upon the accumulation of stocks of commodities;
D. Through its influence upon the whole structure of interest rates, as a regulator of the damand for real resources to be embodied in fixed capital;
E. As an "index."

None of the above functions are served in Korea partly because of the absence of money and capital markets and partly because of the

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[14] R. S. Sayers, Central Banking After Bagehot (London: Oxford University Press, 1957), p. 123.

[15] The traditional emphasis of bank rate as a weapon of the central bank rests upon its remarkable effectiveness of protecting the Bank of England's gold reserves in the period immediately before 1914.

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absence of economic conditions similar to developed countries. Professor Rosa criticizes the traditional theory of bank rates.[16] In the traditional theory of central banking, according to him, there are two links connecting gold reserves with the bank rate: one which connects the bank rate and market rates and one which connects the market rate to the behavior of borrowers. He sees the existence of neither of these "connections" required for the validity of traditional theory and practice. As an alternative, Rosa suggests the need of controlling the supply of funds rather than demand for funds by borrowers. Rosa claims that a little change in interest rates creates uncertainty, whereby the supply of bank funds can be controlled. "A decline, however slight, if sustained for any appreciable length of time will create uncertainty over the possibility that credit may be turning generally easier....And oftentimes the mere indication of a change in the direction of rate movements may be enough to transform many of the dominant institutions from willing to reluctant leaders, or the reverse."[17]

The argument described above is whether it is the supply blade or the demand blade of the scissors that does the cutting, with respect to interest rates. This is similar to the argument between the banking school and currency school in its emphasis, though their

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[16]Rosa, op. cit., pp. 273-276.

[17]Ibid., p. 286. As far as the emphasis on the supply side is concerned, it seems that many economists support Rosa's argument. C.F.: O. Veit, "Changes in Monetary Policy and their Consequences to Banking," in Relations between the Central Bank and Commercial Banks (Frankfort on Main, Fritz Knapp & Veriag, 1957), p. 16 and Bloomfield, "Monetary Policy in Underdeveloped Countries," op. cit., p. 234.

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In Korea dependence of the banking institutions on the Bank of Korea was great up to 1958. One might think that the discount rate would have worked well in these circumstances. Interest and discount rates of the Bank of Korea and the ordinary banks are presented in Tables 3 and 4. A substantial difference in rates between the Bank of Korea and the ordinary banks is observed in the tables. It should be emphasized, however, that this difference in rates is not the incentive for the rediscount of the ordinary banks at the Bank of Korea. The difference in interest rates between formal market rates and the rate of informal markets is so great that the demand for bank funds always exceeds the availability. Interest rates for loans in the informal markets vary considerably, but the range is usually from four to ten per cent per month. Though various rates were raised a substantial degree both at the Bank of Korea and the ordinary banks, this increase in bank rates was far too small to curb the demand for bank funds. On the supply side it is the government policy, friendship and reasons other than the interest rates that control the supply of bank funds.

It is doubtful, under these circumstances, whether or not the interest rates do the cutting at all, either by the demand blade or by the supply blade. Even in developed countries we know "little about the connection between changes in particular interest rates and in the money supply."[20] Especially in Korea, the discount rate

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[20]Milton Friedman, A Program for Monetary Stability (New York: Fordham University Press, 1959), p. 35.

TABLE 3

INTEREST & DISCOUNT RATES OF ORDINARY BANKS[18]

	Loans for Government	Loans for Purchases	Loans for	Discount of Ordinary	Loans on Bills	Overdrafts	Loans Overdue

TABLE 3

INTEREST & DISCOUNT RATES OF ORDINARY BANKS[18]

	Government Guaranteed Loans	Loans for Government Program Collections	Loans for Purchases of ICA Aid Goods	Loans for Trade	Discount of Ordinary Bills	Loans on Bills	Overdrafts	Loans Overdue
1950. 7.1	6.205%	9.855%	-	9.855%	14.235%	14.6%	14.965%	20%
1951. 4.1	8.03 %	12.775%	-	12.775%	17.52 %	18.25%	18.980%	20%
1951.10.1	10.22 %	12.775%	-	16.425%	17.52 %	18.25%	18.980%	20%
1952.12.10	10.22 %	12.775%	-	16.425%	17.52 %	18.25%	18.980%	20%
1953. 5.12	10.22 %	12.775%	-	16.425%	17.52 %	18.25%	18.980%	20%
1954. 6.3	10.22 %	12.775%	13.87%	16.425%	17.52 %	18.25%	18.980%	20%
1955. 8.1	10.22 %	12.775%	13.87%	13.87 %	17.52 %	18.25%	18.980%	20%
1959. 7.15	-	-	13.87%	13.87 %	13.87 %	17.25%	16.425%	20%

[18]Source: The Bank of Korea, Economics-Statistics Review (Seoul: Bank of Korea, 1961), p. 86.

TABLE 4

INTEREST & DISCOUNT RATE OF BANK OF KOREA[19]

(Annual Rate)

Loans for

TABLE 4

INTEREST & DISCOUNT RATE OF BANK OF KOREA[19]

(Annual Rate)

	Government Overdrafts	Government Guaranteed Loans	Loans on Bills	Discounts on Bills	Loans for Trade*	Loans for Purchases of Aid Goods	Loans for Farming
1950. 6.12	2%	6.205%	6.205%	5.84%	10.95 %	-	-
1951. 4.1	2%	6.205%	7.3 %	5.84%	10.95%	-	-
1952. 6.1	2%	8.03 %	7.3 %	5.84%	12.775%	-	-
1953. 4.1	2%	8.03 %	7.3 %	6.57%	12.775%	-	-
1954. 6.3	2%	8.03 %	7.3 %	6.57%	12.775%	6.57%	-
1955. 8.1	2%	8.03 %	7.3 %	6.57%	6.57 %	6.57%	-
1956. 5.1	2%	8.03 %	7.3 %	6.57%	6.57 %	6.57%	5.475%
1959. 7.15	2%	8.03 %	7.3 %	6.57%	6.57 %	6.57%	5.475%
1959.11.6	2%	8.03 %	10.22 %	8.03%	8.03 %	8.03%	5.475%
1960. 6.16	2%	8.03 %	13.87 %	10.22%	10.22 %	10.22%	5.475%

*Through 3 June, 1954 represents the interest rate on loans against shipping documents: thereafter rates on loans for exports and imports. However, the rate on loan against shipping documents is 12.775 per cent per annum, the same as before.

[19]Source: Ibid., p. 86.

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[21] Ibid.,

policy has been insignificant as the effective policy instrument. In this connection it is instructive to note Friedman's distinction between the "monetary" effects of the discount policy - the effects on the stock of money and the "credit" effects - the effects on recorded rates of interest and other conditions in the credit market. Professor Friedman is very critical about the credit effects, stating as follows:

> Ancient example of confusion is the "real bills" fallacy already referred to. More recently, the changes in economic ideas associated with the name of John Maynard Keynes led to an almost complete neglect of the "monetary" effects of monetary policy and concentration on the "credit" effects.[21]

It seems clear, however, that the discount rate does bring neither the credit effects nor the monetary effects in Korea. Discount rates have been used as a purely formal matter in allocating bank funds to preferred borrowers by extreme degree of selective measures. As observed in the previous chapter, the Monetary Board is empowered with wide discretionary power of eligibility rules. This wide range of eligibility rules from consumer credit to production credit has been the factor which affects the stock of money. That is, the "monetary" effect was brought about by the discretion of various measures, but not by the discount rates. The effectiveness of this selective type of control will be discussed in Chapter VII.

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[21] Ibid., p. 43.

5. Reserve Require

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5. Reserve Requirements Policy

The manipulation of the reserve ratio does directly affect the banks' reserve positions. The reserve requirements policy, therefore, has much room to be used effectively in Korea.

As will be seen in the next section, the major factors which increase or decrease the reserves of the commercial banks are the factors which are out of the control of the central bank, such as overdrafts, purchases of foreign assets and the collections from sales of aid goods. These factors are not only uncontrollable by the Bank of Korea, but also irregular in their changes. These irregular changes cause the secondary expansion effect of the money supply to be highly volatile when there is a low reserve requirement. Therefore, high reserve requirements provide a cushion to eliminate the further fluctuation of the changes in money supply based on the primary expansion effect.

Higher reserve requirements, possibly up to 100 per cent, have additional merit. When the public sector is dominating the use of bank funds like Korea, the higher the ratio, the easier the diversion of resources will be made to the public sector. As will be analyzed in a later chapter, this provision will largely eliminate the unnecessary and cumbersome tools of selective control, such as loan ceiling and selective eligibility rules.

Furthermore, changing reserve requirements has the merit of simplicity. For these many reasons, there has been a growing tendency in recent years to resort to variable reserve requirements

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As was observed in Chapter III, the Bank of Korea is also empowered with a wide range of discretionary powers concerning reserve requirements. From the beginning of the operation of the Bank of Korea, the Monetary Board required 10 per cent reserves on the aggregate amount of deposits[23] in each bank. In April, 1952, the reserve requirement for deposits of local governments was raised to 15 per cent, and for other deposits to 12 per cent. In June, 1952, the reserve requirement for deposits of local governments was further raised to 20 per cent. Another increase in reserve requirements to 25 per cent for deposits of local governments and 20 per cent for other deposits was made in October, 1952.

In addition to these successive raises in reserve requirements, a secondary reserve requirement of 45 per cent was superimposed on the increased deposits accrued during the third quarter of 1952. For a short period, from late in 1952 to early in 1953, the Bank of Korea experimented with the imposition of a 100 per cent reserve requirement against any subsequent increases in deposits.

The reserve requirement policy, especially in 1952 and 1953, seem to have effectively resulted in restricting credit expansion.

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[22]For an excellent discussion on this issue, see Richard Goode, and Richard S. Thorn, "Variable Reserve Requirements Against Commercial Bank Deposits," in Staff Papers, VII (1959-1960) (Washington, D.C.: International Monetary Fund, 1960), p. 9-41.

In April, 1952, the deposits of the commercial banks were divided into deposits of local governments (including public institutions and interbank deposits), general time deposits, and other deposits. In April, 1957, the general time deposits and other deposits were further subdivided into three categories: savings, time and demand deposits.

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The credit multiplier, computed by dividing total money supply by the sum of notes held by the public and the Bank of Korea loans to banking institutions, government agencies, and the private sector shows a significant decline in 1952 and 1953[24] as follows:

1950	1.055	1955	1.225
1951	1.046	1956	1.113
1952	.943	1957	1.071
1953	.832	1958	1.354
1954	1.137	1959	1.441
		1960	1.106

Due to the tight credit condition after the currency reform of 1953, the reserve requirements were lowered to a uniform 10 per cent of all types of deposits. As the credit condition normalized, however, the reserve requirements were raised successively to 20 and 30 per cent.

Experience in Korea indicates that reserve requirement manipulation is the only one of the three conventional tools of credit control which is in effect presently. In spite of the rather frequent use of reserve requirements policy by the Bank of Korea, its potential effect of restricting credit expansion was nullified by the mismanagement of other credit controls. Because of relatively easy access to Bank of Korea credit for the commercial banks, the restrictive effect of the increased required reserve ratios was frequently evaded by the commercial banks through borrowing the needed additional reserves from the Bank of Korea.

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[24]The very low credit multiplier in 1953 is largely due to the effect of the currency reform. After the reform, bank deposits declined sharply due to the fear of blocking the accounts which were done in the reform.

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6. The Sources of Funds and Additional Implications for Monetary Policy

The money with which the commercial banks operate lending comes from three sources - invested capital, deposits and borrowed funds. The proportion of the capital account, which is composed of capital stock, reserves, and profits, was only 0.13 per cent in 1949; 0.2 per cent in 1955; and 8.8 per cent in 1960. The General Banking Act stipulates that paid-in capital and surplus should be at least equivalent to 10 per cent of total assets, including cash and deposits at the Bank of Korea, any deposits in banking institutions outside the country, and any investments in Bank of Korea Stabilization Bonds.[25]

The deposits are a rather high proportion of total assets; 84.2 per cent in 1949; 69.2 per cent in 1955; and 68.3 per cent in 1960. Compared with the other developed countries, this ratio is, however, still low. For example, deposits are about 90.9 per cent of total assets in the U.S. commercial banks. The 84.2 per cent in 1949 should not be taken as it is because a substantial amount of the proceeds from sales of aid goods were deposited in the commercial banks. The high ratio of deposits also reflect the consequences of increasing loans to government agencies and the private sector. The rapid increase in time deposits from 1955 to 1960 shows the favorable result of a "saving campaign" to some extent. The increase of saving deposits can be partly explained by the special arrangement for saving deposits, such as the "Bond-Saving Deposits," which

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[25] The General Banking Act, Article 15.

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was conducted to induce the purchases of government bonds. Existing and newly issued bonds were allowed to be deposited as the bond-saving deposits.

Within the commercial banking system alone, the capacity of the banks to create demand deposits is limited without borrowing from an external source. When the public decides to hold more deposits and less cash, however, this will increase the banks' capacity to create demand deposits. This seemed to be significant in Korea in the net creation of money supply.[26] To some extent, the successful "Bond-Saving" drives also provided capacity for banks to create money.

The most important cause for deposit creation in Korea has been borrowing at the Bank of Korea. The ratio of this borrowing increased rapidly from 1949 to 1955, and declined from 1955 to 1960 due to the tight money policy, which has been especially induced in order to maintain a revised exchange rate.

Since the ability of the commercial banks to create deposit money depends on the reserves available, the balance sheets of the Bank of Korea are presented in Table 5 in order to investigate several key factors which affect the reserve positions of the commercial banks. The volume of reserves of the banks as a group at any moment of time is equal to the assets of the Bank of Korea minus

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[26]In all countries, the average percentage change in money due to the change in K, the ratio of deposits over currency, was smaller than the variation associated with the change in central bank monetary liabilities. Cf: J. Ahrensdorf and S. Kanesathasan, "Variations in the Money Multiplier and Their Implications for Central Banking," Staff Papers (November, 1960), p. 134. However, Professor Gambino suggests this was significant in post-war Italy, Cf: Sayers, op. cit., p. 93.

TABLE 9[27]

BALANCE SHEETS OF THE CENTRAL BANK

TABLE 5[27]

BALANCE SHEETS OF THE CENTRAL BANK

in Million Hwan

Assets	1950	1955	1960	Liabilities	1960
Government Overdrafts	3,727	91,849	234,623	Bank Notes and Coins	146,301
Loans to Banking Institutions	362	16,238	58,753	Government Deposits	123,991
Loans to Government Agencies			84	Counterpart Funds	91,978
National Bonds	33	17,654	52,839	Deposits of Banking Institutions	30,059
Industrial Finance Debentures		2,000	16,400	Private Deposits	98
Gold & Silver Bullion			323	Deposits of Foreign Organizations	10,885
Foreign Assets			106,598	Foreign Liabilities	54,652
Assets of Overseas Branches			7,084	Liabilities of Overseas Branches	7,926
Others			8,430	Others	
Total			485,975		485,975

[27]Source: Bank of Korea, Economics-Statistics Review, op. cit., 1961, pp. 36-39.

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Loans to the banking institutions increased steadily during the period of tight money policy. One important aspect is the relative size of the government overdrafts and its tendency to increase. Government revenues lagged behind expenditures over the whole period of study. The revenues amount only to a little more than 50 per cent of government expenditures. The gap between the expenditures and the revenues widened rapidly after 1949. The tax revenues range between 25 per cent and 40 per cent of total government revenues. Major sources of government revenues consisted of the land tax and profits of the government monopoly on tobacco, salt and ginseng. Other government enterprises andproperties, such as communication, yield only little revenues. The majority of government enterprises are operating at a loss.

In the absence of capital markets and in view of the inflation itself, the government failed to finance the budgetary deficits by sales of bonds to the public. As is observed in Table 5, the national bonds held by the Bank have increased during this period. In 1949, for example, 100 million hwan of bonds were issued, only 30 million hwan of bonds were sold to the private sector and those largely in a compulsory manner. The rest of them were underwritten by the Bank which in turn sold them to the banking system. Therefore, the bond issues were the same as the overdrafts. Industrial financial debentures sold to the Bank were issued by the Korean Reconstruction Bank in order to finance the long-term lendings to industry. The only factor which caused the decline of the reserves

all the liabilities of the bank, except notes held by the commercial banks and their deposits in the bank.

Some of the outstanding institutions increased steadily during the period of their money policy. The important source is the relative size of the government securities and its tendency to increase. Government revenues largely nullied on indirectness over the whole period of study. The revenues account only for 1 billion were from the sale of government expenditures. The gap between the expenditures and the revenues widened rapidly after 1 [illegible]. The tax revenues range between [illegible] per cent and 40 per cent of total government revenues. Other sources of government revenues consisted of the land tax and profits of the government monopoly on tobacco, salt and liquor. Other government enterprises such as, for example, communication, yield only little revenues. The majority of government enterprises are operating at a loss.

In the absence of capital markets and in view of the limitation itself, the government failed to finance the budgetary deficits by sales of bonds to the public. It is observed in Table 9, the national bonds held by the bank have increased during this period. In 1937, for example, 1[illegible] billion [illegible] were issued, only 3 million [illegible] of bonds were sold to the private sector and those largely in a compulsory manner. The rest of them were monetized by the bank which in turn sold them to the banking system. Therefore, the bond issues were the same as the treasurer's. Industrial financial enterprises sell to the bank were issued by the Chosen Reconstruction Bank in order to finance the long-term lending to industry. The only factor which caused the decline of the reserves

of commercial banks has been the counterpart funds, which are deposited by the proceeds from sales of aid goods. These factors are beyond the control of the central bank. It should be emphasized that the central bank increased the loans to the commercial banks on top of the fact that the central bank was pressed by external factors which were most important in affecting the reserve positions of the commercial banks.

The central bank failed to control the reserve positions of commercial banks. For this reason, the ceiling of loans to each commercial bank was implemented in 1950. The loan ceiling policy has been considered the most powerful instrument of credit control in Korea. However, it seems to be a case of "locking the barn door after the horse is stolen."

Besides the overdrafts of the government, the loans made by the Reconstruction Bank were greater than other loans. In 1954 the Reconstruction Bank made about 26 per cent of total loans; the commercial banks 68 per cent; and the Agricultural Bank, 6 per cent, as presented in Table 6.

TABLE 6[28]

PERCENTAGE OF LOANS MADE BY BANKING GROUPS

	Commercial Bank	Agricultural Bank	Reconstruction Bank
1954	68%	6%	26%
1956	43%	14%	43%
1958	29%	31%	40%
1960	29%	32%	39%

[28] Ibid., 1961, pp. 40-49.

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By 1960 the Reconstruction Bank loaned 39 per cent, the Agricultural Bank, 32 per cent; and the commercial banks, 29 per cent. This situation indicates that about 70 per cent of the total loans available in the economy is beyond the control of the Bank of Korea. In this situation it is clear that the scope of monetary management is very limited.

In this section, problems of monetary management in a particular situation in which the government dominates in monetary spheres are investigated. When the scope of government activities is great, the central bank can control credit effectively so long as the government balances the budget. It has been shown that the government deficit has been the source of constant pressure to the Bank of Korea. The government sector has been the major cause of credit expansion in Korea. Moreover, credit expansion to the government sector alone exceeded the optimal increase in money supply in the total economy, as will be seen in Chapter VIII.

In addition, it is clear that the scope of monetary management is extremelylimited because about 70 per cent of the total of loans available in the economy is beyond the control of the Bank of Korea. In this situation, monetary management may well be considered a branch function of fiscal management.

In previous sections, major tools of credit control, except for the loan ceiling policy, were evaluated in the light of the Korean situation. It was clearly pointed out that the conventional tools of credit control do not work or are ineffective except in the case of reserve requirement manipulation.

In view of government dominance in monetary spheres and in-

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effectiveness of the conventional tools of monetary policy, a question concerning the usefulness of the elaborate assortments of tools of credit control in Korea may be raised. Some of the tools, reserve requirements and open-market operations, may be useful to monetary management in the future, as will be seen in Chapter VIII. However, the general nature of monetary tools seems to reflect a similarity to the conventional model of central banking. Furthermore, in anticipation of the ineffectiveness of conventional tools, credit tools seems to have been armed with elaborate measures of selective control. This leads to the conclusion that the model of central banking, designed by the banking reform measures and adapted by the Bank of Korea is necessarily complex and elaborate. Elaboration of the tools of credit management, for example, nullified the potential effectiveness of reserve requirements, especially during 1952 and 1953.

It is important to note that the more elaborate and complex the tools of monetary management, the more ineffective monetary management become, especially when credit expansion is dependent upon the "pull" and "push" of political influence as in Korea. Therefore, use of simpler tools could have been more effective.

With these points in mind, attention is now turned to the behavior of money supply in Korea.

CHAPTER V

THE MONEY SUPPLY

1. Definition of Money Supply

The definition of the money supply is necessarily arbitraty. Broadly speaking, money may be defined "in terms of the supply of those things, whether physical objects or claims, which are held by the general public and which are ordinarily accepted as media of exchange."[1] Conventionally, currency in circulation and demand deposits subject to check are considered to be money supply.

If attention is focused on money's function as a medium of exchange alone, problems arise concerning the treatment of time and saving deposits, bankers' balances, government deposits in the banking system, various other deposit categories and all conceivable media of exchange.

Viewing money as other than a medium of exchange, Professor E. S. Shaw, following the lead generally attributed to Hicks, Hansen, and others, has argued in favor of extending analysis of money in relation to economic growth to all forms of debts, one of which is money.[2] The primary reason for such an extension of the definition of money is that financial assets, other than conventionally defined

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[1]James W. Angell, The Behavior of Money (New York: McGraw-Hill, 1936), p. 6.

[2]C. R. Whittlesey, "Relation of Money to Economic Growth," American Economic Review, papers and proceedings, (May, 1952), p. 189.

money, possess a significant degree of liquidity. This is important in an analysis of monetary problems. If this is the case, the definition of money may be further extended to include commodities, because the commodity contracts and commodity hoarding actually serve the purpose of liquidity, or a store of value, especially during a period of monetary uncertainty.

From this point of view, there is no proper way to define the money supply. It seems impossible to define the money supply solely on a logical ground. Consequently, compromise in the definition of the money supply is necessary before it may be used in terms of the existing data.

The money supply as defined by the Act of the Bank of Korea comprises Bank of Korea currency held outside banking institutions, plus all deposit liabilities of banking institutions and of the Bank of Korea payable by check or otherwise payable on demand, except interbank deposits and deposits held for the account of the government, its ministries, bureaus, and sections.[3] This conventional definition has been adopted for this study, with slight modifications.

The money supply in this study consists of demand deposits and currency outstanding outside the banking system plus some time deposits. A relatively small amount of government deposits held in commercial banks cannot be isolated statistically.

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[3] The Act Establishing the Bank of Korea, Article 96.

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Thus, these government deposits are included in the computation of the money supply. In addition, some time deposits[4] such as "Special Current Deposits" and "Special Deposits" are also included in the computation of the money supply. These are not demand deposits but have been used directly to make payments without prior conversion into demand deposits or currency. These deposits earn interest on a daily basis and are used by many businessmen to replenish their checking accounts at the close of each day.[5] Bloomfield and Jensen make a similar statement: "In the case of Korea, certain categories of deposits, e.g., 'Special Current' deposits, although not subject to check, were in fact used directly as media of payment by means of bank drafts."[6]

Other deposits, such as, "Bond-Saving" deposits, "Special Saving" deposits, and "Special Bond-Saving" deposits are designed primarily to absorb liquidity in an economy. Thus, these are not included in money supply.

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[4]Several types of deposit accounts exist in the Korean banking system:

1. Demand Deposit
2. Special Current Account
3. Special Deposit
4. Savings Deposit
5. Bond-Saving Deposit
6. Special Saving Deposit (In-Kind Deposit in Agriculture Bank)
7. Special Bond-Saving Deposit

[5]International Monetary Fund, International Financial Statistics (June, 1960), p. 184.

[6]A. I. Bloomfield, and J. P. Jensen, Banking Reform in South Korea (New York: Federal Reserve Bank of New York, 1951), p. 27.

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2. Money Supply

The money supply was 105.08 million hwan (10,508 million won in old currency) in September, 1945. Since then the money supply has persistently increased until it reached 219,077 million hwan at the end of 1960. The quarterly data of factors affecting the money supply is presented in Table 8. In this chapter factors affecting money supply will be explained in somewhat detailed manner. Since the money supply is characterized by three distinctive periods, the analysis will be made in three periods. Prior to these examinations, however, seasonality and aggregate behavior of the money supply will be investigated.

A. Seasonal Behavior of the Money Supply

The money supply exhibits a seasonal pattern, as may be observed in Table 7.

TABLE 7

SEASONAL INDEX OF MONEY SUPPLY AND DEMAND DEPOSIT VELOCITY[7]

	Seasonal Index of money supply	Percentage Change	Seasonal Index of Demand Deposits Velocity*	Percentage Change
1st Quarter	100.23	-5.6%	98.04	-8.4%
2nd Quarter	96.00	-4.2%	96.41	-1.7%
3rd Quarter	97.65	1.7%	98.55	2.2%
4th Quarter	106.13	4.6%	107.00	7.9%

*Deposit velocity is computed by dividing withdrawals of checking deposits by outstanding checking deposits. Data available are for 1952-1960 in The Economic Annual, published by The Bank of Korea.

[7]Seasonal indices are constructed by the centered moving average method from 1946 to 1960. The years of 1950, 1951 and 1952 are excluded because of highly disturbing effects of the war. The Autumn Moon Festival comes on a variable date on the western calendar. However, it does not move between quarters. The seasonal indices are not adjusted to this variability.

The money supply tends to increase from the third quarter (harvest season) and reaches its peak in the fourth quarter (Christmas and New Year). From the first quarter to harvest season, the money supply declines. This reflects the characteristics of the agricultural economy. Tradition seems to have equal importance in such a seasonal behavior of the money supply. First, people have strong attachments to the "Autumn Moon Festival" which is similar to Thanksgiving in the United States; and second, people customarily attempt to stock one year's supply of rice, essential food stuffs and fuel during the harvest season, which involves greater expenditures and an increased transaction demand for money.

During the harvest season government and banking systems pour a greater amount of money into the agricultural sector. The government purchases rice, tobacco, silk, and other farm products.

The purchase of rice has special significance in the Korean economy. The age-old tradition has been to secure and reserve strategic foodstuffs in order to meet possible national shortages. The tradition, however, is misused by securing rice at a lower cost in order to distribute it among public employees in lieu of higher salaries. This was practiced by the Japanese in the past and presently by the Korean government.[8] The tradition was also to stabilize the rice price and thus, the general price level. This objective was rather secondary.

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[8]Grain management conducted by the government made a substantial profit before the Korean War.

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The Agricultural Bank and other banks make enormous loans to the agricultural sector and other economic activities associated with agriculture during the harvest season. Credits to farmers have been very important because more than half of the farms have been reported as engaging in the "rush-sale" or "pre-harvest sale" of farm products.[9]

Most of these loans are made by discount at the Bank of Korea. This is called a "rice-loan."

The total money supply, therefore, rises sharply in the latter half of the year, yet declines rather slowly in the first half of the year. This is due to the timing of loan collections and the peculiar loan practices on the part of commercial banks and the Agricultural Bank. The sales of farm products to various industries and to the Army, and the repayments of these loans, were spread out over the following quarters. In addition, the lax loan policy of the Bank of Korea made the banking system able to make new loans for non-agricultural activities, partly on the basis of the collected loans and in greater part on the basis of the large prior increase in bank reserves or consequent increase in reserves due to the inflow of currency to the banking system. Thus, the contractionary effect on the money supply of the liquidation of these loans was approximately

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[9]Immediate causes for the "rush-sale" or "pre-harvest sale" of farm products are unfavorable terms of trade against farmers, heavy debts among the farm population and increasing deficits incurred by farming. In 1953, 39.4 per cent of small-scale, 23.5 per cent of middle-scale, and 5.3 per cent of large-scale farmers were reported to be in debt. Cf: Choi Ho Jin, "Nongchon Kyungjae Jinheung Bang Hang," Jae Jeung, (Seoul: Jae Jeung Sa, April, 1955) pp. 7-9.

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offset, or more than offset, by the expansionist effect exerted by the additional loans.[10]

The seasonal index of bank deposits indicates some interesting points. As the total money supply, especially the currency in circulation, increases during the harvest season, one may expect a decline of the bank deposit circulation.

The decline of demand deposit velocity may occur either because people substitute cash for deposits or because the amounts of demand deposits are excessive in the economy. If the decline of deposit velocity is sufficient, it will bring a downward impact on the velocity of money in general. In this case, the additional money supply will not have an impact upon the aggregate spending directly. The fact that the deposit velocity does not decline during the harvest season suggests that any additional money supply is directly reflected upon aggregate spending in Korea. When the money supply decreases, the deposit velocity also declines. This observation strongly indicates that the seasonal behavior of the deposit velocity is positively related to the money supply.

The price level is dependent upon the changes in monetary stock and in velocity, with a given level of real output. Deposit money comprises about 35 to 55 per cent of the total money supply in Korea. Since the seasonal fluctuation of demand deposit velocity is greater than that of the money supply, as shown in Table 7, it is

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[10] Bloomfield and Jensen, op. cit., p. 40.

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clear that the seasonal fluctuation of the general price level is accentuated by changes in deposit velocity.

B. Aggregate Behavior of the Money Supply

The concern of this chapter is to investigate the behavior of money supply in relation to various economic conditions, in particular the actions of the Bank of Korea. A glance at Chart 1, page 142 indicates that the index of money supply has increased persistently throughout the period of this study. It is interesting to observe, however, that the period prior to the establishment of the Bank of Korea, from June, 1945, to June, 1950, shows relatively greater stability in the pattern of money supply than the period after the establishment of the Bank. This may be so because there were special problems, such as war and the problems associated with war, in the latter period. The former period, however, was not free from such factors of economic instability as the dislocation of the South Korean economy and the bisection of the country. These factors, however, are not comparable to the Korean war by any means.

The primary concern for the establishment of the Bank of Korea and the enactment of various banking reform measures during the 1950's was to strengthen and reorient the South Korean banking system in order to maintain monetary stability and to promote economic growth. It is, therefore, worthwhile to compare the pattern of money supply during two relatively stable periods, one without the actions of the Bank of Korea and the other with the actions of the Bank.

Though the Bank of Korea was established as the central bank in June, 1950, the invasion of the North Korean communists deprived

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the bank of the opportunity to carry out normal functions until the end of 1953. The Bank implemented various credit measures after the actual war actions ceased around the early part of 1951. Economic conditions, however, were largely unstable until the end of 1953, when fiscal and monetary policies, in agreement with the Republic of Korea and the United States, materialized in positive forms. The period after 1954 was characterized by various measures of the tight money policy which aimed to maintain price stability. For this reason, the period after 1954 is treated as the period in which the Bank of Korea could perform normal functions of the central bank.

The period after the liberation of Korea was a chaotic one until the end of 1946. The period after 1947 until June, 1950, therefore, can be treated as the period in which economic conditions were relatively stable without the actions of the Bank of Korea.

By comparing the behavior of money supply in these two periods, it may be possible to draw an inference, however crude, in regard to the performance of the Bank of Korea. The average quarterly increase in the index of money supply is 18.6 for the former period and 28.97 for the latter period. This implies that the absolute amount of money supply for the latter period was greater than the former period. This would have been acceptable if the South Korean economy could produce the equivalent amount of real output, assuming there was not some deficiency in the beginning. In view of the fact that the price level has been persistently rising since 1945, which implies that money supply has been excessive in the former period, it is clear that the greater amount of money supply was inappropriate in the

latter period.

It is interesting to note that the standard deviation of the average quarterly increase in money supply is 23.75 in the former period and 35.62 in the latter period. This indicates that the pattern of money supply for the latter period has been in greater fluctuation than in the former period, despite the very rigorous and extensive measures of credit control.

This might have been so because economic conditions in the latter period were in greater fluctuation than in the former period. Rigorous attempts for economic reconstruction and development in the latter period, absent in the former period, could be mentioned as one of the obvious differences between the two periods.

This difference in economic conditions between the two periods makes it impossible to make any conclusive inference regardingthe performance of the Bank of Korea. It should be mentioned, however, that both periods were characterized by similar problems, although rigorous attempts for economic reconstruction were absent in the former period, with the exception of the last two years. The common problem is that government and businesses in both periods demanded more bank funds.

The above discussion suggests that, with important price increases in the period demonstrated in Chapter VI, the Bank of Korea not only failed to maintain price stability but probably was an agent, directly and indirectly, of price instability.

C. The Post-liberation Period

When seasonal behavior and aggregate behavior of money supply,

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analyzed in previous sections, are viewed together, money supply tends to take a step-like form with a persistent tendency toward an upward movement. Our concern now is turned to the study of the behavior of money supply for several periods.

The rate of increase in the money supply in 1946 (129.43 per cent) is the highest one with the exception of the Korean War period. As explained in the previous chapter, the period after the liberation was an utterly chaotic one. This was reflected in terms of a rapid increase in money supply.

During the four-week period from the day of liberation to the time when some measure of stability was established by the arrival of occupational forces in September, 1945, notes for 3,700 million won, about 66 per cent of the total issued in 1945, were issued by the Bank of Chosen, which was still under Japanese control. The notes were issued to clear the unpaid debts of the Japanese citizens for repatriation.

The bank's notes were circulated not only in North Korea, but also in Manchuria and China before liberation. After the liberation these notes became concentrated in South Korea. Citizens and refugees from Manchuria and North Korea fled to South Korea with cash in hand. The North Korean government dumped the Bank's notes in South Korea in order to meet their expenditures for the propagation of Communism and to cause a disturbance in South Korea. The notes of the Bank of Chosen were replaced by Red currency as soon as the Red Army took over North Korea. Strong measures to prevent the

TABLE 8

FACTORS AFFECTING MONEY SUPPLY
(In Million Hwan)

				(1) Bank Credit to Public Sectors		(2)
		Money Supply	Percentage Change (%)	Net Government Borrowing* at Bank of Korea	Counterpart Funds Deposits	National Bonds held in Banking System
1945	3					
	6					
	9	105.08		.85		
	12	118.28	12.9	.81		
1946	3	127.88	7.9	9.55		
	6	147.01	15.0	15.75		
	9	187.53	2.0	31.68		
	12	271.94	45.0	60.48		
1947	3	287.65	5.8	74.36	.75	
	6	312.87	10.2	121.84	11.15	
	9	362.38	14.4	138.02	28.29	
	12	536.47	48.0	169.10	43.91	
1948	3	539.92	.63	181.06	48.34	
	6	573.22	6.1	226.64	47.40	
	9	632.55	10.4	262.30	58.97	

Sources: For 1945-1950, from Monthly Statistical Review (Seoul: Bank of Korea, March, 1951). For 1951-1960, from The Economic Annual, 1955, 1956, 1957, 1958, 1959, and 1960 (Seoul: The Bank of Korea).

*Borrowings by the Government minus Government deposits including deposits representing proceeds from the sales of aid supplies, which are shown in Counterpart Funds Deposits, an unnumbered column.

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TABLE 8 Continued

(3)	(4)			(5)
	Loans to Government Agencies & Local Governments			
Industrial Finance** Debentures	By Bank of Korea	By other banks	Government Loan Funds to Banking Institutions	Total
	1.67			2.52
	2.32			3.13
	1.63			11.18
	1.25			17.00
	6.79			38.47
	40.43			100.91
	35.26			110.37
	3.42			125.26
	7.39			145.41
	7.54			176.64
	8.98			190.04
	19.61			246.25
	17.47			279.77
	24.18	120.91		431.41

**Industrial Finance Debentures were issued by the Korean Reconstruction Bank with government guarantee.

TABLE 8 Continued

(6)	(7)	(8)	(9)
Bank Credits to Private Sectors			
Loans to Private Sectors		Saving and	
By Bank of Korea	By other banks	Time Deposits	Total
8.00	26.06		34.06
8.75	29.01		37.76
9.15	32.52		41.67
10.22	38.71		48.93
10.99	54.11		65.11
11.26	68.57		79.83
12.90	72.13		85.03
12.98	84.22		97.20
12.58	109.35		121.93
12.62	255.20		267.82
13.02	240.52		253.54
13.49	232.70		246.19
16.97	223.90		240.87
18.21	201.69		219.90

TABLE 8 Continued

(10)	(11)	(12)	(13)
Foreign Sector			
Bank of Korea Purchase of F.E.	Deposits of Foreign Organizations	Total	Others
			68.50
			77.39
			75.02
			81.08
			83.96
			91.26
			92.25
			90.41
			95.04
			92.01
			96.34
			80.78
			111.91
			85.40

TABLE 8 Continued

				(1) Bank Credit to Public Sectors		(2)
		Money Supply	Percentage Change (%)	Net Government Borrowing* at Bank of Korea	Counterpart Funds Deposits	National Bonds held in Banking System
1949	3	777.26	5.5	305.67	101.07	
	6	818.36	5.3	330.48	165.94	
	9	1,087.44	32.9	375.80	316.65	
	12	1,276.18	17.3	387.55	443.55	
1950	3	1,193.43	- 6.8	217.71	209.50	
	6	1,222.40	4.9	206.30	255.77	
	9	1,463.70	22.1	467.17	266.33	
	12	2,905.62	90.6	2,033.39	219.05	
1951	3	4,116.00	46.1	3,230.00	885.00	34
	6	5,125.00	25.6	3,952.00	1,012.00	93
	9	5,966.00	19.6	4,441.00	1,100.00	96
	12	7,304.00	23.1	4,306.00	2,163.00	94
1952	3	8,224.00	15.2	4,856.00	2,202.00	91
	6	9,378.00	15.5	4,974.00	2,754.00	122
	9	10,822.00	16.0	3,997.00		197
	12	14,325.00	29.6	5,958.00	47.00	239

TABLE 8 Continued

(3)	(4)			
	Loans to Government Agencies & Local Governments			
Industrial Finance Debentures	By Bank of Korea	By other banks	Government Loan Funds to Banking Institutions	Total
	15.68	127.93		449.28
	26.53	96.55		453.56
	54.96	133.91		564.67
	255.86	145.37		788.78
	263.60	115.76		597.07
	236.50			442.80
	246.07			651.25
	144.13			1,629.86
	71.00			3,335.00
	90.00			4,135.00
	94.00	147.00		4,778.00
	555.00	246.00		5,201.00
	465.00	375.00		5,787.00
	453.00	329.00		5,878.00
	1,390.00	643.00		6,227.00
	1,380.00	1,080.00		8,657.00

TABLE 8 Continued

(6)	(7)	(8)	(9)
Bank Credits to Private Sectors			
Loans to Private Sectors		Saving and	
By Bank of Korea	By other banks	Time Deposits	Total
19.56	203.14		222.70
26.04	259.78		285.82
30.90	339.18		370.08
30.42	351.73		382.15
44.10	395.10		439.20
	586.35		586.35
	601.10		601.10
	664.69		664.69
63.00		43.00	20.00
93.00		67.00	26.00
143.00	1,294.00	92.00	1,345.00
267.00	2,002.00	127.00	2,142.00
197.00	2,096.00	218.00	2,075.00
205.00	3,081.00	275.00	3,011.00
177.00	4,356.00	298.00	4,235.00
229.00	5,411.00	273.00	5,367.00

TABLE 8 Continued

(10)	(11)	(12)	(13)
Foreign Sector			
Bank of Korea Purchase of F.E.	Deposits of Foreign Organizations	Total	Others
			105.28
			78.98
			152.69
			105.23
			157.16
			193.25
			149.36
			63.44
17	124	- 107	868.00
17	133	- 106	980.00
17	189	- 172	15.00
71	94	- 23	- 16.00
216	53	+ 163	199.00
157	12	+ 145	344.00
203	7	+ 196	164.00
122	83	+ 39	262.00

TABLE 8 Continued

				(1)		(2)
				Bank Credit to Public Sectors		
		Money Supply	Percentage Change (%)	Net Government Borrowing* at Bank of Korea	Counterpart Funds Deposits	National Bonds held in Banking System
1953	3	13,770	-12.0	6,091	127	476
	6	18,224	32.3	6,451	155	723
	9	25,409	39.4	9,075	170	767
	12	30,316	19.4	11,490	173	770
1954	3	36,296	19.7	9,738		5,887
	6	45,783	26.2	22,238	1,262	7,813
	9	50,238	9.7	23,409	13,124	8,231
	12	58,079	15.6	31,135	16,107	8,340
1955	3	58,142	.1	27,003	15,517	9,900
	6	65,062	11.9	25,952	20,172	11,118
	9	75,586	16.2	40,271	7,904	18,805
	12	93,523	23.7	52,731	14,198	19,568
1956	3	90,144	- 3.6	44,310	28,236	21,748
	6	99,011	9.8	27,713	55,234	22,376
	9	103,971	5.0	15,872	49,974	28,629
	12	[illegible]		[illegible]	[illegible]	[illegible]

TABLE 8 Continued

(3)	(4)			(5)
Industrial Finance** Debentures held by Bank of Korea	Loans to Government Agencies & Local Governments		Government Loan Funds*** to Banking Institutions	Total
	By Bank of Korea	By other banks		
	1,487	1,300	N.A.	9,454
	1,627	1,608	N.A.	10,409
	1,627	1,658	N.A.	13,127
	1,847	2,858	N.A.	16,965
	1,227	3,303	N.A.	20,155
	1,552	92	N.A.	31,695
	555	245	N.A.	32,440
	545	440	234	40,457
1,600		356	N.A.	38,860
2,000	700	315	N.A.	40,086
2,000	700	551	N.A.	62,327
2,000	700	825	500	75,824
2,000	500	725	N.A.	69,283
2,000		746	N.A.	52,835
4,000		929	N.A.	49,430
4,000		1,529	534	72,262

***Government Loan Funds to banking institutions is treated as the declining factor for money supply in the public section. These loans are included in Column 7, Loans to private sector by other banks. To the extent, credit expansion to the private sector is overstated.

TABLE 8 Continued

(6)	(7)	(8)	(9)
Bank Credits to Private Sectors			
Loans to Private Sectors		Saving and	
By Bank of Korea	By other banks	Time Deposits	Total
291	6,606	2,091	4,806
332	9,807	2,074	8,065
529	13,185	2,231	11,483
732	15,277	2,385	13,624
878	14,703	2,629	12,952
655	16,231	2,997	13,889
1,140	18,648	3,478	16,310
425	22,031	3,860	18,596
870	25,306	4,851	21,325
1,335	33,159	5,167	29,327
1,238	35,570	7,770	29,038
660	37,117	6,990	30,787
544	41,866	13,068	29,342
376	59,177	13,608	45,945
348	72,769	15,546	57,571
377	70,627	14,222	56,792

TABLE 8 Continued

(10)	(11)	(12)	(13)
Foreign Sector			
Bank of Korea Purchase of F.E.	Deposits of Foreign Organizations	Total	Others
397	179	218	- 683
563	312	261	- 501
994	247	747	102
1,264	383	881	- 1,154
2,108	1,029	1,079	2,110
1,799	1,007	792	- 193
1,631	359	1,272	216
1,533	1,391	142	- 1,116
1,402	2,865	- 1,463	- 580
6,207	10,863	- 4,656	305
3,694	8,903	- 5,215	-10,565
2,234	12,631	-10,397	- 2,691
2,391	11,426	- 9,035	554
10,940	6,611	4,329	- 4,098
12,646	11,904	742	- 3,772
13,898	14,246	- 348	- 7,781

TABLE 8 Continued

				(1) Bank Credit to Public Sectors		(2)
		Money Supply	Percentage Change (%)	Net Government Borrowing* at Bank of Korea	Counterpart Funds Deposits	National Bonds held in Banking System
1957	3	120,239	- .6	14,554	100,015	50,240
	6	119,288	- .8	4,078	108,091	50,081
	9	125,049	4.8	8,314	129,373	53,546
	12	145,184	16.1	- 4,172	114,332	64,345
1958	3	147,056	1.3	-18,819	134,127	64,054
	6	149,141	1.4	- 7,690	133,696	63,385
	9	165,781	11.2	3,001	120,395	62,934
	12	192,553	16.2	24,035	98,930	58,000
1959	3	210,710	9.4	34,148	108,721	57,667
	6	206,703	- 2.0	44,419	78,526	57,675
	9	203,714	- 1.4	35,915	76,820	57,600
	12	209,900	3.0	54,695	63,707	57,372
1960	3	211,072	.6	52,704	37,571	55,890
	6	206,898	- 2.0	41,806	39,070	56,120
	9	199,278	- 3.7	21,608	82,953	56,786
	12	219,077	10.0	20,693	86,333	56,531

TABLE 8 Continued

(3)	(4)			(5)
Industrial Finance** Debentures held by Bank of Korea	Loans to Government Agencies & Local Governments		Government Loan Funds*** to Banking Institutions	Total
	By Bank of Korea	By other banks		
4,000		1,576	N.A.	70,370
4,000		1,334	N.A.	59,493
4,000		2,293	N.A.	68,153
8,000		1,802	10,771	69,971
8,000		1,694	11,128	43,801
8,000		1,608	12,157	53,146
12,000		2,342	44,767	35,510
16,000		2,117	63,930	36,222
15,950		1,403	74,265	34,903
15,950		1,228	74,934	44,338
15,950		1,059	78,048	32,476
15,950		2,811	77,675	53,153
16,400		2,932	80,605	51,091
16,400		2,878	84,365	36,609
16,400		3,383	89,097	12,800
16,400		3,186	90,734	96,800

TABLE 8 Continued

(6)	(7)	(8)	(9)
Bank Credits to Private Sectors			
Loans to Private Sectors		Saving and	
By Bank of Korea	By other banks	Time Deposits	Total
252	68,752	12,196	56,808
195	79,071	12,691	66,575
160	92,152	14,946	77,366
179	107,479	15,124	92,534
112	109,610	16,141	93,581
87	110,025	17,414	92,698
87	133,787	19,495	114,379
127	156,594	19,161	137,560
87	169,986	27,392	142,681
84	173,088	33,448	139,724
84	175,092	42,537	132,639
84	179,775	54,908	124,951
84	202,582	69,705	132,961
84	201,646	62,945	138,785
84	210,276	54,428	155,932
84	239,961	57,006	183,039

TABLE 8 Continued

(10)	(11)	(12)	(13)
Foreign Sector			
Bank of Korea Purchase of F.E.	Deposits of Foreign Organizations	Total	Others
17,354	17,863	- 509	- 6,430
21,033	25,736	- 4,703	- 2,077
19,688	32,359	-12,671	- 7,799
25,972	21,251	4,721	-22,042
24,448	19,922	4,526	5,148
28,384	32,068	- 3,684	6,981
32,703	24,749	7,954	7,938
39,147	19,265	19,882	- 1,111
41,934	14,570	27,364	5,762
38,859	20,463	118,396	4,245
37,992	11,310	26,682	11,917
36,968	14,416	25,552	9,244
31,624	20,222	11,402	15,618
34,373	16,191	18,182	13,322
36,778	14,067	22,711	7,835
44,290	10,885	33,405	- 7,213

dumping activities were implemented in South Korea. However, evidence suggests that the South Korean economy absorbed a significant amount of the dumped currencies.[11]

Except for the third quarter in which money supply rose only 2 per cent, the rate of increase in the money supply was very high in 1946; 8 per cent in the first quarter, 15 per cent in the second quarter, and 45 per cent in the fourth quarter. The need for expenditures in defense and security, plus the inefficient management of government agencies and vest industries on one hand and declining tax revenue on the other, called for an enormous overdraft by the government from the Bank of Chosen (now the Bank of Korea) and credits from other banking systems. The 45 per cent increase of the money supply in the fourth quarter, which consisted of credit for about 62 million hwan to the public sector and 14 million hwan to the private sector, was due to the peculiar seasonal behavior of money supply explained in the previous section.

The rate of increase slowed down during 1947. Yet, the increasing amount of overdrafts and borrowings by the military government from the Bank persisted throughout the period. In the third and fourth quarters of 1947 credit to the private sector increased rather sharply. This is partly due to the fact that substantial increases in Bank of Chosen loans to commercial banks were made during this period, and partly due to the fact that the increased credit to the

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[11]Yoo Jin Soon, Economics (Seoul: Korean Economic Association, September, 1953), p. 140.

public sector in the previous periodprovided a further basis of credit expansion by commercial banks with the increase of bank reserves at the Bank of Chosen.

In 1948 the money supply increased 37 per cent, a rather slow rate compared with the previous period. The establishment of the Republic of Korea on June 12 might have promoted stability. The new government's spending policy, however, resulted in a large increase of the money supply, especially in the third quarter of 1949.

The major cause of the decrease of money supply was the proceeds of the sales of aid goods, which absorbed the currency in the open market. Until the beginning of 1947, collection of the proceeds of aid goods sales had been lax, and the proceeds were scattered in various financial institutions. With the reception of the ECA aid goods, however, the proceeds were collected and deposited at the Bank of Chosen. Counterpart Fund Deposits of Table 8 shows the increasing proceeds from aid goods.

Despite the increasing collection of proceeds from the sale of aid goods, the money supply rose sharply in 1949 as compared to 1948. This rapid increase was mainly due to increased credit expansion from the banking system to the public sector, which includes government, government agencies, and vested properties. While the causes for money expansion under the military government were confined to relief and defense needs, the Korean government seemed to have been more aggressive about economic reconstruction. In addition, the Korean government had to pay military expenditures

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which were previously paid by U. S. Army appropriations. With the arrival of the ECA aid goods, economic activities were brisk from 1949 until the Korean War.

Credit controls, mainly the prior approval of loans beyond certain amounts by the government have been implemented since 1946, though their administration was very lax and ineffective. In the meantime, a positive step toward credit control was initiated from the end of 1949. The money supply declined 6.8 per cent in the first quarter of 1950. In March, 1950, the Fifteen Points of Stabilization Policy was initiated with a joint agreement between the ECA authorities and the Korean government. The policy was aimed at tightening credit expansion, by tightening the government budget and credit expansion and increasing the government revenues by tax reform and the sale of vested properties. In the second quarter of 1950 money supply rose by the reasonable rate of 4.9 per cent.

D. The Korean War Period

With the invasion of South Korea by the North Korean Communists, the money supply increased sharply; 123 per cent in the second half of 1950. Needless to say, the expansion of bank credit to the public sectors was the major cause of this rapid increase of money supply. During the single 1950 fiscal year, government budgeting changed seven times to meet the urgent needs of defense expenditures. On the other hand, production, mining, power facilities, and housing and transportation facilities ceased to operate and were damaged by war. As a result, tax revenues

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declined to almost nothing.

Advances to the United Nation Forces[12] necessary to finance the local-currency requirements by the United Nation Forces were additional causes for credit expansion to the public sector. During this period expansion of the money supply was made exclusively in terms of Bank of Chosen notes.

During the chaotic period of June 1950 to February of 1951, the South Korean government retreated from the capital city of Seoul, recaptured it for a short time, and was forced to retreat again. Net increase of note issues, government overdraft and the advance to the United Nation Forces during this period are shown in Table 9.

TABLE 9

NOTE ISSUES, GOVERNMENT OVERDRAFT, AND ADVANCES TO UNITED NATION FORCES, JUNE, 1950 -- FEBRUARY, 1951.[13]

In Million Hwan

	(A) Net Increase of Note Issue	(B) Government Overdraft	(C) Advances to United Nation	B/A	C/A
Period of the 1st Retreat	390	213	62	54%	16%
Period of Capturing the Capital City	1,344	1,082	486	80%	36%
Period of the 2nd Retreat	863	403	219	46%	25%
Total	2,597	1,698	767	65%	30%

[12]On June 28, 1950, an agreement was made between the United States and Korean Governments regarding the supply of local currency and credit to the United Nation Military Authority for its local use.

[13]Source: The Bank of Korea, Monthly Statistical Review (March, 1951), p. 125.

A somewhat minor reason for the expansion of money supply was the withdrawal of time deposits. Before and after the war the central bank and other banking institutions were faced with the rush-withdrawal of deposits, though restrictions, for example a maximum amount of withdrawals, succeeded in limiting the extent of the withdrawal of deposits. To meet the situation, the central bank extended the credit to the banking system to about 241 million hwan. The ratio of deposits to currency outstanding became unusually low; consequently, the banking system was completely unable to operate the banking functions except for feeding the notes to the public. Therefore, the extent of the withdrawals of time and saving deposits contributed to the net expansion of money supply in this period.

After the frustrating experiences of the first retreat, the reoccupying of the capital city and the second retreat, it was recognized that the government must settle down in Pusan temporarily. That is, it was anticipated that the war was not likely to be a short one.

Because of this anticipation and other natural reactions regarding heavy government expenditures, an unusually tight fiscal policy, "Pack's Tight Fiscal Policy," was implemented. (Pack is the name of the Prime Minister). As a result, government borrowing from the central bank due to budget deficits was somewhat reduced. At the same time, increasing amounts of collections from sales of aid goods, 2,163 million hwan at the end of 1951, provided a strong force for contracting money supply.

Despite the tight fiscal policy and the increased collections

from sales of aid goods, money supply continued to rise at a faster rate in 1951 than in the previous year. Money supply rose an average of 43 per cent in each quarter, a total of 170 per cent within 1951. The advances to the United Nations forces brought about inflationary pressures. Because of disagreement about a foreign exchange rate between the Korean government and the United States, the military authority refused to make dollar payments for their loans at the Bank of Korea; 3,623 million hwan were accumulated by the end of 1951, thus contributing a strong inflationary pressure.

In addition, the expansion of credit to the private sector added fuel to an inflationary spiral in the latter half of 1951. A rapid increase in bank credit to the private sector was observed, as shown by Column 9, Table 8. Loans increased from 26 million in the second quarter to 1,345 million in the third quarter and 2,142 million in the fourth quarter. Obviously, there was no coordination of policy between the Korean and the United States governments. For from the second quarter on, an attempt was made to provide credit to the private sector in order to facilitate economic activities, on the assumption that the repayments of advances to United Nation forces made it feasible. The enormous expansion of credit to private sector was made possible by the credits from the central bank to the commercial banks, (707 million hwan in 1951). During 1951 fiscal year 1,231 million hwan (or 123.1 billion won in old currency) of credit expansion was set as the maximum. Yet, the actual expansion of credit was 1,927 million hwan. The lax loan ceiling policy of the central bank must have been the cause of this enormous expansion.

However, the commercial banks also gained the increased basis for secondary expansion by the increase of deposits which was due to the conversion of notes into deposits by the public and the net increase of the assets of the central bank.

Though a 99 per cent increase in money supply in 1952 is much too high, the rate of increase in money supply in 1952 showed a substantial decline compared with that of 1951. "Pack's Fiscal Policy," became tighter in 1952 than in 1951, showing the decline of 694 million hwan government borrowing from the central bank from the previous year's level. The increased collections from sales of aid goods in the first two quarters helped contract money supply greatly. However, during the last two quarters the collections from sales of aid goods were virtually nothing, due to the stalemate in negotiations between the United States and the Korean governments. The advances to the United Nation forces continued to expand. Some of the accumulated advances was repaid in terms of dollars; thus, the sales of these dollars in the last quarter of the year contracted money supply by 217[14] million hwan.

E. The Currency Reform and the Period of Tight Money Policies

A peculiar year was 1953 in the sense that stabilization policies expressed by the government, aimed at the contraction of the money supply, had the consequence of turning out to be expansionary.

With the initiation of the positive economic aid of the ECA,[15]

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[14]The Bank of Korea, Economic Annual, 1955 (Seoul: Bank of Korea, 1955), p. 1-35.

[15]Before 1953, a variety of Aid Organizations acted independently of each other. The arrival of UNKRA, and the establishment of the Office of Economic Coordinator, which was composed of representatives of F.O.A., U.S.A. and the Korean government, improved the aid policies.

an effort to stabilize the economy by preventing an excess supply of money was established before the Korean War. As was explained, the Fifteen Points of Stabilization Policy was established in March, 1950.

The Bank of Korea opened business as the central bank in June, 1950. The Act of the Bank of Korea was designed to set up in independent monetary authority, and the Bank hoped to eliminate or prevent the bank credit expansions which were often made in connection with political pressures.

These policies, however, were interrupted by the Korean War. After the truce, hopes for economic reconstruction were brightened by the arrival of the UNKRA and the Foreign Operations Agency, and the efforts of the policies were renewed with added enthusiasm.

The first one was the currency reform of February, 1953. One hwan of new currency was exchanged for 100 won of old currency, up to 500 hwan for each citizen. The law also stipulated certain types of deposit accounts to be blocked and provided a series of rates by which the old currency could be exchanged with the new one. The impact of inflation was everywhere. Traders and middle-men generally fared better than the rest of the population. On the other hand, most productive enterprises had been extremely hard pressed. Consequently, the vast amount of funds were channeled into non-investment activities. The funds concentrated in these non-investment activities, in turn, raised the interest rate in the open market, thus creating undesirable pressures upon investment activities.

The designers of currency reform, therefore, planned to

absorb about three billion hwan, and hoped to re-channel these funds into investment activities. On what basis this amount of repudiation was estimated is not known.

At the end of February, after the reform, total money supply was reduced from 15,799 million hwan to 14,990 million hwan, a reduction of approximately 5 per cent.[16] A careful study of the statistics, however, shows that notes outstanding declined from 10,024 million hwan to 6,890 million hwan, 31.3 per cent; and private currency deposits from 2,128 million hwan to 1,384 million hwan, 36 per cent. That is, the money supply available to the private sector was reduced by 3,878 million hwan, which was greater than what the government planned to absorb. On the other hand, other deposits of government agencies and some private persons increased from 3,359 million hwan to 6,467 million hwan. This increase reflects largely the blockedaccounts because each citizen was entitled to exchange up to 500 hwan, with the balance after the payments of overdue taxes being deposited with banking institutions. The increase of these deposits, therefore, did not exercise any effect on aggregate demand.

This observation indicates that the money supply was deficient immediately after the reform temporarily. On February 25, the Currency Reform Bill was before the Congress to be ratified. The series of exchange rate for the blocked accounts was reduced by the Congress, presumably because of the scream of scarcity among the public and because of the conservative elements in the Congress. Consequently,

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[16]The Bank of Korea, Economic Annual, 1955, pp. 2-18.

[illegible]

[illegible]

the money supply tended to increase from March onward, after a temporary slacking in February.

Since then, the Congress has been blamed for continuing inflation.[17] However, the government sector, as can be seen in the over-ambitious plan of government expenditures in 1953.

The original budget for the 1953 fiscal year estimated 138,607 million hwan of expenditures, incurring 42,930 million hwan of deficits which were to be financed from the central bank credits, as shown by Table 10. Bond issues worth 2,000 million hwan were sold to the banking system, thus providing an additional increase in money supply.

Compared with the executed budget of 1952, the 1953 budget was too large. Huge increases in defense and reconstruction expenditures were the major causes for the budget increase. It must be noted that revenues of 24,488 million hwan were based on the anticipated large increase of American economic aid. It can be safely concluded, indeed, that 1953 budgetary and fiscal policy anticipated an increased money supply, rather than seeking to contract it.

The Republic of Korea experienced very frustrating situations after the truce agreement. As to the expected quick economic aid on the part of the United States, almost four months were spent in smoky conference rooms by representatives of the Korean and

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[17] Ahn Rim, The Korean Economy after the War (Seoul: Baik Yeung Sa, 1954), pp. 137-185. Also see U. N. Economic Survey of Asia and the Far East, 1954. p. 92.

and United States Governments because of disagreement about several points of economic policy, especially the foreign exchange rate. Stalemates at the conferences caused the delay of the arrival of aid goods which, in turn, provided pressure on the government budget. Also, the amount of aid was settled at about 60 per cent of the amount the Korean government expected to receive.

The government budget was modified two or three times to make it more realistic in this changed situation. Therefore, the major burden of the government deficit, though it was reduced somewhat after revisions of the budget, was placed on the central bank. To counteract this expansionary situation, the advances to the U.N. forces were repaid to the government. The government sold these so-called U.N. "Military Dollars" in the open-market, absorbing about 20,499 million hwan in 1953. Together with this counteracting factor, the collection of the proceeds from the sale of aid goods amounted to 7,760 million hwan.

The year 1954 marked a fresh start for economic reconstruction. After a series of conflicts between the United States and the Korean government, an agreement concerning "Financial Stability and Economic Reconstruction" was reached in December, 1953. The Office of the Combined Economic Board set up the plan for sources and uses of funds for each quarter. However, ambitious government projects for reconstruction were launched seemingly independently of the CEB. Some call 1954 the positive stage of economic reconstruction. A phenomenal change was the increase of government overdrafts during the second quarter of 1954, and a net increase of five billion

TABLE 10

COMPARISON OF 1952 EXECUTED BUDGET AND 1953 BUDGET[18]

In Million Hwan

	Revenues			Expenditures				
	A 1952	A^1 1953	(A^1-A)	B 1952	B^1 1953	(B^1-B)	A-B 1952	A^1-B^1 1953
General Account	14,124	21,581	- 7,457	12,988	15,226		1,136	6,355
Spec. Accts.								
Vested Prop.	384	893	+ 509	32	279	+ 247	352	641
Office and Supply	132	56	- 76	1,261	3,121	+ 1,860	-1,261	- 3,066
The War	0	0	0	7,717	57,728	+50,011	-7,717	-57,728
Monop.	6,375	9,562	+ 3,187	3,277	5,562	+ 2,285	3,099	4,000
Econ. Coordination	8,215	24,488	+16,273	11,515	19,196	+ 7,681	-3,300	5,292
Bonds	1,326	2,000	+ 674	141	199	+ 58	1,185	1,801
Lottery	3		- 3	0		0	3	0
Nat'l. Theatre	2	46	+ 44	3	46	+ 43	- 1	0
Grain Management	9,558	24,710	+15,152	9,507	24,710	+15,203	51	0
Land Reform	2,139	7,014	+ 4,875	2,122	7,014	+ 4,892	17	0
Transportation	2,381	4,170	+ 1,789	2,375	4,170	+ 1,795	6	0
Communication	387	1,084	+ 697	447	1,282	+ 835	- 59	- 198
Ins. and Annuities	13	55	+ 42	14	55	+ 41	- 1	0
Total	45,040	95,677	-50,637	51,400	138,607	-87,207	-6,360	-42,930

[18]Sources: The Bank of Korea, Economic Annual, 1955. pp. 1-27.

hwan in bonds held by the banking institutions in the first quarter and a continuous increase in bonds held by the banking system throughout the year.

Due to the nature of the reconstruction projects, funds were primarily allocated for capital investment. As a long-term lending bank, the Korean Reconstruction Bank was set up under the control of the Ministry of Finance. Credit expansion to the private sector by the commercial banks increased substantially in 1954. The previous loan ceiling set up on commercial banks was abolished. This provision enabled the commercial banks to make more loans. The rediscount ceiling at the Bank of Korea was adopted in accordance with the CEB plan. However relatively easy advances from the Bank of Korea to commercial banks also provided an additional stimulant for credit expansion to the private sector. The collections from the sales of aid goods showed an increase in the second quarter of 1954. Despite the factors which contributed greatly to the contraction of the money supply, the money supply increased 92 per cent in 1954.

This inflationary situation invited a sharp reaction from the United States representatives of the CEB, creating a political uncertainty which caused a sharp increase in the general price level. The foreign exchange rate was raised from 180 hwan to 500 hwan per dollar in 1955, as suggested by the United States representatives. To maintain the revised exchange rate, tight money policies were instituted by the government. Since the first quarter of 1955, government spending, thus deficits, have stayed about the same. Heavy spending was inevitable because of a large military

expenditure and the previous commitments of the government for reconstruction projects. The expansion of credit to the private sector by the commercial banks rose faster due to the repeal of the loan-ceiling policy to the banks. The rate of increase of the money supply, therefore, was relatively high in 1955.

The money supply was reasonably stable in 1956. The government overdrafts showed some declining tendency yet the government deficit in 1956 was greater than in 1955. Credit to the private sector expanded at a faster rate. Total expansion of credit made by the commercial banks in 1956 was 27 billion hwan, about twice that of 1955. A major contracting factor of money supply was the increased collections from the sale of aid goods. These increased collections made the government overdrafts decline and enabled the government to repay some of its loans to the Bank of Korea in the third quarter of 1956.

Increased arrivals of aid goods in 1957 and 1958 contributed greatly to the contraction of money supply. In 1957 the government implemented a strong "Financial Stabilization Program." This program cut in half the credit expansion to the private sector made by the commercial banks. Net loans to the government from the Bank of Korea declined sharply. In the third quarter of 1958, the government repaid many large loans made at the Bank of Korea. In the fourth quarter of 1958, the tendency toward declining aid brought pressures upon the government, which was evident in an increasing government overdraft. However, a reasonably stable money supply was maintained until the third quarter of 1960.

CHAPTER VI

THE MOVEMENT OF THE PRICE LEVEL, 1945 - 1960

1. The Problem of the Price Index

Several price indices published by the Bank of Korea are available in Korea: the Seoul Wholesale Price Index, the National Wholesale Price Index, the Index of Cost of Living, Retail Price Index, Export Price Index, Import Price Index and the Index of Manufacturing Workers' Earnings. The International Monetary Fund also publishes similar types of indices.

With the exception of the Seoul Wholesale Price Index, however, there is no index which covers the entire period of this study from 1945 to 1960. For example, the Seoul and National Retail Price Indices were discontinued in 1957 and were replaced by the Index of Cost of Living with different weights and different sample classifications. The Export and Import Price Indices were computed only after 1957.

A possible alternative method of indicating price changes would be to use the GNP implicit deflator as the index of the general price level. This involves two difficult problems. The GNP data have been revised two or three times as the statistical techniques improved and the data are available only after 1953.

Because of these many problems the Seoul Wholesale Price Index is used as a representative index. This index has continuity and is available for the period with which this study deals. The

Seoul Wholesale Price Index published after 1949 by the Bank of Korea, is based on the Weighted Aggregative Method or Laspeyres Method. The index prior to 1949 was computed by the simple average method. The index based on the simple average method was recomputed to 1945 by the Laspeyres Method in order to maintain the consistency of the index.

This index, like any other price index, attempts to reflect the changes in prices of major commodities. It does this by assuming that the quantity and quality of the "basket" items included in the commodities do not change from year to year. The price index problem has its inherent difficulties as is commonly known. The Laspeyres Method has a tendency toward an upward bias. The number of items included in this index and the respective weights of the index are as follows:[1]

Classification of commodities	Number of items	Weights
Grains	10	42.49
Foodstuffs	4	5.23
Textiles (Raw Materials)	4	9.83
Textile Products	6	7.43
Building Materials	8	2.71
Fertilizers	3	2.10
Fuels	4	5.58
Miscellaneous	11	24.59
Total	50	99.96

There are further important qualifications regarding the accuracy and general representative character of the Seoul Wholesale Price Index:

A. This index uses constant weights taken from the base year, 1947. Buying habits have changed violently since the Korean War.

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[1]The Bank of Korea, Outline of Prices (Seoul: Bank of Korea 1961), pp. 15-18.

B. A great portion of raw materials was devoted to the production of war goods during the Korean War period and some commodities were not produced during the war period. Thus the weights in the composition of the wholesale price index are not equally valid throughout the period.

C. The index does not reflect the so-called "G.I. Markets," which have grown rapidly since 1945; that is, an important segment of transactions was excluded from the price index.

D. Many commodities were distributed on a non-price basis during and after the war.

E. The prices of some commodities included in this index are controlled by the Korean government.

For these reasons, the Seoul Wholesale Price Index appears to be an inaccurate and unreliable index. Furthermore, the Seoul Wholesale Price Index reflects changes in wholesale prices in Seoul which are not the same as price changes in the Korean economy as a whole. This point is described in Chapter B, Appendix. Therefore, the index of average denomination of currency is computed as an alternative and, hopefully, as a better measure.

2. The Average Denomination of Currency

Professor John J. Klein uses the average denomination of currency as the price index in his study of "German Money and Price, 1932-1944."[2] This portion of this study is based on Klein's prece-

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[2]John J. Klein, "German Money and Price, 1932-1944," In Studies in the Quantity Theory of Money, ed. Milton Friedman (Chicago: University of Chicago Press, 1956), pp. 3-21.

dent. After a review of Klein's exposition, an attempt is made to reformulate Klein's contention in the light of the Korean situation. In particular, the actions of the Bank of Korea are introduced in our exposition.

Klein primarily observed changes in the denominational distribution of currency or the composition of the notes held by the public as the function of price changes. "If price becomes higher, then, since one has to pay more for his goods, he prefers to carry larger denominations of money with him for his purchases."[3] Changes in the average denomination, defined as the total value of notes divided by the number outstanding, therefore measure changes in the price level.

A crucial factor in determining the average denomination is the public desire to hold money of various denominations. Factors which affect the demand for money can explain the public holding of money in various denominations. There are many factors which affect the demand for money.[4] In this study, a simplified version of the demand for money will be used in order to concentrate on the main idea of the subject. For our study, therefore, changes in the general price level, real income and expectations of velocity are sufficient. Based on this simplified version of the quantity theory, we will attempt to establish several relationships. The

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[3]Klein, Ibid., p. 142.

[4]For a sophisticated explanation of the demand for money see Milton Friedman, "The Quantity Theory of Money - A restatement." in Studies in the Quantity Theory of Money. ed. Milton Friedman (Chicago: University of Chicago Press, 1956), pp. 3-21.

first one is the relationship between the average denomination and changes in prices. For this purpose, it is assumed that factors other than changes in the general price level remain constant. Changes in other factors attendant to the changes in the ganeral price level - changes in real income, relative prices, the real value of cash balances and expectations - are assumed to be insignificant.

Secondly, an attempt will be made to establish the relationship between the average denomination and the changes in real income. In this case, factors other than real income are assumed to be constant.

After these two relationships are established, changes in other factors attendant to changes in the general price level and in real income will be considered. The assumption of constant velocity is a reasonable one, as is shown in Chapter B, Appendix. Therefore, this assumption is not removed throughout the analysis. An assumption implicit in this exposition is that the total money supply is solely composed of currency.

The average denomination and changes in prices. What happens to the average denomination of currency when prices double? Klein's exposition will be presented first. Klein considers two situations: (1) that the individual desires not more than the same number of bills with a rise in prices, for example, 12, and (2) that he wants a given division of notes (e.g., 1:5). If the individual initially held his money in 10- and 50- reichsmark notes and if there were 200 reichsmarks outstanding in total value, then the situation before

the price increase was that indicated in Case A:

Case A: Situation before Price Rise

50 Rm	(Value of individual notes) X	2	(no. of notes) =	100 Rm
10 Rm	(Value of individual notes) X	10	(no. of notes) =	100 Rm
	Total	12		200

The Average Denomination of Currency = 16.6 Rm

Suppose denominations are continuous.[5] If situation (1) is met, then situation (2) will be met automatically. When prices double, the total value of currency will be 400 reichsmarks. The situation is represented in Case B:

Case B: Continuous Denominations after Price Doubling

100 Rm	(Value of individual notes) X	2	(no. of notes) =	200 Rm
20 Rm	(Value of individual notes) X	10	(no. of notes) =	200 Rm
	Total	12		400

The Average Denomination of Currency = 33.3 Rm

The average denomination of currency and the price level have exactly doubled. The average denomination, in this case, is a good index of price changes.

Suppose that denominations are discrete. Assume further that there are only 10- and 50- reichmark notes. If situation (1) is met, the average denomination of money will be exactly doubled, as in

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[5]This means that notes are available in continuous sizes or values so that the public can hold any size of notes it desires. If a man desires to increase note-holding in proportion to price changes, he can do so in this circumstance. If notes are not continuous or discrete, the public finds it difficult to adjust its note-holdings in proportion to price changes.

Case C:

Case C: Discrete Denominations in Situation 1

50 Rm	(Value of individual notes)	X 7	(No. of notes)	= 350 Rm
10 Rm	(Value of individual notes)	X 5	(No. of notes)	= 50 Rm
	Total	12		400 Rm

The Average Denomination of Currency - 33.3 Rm

If the 50-50 division of the monetary value of currency in situation (2) is met, the average denomination remains the same.

50 Rm	(Value of individual notes)	X 4	(No, of notes)	= 200 Rm
10 Rm	(Value of individual notes)	X 20	(No. of notes)	= 200 Rm
	Total	24		400 Rm

The Average Denomination of Currency - 16.7 Rm

Thus Klein concludes:

> "Clearly, then, with discrete denominations, the two given conditions are not compatible to each other. The most that can be said is that it is likely that the individual will hold more bills than before but not so many as to keep the average denomination of money the same as before the rise in the price level."[6]

This means that the relationship between the change in prices and the changes in the average denomination is undeterminable. With a 100 per cent increase in the price level, the average denomination will increase less than 100 per cent, but much more than 0 per cent. This conclusion certainly casts serious doubts on the use of the average denomination as an index of price changes. Klein, however, attests to the usefulness of the average denomination as a price

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[6]Klein, op. cit., p. 44.

index, especially during the period of repressed inflation.[7]

It seems that Klein did not establish a firm theoretical basis for the index of average denomination. This is partly due to his illustration. It seems necessary to review Klein's assumptions of the 50-50 division of the values of currency and the discrete denominations in the light of the Korean situation.

Suppose that the demand for money is only for transaction purposes. Since the speculative demand for money in under-developed countries is normally small anyway, it seems that this assumption can be justified. The demand for money, then, is related to the size of transactions an individual carries out, assuming further that there is no rapid change in financial institutions, payment habits, frequency of purchases and any other factors which affect the demand for money. The amount of money an individual holds can be expressed in terms of a certain number of notes or a certain proportion of different notes. In the initial period of our preceding example, the number of notes was 12 and the total value of notes was held in a 50-50 proportion.

Suppose that the size of transactions is doubled because of the doubling of prices. Would the individual try to maintain the same proportion of note-holdings? The 50-50 division seems to be unrealistic. Although an individual carries certain values of notes and coins, it is unrealistic to assume that an individual holds a certain proportion in his note-holdings. Notes can be exchanged at

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[7]Klein, op. cit., pp. 120-159. Also, "Price-level and Money-Denomination Movements," The Journal of Political Economy, LXVIII, No. 4 (August, 1960), pp. 369-378.

the grocery or drug store whenever the need for change arises. Carrying notes in the minimum, desirable number seems to be essential because of the fear of loss.[8] Therefore, we take Klein's second situation, the 50-50 division of notes, out of our illustration.

The assumption that an individual tries to carry the same number of notes before and after price changes is crucial in our exposition. If an individual carrys the same number of notes that he used to carry before the price changes, although this is not always possible, the average denomination is the perfect index of price changes. We can say, then, that the public adjustment of note-holdings is proportional to price changes.

Man is an animal of experience. During a period of stable price, say for two years, he carrys daily the minimum number of notes, some days more and other days less. On the average, however, he carries daily the same number of notes during this period of stable prices. Suppose prices double, other things remaining constant. The individual, then, will have to carry twice as many notes than he used to carry in order to purchase the same amount of goods, if he does not switch from lower to higher values of notes. It is not necessary for any one to carry twice as many notes to purchase the same amount of goods, especially when one can secure change as needs arise at almost any store. Besides, it is inconvenient and also involves the fear of loss when one carries bulky paper notes. He would certainly carry

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[8]The behavior of banks is similar, as confirmed by an interview with William C. Peck, Assistant Vice-President, Michigan National Bank, Lansing, July 15, 1962.

less than twice the number of notes or the same number of notes as before by switching from lower to higher value notes.[9] If one holds the same number of notes before and after price changes, the index of average denomination is the perfect index of price changes.

The public adjustment, however, may not be proportional to price changes. If the public delays the adjustment, the average denomination is likely to lag behind the price changes.[10] It seems more likely that the public delays the adjustment as pointed out in Fisher's statement:

> Yet we are so accustomed in our business dealings to consider money as the one thing stable, - to think of a "dollar as a dollar" regardless of the passage of time, that we reluctantly yield to this process of re-adjustment, thus rendering it very slow and imperfect.[11]

Klein, in my opinion, implicitly assumes that a given structure of denomination is based solely upon public demand. That is to say, the distribution of notes in various denominations depends solely upon the public desire to hold notes of certain denominations. The public is not homogeneous by any means. Some groups, like bankers, traders

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[9]It is crucial in the Cambridge approach to the quantity theory that an individual attempts to maintain the real value of his cash balance. In similar context, the fact that an individual switches from lower to higher values of notes implies that the individual tries to maintain the same real value of cash balance for each unit of currency. He may desire to command the same real resources for each unit of currency. He can achieve this by holding the same number of notes before and after price changes.

[10]If the public overly adjusts, on the other hand, the average denomination will rise more than the increase in actual prices. Over-adjustment is possible when people expect continuous price increases, thus switching from lower to higher denominations in excessive proportion. This may be possible in a situation of extreme inflation.

[11]Irving Fisher, The Purchasing Power of Money (New York: MacMillan Co., 1911), p. 57.

and manufacturers, are very sensitive to the price changes in note-holding behavior, while others are very insensitive. In view of the fact that agricultural activities are predominant in the Korean economy, there exists a great chance of delaying the adjustment of note-holding on the part of the public.[12] Therefore, the average denomination may lag behind the actual changes in prices.

It is important to realize, at this point, the significance of the action of the Bank of Korea. When the Bank issues various denominations of notes, it considers several factors. The public demand for particular values, as Klein assumes, is an important factor. However, the cost of printing and handling the bills is also important. As prices rise, the Bank tends to issue higher values of notes, new or otherwise. This action essentially makes the denominations more continuous.[13] That is, the Bank makes different denominations available so that the public can adjust its note-holdings, as in Case D, for example.

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[12]See Hicks: "considerable proportion of a community's monetary stock is always likely to be in the hands of people who are obliged by their relative poverty to be fairly insensitive to changes," J. R. Hicks, "Suggestion for Simplifying the Theory of Money," Readings in Monetary Theory (New York: Blakiston Co., 1951), p. 31. Keynes also refers to a similar situation by saying, "The public is so much accustomed to thinking of money as the ultimate standard, that, when prices begin to rise, believing that the rise must be temporary, they tend to hoard their money and to postpone purchases, with the result that they hold in monetary form a larger aggregate of real value than before." J. M. Kaynes, A Tract on Monetary Reform (London: Macmillan Co., 1923), p.45.

[13]The writer is greatly indebted to Professor Abba Lerner for this point.

Case D

100 Rm	(Value of individual notes) X	2	(No. of notes) =	200 Rm
50 Rm	(Value of individual notes) X	2	(No. of notes) =	100 Rm
10 Rm	(Value of individual notes) X	10	(No. of notes) =	100 Rm
	Total	14		400 Rm

The Average Denomination of Currency - 28.6 Rm

Now the average denomination shows a 78 per cent increase, while the actual prices increase 100 per cent. In this case, the public behavior in adjusting its note-holdings among the existing denominations is neglected. If we adjust for this behavior, the average denomination will be improved further as a measurement of price changes.

Because of this action of the Bank, the average denomination becomes more sensitive to the upward changes in prices than Klein conceives. In this situation, the problem of lag is somewhat reduced.

It may be noted that the action of the Bank alone cannot cause the average denomination to overstate the actual changes in prices. In case D, the Bank issues 200 Rm notes at best. Some may think that this action, coupled with the public behavior of adjusting note-holding among the existing denominations, makes the average denomination overstate the actual changes in prices. This seems unlikely. Suppose the Bank issues 200 Rm notes. Since the notes are discrete relative to the existing denominations, the

public may refuse to hold 200 Rm notes. In this situation, there is no chance of over-statement. Alternatively, the public may accept the notes willingly. In this case, the willingness of the public to hold 200 Rm notes necessitates little need for adjusting the previously held note-composition, as may be seen in Case E.

Case E

200 Rm	(Values of individual notes) X	1	(No. of notes)	=	200 Rm
50 Rm	(Values of individual notes) X	2.2	(No. of notes)	=	110 Rm
10 Rm	(Values of individual notes) X	9	(No. of notes)	=	90 Rm
	Total	12.2			400 Rm

The Average Denomination of Currency - 32.8 Rm

There seems to be, therefore, little chance of overstating the actual changes in prices.

The indeterminable contention of Klein now stands on a much stronger ground than he implies. Discontinuity of denominations is not really a serious matter when it is viewed with the actions of the central bank. His second situation, namely, whether or not an individual wants a given division of the value of total notes, is not realistic. The essential situation is his first case that an individual desires no more than the same number of bills with a rise in prices.

The argument above can be summarized in equations. Since demand deposits do not exist, according to our assumption, the total money supply is equal to the total value of notes outstanding.

The total value of notes can be expressed as the average denomination multiplied by the number of notes. Thus, the Fisherian equation can be expressed as:

$$(AD \cdot N) V = PT \quad \ldots \quad (1)$$

AD ... Average Denomination
N ... Number of Notes
T ... Real Income
V ... Income Velocity

$$AD = \frac{1}{V}\left(\frac{T}{N}\right) P \quad \ldots \quad (2)$$

It should be remembered that velocity and real income are assumed to be constant and that changes in other factors attendent to the changes in the general prices are also assumed to be insignificant in our exposition. When the number of notes is the same before and after price changes so that the ratio of real income over the number of notes (the N ratio) is the same as in the initial period, the average denomination and the price level will be in a proportional relationship according to equation (2). In this situation, the average denomination is a perfect index of price changes.

When prices rise, it has been argued above that the average denomination understates the actual movement of the price level because of the delay of the public in adjusting its note-holding. In other words, the N ratio declines because the public holds a greater number of notes. It has also been argued that the actions of the central bank tend to compensate that of the public to some

extent.

In pursuing our argument, the N ratio has an important bearing.[14] The relationship between price changes, the average denomination and the N ratio can be summarized in the following matrix:

Price	Average Denomination	N Ratio
goes up	understates the actual price changes	decreases
goes down	overstates the actual price changes	increases

Changes in income and the N ratio. Since the accuracy of the average denomination as a price index depends upon the behavior of the N ratio, we must study the impact of changes in income upon the N ratio. Suppose income changes. How will the N ratio be affected, assuming other things remain constant?

When income increases and other things remain constant, obviously the stock of money increases. This can be expressed in the following three ways:

	AD	N	V	P	T
	$2	50	1	$1	100
(a)	0	↓5			
(b)	↓$.2	0			↓10
(c)	↓$.098	↓2.5			

[14]The behavior of the average denomination can be studied by studying the number of notes, just as we can study consumption spending by studying the behavior of saving and vice versa.

(a) A 10 per cent increase in T is met by a 10 per cent increase in N. That is, the additional requirement for the monetary stock is met solely by printing additional money of the same denomination;

(b) A 10 per cent increase in T is met by a 10 per cent increase in AD. That is, the additional requirement is met by exchanging the existing notes with higher values of notes without affecting the number of notes outstanding;

(c) A 10 per cent increase in income can be met by combining the above two possibilities. For example, a 5 per cent increase in N and roughly a 5 per cent increase in AD.[15] This means that the public holds more money in both forms: both more notes and notes of higher value.

Of all these possibilities, the most probable is the third case. The first case is not realistic because it precludes the possibility that an individual may hold higher values of notes as he becomes richer. In addition, it is not convenient to hold

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[15]Since V and P are constant in this example, the following expression is true:

$$(AD + \Delta AD)\ (N + \Delta N) = T + \Delta T$$

$$AD\left(1 + \frac{\Delta AD}{AD}\right) N\left(1 + \frac{\Delta N}{N}\right) = T\left(1 + \frac{\Delta T}{T}\right)$$

Since $(AD \cdot N) = T$,

$$\left(1 + \frac{\Delta AD}{AD}\right)\left(1 + \frac{\Delta N}{N}\right) = 1 + \frac{\Delta T}{T}$$

Let $\frac{\Delta T}{T} = .10$, and $\frac{\Delta N}{N} = .05$

Then, $\frac{\Delta AD}{AD} = \frac{1.10}{1.05} - 1 = .0476 \quad (4.76\ \%)$

greater numbers of notes. In the second case, it is simply impossible to exchange all existing notes into notes of higher values.

When a 10 per cent increase in real income is met by an increase in N of less than 10 per cent as in the third case, the N ratio tends to increase. In all probability then, the changes in real income tend to raise the N ratio. This means that the average denomination is likely to overstate the actual movement of the price level.

The relationship between the average denomination and changes in real income can be explained in another way. When income goes up, the public, on the average, purchases more of the high-priced goods. For this reason, the public is more likely to hold higher values of notes even if there is no change in prices. This tends to raise the average denomination.

Other things being constant, the relationship between changes in income and the N ratio or the average denomination can be summarized in the following matrix:

Real income	Average denomination	N ratio
increases	overstates the actual price changes	increases
decreases	understates the actual price changes	decreases

It is important to recognize that the N ratio or the average denomination is affected by a factor other than price changes. Thus, Professor Lerner comments that as real income goes up, money will be held in notes of higher values even if the individual goods bought are

not changed in prices.

When prices increase, the price effect alone makes the average denomination understate the actual price changes, while the average denomination overstates the price changes when real income alone increases. In economic phenomena, changes in prices and real income are compounded. In the matter of the average denomination, it is important to realize each element of the compound and the direction of its effect on the average denomination.

During the period of this study, prices increased more than one thousand times while real income increased about two times in Korea. Thus, price effect is predominant in affecting the average denomination, though the increase in real income offsets some of the tendency of the average denomination to understate the actual price changes.

Removal of assumptions concerning the attendant changes. In previous discussions, changes in the variables attendent to the changes in prices, real income, real value of cash balance, relative prices and the changes attendant to the changes in real income, are assumed to be constant or insignificant. Let us remove these assumptions.

Real income and the real value of the cash balance can be treated as the same thing for our discussion. When real income falls as prices increase, it tends to reduce the N ratio more than when the price changes alone. Therefore, the average denomination

understates the actual prices further.

Price changes, however, bring about a sectorial impact on real income. For example, as an economy develops industrially the terms of trade may fall in the agricultural sector, thus enriching the industrial class of the population. This effect of the income redistribution will affect public note-holding in such a way that higher denominations of currency will be held among the industrial class. This means that the N ratio and the average denomination tends to increase.

Price changes also bring about changes in relative prices. The average denomination of currency either goes up or down, depending upon whether price changes occur in relatively high-priced goods or in low-priced goods.

When income increases, general prices are subsequently affected. The subsequent increase in prices tends to reduce the N ratio.

When we remove the assumptions concerning the subsequent changes in other variables, the analysis becomes confusing. The attendent changes in other variables caused by the primary changes in income and prices can be roughly classified into two categories: income effects and price effects. These two effects are secondary in force and move in opposing directions. The extent that the N ratio is affected by these opposing tendencies depends upon the balance of these effects.

This brief discussion about the theoretical ground for the

use of the average denomination needs some modification. It was assumed that velocity is constant and the total money supply is composed solely of notes. Although velocity was argued to be relatively constant over the period of this study, velocity has been changed in particular years, for example, in years of war, truce and political instabilities.

When checks are introduced in our exposition, the analysis is not as simple as previously described. Both velocity and the use of checks are the very factors that affect the number of notes and the average denomination. These factors should be incorporated in the analysis. This study, therefore, needs further refinement and extension.

The argument presented above, however, does not lose the main idea of the average denomination. The argument seems to lead to the conclusion that we can attach some importance to the use of the average denomination as a price index, especially when reliable data are not available. The method and data used in computing the index of average denomination are presented in Chapter A, Appendix. A comparison of the index of average denomination and the Seoul Wholesale Price Index is made in Chapter B, Appendix.

3. The Movement of Price Level

The annual average of the index of the money supply rose 1,136 times from 1946 to 1960, while the index of the average denomination and the index of Seoul Wholesale Prices rose 878 and 392 times respectively. In this section interpretations of price indices for several periods will be made in relation to prevailing economics conditions. The interpretations, however, are very tentative. For an intelligible interpretation, much more detailed study of the price level and the money supply is required. An attempt in this section is made only to indicate some contrasting behavior of the two indices by a very crude method.

Quarterly data and a graph of the index of the money supply, the average denomination, and Seoul wholesale prices are presented in Table 13 and Chart 1 respectively.

A. The Period of Currency Reform

The index of the average denomination shows a 499 per cent increase from January to February, 1953. Before we go into the analysis of separate periods, the method of splicing the average denominations and a tentative explanation of the sharp increase of the average denomination should be made.

Since computation of the average denomination is based on the denominational distribution, two average denominations, one in terms of the old currency and the other in terms of new currency, are connected as one index. The currency reform made 100 won of the old currency equal to 1 hwan of the new currency. The new average

denomination can be multiplied by 100 in order to convert the new average denomination into the old denomination. The starred figures under the column of the old average denomination in Table 11 are the converted figures based on the reasoning above.[16]

TABLE 11

CONNECTING THE NEW AVERAGE DENOMINATION TO THE OLD AVERAGE DENOMINATION

	Old Average Denomination	New Average Denomination	Index '47=100	Percentage Change
1953, 1	757.953		1,805	8.7
2	4,540.757*	45.395	10,811	499.0
3	4,859.012*	48.577	11,566	7.0
6	3,147.049*	31.462	7,491	-35.0
9	2,621.408*	26.207	6,240	16.7
12	2,911.486*	29.107	6,930	11.1

Does a 499 per cent increase in the index of the average denomination from January to February reflect the true movement of prices? The index of the average denomination seems a fictitious index. The percentage distribution of denominations before and after the currency reform is presented in Table 12. This table indicates that higher value notes were held by the public after the reform presumably because the government fed the higher value notes to the public on the occasion of the reform. This means that the average denomination after the reform was greater than before. Therefore, changes in the denominational structure largely explain the sharp increase in the index of the average denomination independent of actual changes in prices.

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[16]In my computation I inadvertantly used the factor 100.027 instead of 100. The effect of this error, of course, is negligible.

TABLE 12

PERCENTAGE DISTRIBUTION OF DENOMINATION*
BEFORE AND AFTER CURRENCY REFORM
(In Won)

Date	Denominations in Won	100,000	50,000	10,000	1,000	500	100	10	5	1
1952	12				98.8	.1	.8	.1	.01	.01
1953	1				98.8	.18	.84	.12	.01	.01
				Currency Reform						
1953	2	14	-	76.5	8.3	1.2	.2			
1953	3	14.9	-	75.5	8.4	.99	.2			
1953	4	14.1	-	74.7	10.4	.63	.2			
1953	5	12.7	-	71.0	15.6	.48	.17			

*New denomination is converted into old denomination: 1 hwan is equal to 100 won.

Source: The Bank of Korea, The Economic Annual, 1955 (Seoul: Bank of Korea, 1955), pp. S-21.

Alternatively, the argument that the 499 per cent increase in the index of the average denomination is fictitious can be shown by guaging the effect of denominational change upon the changes in the average denomination. The average denomination before the reform was as follows:

Prior to the Currency Reform: (January 31, 1953)

Notes held by public	1,002,400.000 Won
Average denomination	757.953 Won

Suppose that the structure of denomination of currency remains the same before and after the currency reform. The reform made 100 won of old currency equal to 1 hwan of new currency. The average denomination of new currency, therefore, should have been 7.57953 hwan if the money supply were the same after the reform. That is, if a pair

of shoes was bought with 757.953 won of old currency before the reform, the same pair of shoes could have been bought with 7.57953 hwan of new currency after the reform.

At the end of February the total money supply available to the private sector, notes in circulation and private demand deposits, was reduced by approximately 36 per cent, 4.4080 billion hwan. Notes in circulation were reduced by roughly 31.3 per cent, 3.134 billion hwan. According to the rigid version of the quantity theory of money, a proportional decline in prices should have accompanied the reform. Since the amount of notes in circulation has a higher correlation than deposits with the wholesale price level,[17] it is assumed that the price level will decline in proportion to the decline of the notes in circulation, 31.3 per cent. Therefore, the same pair of shoes would have been bought with 5.20729 hwan after the reform.

Therefore, the index of the average denomination of currency after the currency reform should have been 5.20729 hwan. Actually, the average denomination of notes after the reform was 45.395 hwan.

After the Currency Reform: (February 31, 1953)

Notes held by public	6,890.000 hwan
Average denomination	45.395 hwan

This means that the price level was about 8.72 times higher than it should have been if the nominal prices were to decline from 100 won to 1 hwan. The factor of 8.72 is the highest effect of the denominational changes upon the average denomination under the assumption that the

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[17]James W. Angell, The Behavior of Money (New York: McGraw-Hill Co., 1936), pp. 12-61.

strict quantity theory of money is applicable to the process of currency reform. When the quantity theory does not apply, e.g., velocity increases as the money supply decreases, the size of the impact of the denomination change will be reduced.

It was noticed that the index of the average denomination, or the index of price level, rose by a factor of about 5 before and after the currency reform. The factor of 5 is combined effects upon the changes in the index of average denomination, and the factor of 8.72 is the effect of the structural change of the denomination caused by currency reform. In view of the fact that the size of impact of the denominational change upon the average denomination is greater than changes in the price level, it is safe to say that changes in the index caused by the currency reform are mainly due to the change in denominational structure.

As shown in Chart 1, the index of average denomination declined from March until September. This may imply that the public was adjusting its note-holdings during this period. That is, during the currency reform the public held higher value notes than what it desired to hold. As time passed, the public gradually switched from the higher to the lower value notes in order to obtain its optimum situation of note-holdings.

During the period of adjustment, the index of the average denomination did not reflect the actual changes in price level. During this period, therefore, an intelligible comparison between the index of the average denomination and Seoul wholesale prices cannot be made. For this reason, in the following discussion 1953 is excluded.

Once the process of adjustment was completed, the index of the average denomination reflected changes in prices as the theory developed in the previous section indicates.

B. The Over-All Period

The quarterly average of 1947 is the base for the index of average denomination of currency, money supply and the Seoul Wholesale Price Index. It should be mentioned that there was no single year of stability in Korea between 1945 and 1960. Therefore, it is necessary to select a relatively stable year as the base. The year 1947 seems to meet this requirement, although there was a substantial increase in prices during this year. Also the Seoul Wholesale Price Index uses 1947 as the base year.

According to Chart 1, the over-all picture of the index of average denomination shows, with the exception of 1953, a relatively more stable movement of price changes than the Seoul Wholesale Price Index. This is due to the difference in nature of the respective indices as is described in Chapter B. Appendix. The Seoul Wholesale Price Index reflects changes in wholesale prices in Seoul, while the index of average denomination reflects price changes of the total money sector of the economy.

The index of average denomination rose faster than the wholesale prices in 1945 and from 1955 on continuously, while it rose more slowly than the wholesale price index from 1946 until 1952. This indicates that the rate of price changes shown by the index of average denomination is less than that of the wholesale price index at an earlier period, while it is greater in the later period. If we assume

TABLE 13

INDEX OF AVERAGE DENOMINATION, SEOUL WHOLESALE PRICES,

AND MONEY SUPPLY, 1945 - 1960

Year	Month	Index of Money 1947-100	% Change in Money	Wholesale Price 1947-100	%Change Wholesale Price	Index of Average Denomination 1947-100	%Change inI.A.D.
1945,	9	28.0		11.2		45.0	
	12	31.6	12.9	11.8	5.4	49.0	8.9
1946,	3	36.1	7.9	48.8	313.6	51.6	5.2
	6	39.2	15.0	51.6	5.7	50.6	-2.0
	9	50.2	2.0	96.4	75.2	59.6	17.0
	12	72.5	45.0	74.4	-17.7	77.3	29.9
1945-46			129.4		530.5		57.7
1947,	3	76.7	5.8	89.6	20.4	83.7	8.3
	6	84.5	10.2	89.8	.2	91.0	8.7
	9	96.7	14.4	102.3	13.9	100.5	10.4
	12	143.1	48.0	142.4	39.2	124.8	24.1
1946-47			97.4		91.4		61.3
1948,	3	144.6	.63	149.2	4.8	126.6	1.4
	6	152.8	6.1	162.7	9.1	133.2	5.3
	9	168.7	10.4	180.1	10.7	146.2	5.3
	12	196.5	16.5	185.0	2.7	159.3	13.6
1947-48			37.3		29.9		27.7
1949,	3	207.3	5.5	177.7	-4.0	153.5	-3.7
	6	218.3	5.3	201.6	13.5	156.6	2.0
	9	290.1	32.9	254.7	26.3	163.3	4.3
	12	340.4	17.3	288.9	13.4	182.5	11.7
1948-49			73.2		56.2		14.5
1950,	3	317.4	-6.8	332.3	15.0	174.2	-4.5
	6	332.9	4.9	348.0	4.7	176.4	1.2
	9	406.5	22.1	—	—	260.4	47.7
	12	774.9	90.6	831.1*	--	627.4	140.9
1949-50			127.6		187.7		243.8

* Seoul Wholesale Price Index is connected to Pusan Wholesale Price Index from December, 1950, to the end of 1952. Seoul index was not possible to publish during this period due to war conditions.

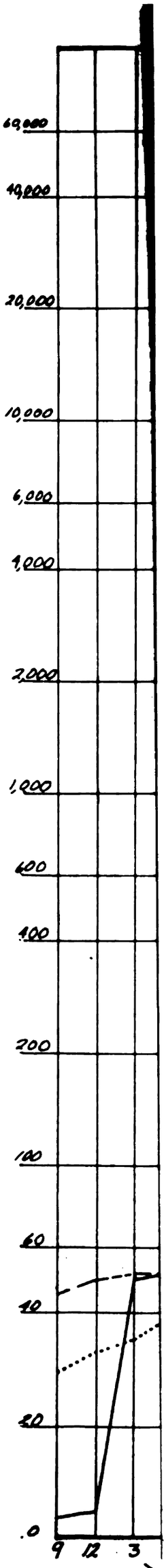
TABLE 13 Continued

	Index of Money 1947-100	% Change in Money	Wholesale Price 1947-100	% Change Wholesale Price	Index of A.D. 1947-100	% Change in I.A.D.
1951, 3	1,132.0	46.1	- -	- -	840.3	33.9
6	1,421.7	25.6	1,670.8	- -	1,061.3	26.3
9	1,700.7	19.6	2,550.0	52.6	1,251.2	17.9
12	2,093.4	23.1	2,599.2	1.9	1,413.1	13.0
1950-51		170.2		212.7		125.2
1952, 3	2,412.4	15.2	3,676.5	41.5	1,539.9	9.0
6	2,787.1	15.5	5,136.6	37.7	1,591.2	3.3
9	3,234.2	16.0	6,197.7	20.7	1,660.7	4.4
12	4,172.0	29.6	5,256.8	-15.2	1,791.8	8.0
1951-52		99.3		102.3		26.7
1953, 3	3,673	-12.0	5,974	13.6	11,566	545.4
6	4,861	32.3	6,147	2.9	7,491	-35.2
9	6,778	39.4	5,870	-.5	6,240	-16.7
12	8,086	19.4	6,635	8.6	6,930	11.1
1952-53		93.8		26.2		286.8
1954, 3	9,682	19.7	6,135	-7.5	8,137	17.4
6	12,212	26.2	6,730	9.6	7,764	-4.6
9	13,400	9.7	9,108	35.3	8,340	8.2
12	15,492	15.6	16,037	16.2	9,644	14.8
1953-54		91.6		51.2		39.2
1955, 3	15,509	.1	11,508	14.7	13,554	40.5
6	17,355	11.9	14,012	21.8	17,081	26.0
9	20,162	16.2	14.729	26.5	21,044	23.2
12	24,946	23.7	14,330	-18.2	21,256	1.0
1954-55		61.0		42.8		120.4
1956, 3	24,045	-3.6	15,471	8.0	21,050	-1.0
6	26,410	9.8	20,013	29.4	21,493	2.1
9	27,733	5.0	21,524	7.5	21,044	1.9
12	32,255	16.1	26,950	-2.7	23,256	8.3
1955-56		29.3		46.2		11.6
1957, 3	30,072	-.6	22,499	7.4	26,771	12.9
6	31,819	-.8	23,499	4.1	29,147	8.9
9	33,355	4.8	22,554	-3.7	28,517	-2.2
12	38,726	16.1	19,503	-13.5	27,442	-3.8

TABLE 13 Continued

Year	Month	Index of Money 1947-100	% Change in Money	Wholesale Price 1947-100	% Change Wholesale Price	Index of Average Denomin. 1947-100	% Change in I.A.D.
1956-57			20.1		-7.0		15.7
1958,	3	39,225	1.3	19,873	1.9	27,976	2.0
	6	39,782	1.4	20,707	4.2	28,186	.8
	9	44,220	11.2	22,297	2.7	28,880	2.5
	12	51,361	16.2	21,142	.6	31,473	8.7
1957-58			32.6		8.4		14.7
1959							
1959,	3	56,204	9.4	20,423	-3.4	34,370	9.2
	6	55,136	- 2.0	21,950	7.5	36,078	5.0
	9	54,338	- 1.4	23,617	7.6	36,679	1.7
	12	55,988	3.0	23,605	-.1	38,539	5.1
1958-59			9.0		11.7		22.4
1960,	3	56,301	.6	24,727	4.8	44,564	15.6
	6	55,188	-2.0	25,804	4.6	50,892	14.2
	9	53,155	-3.7	26,941	4.4	55,035	8.1
	12	58,436	10.0	25,689	-4.6	59,560	8.2
1959-60			4.3		8.8		54.5

Source: Index of the Money Supply from Table 8, Chapter V, Index of Seoul Wholesale Prices from Outline of Prices (Seoul: Bank of Korea, 1961), pp. 174-5. Index of the Average Denomination from Table A. Appendix.


60,000
40,000
20,000
10,000
6,000
4,000
2,000
1,000
600
400
200
100
60
40
20
.0
9
12
3

that the wholesale price index is an accurate measure of price changes, the above fact may indicate that the index of average denomination understates or lags behind the actual movement of price changes in the earlier period, while it overstates the actual movement of price changes in the later period.

Perhaps a better explanation may be found in the relationship between the index of money supply and the respective price indices. In general, velocity declines during the early period of the inflationary process, while it increases in the later period. For example, Keynes states:

> The public is so much accustomed to thinking of money as the ultimate standard, that, when prices begin to rise believing that the rise must be temporary, they tend to hoard their money and postpone purchases, with the result that they hold in monetary form a larger aggregate of real value than before. . .But sooner or later the second phase sets in. The public discovers that it is the holders of notes who suffer taxation and defray the expenses of government, and they begin to change their habits and to economize in their holding of notes.[18]

Throughout this period of study, inflationary forces existed in Korea. Let us confine ourselves to two periods, one from September, 1945, to June, 1950, and the other from March, 1954, to the end of 1960. The period of war and currency reform are excluded in this exposition.

In the earlier period, the wholesale prices rose 31 times and the money supply increased 11.9 times, while the wholesale prices rose only 4.2 times and the money supply 6 times in the later period. The

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[18]J. M. Keynes, A Tract on Monetary Reform (London: Macmillan Co., 1923), p. 45.

fact that the index of Seoul Wholesale Prices rose faster than the index of the money supply has been interpreted as an indication of violent inflation and an increase in velocity. A very good example of this is illustrated in the next section.

Closer study of the data indicates that most of the rise in prices is concentrated in 1945. As will be detailed in the next section, this huge rise in prices in 1945 is fictitious. From March, 1946, to June, 1960, the money supply increased 9.25 times and Seoul index 7.1 times. Seoul Wholesale Price Index implies 30-40 per cent increase in velocity allowing 60-70 per cent increase in real output. When we exclude 1945 and 1946, it appears that the behavior velocity implied by the Seoul Wholesale Price Index is nearly constant.

In the earlier period as a whole, as is often interpreted in Korea, prices rose faster than the money supply, and vice versa in the later period.

This interpretation, if true, indicates a very peculiar economic behavior. Namely, velocity declined in the period following war, prolonged inflation and currency reform. In this period political instability was also observed. On the other hand, velocity increased during the period when expectation for a brighter future, in general, was held among the public. This behavior seems to be quite contrary to what would normally take place.

In the earlier period, the index of average denomination increased 3.9 times and the index of money supply 11.9 times, while the index increased 6.2 times in the later period and the money supply 6 times.[19] Although the decline in velocity is rather great in the earlier period, the index of average denomination seems to provide

[19]In Chart 1 the index of average denomination lies below the index of money supply due to the difference in the base year.

a more sensible interpretations of the direction of velocity than the wholesale price index for both periods.[20]

One may question the rather long period of declining velocity in the midst of constant inflationary forces. This means that the public did not revise its expectations during the earlier period, roughly five years. This is entirely possible. One reason for this is the fact that the agricultural sector occupies a great portion of the total economy. Also there occurred a rapid expansion of the money sector of economy due to the land reform and the extensive government programs of farm product purchases. Perhaps the most important explanation for the period of declining velocity is the fact that the expectation for a bright future was not fulfilled in a once-and-for-all fashion. Bright expectations materialized continuously as seen by the liberation of August, 1945, the occupation by the Military Government and the land reform of 1947 and the establishment of the Republic of Korea in 1948. There hardly seems to be any discontinuity of bright expectations over the whole period.

An increase in velocity in the later period, which seems to be more reasonable, implies that the Seoul Wholesale Price Index is understated. The main reason that the Bank of Korea continued to publish the Seoul Wholesale Price Index, despite its admission of the defects of the index, is because of the agreement between the United States and Korea to revise exchange rates when the wholesale price index increases 25 per cent above the level of the preceding period. The

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[20]This argument cannot hold strongly against the Seoul Wholesale Price Index for 1947-1950 because of the relatively constant behavior of velocity implied by the index during this period.

agreement was to raise the rate of foreign exchange as the index of Seoul wholesale prices increases. The increasing exchange rate has been a very keen issue in Korea. In particular, the rise in exchange rate was considered to cause further inflationary spiraling. Therefore, it is feasible that the government may have manipulated the wholesale price index from 1954 on in order to show its success in controlling inflation in an attempt to prevent the possible rise of the foreign exchange rate.

In this connection, an example may be quoted from the Economic Survey of 1959, published by the Ministry of Reconstruction.

> Until 1957 there had been a proportional relationship between the money supply and the price level so that a change in money supply caused a proportional change in the price level. . . .In 1958 several factors [which caused velocity to decline] caused a divergence between price movements and money supply which the Korean economy had never before experienced.[21]

This statement indicates that there were divergent movements between the price level and the money supply, which the government claims occurred after 1958.[22] During 1958 the money supply increased 32.6 per cent, while the Seoul Wholesale Price Index indicates an increase of 8.4 per cent. The difference is explained by the decline of velocity, which was roughly 20 per cent, taking into account the 6 or 7 per cent increase in real output in 1958.

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[21]Ministry of Finance, R.O.K. Economic Survey, 1959 (Seoul: Ministry of Reconstruction, 1959), pp. 18-20.

[22]The divergent movement that the government claims to have appeared after 1958 seems to have taken place after 1954, according to the index of the average denomination.

The quarterly average of demand deposit velocity during 1958, however, shows a 0.1 per cent decline in 1958, which is negligible. Since the government and the Korean Agricultural Bank used about 65 billion hwans for the purchase of rice and for loans, a high amount compared with the previous year, the dispersed money in the agricultural sector may have caused some decline in the velocity of the total money supply in 1958, but not to the extent of 20 per cent.

The index of the average denomination indicates a 15 per cent increase in prices and less than a 10 per cent decline in velocity. In view of the behavior of demand deposit velocity and economic conditions prevailing in 1958, the decline in velocity implied by the Seoul Wholesale Price Index seems to be too far removed from what could actually happen. If this is the case, the index of wholesale prices understates the actual movement of price level to the extent of excessive decline implied by the wholesale price index.

C. The Post-Liberation Period

During the Second World War there existed strong inflationary pressures within Korea. This was especially true toward the end of the war. The Japanese policies, however, had managed to control the rise of prices with wide-scale price control, collection of staple foodstuffs and well-organized rationing schemes. The index of wholesale prices thus rose by 176 per cent, although the note issue of the Bank of Chosen rose about 1900 per cent from the end of 1936 to June, 1945.[23] Regarding the movement of price changes for the period after the liberation, all Korean economists and some distinguished American

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[23]The Bank of Korea, The Outline of Prices, p. 8.

economists interpret the economic phenomena as characterized by pronounced inflation and the rapid increase of velocity. Professor Bloomfield, for example, states in his Banking Reform in South Korea:

> From September 30, 1945, to March 31, 1950, the money supply rose to 1033 per cent, whereas wholesale prices rose 2867 per cent. This points to an increase in the velocity of circulation of money over the period as a whole, such as would be expected at a time of pronounced and prolonged price increases.[24]

He indicates that prices and velocity rose at a much faster rate during 1945 and 1946. This is clear in another statement made by him that prices rose about 20 or 25 times in the two months preceding the arrival of the American forces and that there was a "mad rush" to buy up all goods available.[25]

This interpretation, in my opinion, misrepresents the movements of prices, velocity and other economic variables in this period, but it was accepted by policymakers in Washington and Seoul.

Assuming that the real output remains the same (decline of real output was inferred by Bloomfield, Lewis, and many others), three times increase of velocity is implicit in Bloomfield's statistics. He states later that "the only surprising thing is that the inflation did not develop into a runaway inflation."[26]

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[24]A. I. Bloomfield and John P. Jensen, Banking Reform in South Korea (New York: Federal Reserve Bank of New York, 1951), p. 32.

[25]Bloomfield and Jensen, Ibid., p. 27. See also John P. Lewis, Reconstruction and Development in South Korea, p. 10. He states: "The financial upheavals and slump in production associated with the Japanese exodus immediately swept the economy into its first wave of violent, runaway inflation."

[26]Bloomfield and Jensen, op. cit., p. 33.

This interpretation seems to have resulted from treating the elimination of discrepancy between the controlled and uncontrolled prices as an inflationary process.

In evaluating the movements of price changes, it should be noted that we refer to uncontrolled prices in the free market. In the chaotic situation resulting from the liberation August, 1945, of Korea, the elaborate system of controls broke down completely. In October, 1945, the Military Government had formally decontrolled all commodities and established free markets. The break-down of price control eliminated the discrepancy between the open market price and the controlled prices. The 530.57 per cent increase of prices shown by the Seoul Wholesale Price Index in Table 13, therefore, seems to reflect a good portion of the discrepancy. Table 14 is helpful in substantiating this point. According to the Seoul Wholesale Price Index, prices rose to 11.2 in September from 0.687 in June, 1945. Prices rose about 1500 per cent during this period. Therefore, the major portion of this 1500 per cent seems to be the discrepancy which was eliminated right after the break-down of price control. (The difference in prices from July to September will give a better approximation of the discrepancy. However the price index of July and August is not available.)

The wholesale price index shows about a 314 per cent increase between December, 1945, and March, 1946, as seen in Table 14. On the other hand, the index of average denomination rose only 5.2 per cent during the same period. The difference between these two indices may be explained by the decontrolling policy of the government. The United States military government officially decontrolled the prices in October, 1945. Thus, the remaining discrepancy of the Index of

Seoul Wholesale Prices should have been gradually eliminated from then on. By March, 1946, it seems that the discrepancy between the two price levels was eliminated completely. They advanced together after that date.

TABLE 14

BREAKDOWN OF PRICE, 1945 - 1946

	Seoul Wholesale Price Index 1947=100	% Change	Index of Average Denomination 1947=100	% Change
1945, 6	.687			
9	11.2	1500	45.02	
10	9.3			
11	9.4			
12	11.8		49.04	8.93
1946, 3	48.8	313.6	51.59	5.20
6	51.6	5.74	50.58	-1.96
9	90.4	75.2	59.55	17.73
12	74.4	17.7	72.33	29.86

Source: Seoul Wholesale Price Index from Outline of Prices (Seoul: The Bank of Korea, 1961), p. 174.

What was the behavior of velocity immediately after the liberation? The money supply increased about 130 per cent during the period from 1945 to 1946. This is much less than the change in the index of wholesale price and higher than the index of the average denomination of currency. Two different explanations of economic activities, especially the behavior of velocity, can be made.

Let us first confine analysis to the period of 1946. According to the Seoul Wholesale Price Index, velocity increased roughly 290 per cent during 1946, while it declined by 70 per cent according to the index of the average denomination, if we assume real output remained the same. When velocity is assumed to remain the same, real output

declined 290 per cent according to the Wholesale Price Index, while it increased 70 per cent according to the index of the average denomination. In fact, both velocity and real output must have changed during this period. In this case, the magnitude of changes would be less than as indicated above.

From August, 1945, to 1946, it was observed that no properties and goods connected with the Japanese in any way had market value because almost all Koreans refused to purchase anything from the Japanese. Optimism caused by the liberation and various decontrol measures must have eliminated the behavior of hoarding goods which was very popular during the tight control schemes. Therefore, this dis-hoarding behavior and the abandonment of goods and properties must have increased the real goods available. In this condition, it is more likely that velocity would have declined rather than increased. At least until the middle of 1946, the post-liberation period was one of the most optimistic period in Korean history. Evidences indicate that interpretation of economic activities based on the whdesale price index is not a sensible one.

The average denomination, therefore, appears to be a more sensible index. During 1946 prices had risen 58 per cent. The increase in real output and the decline of velocity had offset the effect of an increase in money supply.

During the period of post-liberation, prices rose at a rather high rate. There appeared, however, a relatively stable tendency after the establishment of the Korean government. It was relatively stable in the sense that there was no tendency for the rate of price increases to accelerate.

D. The Korean War Period

The causes of inflation following the invasion of June, 1950, are easily explained. On the supply side there were increasingly severe shortages of all kinds of goods and services. A description of the South Korean economic situation during this period emphasizes the word "shortage" repeatedly. The rapid increase of money supply, 127 per cent in 1950, was accompanied by a reduction of the supply of goods due to the thorough disorganization of trade and the decline of production. Money was concentrated in a small Pusan area and velocity increased during this period.

Thus, prices rose 244 per cent in 1950 according to the index of average denomination, while Seoul Wholesale Price Index shows a 188 per cent increase in prices.

In 1951 prices rose 125 per cent, according to the index of average denomination, a very high rate, yet a much lower rate than that of the previous year. By 1951, especially after the participation of the Chinese Communists, there was a tendency to settle in Pusan temporarily. In a different environment, somehow the reorganization of economic institutions and organizations was undertaken. At the same time the government enforced a tight money policy.

In 1952 trade and transportation improved significantly after two years of confusion. The banking system also stopped the mad expansion of credits. Prices rose about 27 per cent during this period according to the index of average denomination, while the Wholesale Price Index showed a 102 per cent price increase.

The rumor of a truce at Panmunjum seems to be important in explaining the above contradiction. After a series of conflicts about

the truce agreement between the United States government and President Rhee, the negotiation of a truce was considered inevitable. This feeling spread among the public and the rumor began to make more sense with the arrival of UNKRA in Korea toward the end of 1951. The public and the Korean government anticipated the return of the government and the public to Seoul from Pusan. As a result of the expected return the people anticipated expenditures in Seoul. Thus, velocity must have declined in 1952. This decline in velocity offset the effect of money supply, which resulted in a relatively low rate of price increase. Real output increased during this period. For example, the arrival of foreign aid increased sharply during 1951 and again it increased about 50 per cent in 1952.[27] In 1952 imports also increased about 40 times over 1951.[28] Pusan was swamped with imported flour at one time. In such a situation, it is hardly possible for prices to increase at a faster rate than money.

E. The Period after Currency Reform

Price increases started to pick up from the fourth quarter of 1953 and through 1954, except for the second quarter of 1954, probably because of increased demand for reconstruction after the government moved back to Seoul. Despite this fact, the price level in 1954 was relatively stable.

An interesting observation is the sharp contrast of price increases between the average denomination and the wholesale price

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[27]The Bank of Korea, Economic Annual, 1955, p. 161.

[28]Ibid., p. 173.

index during 1955. Prices rose 120 per cent in 1955 according to the index of average denomination, while only a 43 per cent price increase is shown by the Wholesale Price Index. This sharp contrast needs some explanation.

According to the Wholesale Price Index, about a 51 per cent price increase was observed in 1954, the year after the currency reform. Western economists, especially the United States officials, engaged in economic reconstruction programs, were sadly disappointed by the continuous price increase, observed by the Seoul Wholesale Price Index (prices rose 35 per cent and 16 per cent in the third and fourth quarters, respectively), and rapid monetary expansion since the currency reform. In order to maintain price stability, the United States representatives at the C.E.B. once again suggested a depreciation of exchange rates in the fourth quarter of 1954. This was met by a sharp reaction from the Korean government. Thus the supplies of aid goods, especially gasoline, oil and other strategic materials, were all cut off. Such actions of the United States met with a sharper reaction on the part of the Korean government, until political uncertainty was created. There was a rumor that the United States might give up Syngman Rhee¢s government. Thus, the general price level rose sharply in the first, second and third quarters of 1955. The stability of the price level in the fourth quarter seemed to be the result of the good crop of the year and also the repeal of the increased charges of government utilities, which were initiated in August by the government in order to maintain the revised exchange rate after the depreciation. If the index of average denomination being correct, the index of the Seoul wholesale prices is sadly in error.

Unlike the wholesale price index, the index of average denomination was relatively stable only up to the third quarter of 1956. Since then, price increased until the second quarter of 1957. The Financial Stabilization Policy was implemented in the second quarter of 1957, which made the price level relatively stable until the third quarter of 1958.

Never before in Korean history has there been a period like 1957-1960 in which emphasis on price stability was made. This, of course, doesn't mean that the Korean government seriously realized the importance of price stability.[29] For many reasons, somehow the government had to implement the tight money policy. During 1957 the money supply increased approximately 20 per cent, about 9 per cent less than the previous year. Yet the price movement shows a divergence between the index of average denomination and the wholesale price index. The wholesale price index shows a 7 per cent decline, while the index of average denomination shows a 16 per cent increase. According to the wholesale price index, velocity declined about 20 per cent, taking into account the 7 or 8 per cent increase of real output.[30] The index

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[29]For example, the Economic Survey of 1959 states, "It allowed some flexibility to supply appropriate funds for productive industries so that the development of industry would first increase production and then stabilize prices. This plan emphasized growth of production and price stability rather than the volume of money supply itself." (underlined by writer) (Seoul: Ministry of Reconstruction, 1959), p. 16.

[30]The national income at 1955 constant prices, published by the Bank of Korea shows a 7 per cent increase in 1957. My crude index of real output indicates 18.5 per cent. This higher increase of real output seems to be caused by a 4.5 per cent decline of real output in the previous year. The national income data doesn't show the decline in the previous year. See Chapter C, Appendix.

of average denomination shows about a 3 to 4 per cent increase in velocity. The demand deposit velocity indicates relative constancy over the previous year.

The movement of price level during 1958 is already explained in Section B of this chapter.

Prices rose steadily in 1959 and rather rapidly in 1960, an election year. Despite the rather slow rate of the increase in money supply, both in 1959 and 1960, prices rose at a much faster rate than the money supply.

E. A Brief Summary

In the regression analysis in Chapter B, Appendix, it was pointed out that the index of average denomination and Seoul Wholesale Price Index are different in nature. Seoul Wholesale Price Index reflects changes in wholesale prices in Seoul, while the index of average denomination reflects changes in prices in the total money-sector of the Korean economy. In the analysis of inflation of the total economy, the use of the index of average denomination seems preferable to Seoul Wholesale Price Index.

Although interpretations of price indices are very tentative, some meaningful insights in understanding the true movement of price level was obtained by the index of average denomination. For example, the index of average denomination seems to support Keynes' hypothesis as is described in Sub-section B. The behavior of velocity implied by Seoul Wholesale Price Index seems quite opposite to Keynes' hypothesis, with the exception of 1947-1960.

As expressed by Klein, the index of average denomination seems to provide better insights in studying the true movement of price level during the period of repressed inflation. The index of average denomination points out that Seoul Wholesale Price Index understates the price level after 1954.

The index of average denomination, however tentative the interpretations made in this section may be, provides challenging views in understanding price level. It also cautions the uncritical use of Seoul Wholesale Price Index in economic analysis.

CHAPTER VII

RELATIONSHIP BETWEEN MONETARY POLICY AND ECONOMIC DEVELOPMENT

1. Introduction

In the literature about depression, post-war recovery and the economic development of underdeveloped countries, the relationship between growth and price stability has been controversial. This has necessarily been so because the issue involves not only economics, but also socio-political problems.

Some argue that price stability should precede growth, while others insist upon recovery before price stability. The recent military revolution of Korea in 1962 seems to be determined to seek growth and price stability at the same time. The military revolution, in my opinion, was largely due to the failure to maintain stability in the past.

The study of prices and money in the last fifteen years in Korea reveals sharp conflicts concerning whether or not reconstruction should be sought before price stability. The Fifteen Point Economic Program of 1950 and the Agreement about Financial Stability and Reconstruction of 1953, essentially emphasized price stability before economic reconstruction. This emphasis seems to have been based upon the persuasion of the United States representatives at the Office of the Combined Economic Board. The rationale seems to have been: inflation is to be avoided because reconstruction requires investment;

investment will not be forthcoming until prices are stabilized and the balance of payments made "viable" without United States aid.

However, the basic line of economic policy contemplated by the Korean government was contrary to that of United States representatives. The government sought reconstruction before price stability. A high rate of economic development or speedy recovery became a sine quo non. Naturally, the emphasis of the reconstruction policy was put on the increase of real output. However, it was not understood then that an attempt to increase real output financed by bank funds would directly lead to the increase in aggregate spending unless a decline in velocity would offset the increase in money supply, It was also not understood that the increase or changes in the composition of demand would not automatically lead to the increase or changes in the composition of supply.

In reviewing the literature, it is often found that the increase in aggregate demand is considered to be good for economic reconstruction or for a higher level of employment and national income.[1] By and large, no monetary expansion was seriously considered inflationary so long as production would increae sooner or

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[1]Practically no economist in the field of public finance in Korea agrees with the balanced budget theorem. The theorem is treated as a historical relic. It is natural to emphasize the importance of fiscal policy in economic growth, but some hold fiscal policy responsible for increasing the level of income by increasing the aggregate demand. See: Lee Hae Dong, "Distress of Public Finance" Jae Jeung (Seoul: Jae Jeung Sa, June 1956), p. 48.

later.[2]

The view observed above may be due to the habit of reasoning by analogy. The experience of the role of government in Japanese development, the American experience and the misunderstanding of Keynesian economics[3] might lead to the conclusion that government deficit spending is essential in capital formation and that lower interest rates should be the focus of monetary policy. The Five-Year Economic Plan of 1951 and the establishment of the Korean Reconstruction Bank in 1954 can be presented as evidence for this line of policy.

In this chapter, the validity of the "reconstruction first" and "stability first" arguments will be analyzed in the light of the Korean economic situation and the optimal increase in money supply will be estimated in order to evaluate the performance of credit policy in Korea.

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[2]A sharp increase in money supply was observed in 1958 largely due to the absence of a ceiling imposed upon the aggregate money supply. The Ministry of Finance states; "It allowed some flexibility to supply appropriate funds for productive industries so that the development of industry would first increase production and then stabilize prices. This plan emphasizes growth of production and price stability rather than the volume of money supply itself." See: Economic Survey (Seoul: Ministry of Finance, 1959), p. 16.

[3]Similar observation is stated by Professor Bronfenbrenner; "Many believe that there would be a reversion in the Japanese government to policies associated with the name of Tanzan Ishibashi a self-styled Keynesian ... recovery depends upon increased production. This depends, in turn, upon capital accumulation, ... In financing capital accumulation, taxes are to be kept low while easy credit is made available from a Reconstruction Finance Bank. The budget is to be unbalanced deliberately." See: Martin Bronfenbrenner, "Four Positions on Japanese Finance", Journal of Political Economy LVIII No.4, August 1950, pp.285-6.

2. The Korean Economy and Inflation

The magnitude of problems in Korea in relation to the availability of goods and services and ever-increasing demand is indeed great. In terms of the Keynesian framework, ex ante investment always exceeds saving. In terms of Harrod's model of economic growth,[4] voluntary saving does not adapt to the rate of capital formation required to sustain a steady expansion of production. When thriftiness is deficient, the "warranted" rate of capital formation is less than the rate required by steady growth; thus, more investment spending will occur, causing further inflation.

In this situation, the correct policy should have been the restriction of aggregate spending rather than the encouragement of it. In Korea, however, the policy was expressed in terms of increasing effective demand by printing excessive money (which will be shown in section 6 of this chapter). Economic reconstruction is not a matter of printing money. In such a situation, it is generally agreed that the excessively printed money will reduce the level of voluntary saving and divert productive investment into speculative and high-profit economic activities, such as real estate, luxury housing, hoards of foreign exchanges and precious metals. In addition, the excessively printed money will create pressure on foreign exchange reserves. When the degree of overprinting of money is great, it will result in a cumulative inflation and the goals of economic reconstruction will be defeated.

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[4]Roy F. Harrod, "An Essay in Dynamic Theory," in Readings in Business Cycles and National Income (ed. Hansen and Clemence) (New York: W. W. Norton, 1953), pp. 22-219.

Therefore, Professor Ellis cautions about the dangers of inflation:

> Indeed, the besetting danger of the monetary institution in underdeveloped areas is inflation. The political atmosphere, the aims of autarchy and rapidity of development, the rational distrust of domestic currencies, the absence of markets for government securities, the "demonstration effect" of foreign standards of living--all these produce a strongly inflationary bias and inflationhas particularly pernicious effects on development.[5]

It is important, then to study some factors which make the Korean economy sensitive to inflationary forces. "Fundamentally, the mainspring of the current urge to develop, the so-called 'great awakening,' originates on the demand side and operates through political channels."[6] Korea's situation gave rise to important tendencies to increase aggregate demand. There were two wars with their attendant war situation.[7] The demonstration effect[8] was particularly strong due to proximity to United Nation forces. Population pressure was also important.

A crucial problem in this situation is the ever-growing demand for money, especially when the government dominates in economic activities as in Korea. The government demand for investment, not to mention defense expenditures, does not seem to be related to the availability of funds, but to the ability to create money.

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[5]Howard Ellis in a discussion with C. R. Wittlesey, "Relation of Money to Economic Growth." American Economic Review, Papers and Proceedings, May, 1956, p. 207.

[6]Max G. Mueller, Money, Investment, and Economic Development with Special Reference to India (Unpublished Doctoral Dissertation, University of Illinois, 1960), p. 5.

[7]See Chapter II.

[8]J. S. Duesenberry, Income, Saving and the Theory of Consumer Behavior (New York: Prentice Hall, 1960), 27. See also R. Nurkse, Problems of Capital Formation in Underdeveloped Countries (New York: Oxford University Press, 1960), pp. 57-81.

Despite all this, major problems of stability would not exist if the Korean economy were able to increase real output in accordance with the increasing aggregate demand. However, the capacity to increase the supply of goods and services is very limited and is unable to meet such ever-growing demand.

3. Some Structural Problems

A. Structural Underemployment[9]

Economic factors such as the lack of capital equipment and skilled labor are important conditions underlying structural unemployment. As Professor Kindelberger states, "structural unemployment results from lack of complementary resources or wrong factor proportions, not from the dearth of effective demand."[10] Provision for productive equipment, skilled labor and entrepreneurs may help solve the problem of structural unemployment.

Structural unemployment, however, is not due to economic factors alone. It is also due to demographic and sociological factors. Its distinctive feature lies in its massiveness and chronic character which may be observed only in underdeveloped

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[9]See footnote 11.

[10]Charles Kindleberger, Economic Development (New York: McGraw Hill, 1958), p. 192.

countries.[11]

In addition to this structural unemployment, the Korean economy suffers from "disguised unemployment"[12] and "unemployment of expansion."[13]

Structural unemployment, disguised unemployment and unemployment of expansion all interact with each other in such a way that the unemployment problem in Korea becomes cumulative. A number of people,

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[11]Joan Robinson's "disguised unemployment" has attracted attention in academic circles. She states, "It is natural to describe the adoption of inferior occupations by dismissed workers as disguised unemployment." Cf: her Essays in the Theory of Employment (2nd edition) (Oxford: B. Blackwell, 1947), p. 62. Mrs. Robinson's term may not be applied to structural unemployment. Disguised unemployment occurs primarily because of cyclical and seasonal fluctuations, while structural unemployment occurs at the stage of transformation of a society from non-industrial to industrial economy. When the process of transformation is slow due to economic, sociological and edmographic reasons, chronic and massive unemployment will, in my opinion, occur independently from cyclical or seasonal fluctuations. Structural underemployment is characterized by the existence of subsistence sector in which the marginal productivity of labor is close to zero. There is a persistent gap of wages between the two sectors of an economy.

[12]See footnote 11.

[13]Cf: Alfred Navarrete, Jr., and Ifingenia M. deNavarrete, "Underemployment in Underdeveloped Countries." The Economics of Underemployment (London: Oxford University Press, 1960), p. 43, They state: "...is one which we shall call underemployment of expansion, because it rises in time not of depression, but of economic growth. It is due to the failure of capital and most complementary means of production to increase at the same rate as the supply of labor in secondary and tertiary activities. This type of underemployment is accentuated by deficit financing of development programs and the resulting inflation, which intensifies the cityward migration of agricultural workers and thereby unduly swells the supply of labor in the face of a limited supply of complementary means of production."

working on farms or small peasant plots, contribute virtually nothing to output, but subsist on a share of their family's real income. In technical terms, the marginal productivity of labor over a wide range may be zero. W. Arthur Lewis, in fact, claims that the marginal productivity of labor is actually negative.[14]

It is important to realize that these types of Korean unemployment cannot be absorbed by means of expansion of monetary demand, while disguised unemployment in industrially developed countries may be absorbed by monetary expansion. When the monetary demand expands, the result may be merely an inflation of prices.[15]

B. Inelasticity of Supply

In Korea, the transferability of factors from one use to another is limited. In addition, there seems to be a series of

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[14]W. Arthur Lewis, "Economic Development with Unlimited Supplies of Labor." The Economics of Underemployment, p. 402. Also see Benjamin Higgins' Economic Development (New York: W. W. Norton & Co., 1959), p. 242. Jacob Viner argues against the negative productivity of labor. See "Some Reflections on the Concept of 'Disguised Unemployment,'" Contribuics A Analies do Dexenvolimento Economico (Rio de Janeiro, 1957), p. 347. Viner states further: "Even supposing that there were such a farm on which every product had technically and economically fixed ingredients, labor would still have positive marginal productivity unless there were not only fixed technical coefficients of production for all the economically relevant potential products of the farms, but the proportions between the technical coefficients were uniform for all of these products."

[15]R. Nurkse, op. cit., p. 17. A study made by the United Nations points out: "The fact that the investment result in increased production in the future is no assurance that the creation of bank credit to finance development will not rise to inflation now. The argument for this policy is based on a mistaken analogy between underempliyment in underdeveloped countries and unemployment in industrial countries." Cf: Bernstein, Gooded, Friedberg, and Patal, "Economic Development with Stability," in Staff Papers (Vol. III), pp, 313-386.

bottlenecks in the process of production of most important commodities. Non-transferability of factors and bottleneck situtaions make the aggregate supply curve very inelastic; thus, the Korean economy is especially vulnerable to inflationary forces.

For instance, amplitudes of agricultural price fluctuations are much larger than those of industrial price fluctuations due to inelastic supply and demand curves of farm products. Especially, supply is almost perfectly inelastic in the short-run. Any variation in demand, therefore, simply pushes up the price of agricultural products. Sixty to sixty-five per cent of the total labor force engages in farming and produces about forty to forty-five per cent of total national output. Thus, the variation in price of agricultural products has a great impact upon the general price level. That is, the variation of agricultural product prices accentuates the oscillations around the secular trend of prices.

The supply of industrial products is less inelastic than that of agricultural products. The elasticity of the supply curve of industrial products, however, seems far less than in industrial countries.

When industries are well-structured, as in a developed country, an increase of supply of a particular commodity will be made without establishing an additional industry, which is essential for the production of the particular commodity. When industries are sparsely-structured as in Korea, however, an increase of supply of a particular commodity may require the enlargement of the new

establishment of a certain industry. The elasticity of the supply curve is, therefore, more likely to be less in Korea. Scarcity of basic factors of production, such as power, capital equipment, working capital, and essential raw materials, is acute in Korea. A rapid expansion of monetary demand, therefore, can at best increase production up to the point where the scarcest factors will be fully employed. Beyond this point, the monetary demand will simply cause inflationary spiraling.

It should be mentioned also that there are few factors which dampen Korean inflation. Automatic stabilizers, such as progressive taxes and social security systems, dampen inflationary forces in developed countries. However, the Korean tax system, as in many other underdeveloped countries,[16] seems so inelastic that the government cannot count on yields of taxes rising substantially with prices or impose an "automatic stabilizer" effect.

C. Price Structure

In addition, the market in Korea is imperfect. Except in urban areas, the "Jang," a traditional market which combines barter trade and some money exchange, is a predominant market pattern. The "Jang" is characterized by inelastic demand and supply; thus, the

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[16]United Nations Economic Commission for Asia and the Far East. Inflation and Mobilization of Domestic Capital (Bank Kek: October 22, 1951), p. 6. It seems that the tax structure of Korea became more regressive to heavier recourse of the government revenues upon direct tax imposition. The higher the marginal propensity to pay taxes and save and the less the inelasticity of price expectations, the greater the possibility of continuous deficity financing for capital formation. See also: Kindleberger, C., op. cit., pp. 193-194.

price level varies greatly with a small change in demand and supply. Only in urban areas does the market in the modern sense exist. This modern type of market, where money is the transaction medium, is a conglomeration of controlled[17] and highly sensitive free-market prices.

Prices in the free market are much higher than those in the controlled market. Controlled prices are set below the cost of production with the hope that this will contribute to an anti-inflationary effect. Certainly, the controlled price policy will contribute to an anti-inflationary effect if it operates well. Inefficient management of controlled prices in Korea, however, seems to contribute to inflationary forces. Virtually all of the industries under the controlled price policy operate at a loss. The deficits are usually offset by government subsidies or loans from the banking system. Loans are usually made through political pressure and are essentially equivalent to subsidies because few loans are paid back completely. Due to the fact that deficits can be met by subsidies or loans, the pressure for efficiency imposed by the market is impaired. An alternative to improved efficiency in order to minimize losses is that of receiving subsidies or loans. When receipts of subsidies or loans do exceed the losses actually

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[17]"In the monopoly industries, including the important transportation, communications, and power industries, prices and wage rates are established by the National Assembly. In other industries, direct control of prices and wages is largely limited to the vested companies, which are administered by various ROK ministries." UNKRA, An Economic Programme for Korean Reconstruction (New York: U.N., 1954), p. 185.

incurred, the differences are invested in the free-market sector.[18] This will bid up the prices in the free market, thus contributing an inflationary effect.

A particularly important phenomenon is the rigidity of the price structure due to controlled prices and the imperfect market structure. When prices are rigid downward in one sector, and sensitive upward in the other, a rise in prices in the sensitive sector will raise the prices in the other sector. Prices of other sector will set a higher floor of prices and bring forth further pressure for price increase in the sensitive sector.

4. The Role of Monetary Policy and Economic Reconstruction

Observations in the previous sections point to the fact that the Korean economy is very sensitive to inflationary forces. Reasons include structural problems and some man-made problems like using the wrong monetary policy and managing price policy inefficiently. Above all, economic reconstruction is not a matter of printing money. Though the Korean economy possesses some idle capacity[19] and is different from other underdeveloped countries which are initiating economic development in the sense that Korea has a skeleton of industries, a sharp increase in aggregate demand is not the solution

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[18]There are evidences that such funds flow into the indigenous money market, called "Kei," or into speculative business. See: M. D. Wattles, The Market for Funds in Korea. (Unpublished thesis, University of Oregon, 1961), p. 7.

[19]For example, the level of industrial production in 1945 was about 50 per cent of that of 1939. In 1954, a level equivalent to the 1949 level was reached.

for economic reconstruction. Economically, stability arguments appear to be more logical because no sound and durable reconstruction can be expected until the economy has been stabilized to reduce the risk involved in economic calculations to a manageable size. The fact that money was supplied in excess of the increase in real output indicates that it was undoubtedly an important cause of inflation in Korea in the last fifteen years. Therefore, monetary policy in Korea should have emphasized price stability. This argument, however, is different from that of the conventional argument of price stability.

Traditionally, the stability argument emerges from the problems of business cycles. Objectives of monetary policy, therefore, have been counter-cyclical in content based on a deep-seated belief that an appropriate monetary policy could eliminate the fluctuations in economic activities.[20] It is correct to say that goals of monetary policy, in this case, lack the notion of economic growth. The role of monetary policy in the conventional argument assumes, at best, a passive nature in the context of economic development. As Professor Ellis indicates, "monetary policy makes its maximum contribution to economic growth and to the balance of that growth if it succeeds in keeping prices reasonably constant and employment reasonably full."[21]

On the other hand, Professor Whittlesey challenged the concept

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[20]J. W. Angell, "General Objectives of Monetary Policy" in The Lessons of Monetary Experience, ed. Arthur D. Gayer (New York: Farrar & Rinehart, Inc., 1937), p. 53.

[21]Howard S. Ellis, in the discussion with Whittlesey, op. cit., p. 207.

of price stability as follows:

> One cannot hypothesize that with stable price a higher level and a more even rate of growth would have been achieved in this country than actually were attained, but any such conclusion must remain uncertain. I have always found the argument persuasive that wildcat banking may have contributed to the more rapid development of the West by providing a cheaper form of circulating medium than specie, by the stimulus to production and the effect of redistribution of income that may have resulted, and perhaps in still other ways.[22]

Wildcat banking is not to be recommended in Korea. However, the hypothesis that a higher level or even faster rate of reconstruction could have been achieved with stable prices may be invalid. An empirical study of other countries also suggests no systematic relationship between price change and rate of economic growth.[23]

The achievement of price stability, as considered by proponents of price stability, is to promote growth as a by-product.[24] The factors which make an economy grow are the real factors, such as technology, capital, natural resources, human capital, and many others. Granting the importance of the real factors, it still should be said that conventional monetary analysis is unduly centered in the problems of value or price level, money being only a non-committal spirit in the process of economic growth. The monetary analysis should be centered in the economic process as a whole in which money will act positively.

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[22]Whittlesey, Ibid., p. 192.

[23]Rattan J. Bhatia, "Inflation, Deflation, and Economic Development," in Staff Papers (November, 1960), p. 102.

[24]C. Kindleberger, op. cit., p. 189.

How could positive monetary policy contribute to economic growth? For an economy to grow, it requires specifically (1) additional investment to generate new output and (2) increasing the marginal rate of saving so that a larger proportion of the increasing income may be devoted to further capital formation.[25] These requirement, however, are very difficult to carry out in Korea without the positive role of monetary policy, unless investment occurs without the reduction of consumption by some external sources. An additional investment to be carried out by an innovator in the Schumpeterian system is associated with bank credit,[26] which is an essential element of economic growth. The amount of investment which can be undertaken by an entrepreneur in Kaldor's model depends upon the possibility of earning profit, which in turn depends upon deficiency or sufficiency of money available in an economy. It should be noted that the crucial issue in economic development in Korea is the deficiency of voluntary saving to meet the damand for funds for productive investment.

Money can make positive contributions to economic growth. For example, slight inflation, if it comes in the process of capital formation, will increase forced saving. Slight inflation may also be used as a substitute for taxation, especially when the taxation is unpopular. Investment can be increased in the case of inflation

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[25]M. G. Mueller, op. cit., p. 31.

[26]Joseph a Schumpeter, The Theory of Economic Development, translated by Redvers Opie (New York: Oxford University Press, 1961), pp. 95-127.

through lowering the real rate of interest. The money rate is normally equal to real rate plus some percentage of price change. When prices increase faster than the money rate, the user of funds is paying a negative rate of interest. Referring to the growth of the British economy since 1946, Kaldor mentions, "this is precisely what the inflation had done; it reduced the real rate of interest to negative levels throughout most of the period, and to around zero during the recent period of relatively high interest rate."[27] Professor Bronfenbrenner, in fact, suggests an "optimum degree of inflation"[28] and indicates the usefulness of slight inflation at the early stage of economic development. He suggests that it may permit the authorities to raise the relative price of the types of labor and capital goods required for development projects without imposing on other sectors of the economy the reductions in money wages and prices which would otherwise be required. More important is Bronfenbrenner's "money illusion"[29] argument, which states that, in its early stage, a slow inflation or even a rapid one induces laborers to work more intensively for real income which is no higher and which may be lower than their previous level. Therefore, it seems to be impossible to hypothesize that money is passive and that maximum

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[27]Nicholas Kaldor, "Economic Growth and the Problem of Inflation," in Economica (August, 1959), p. 289.

[28]Martin Bronfenbrenner, "The High Cost of Economic Development," in Land Economics (August, 1953), p.210.

[29]Martin Bronfenbrenner, Ibid., p. 210.

growth can be achieved with stable price.

The role of monetary policy should be, therefore, defined positively. Not only the maintenance of price stability but also slight inflation should be the goal of monetary policy. Since inflation is not homogeneous by any means, it refers here to profit inflation. How slight should the inflation be? An answer to this question depends upon institutional circumstances. However, this is an issue about which no affirmative statement can be made on empirical grounds. For this reason, a pragmatic approach is inevitable in the matter of policy. That is to say, the Bank of Korea will increase money supply in such a way that price level changes within a reasonable range. To achieve this purpose, the Bank perhaps will have to set the maintenance of price stability as the goal of monetary policy with some allowance for additional increase of money supply depending upon business conditions.

5. Theoretical Ground for the Optimum Pattern of Money Supply

In estimating the optimum pattern or the optimal increase in money supply, Professor Bronfenbrenner's work[30] has been invaluable. The optimal increase in money supply, as it is used here, essentially means the "safe" rate of increase in money supply, which in turn is defined as just the rate of increase which would not contribute to inflation. More discussion about this issue is made later. The optimum pattern of money supply will be estimated for the last fifteen

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[30] M. Bronfenbrenner, "Statistical Tests for Rival Monetary Rules" in the Journal of Political Economy (February, 1961), pp. 1-7.

years in the hope that the pattern will give us a criterion upon which the performance of the Bank of Korea may be evaluated.

Though the argument of "what should have been" has important historical meaning, the estimation is necessarily crude and may signify only an explorative value. Specifically, the optimal increase in money supply is estimated on the basis of the actual or ex post behavior of velocity. The actual behavior of velocity would change in the absence of inflation. In order to estimate the optimum pattern of money supply, we must know the behavior of velocity in the absence of inflation. Because velocity is unknown in periods without inflation, the difference between the increase in the amount of money supply and the optimal increase in money supply is only an indication of the departure of the actual policy from the ideal policy on the assumption that the difference in policy would have no effect on the current velocity of circulation.

The primary concern of the central bank policy is to maintain the optimal increase in money supply. Therefore, a legitimate question seems to be "to what extent do the changes in money supply affect the behavior of velocity?" It is shown in Section C, Chapter B, Appendix, that there does not seem to be any evidence of a dependent relationship between money supply and the secular behavior of velocity. This means that there is no evidence that a difference in the central bank policy would affect the behavior of velocity.

The statistical evidence presented in the Appendix, however, is only tentative rather than affirmative. For this reason, there should be some allowance for a dependent relationship between money supply and the behavior of velocity in the interpretation of the

optimal increase in money supply.

The formula used in estimating the optimum pattern of money supply in this section is based on the criterion of maintaining price stability. This appears to be inconsistent with what has been said in the previous section because slight inflation conducive to economic reconstruction was accepted as the goal of monetary policy.

According to the defined goal of monetary policy, money performs two functions. One is to accommodate the credits which are necessary to meet the increase in real output; that is, the increased money supply should be precisely equal to the increase in real output. An additional function is to increase money supply slightly more than the rate of real output in order to induce economic growth. When ex post data on the rate of real output are given, it is impossible to distinguish between the output which increased due to real factors and the output which was induced by additional money supply. Moreover, data for real output are not available in Korea.

Theoretically, it is possible to estimate the optimum pattern of money supply only when the two rates of real output above mentioned are known. Since it is not possible to estimate these statistically, the optimum pattern of money supply is estimated on the basis of the rate of increase in money supply which would have maintained the stability of the price index as an approximation. This is partly due to pragmatic reasons and partly to statistical difficulties.

In determining the optimum pattern of money supply, due consideration should be given to the fact that the demand for money for hoarding purposes, or the diversified demand for money, will necessarily

optimal increase in money supply.

The formula used in estimating the optimum pattern of money supply in this section is based on the assumption of maintaining price stability. This assumes to be incompatibility with that has been said in the previous section because all inflation conducive to economic recuperation was accepted as the goal of monetary policy.

According to the defined goal of monetary policy, money creation the function. Its is to accommodate the credits which are necessary to meet the increase in real output; that is, the increased money supply should be proportionally equal to the increase in real output. In additional function is to increase money supply slightly more than the rate of real output in order to induce economic growth. Upon exact data on the rate of real output are lacking, it is impossible to distinguish between the output which increased due to real factors and the output which was induced by additional money supply. Moreover, data for real output are not available in Oman.

Theoretically, it is possible to estimate the optimum pattern of money supply only when the rates of real output above mentioned are known. Since it is not possible to estimate these statistically, the optimum pattern of money supply is estimated on the basis of the rate of increase in money supply which would have maintained the stability of the price index as an approximation. This is mainly due to pragmatic reasons and partly to statistical difficulties.

In determining the optimum pattern of money supply, the consideration should be given to the fact that the demand for money for transition purposes, as the diversified demand for money, will progressively

increase as surplus units of the economy accumulate financial assets. In addition, a far more important consideration in the case of Korea is the additional money supply which will become necessary as the money sector of the economy expands.

A theoretical ground for the estimation of the safe rate of money supply can be best explained by referring to the Fisherian equation of the quantity theory, with some modifications, which is expressed as:

$$MV = PT \qquad (1)$$

P.....Index of Average Denomination
T.....Measure of Real National Income
M.....Total Money Supply as defined in Chapter V
V.....Income Velocity of Money

The equation can be expressed in a differential form as:

$$\frac{dM}{M} + \frac{dV}{V} = \frac{dP}{P} + \frac{dT}{T}$$

In an ideal situation in which the price level is stable, dP becomes zero. With a given rate of change in the money supply and constant velocity, the change in prices will be zero when the real output increases more than the rate of money supply, the price level will decline, or remain constant when the change in velocity offsets the difference between the rate of change in the money supply and that of real output. Thus, it is possible to define the optimum pattern of money supply, $(dM/M)_o$, as follows:

$$\left(\frac{dM}{M}\right)_o = \frac{dT}{T} - \frac{dV}{V} \qquad (2)$$

This means that the safe rate of increase in money supply is equal to the rate of change of real output minus the rate of change in velocity.

When dP is not zero, the actual rate of change in the money supply would be:

$$\frac{dM}{M} = \frac{dT}{T} - \frac{dV}{V} + \frac{dP}{P} \qquad (3)$$

When Keynes says, "The sum of the elasticities of price and output in response to changes in effective demand is equal to unity,"[31] he seems to refer to the contention of the above equation. The effective demand spends itself partly in affecting output and partly in affecting price.

From equations (2) and (3) the optimum pattern of money supply can be derived as:

$$\left(\frac{dM}{M}\right)_0 = \frac{dM}{M} - \frac{dP}{P} \qquad (4)$$

The verbal interpretation of equation (4) suggests that any increase in money supply beyond the optimum rate will be reflected in the general price level.

The limitation of this formula in deriving the optimum pattern of money supply is the fact that it is based on a differential formula. That is, the usage of the differential formula is valid only when changes in variables are small. However, both the index of money supply and price in Korea have changed greatly and discontinuously. In order to eliminate the impact of the discontinuous changes, the following formula is used for the purpose of computation:

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[31] J. M. Keynes, General Theory of Employment, Interest, and Money (New York: Harcourt, Brace Co., 1956), p. 285.

[illegible]

[illegible]

$$[illegible] \qquad (\ )$$

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

$$[illegible] \qquad (\ )$$

[illegible]

[illegible]

The Limitation of Side Force In Controlling Yaw [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

$$\left(\frac{\Delta M}{M}\right)_o = \left[\frac{1 + \frac{\Delta M}{M}}{1 + \frac{\Delta P}{P}} - 1\right]^{32} \quad \ldots \quad (5)$$

6. The Estimation of the Optimum Pattern of Money Supply

Column 3 of Table 17 shows the optimal increase in the money supply which is based on the index of average denomination of currency. Column 6 shows the optimal increase in the money supply based on Seoul Wholesale Price Index. Both columns indicate that the actual increase in the money supply is greater than the indeal patterns. This may lead to the hypothesis that the Bank of Korea increased the money supply

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[32] The Fisherian equation can be expressed as follow:

$$(M+\Delta M)(V+\Delta V) = (P+\Delta P)(T+\Delta T) \quad \ldots \quad (a)$$

$$(M+\Delta M)_o(V+\Delta V) = (P)(T+\Delta T) \quad \ldots \quad (b)$$

$(M+\Delta M)$ ... the actual money supply
$(M+\Delta M)_o$ ... the optimal money supply

From equations (a) and (b),

$$\frac{(M+\Delta M)}{P+\Delta P} = \frac{(M+\Delta M)_o}{P}$$

$$\frac{P}{P+\Delta P}\left(1 + \frac{\Delta M}{M}\right) = \left(1 + \frac{\Delta M}{M}\right)_o$$

$$\left(1 + \frac{\Delta M}{M}\right)_o = \frac{1 + \frac{\Delta M}{M}}{1 + \frac{\Delta P}{P}}$$

$$\therefore \left(\frac{\Delta M}{M}\right)_o = \left[\frac{1 + \frac{\Delta M}{M}}{1 + \frac{\Delta P}{P}} - 1\right] \quad \ldots (c)$$

excessively over the last fifteen years.

As mentioned in the previous section, the optimum pattern of money supply is estimated on the basis of the actual behavior of velocity on the assumption that the difference in policy of the central bank would have no effect on the behavior of velocity. If the velocity of circulation is independent of changes in money supply, the above hypothesis will hold true. Although there is no evidence of a dependent relationship between money supply and changes in velocity, as presented in the Appendix, there may still be a possibility that velocity would behave differently with the changes in money supply. If there is a velocity change, it is necessary to make an adjustment on the interpretation of the optimum pattern of money supply.

To make a careful interpretation of the estimated optimum pattern of money supply, let us assume that velocity changes as the money supply increases, as indicated in columns 3 and 6. The velocity may go either up or down as money supply changes. If velocity rises, the estimated optimum money supply, indicated by columns 3 and 6, would be too large for the ideal pattern. An increase in velocity will augment the difference between the actual money supply and the ideal patterns of money supply beyond the figures shown in columns 3 and 6. Therefore, an increase in velocity strengthens the preceding hypothesis.

If velocity were to decline, the figures presented in columns 3 and 6 would be lower than the ideal pattern. For this reason,

TABLE 15#

YEAR TO YEAR PERCENTAGE CHANGES IN PRICES, MONEY, OPTIMUM RATES OF MONEY SUPPLY AT CONSTANT VELOCITY AND EXCESSIVE RATE OF MONEY SUPPLY

	1	2	3	(3')	5	6	(6')
	Mn	Pn	(Mno)		Pw	(Mwo)	
1946	64.38	27.11	29.32	49.32	476.52	-71.49	-51.49
1947	104.17	67.28	22.05	42.05	59.92	27.67	47.67
1948	65.56	39.83	18.40	38.40	59.62	3.72	23.72
1949	59.49	17.28	36.10	56.10	36.32	16.99	36.99
1950	71.37	88.78	-9.23	10.77	118.35	-21.52	-1.52
1951	231.76	268.69	-10.02	9.98	316.06	-20.27	-.27
1952	89.90	44.19	31.70	51.70	141.72	-21.44	-1.44
1953**	105.19	389.47	-58.08		21.50	68.88	
1954**	117.05	5.14	106.43		29.98	67.98	
1955	53.52	115.24	-28.68	-8.68	79.88	-14.66	5.34
1956	41.64	20.88	17.17	27.17	35.39	4.61	24.61
1957	23.11	26.89	-2.98	17.02	12.85	9.09	29.09*
1958	28.39	4.14	23.28	43.28*	-5.67	36.10	56.10*
1959	26.96	25.01	1.55	21.55	12.77	12.58	32.58*
1960	.01	44.20	-30.65	-10.65	10.58	-9.56	10.44*

Mn ..... % change in actual money supply
Pn ..... % change in the index of average denomination
(Mno) ... % change in the optimum rate of money supply computed on the basis of index of average denomination
Pw ..... % change in the index of Seoul Wholesale prices
(Mwo) ... % change of the optimum rate of money supply computed on the basis of the Seoul Wholesale Price Index

The computation is based on annual average figures.
** The years of 1953 and 1954 are excluded because of the impact of currency reform.

Columns 3' and 6' are estimated on the assumption that velocity declines 20 per cent. Let us call these columns the modified-ideal patterns of money supply. Column 3' indicates that the actual increase in the money supply is greater than the modified-ideal increase with the exception of 1958. Column 6' indicates that the actual increase in the money supply is greater than the modified ideal increase with exception of 1957, 1958, 1959 and 1960. With the exception of a few years, then, the both modified-ideal patterns of money supply also indicate that the Bank of Korea failed to maintain the optimum pattern of money supply. The Bank increased the money supply excessively.

The years 1957, 1958, 1959 and 1960 are the exception to the above conclusion. In other words, the Bank might not have increased the money supply excessively. This is true only with the assumption of a 20 per cent decline in velocity which would be accompanied by the increase in the money supply as indicated by Columns 3 and 6. Suppose that this assumption is not realistic in the light of the economic conditions prevailing then. Then the argument that the Bank did not increase the excessive money supply becomes dubious. This assumption of the 20 per cent decline in velocity in 1959 and 1960 is unrealistic when viewed with its past behavior. Except for 1957 and 1958, there seems to be a clear indication of an increase in velocity. For example, the demand deposit velocity increased in 1959 and especially 1960, when the political situation was unstable. Would the increase in the money supply indicated by Columns 3 and 6 cause velocity to decline? It is unlikely. Therefore, the argument that the Bank might not have increased the money supply excessively in 1959 and 1960 does not seem true.

Even a 30 per cent decline in velocity would result in about the same situation mentioned above. The comparison of the optimum patterns of money supply indicated in Columns 3, 3', 6 and 6' therefore clearly suggests that the Bank of Korea increased the money supply excessively over the whole period of this study.

If real output were to increase with the increase in the money supply as indicated by Columns 3 and 6, the above contention is weakened. The possibility of an increase in real output with a less increase in the money supply is very slim. This, then, strengthens the above contention that the Bank of Korea increased the money supply excessively.

Over the whole period of years, the average of annual increase in the optimum money supply is 7.5 per cent according to the index of average denomination. This rather high value does not seem unrealistic in the Korean situation. A possible explanation is as follows:

A. The rate of real output must have been greater than that of other countries, because Korea has possessed some idle capacity since her liberation.

B. The foreign assistance program provided real goods annually, equivalent to $250,000,000 since the war.

C. During the last fifteen years, there has been a rather rapid expansion of the money sector of the economy. The expansion of the money sector must have required an additional money supply.

D. Existence of the subsistence sector, from which the government could transfer a large amount of real goods,[33] provided a buffer for additional money supply in the money sector without affecting the general level of prices.

E. Wage rates in Korea have, in general, lagged behind the movement of the general price level.

F. Reconstruction is easier than development.

According to the index of Seoul Wholesale prices, however, the optimum rate of money supply shows a 3.7 per cent decline annually. In view of the situation described above, the reduction of money supply does not seem realistic at all.

7. Monetary Management Experienced in Korea

Table 16 presents the optimum change in the annual money supply, actual change of money supply and the annual change of money supply attributed to the public sector, private sector, foreign sector and others. The public sector includes a wide range of important economic activities. The annual change in money supply attributed to the public sector is derived by subtracting government deposits and the counterpart fund deposits at the Bank of Korea from the sum of government overdrafts, advances to the United Nation military authorities, national bonds, industrial debentures held at the Bank of Korea and loans made by the banking system to government

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[33] S. P. Schatz, "Inflation in Underdeveloped Areas," American Economic Review, September, 1957, p. 582.

agencies and local governments.

The annual change of the money supply attributed to the private sector is derived by subtracting the time and saving deposits from the sum of loans made by the banking system to the private sector. The foreign sector change is simply the difference between the Bank of Korea purchase of foreign exchange and the deposits of foreign organizations. The "other" sector comprises chiefly the interbank accounts of individual banking institutions and uncleared checks and drafts.

Over the whole period of this study, the annual expansion of money supply attributed to the public sector alone has been in excess of the optimum annual change of money supply. An obvious inference is that the government sector has been primarily responsible for persistent money supply expansion and, thus, for the continuous inflation during the period of study. The slowdown in the pace of inflation and relatively stable prices from 1956 until 1959were largely due to the strengthened government budgetary position and also then to the rigorous enforcement of the over all Financial Stabilization Program since 1957. The rapid increase in the price level in 1960 is once again largely due to the credit expansion attributed to the government sector.

Despite the huge increase in bank credit underlying the expansion of money supply, attempts at credit control have been ineffective. Clearly, the Bank of Korea was not in a position to restrict overdrafts by the government. The Bank was also not in a

position to restrict loans to the government agencies and local governments, since such loans were predominantly for the purpose of government-sponsored undertakings. Yet the answer to the price stability problem should be found. An obvious solution lies in restriction of government spending within the limit of the optimum pattern of money supply assuming no alternative means of finance. When the government expands credit within the limits of such optimum pattern of money supply, the Bank of Korea should attempt to sterilize the subsequent increase of commercial banks' reserves by requiring 100 per cent reserve requirements on the subsequent increase in the deposits at the commercial banks.

When credit expansion attributed to the government sector exceeds the optimum rate of money supply, not only the sterilization of subsequent increases of commercial banks' reserves, but also the contraction of an equivalent amount of credit in the private sector is required. This requirement is necessary not only for maintaining price stability, but also for achieving the diversion of resources from the private sector to the government sector. In Korea, inflationary pressure has been emanated from and accentuated by attempts of the government sector to secure a larger share of the total output. When the private sector reacts against such attempts, a failure of the planned diversion of resources results. This failure requires a much bigger attempt of diversion by the government in the next round, creating a further spiral of inflation.

Clearly, then, the Bank of Korea should have reduced the

equivalent amounts of credits in the private sector in order to achieve the goal of monetary policy. Whether or not the Bank of Korea reduced the credit available in the private sector, therefore, provides a criteria for evaluating the performance of the central bank in Korea.

Assuming the foreign and other sectors of the economy remain neutral in the expansion of the money supply, a look at the column of the private sector clearly indicates that the changes in money supply attributed to the private sector also reinforce the argument that the Bank of Korea increased the money supply excessively.

A. Policies for Credit Control

A major form of credit control before the establishment of the Bank of Korea was the requirement of prior approval by the government for all loans to the private sector and the government agencies in excess of certain specified amounts. In December, 1945, for example, the military government issued a directive that prohibited banks from making loans to any one party in excess of 100,000 won without prior approval of the Department of Finance. This limit was raised to 500,000 won in August, 1947. In April, 1949, the limits were further raised to 2 million won by the Korean government. Bloomfield states, however, that relatively few loans in excess of the limit were rejected by the authorities. Under the administration of the Republic of Korea, moreover, it appeared that political rather than economic consideration dictated the rejection

TABLE 16#

ANNUAL CHANGES IN MONEY SUPPLY, OPTIMUM MONEY SUPPLY, AND MONEY SUPPLY

ATTRIBUTED TO PUBLIC AND PRIVATE SECTORS

(in million hwan)

	Changes in Money Supply	(dMno[1])	(dMwo[2])	Public Sector	Private Sector	Foreign Sector
1946	71.91	32.74	-79.84	39.1	23.0	
1947	159.25	40.48	50.79	97.5	64.1	
1948	245.76	68.97	13.94	147.5	117.1	
1949	369.21	224.04	105.44	277.1	75.1	
1950	706.48	-64.27	-213.01	266.2	277.6	
1951	3,931.46	-563.90	-343.84	3,532.0	290.5	-102.0
1952	5,059.56	3,387.86	-1,206.59	2,275.0	2,788.7	237.7
1953	11,242.50			5,826.8	5,823.0	391.1
1954	25,669.25			18,665.0	5,942.0	294.5
1955	25,479.25	-13,651.50	-6,695.28	23,195.0	12,182.0	-6,253,3
1956	30,434.50	12,547.54	3,368.91	6,495.0	19,793.0	4,354.0
1957	23,927.25	-3,084.68	9,409.31	3,486.0	25,909.0	-2,213.0
1958	36,192.75	29,668.03	46,005.84	-22,135.0	36,234.0	10,460.5
1959	44,124,10	2,536.41	20,585.10	-952.0	25,194.0	42,329
1960	1,324.50	-63,677.40	-19,861.55	-3,536.0	17,930.0	-28,073.5

Annual Average

1 Optimum amount of changes in money supply based on the index of average denomination.
2 Optimum amount of changes in money supply based on the wholesale prices.
Source: From Table 8, Chapter V.

of such loans as were not approved.[34]

A series of directives which stipulated the restriction of undesirable loans, loan renewal and loan collections were also issued from time to time. The authorities also raised the maximum rates of interest that could be charged on the various categories of bank loans. However, such credit policies, as a whole, were far too weak to curb the rapidly increasing credit expansion. Practically all the banking institutions were owned and controlled by the government after the liberation. Monetary institutions were primarily engaged in financing government expenditures. Therefore, the banking reform was an urgent and essential measure for maintaining the stability of the Korean economy. The banking reform was initiated by the establishment of the Bank of Korea, as described in Chapter III.

During the Korean War period, there was no need for credit control over commercial banks. All of the commercial banks exhausted the resources for bank operations after the "run" on deposits from the banking system. With the establishment of more settled economic conditions and the restoration of banking facilities late in 1951, however, strong measures of credit control were initiated. These strong measures were necessary because a sharp increase in bank loans to the private sector and government agencies were observed during 1951. The Bank of Korea raised the maximum rates of interest that commercial banks could charge for various categories of loans;

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[34]A. I. Bloomfield and J. P. Jensen, Banking Reform in South Korea (New York: Federal Reserve Bank of New York, 1951), p. 40.

maximum maturities were imposed on certain categories; a reserve requirement of 10 per cent was imposed on deposits at the commercial banks. All loan applications to commercial banks in excess of 50 million won were required to be approved by the Monetary Board. The Board also set up a list of priorities by which commercial banks were to grant loans.

Since then, the Bank of Korea has implemented a variety of credit control measures. As explained in Chapter IV, the conventional tools of credit control are unworkable and ineffective when used in Korea. The tools that the Bank of Korea has heavily relied upon have been the selective control measures. By and large, the direct measures of credit control in terms of quantitative and qualitative measures have been used extensively. The most important tool has been the loan ceiling policy. For this reason, success or failure of the Bank of Korea in restraining credit expansion can be judged by whether or not the loan ceiling policy has succeeded in restraining credit expansion. Therefore, the study of the loan ceiling policy is important.

B. Loan Ceiling Policy

Loans made by commercial banks declined from 63 per cent in 1953, to 30 per cent in 1960. Of the total loans made by the Korean Reconstruction Bank, the Agricultural Bank and commercial banks, as already indicated, many of the loans made by the banking system were outside the control of the Bank of Korea and the ceiling was not applied to existing commercial bank loans. Further, the loan

ceiling policy was not applied to special categories of transactions which were defined by the Monetary Board, including, among others, loans for importing materials for production activities and national defense. Therefore, the loan ceiling policy, here, applies to only a small portion of total funds available in the economy.

The use of the loan ceiling policy was first initiated in May, 1950, before the establishment of the Bank of Korea, through the suggestion of Bloomfield. The Ministry of Finance placed a celing on the expansion of loans by commercial banks to private borrowers in each quarter. The ceiling for the next quarter was suggested by Bloomfield as not to exceed more than 5 per cent above the amount outstanding at the end of the preceeding quarter.

Allegedly stronger ceiling policy was then implemented in 1951 together with various measures of vigorous credit control. The Monetary Board imposed an over-all ceiling on the expansion of commercial banks as follows:[35]

2nd quarter, 1951	....	17.7 billion won
3rd quarter, 1951	....	32.2 billion won
4th quarter, 1951	....	57.2 billion won
1st quarter, 1952	....	16.0 billion won
		123.1 billion won

The result of this loan ceiling policy was sadly disappointing. The expansion of bank credits during this period was far more than planned, about 193 billion won. An obvious reason for the

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[35]A. I. Bloomfield, Report and Recommendations Banking in South Korea (Seoul: Bank of Korea, 1952), p. 13.

failure of the loan ceiling policy is the fact that the ceiling on the next expansion of bank credit for each quarter was set too high. It should be noted that the expansion of bank credit to the public sector alone exceeded the safe rate of increase in money supply during this period. In view of this fact, the original plan for the loan ceiling was not an appropriate one.

Technically, the management of the loan ceiling policy was wrong. One reason is that the high ceiling was fixed on the basis of expected growth of deposits, as Bloomfield clearly pointed out.[36] The ceiling fixed on the basis of expected growth of deposits certainly evaded the very purpose of the ceiling policy, because the ceiling policy should aim at the restriction of secondary expansion of credit which results from the primary expansion of bank credit. (The practice of establishing the loan ceiling on the basis of expected growth of deposits was discontinued in September, 1952.) Another reason is that the Bank of Korea made loans to commercial banks totaling more than 71 billion won during 1951. The very fact that the Bank of Korea made loans to commercial banks defeated the purpose of imposing the ceiling on net expansion of bank credit.

Credit control measures, in general including loan ceiling policy, were very tight in 1952. However, in view of the fact that bank credit greatly expanded to the public sector and that bank credit continued to expand even tothe private sector despite the

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[36]Bloomfield, ibid., pp. 13-15.

allegedly tight measures of credit control, the credit policy as a whole failed in restraining the expansion of the money supply. Therefore, the currency reform of 1953 was designed to overhaul the currency and credit condition.

After the currency reform, the credit condition in the private sector was very tight. In the meantime, government expenditures increased rapidly. Because of this tightness of credit in the private sector, the measures of credit control became very lax. For example, reserve requirements and bank rates were lowered. At the same time, the specific loan ceiling which had been imposed upon each individual bank was removed.

The consequence of this removel of loan ceiling can be asseseed only on the basis of incomplete information. It is noted that 1954 was once again a year in which bank credit to the public sector increased in a wholesale fashion, as is shown in Tables 8 and 16. In addition, the loans of the Agricultural Bank increased and the establishment of the Korean Reconstruction Bank added fuel to the inflationary pressures. Despite these enormous increases in bank credit, the loans of commercial banks to the private sector continued to expand significantly.

The expansion of credit made by commercial banks to the private sector seems largely due to the removel of the loan ceiling policy. The commercial banks as a whole received fewer loans from the Bank of Korea in 1954 than in the previous year. This indicates that the increased loans made by the commercial banks were due to increased reserves resulting from the primary expansion of money

supply in the economy. In this situation, the loan ceiling policy was supposed to perform its function. The removal of the ceiling which was imposed upon individual banks, therefore, was responsible for the increase of bank credit to the private sector.

This credit condition dominated in monetary sphere and continued until 1957, when the Financial Stabilization Program was formulated. The Financial Stabilization Program of 1957 was based on a decision made by the Combined Economic Board that new loans made after 31 December, 1957, should not exceed the sum of resources acquired by the banking system from the following sources:

1. Private time deposits;
2. Repayment of loans outstanding as of 31 December, 1956;
3. Borrowing from the counterpart fund;
4. Borrowing from the government derived from the Grain Control Account and Vested Property Proceeds.

This program appeared to be tantamount to saying that no net credit expansion would result from banking activities during 1957. This program was considered a successful measure. In comparison with credit control measures implemented previously, this program had more a systematic aspect and achieved some success of credit control. Nevertheless, it should be mentioned that this program itself contained an elusive aspect and the effect of it was partially offset by the government actions.

Table 16 indicated a sharp contraction in the bank credit expansion attributed to the public sector, while the credit sharply increased to the private sector. Quite contrary to this superficial impression, the fact was that the government was primarily responsible for the sharp increase of credit expansion to the private sector. In 1957 attempts were made to enforce the collections of

previous loans especially the loans made for agricultural activities. The attempts were successful and made the government financially liquid. The government, in turn loaned the collected funds together with vested property proceeds and counterpart funds, to various banking institutions in order to facilitate lending operations of the banking institutions for productive activites. This was the major cause for a sharp increase in credit expansion attributed to the private sector in 1957.

The elusive aspect of the program was provision 1 of the Program, which allowed banks to make loans on the basis of an increase in private time deposits. This provision prevailed prior to the establishment of The Financial Stabilization Program. It may be seen that, by Table 8, time and saving deposits increased more than 100 per cent between 1955 and 1956. This tendency continued throughout the rest of the period of study. A direct cause for the increase of these deposits was a wide scale saving campaign. In particular, "Bond-saving Deposits" and "Special Bond-saving Deposits" were set up in order to increase the saving deposits. In a slightly different way, these deposits were set up in order to increase the basis upon which commercial banks could make loans. The time and saving deposits increased, so the loans made by the banking system increased. These saving campaigns were nothing more than attempts to convert illiquid government bonds, which were held by the public in a compulsory manner, into liquid forms of bank deposits.

The 1958 situation will be reviewed in support of this issue.

In 1958 the money supply increased very sharply by 33 per cent. The general nature of credit policy in 1958 was about the same with the Financial Stabilization Program of 1957 with the notable exception of the over-all ceiling on the aggregate money supply.

The over-all ceiling on the aggregate money supply seemed to have been set on the basis of the growth of time and saving deposits.[37] The quarterly loan programs and the ceilings on loans made by banks were also set on the growth of time and saving deposits. Expansion of net loans made by all commercial banks in 1958 amounted to 17 million hwan despite the fact that bank borrowing from external sources, including advances from the Bank of Korea, declined by 2 billion hwan. Needless to say, the major source of loans in 1958 was time and saving deposits. This fact is especially noteworthy because 1958 is the year when the money supply increased greatly on account of public and foreign sectors.

Credit policies undertaken in the middle of 1959 appeared to be reaction to measures undertaken in the previous period. The provision to set loans ceiling on the basis of increases in time and saving deposits was removed in the middle of 1959. At the same time the government and the Bank of Korea enforced a very tight credit policy. The most powerful tool was the auction sale of foreign exchange, which brought about a contraction of money supply in the

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[37]The Ministry of Reconstruction reports that there was no fixed ceiling on the aggregate money supply. See: Economic Survey (Ministry of Reconstruction, 1959), p. 16. On the other hand, the Bank of Korea reports that the ceiling was above the actual money supply. See: The Annual Report (Bank of Korea, 1959), pp. 23-28.

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[27] [illegible] *Corporation* [illegible] *Corporate Growth* ([illegible] *Corporation*, [illegible]) [illegible] *Corporate Growth* ([illegible] *Corporation*, [illegible]).

second and third quarters of 1959 when the seasonal demand for money was increasing.

To demonstrate the ineffectiveness of the loan ceiling policy, it may be useful to quote a Korean economist's writing.

> It was agreed that an increase in bank credit will be limited in principle to the growth of time and saving deposits. Since 1957, therefore, the role of the ceiling system as a stabilizer of economy lost much of its former significance..... On the other hand, the deposits of banking institutions were increasing rapidly and the fund situtation showed unprecedented improvement. The degree of reliance of the banking institutions on external fund sources dropped continually to the insignificant level of 4.9% by the end of February, 1959. Under such circumstances, the continued existence of the ceiling system lost its justification. The Monetary Board, therefore, decided on March 5, 1959, to repeal the rediscount ceiling on the Bank's advances, retroactively as of January, 1959. The ceilings on commercial bank loans were already repealed on December 30, 1958.[38]

It is difficult to understand how the decline of the reliance of the banking institutions on the Bank of Korea and the increase of bank deposits justified the removel of ceiling limits on the Bank of Korea's advances and the loan ceiling imposed on commercial banks. After a careful study of the loan ceiling policy in Korea, it is hardly possible to conclude that the loan ceiling policy was used purposefully and effectively. All that can be said about the loan ceiling policy is that it could have brought about a most direct and powerful restraining effect on credit expansion.

C. An Appraisal

It has been noted that the conventional tools of monetary management are unworkable and ineffective in Korea. Therefore, it is

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[38]Byung Kuk Kim, Central Banking in Korea (Seoul: Bank of Korea, 1959), pp. 53-54.

not necessary to evaluate the changes of these policy variables in terms of changes in credit expansion. Available tools of credit control were largely used as a measure of selective control over the aggregate loan expansion and the quantity of particular loans. Any tool of credit control, however, is secondary to the loan ceiling policy. Since the loan ceiling policy is the most important and powerful tool, it is possible for us to draw an inference regarding the credit policy, in general, by studying the practice and effectiveness of the loan ceiling policy. Study previously made on the loan ceiling policy seems to indicate that the policy was not used effectively. Therefore, the failure of the loan ceiling policy may lead to the conclusion that the credit policy, in general, failed to restrain credit expansion in Korea.

It is important to note that the credit control achieved was far removed from that called for by the optimum pattern of money supply. Simply, no policy so far seems to have aimed at contracting credit in the private sector.

Perhaps the concept of the optimum pattern of money supply is too harsh in view of the never-ending demand for bank funds in Korea, especially in the eyes of those who have close association with business activities. It is certain, however, that the cruelty of inflation in Korea has been very real. It seems that credit policy in Korea has always been pursued by a price level without acknowledgment of the fact that the credit policy followed the price level. When the price level rose sharply, the rate of credit expansion decreased slightly. As soon as the price spiral seemed to slow down, however, credit was expanded until another turn

of the price spiral occurred. Everything points to the conclusion that the Korean government and banking system failed to achieve the goals of monetary policy. It may also be argued that the extremely diversified and complex credit tools available were misused.

CHAPTER VIII

SUMMARY AND CONCLUSION

1. Summary

The recent economic development of Korea is largely the by-product of political development. On the eve of awaking from a long dream of self-contained Confucianism, the "Hermit Kingdom" was occupied by the Japanese imperialists for almost forty years and capitalism as an economic system stemmed largely from the attendant Japanese influence.

The defeat of Japan in 1945 fulfilled Korea's wish to be independent. Political independence is, perhaps, easier to achieve than economic soveriegnty. The Korean economy was left crippled and unbalanced as the ties with Japan were abruptly severed. To compound her already severe difficulties, the termination of the Japanese occupation in Korea was also followed by the bisection of the country which further violated the tenets of economics whatever political expediencies may have been served.

North Korea was primarily an industrial zone, while South Korea was predominantly an agricultural area with a modest amount of light industry. The break down of complementarity between the North and South forced the South Korean facilities of production to the verge of extinction. South Korea needed a structural re-orientation urgently and immediately.

From August 15, 1948, when the Republic of Korea was established until May, 1950, the South Korean economy showed significant progress mainly because of effective use of E.C.A. aid. Efforts for economic stabilization and reconstruction on the part of the E.C.A. and the Republic of Korea, however, were interrupted by the Korean War. The war damage was great. More than half of the existing facilities of production and housing were destroyed by war. This was indeed a vital blow to the South Korean economy.

A positive step for economic reconstruction was undertaken in 1953 with an agreement about financial stability and economic reconstruction between the Republic of Korea and the United States. By 1954, industrial activities had reached the pre-Korean-War level. By 1960, the national income was about 25 per cent above that of 1954. This was largely due to the great contribution of United States economic aid. Nevertheless, the basic lines of policy contemplated by the United States and Korea conflicted. The United States put emphasis on stability before reconstruction. The argument was to get stability first and then growth would take care of itself. On the other hand, the Korean government emphasized reconstruction before stability; growth was to be sought at all costs. This conflict resulted in a lack of coordination of economic policy between the United States and the Korean government until about 1955.

Economic reconstruction was relatively slow. The general consensus has been that this was partly due to inadequate and

irregular arrivals of economic aid to Korea. An aggressive reconstruction effort, backed by bold investment of economic aid in Korea, might very well have produced more rapid economic reconstruction.

Failure and success in maintaining monetary stability and in facilitating economic growth and the efficacy of monetary management of a country largely depends upon the institutional arrangements.

The technical and structural framework of the present day Korean banking system was modeled after the Japanese system. By and large, the banking system was established as a result of the penetration of Japanese bankers into Korea and the government policy of establishing banking institutions as deemed necessary. As a consequence, the banking system in Korea developed into a fairly diversified and specialized pattern and its network covered a wide area of the country.

The banking system had a definite inclination to expand. This inclination seems to reflect largely the historical role of Japan. When Japan took over Korea, the money sector of the economy expanded rapidly due to the establishment of private property ownership and the development of transportation and communication facilities and a mushrooming growth of the banking system seemed necessary. As Japan established political and economic control in Korea, the target of expansion shifted to Manchuria and China. For this reason, the Korean banking system once again expanded without

interference. An obvious example, the Bank of Chosen was, indeed, the largest commercial bank and development bank; the history of the Bank was never marked by a contractionary policy of credit control.

After the liberation of Korea, existing financial institutions were chaotic. Specialized features of the banking system gradually disappeared until every bank, except the Bank of Chosen, was primarily engaged in commercial banking operations. On top of this disarray of the banking institutions, the Bank of Korea fed loans into various banking institutions.

Banking reform was imperative and urgent in such a situation. The Banking Reform of 1950 aimed at restoring the specialized features of banking institutions and strengthening the South Korean banking system as a whole. The Banking Reform certainly contributed to restoring and strengthening the South Korean banking system. The establishment of the Monetary Board was expected to make the Bank of Korea a genuine central bank. The Act of the Bank of Korea empowered the Monetary Board with wide and flexible discretionary powers. Superficially, it did appear to be an important and desirable innovation. However, the predominant banking structure remained the same as before.

Commercial banking practices have been highly inflationary throughout the period of this study. The capital-assets ratio was meager, yet the banks made loans in considerable excess of the domestic sources of funds. Many of the loans were made through the

"pull" and "push" of political pressures. Consequently, loans were made without any form of collateral and developed into delinquent loans.

The absence of short-term money markets limits the scope of conventional tools of monetary policy. The conventional monetary tools, grown out of the London and New York money markets, require well-developed money markets which, in turn, include sensitively structured sub-markets. The central bank usually confines its operation to the short-term money markets, merely watching and adjusting the cash balance and liquidity conditions of the commercial banks.

In Korea, the reserves and reserve ratio of commercial banks underwent substantial fluctuations. The reason for this is that there are no short-term money markets, so that banks do not possess a variety of liquid assets and a high proportion of the total money supply is composed of currency. The highly fluctuating seasonal flow of currency into and out of the banking system produces a highly volatile and unpredictable reserve status to some extent. Because of the absence of short-term money markets, open-market operations have never been used in Korea. The discount rate policy has been used quite frequently in Korea. Its use has, however, been as an instrument of selective control, rather than of the credit accommodation and credit control. Due to the big gap between interest rates in the formal and the informal money markets, any small change in discount or bank rates did not curb the demand for bank funds. The increase of bank rates to nearly the informal market rates might have been an effective measure for credit contraction.

The consequence of this policy was considered undesirable because it meant putting the funds for productive investment in competition with the speculative demand for funds. The discount rate was used in rationing the short supply of bank funds to preferred borrowers. If it had been managed well, the effect could have been beneficial. However, political pressures seemed to cause an adverse effect.

A substantial effect of reserve requirement manipulation was seen especially in 1952 and the earlier part of 1953. The potential effect of reserve requirements manipulation was largely nullified by the relatively easy access to the Bank of Korea for loans and advances.

The scope of monetary management is extremely limited due to the dominance of the government in credit expansion. Throughout the period of this study, the government failed to meet its own expenditures out of non-inflationary sources of revenues. The consequences were heavy overdrafts on the Bank of Korea. The government also failed to finance the budgetary deficits by sales of bonds to the public. In view of the absence of money markets and the low propensity to save, almost all bond issues were absorbed by the banking system. The persistent overdrafts of the government on theBank of Korea, indeed, have been the major factor causing the expansion of money supply. Government agencies also shared the same apple until 1955. Later, the government undertook the financing of industrial production through the establishment of the Korean Reconstruction Bank and lending funds to all banking institutions. A major factor in the contraction of money supply has been the proceeds from the sales of

aid goods, which were deposited at the Bank of Korea. The size of the counterpart funds deposits directly affected the government's budgetary position and the total money supply.

When credit expansion attributed to the public sector exceeded the optimum rate of increase in money supply, the Bank of Korea should have tried to reduce the bank credits available to the private sector. There was no sign of such a serious attempt. Bank credits to the private sector, on the contrary, have increased persistently throughout the period, although a decline in the rate of bank credit expansion was sporadically attempted. The Bank of Korea's advances and loans to commercial banks were persistent throughout the period. This caused the tools of credit control to lose their meaning.

The seasonal behavior of money supply reflects the characteristics of the agricultural economy. After the harvest season, the money supply increases sharply. One reason for this is the general custom of stocking one year's supply of rice, fuel and essential foodstuffs. Another reason is the enormous increase of bank credits to agricultural activities during the harvest season. During the harvest season, a great proportion of the total money supply is issued in the form of currency. This indicates that the money increasedduring the harvest season is spent immediately.

The movement of money supply during the period of this study is marked by three distinct periods: the post-liberation period, the Korean War period and the period of currency reform and tight money.

The post-liberation period was marked by a sharp increase in the money supply, due to excessive printing of the Bank of Chosen notes by the Japanese government in order to clear unpaid debts and to pay Japanese citizens for repatriation. The Bank of Chosen notes circulated in North Korea, Manchuria and China and also flowed into South Korea due to the migration of citizens and refugees from the North Korean communists. The rate of increase in the money supply decreased after 1946. However, the rate of increase was very high at an annual rate of 70 per cent.

The Korean War caused another sharp increase in money supply in 1950, 1951 and 1952. During the war period, practically all government expenditures for war were financed by printing notes. As General MacArthur gained hope of victory, movements for economic reconstruction began to appear and the prospects for economic reconstruction became brighter as the truce negotiations came closer to an agreement. A series of attempts to overhaul the economic structure was made by the Korean government.

The currency reform was the most significant change made. The purpose of the reform was to absorb excess liquidity. As the result of the reform, the government succeeded in impounding the money supply to a greater degree than anticipated. The series of exchange rates for the blocked accounts, however, was reduced by Congress. Consequently, the money supply tended to increase from March onward, after a little temporary slack in February. The increase in money supply after the reform, however, was caused by the

increased spending of the government much more than it was caused by relaxation of exchange rates. It seems that the government attempted to convert resources from the private sector to the government sector in a wholesale fashion on the occasion of the reform.

The rate of increase in money supply after 1955 tended to decrease, largely due to the increase in American aid and the improvement in the government budgetary policy.

The movement of the money supply during this period of the study indicates that the rate of increase was closely associated with political developments. The institutional arrangements and the mentalities that dominate the monetary machinery certainly contributed to the excessive increase in money supply. It seems that the money supply was chasing the level of general prices without knowing the fact that the price level was chasing the money supply. Money supply was usually increased until a sharp spiral of general prices occurred.

The interpretation of the movement of the price level since 1945, based on the index of the average denomination of currency, brings out some interesting contrasts to that of the Seoul wholesale price index. Economists in Korea made faulty judgments about the price movements, velocity and economic activities in the period of post-liberation, if the index developed herein more accurately reflects events in Korean economy than does the official data. They interpreted the process of eliminating the discrepancy between the free market and the controlled market price as an inflationary

spiral, which necessarily led to the conclusion that velocity increased something like 3 times. But, in fact, the evidence is clear that velocity declined during this period.

An especially interesting observation is the sharp increase in prices during 1955. The rise in prices was associated with the expected depreciation of the foreign exchange rate and the political instability created by the expectation. The argument for revising the exchange rate was once again brought out because of a high price increase after the currency reform, especially in the latter quarters of 1954, as viewed by the Seoul Wholesale Price Index. According to the index of the average denomination, the price level during 1954 was relatively stable. If this is correct the wholesale price index was in error.

The wholesale price index seems to understate the true movement of the price level during the period after 1954. This might have been due to the attempt of the government to manipulate the price index in order to show the success of controlling inflation, in particular to prevent the further revision of foreign exchange rates.

From the latter quarter of 1959 to 1960, an election year, prices started to rise according to the index of the average denomination, while the wholesale price index conceals this fact. During the election year, money increased and circulated faster than before, until the rigged election brought on the student revolution in 1961.

In the matter of policies for stopping inflation, there has

been a heated controversy over whether to seek monetary stability before reconstruction or reconstruction before monetary stability. This controversy has been the basic conflict of policy between the Korean government and the United States.

It is important to stress that the problem of inflation in Korea emanated from the damand side, that is, the urge to reconstruct and develop. When the government dominates in economic activities as in Korea, the demand for money is usually associated with the ability to run the press, rather than the availability of non-inflationary sources of funds.

The argument for "stability first" has much more merit than that for "reconstruction first." The proponents of the stability argument, however, often treat money as a passive factor in the context of economic development. Monetary policy is purely a matter of eliminating fluctuations of the price level. However, money does make an important contribution to economic development. In this sense, the goals of monetary policy are defined positively in this study. As the fundamental objectives of monetary policy, the Bank of Korea should concern itself with the supply of money in such a way as to maintain monetary stability and also a slight degree of inflation to induce the growth of economic activities. This proposition is especially meaningful in the case of Korea because the issue in Korea has been the problem of economic reconstruction, rather than that of economic development.

The optimum pattern of money supply is estimated on the basis of the context of the quantity theory of money. This method of

estimation is possible because the behavior of velocity in Korea has been relatively constant over the period of 1952 to 1960.

2. Conclusion and Recommendations

The purpose of this study was to investigate the problem of inflation with particular emphasis on the role of the Bank of Korea from 1945 to 1960. The criteria for judging the performance of the Bank of Korea were provided by the estimation of the optimum pattern of money supply. The actual rate and amount of money supply increase have been far greater than the optimum rate. Thus, it may be concluded that the Bank of Korea failed in its job of maintaining monetary stability and of facilitating economic growth.

It might be argued that the Bank can do only a limited number of assigned jobs because of the government dominance and political pressures, as one often hears from men at the Bank. This argument certainly contains elements of truth, especially as applied to the period when the country was involved in a national crisis. However, it was shown that the increase in money supply has been persistently greater than the optimum amount even during the period of alleged tight monetary policy. For example, it was observed that the Bank of Korea enforced high reserve requirements on one hand and provided advances and loans to the commercial banks on the other hand. The evidence suggests that the Bank of Korea cannot shift its own responsibility to another agency.

Bank credit attributed to the public sector alone exceeded the optimum amount of money supply. In this situation, an obvious

attempt on the part of the Bank should have been not only to sterlize the secondary money expansion effect by requiring 100 per cent reserve requirements on the subsequent increase in deposits at the commercial banks, but also to contract the equivalent amount of credit in the private sector. There was no such serious attempt. Only sporadic attempts to restrict the credit expansion to the private sector were made. But even such sporadic attempts failed to achieve the policy goals.

In regard to the failure of the Bank, the government certainly must share the responsibility because the credit expansion to the public sector alone has been far greater than the optimum criteria. The Bank certainly has not been in a position to restrict credit expansion to the public sector. If the government, in its zeal to accelerate economic reconstruction, pursues irresponsible financial policies necessitating undue interference upon the central bank, there is nothing that the central bank can do about it. No central bank can win a battle against the government. This, however, does not imply that the central bank should be subject to government interference.

In this period, the coordination rather than the subordination of the Monetary Board seemed desirable. There was indeed a need for improvement in the relationship between the government and the Monetary Board. For example, it seemed that the provision in the Act of the Bank of Korea which provided for the Minister of Finance. Without the membership of the Minister of Finance in the Monetary Board, the

government would have been more careful in planning the budget. Had this measure been taken, some progress would have been made toward economic stability in Korea.

As to the membership of the Board, there is no provision requiring that at least one economist from an academic circle be admitted. There seems to be a need for this provision in Korea. A scholar is apt to be more objective than a politician or a businessman.

Institutional development and arrangement seemed to have been important in Korea. The banking reform of 1950 unfortunately did not recognize this point. The banking reform, in essence, appears to have equipped the Monetary Board with as many discretionary tools and powers as possible. This necessarily resulted in the diversified uses of credit tools and, in turn, in complication and confusion in monetary management. The conflicting usage of a variety of tools appeared to have nullified the potential effects of policies. For example, the Bank of Korea implemented an allegedly tight loan ceiling policy to commercial banks. The banks, however, had relatively easy access to the Bank for loans and discounts. Eligibility rules of the discount policy have been in direct conflict with the loan ceiling policy. When reserve requirements were used in retaining credit, advances and discounts of the Bank were also made to commercial banks.

The selective nature of Credit control in these complex assortments seemed to have been clearly adverse to the goals of monetary management. One may argue that the selective nature of credit control was essential in fostering particular industries deemed essential in

the national economy. If this were true, why was the loan ceiling set so high that credit expansion to the private sector contributed to additional inflationary pressure? The ceiling was determined on the basis of the expected growth of demand and time deposits. When demand deposits were excluded from this provision, the growth of time deposits was used as the basis for the loan expansion. For this purpose, the illiquid government bonds were allowed to be used as time deposits, so that illiquid bonds could be converted into forms of liquid bank deposits. Perhaps poor management of credit policy could have been responsible for this consequence. At any rate, there seemed to be no ground on which to argue that only more desirable loans were allocated by the selective types of credit tools, in view of the fact that loans made even by the Reconstruction Bank were used for political campaigns and that funds flowed into the informal markets for higher interests and high profits.

The argument presented above leads to this conclusion. The purpose of monetary policy is to control the money supply in a judicious fashion, if not in the optimum. The purpose of monetary policy is not to create a variety of policies. Because of the use of a variety of credit tools in a complex fashion, the Bank of Korea seemed to have switched to a particular policy even before the Bank estimated the effect of that particular policy.

A simpler set of tools would have been more effective. For this reason, the measures provided by the banking reform may have to be modified in the future. In particular, resort to selective types of monetary control does not seem to be desirable, especially when

political pressures are dominant. A highly recommended tool of credit policy is the reserve requirement policy. This tool is simple to use. Primarily, it is free from undue pressure of particular groups or individuals, which would invariably result in well-designed policies of selective control. The major factors which affect the reserves of commercial banks in Korea are not only beyond the control of the central bank, but are also highly irregular in their changes. The irregularity of these factors is responsible for the high fluctuation of the total money supply. The higher the reserve ratios are, the less the fluctuation of money supply. The irregularity and perverse elasticity of the money supply should be prevented at all costs. When the government dominates economic activities as in Korea, higher reserve requirements will facilitate the diversion of resources from the private sector to the public sector. As a result, higher reserve requirements, possibly as much as 100 per cent, would facilitate the prediction and implementation of an optimum pattern of money supply.

Open market operations have never been used in Korea. Their use would seem to be highly favorable. Clearly, their use for contracting money supply would face many difficulties. However, the use of openmarket operations to increase money supply is possible without any difficulty. At the end of 1960, national bonds and industrial debentures held by banking institutions and the public amounted to roughly 10 years of resources, which was sufficient to increase the money supply 10 per cent annually. Some portion of the increase in money supply can be made by the purchase of bonds. The advantage of this scheme is that it provides the opportunity to

foster money markets, which in turn will make open market operations possible in both directions. Unitl operations can be conducted in both directions, contraction of the money supply can be achieved either by reserve requirements or the sale of foreign exchange.

This study also brings out the importance of the use of the index of average denomination of currency as a useful index of price level. The use of this index would certainly be meaningful in many underdeveloped countries where there are no reliable indices of the price level.

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APPENDIX

CHAPTER A

THE INDEX OF AVERAGE DENOMINATION OF CURRENCY

The Bank of Korea issues notes of various values. Let us call this the distribution of note-issue. The distribution of note-holding occurs when the public holds notes of various values. In the table presented below, the distribution of note-issues and note-holdings are assumed to be equal. This is because no data for the distribution of note-holding are available in Korea. This assumption is a reasonable one because no central bank can issue notes which are not held by the public. The distribution of note-issue is adjusted for the destruction of some obsolete notes in Korea. Therefore, the distribution of denominations in various values held by the public in Table A is derived by the distribution of note-issues after the bank vault cashes are subtracted from the amount of notes issued.

From September, 1945, to January, 1953, the average denomination is expressed in terms of won, old currency. From February, 1953, to December, 1960, the average denomination is expressed in terms of hwan, new currency. The average denomination in terms of won and hwan are connected into one index by the method discussed in Chapter VI of the text.

One and five-won notes and one and five-hwan notes are all assumed to be held by the public because the total value of these notes are insignificant relative to the total note-holdings and because they are relatively constant in size throughout the period.

TABLE A

DENOMINATIONS HELD BY THE PUBLIC AND

THE INDEX OF AVERAGE DENOMINATION

	1,000 won	500 won	100 won	10 won	5 won	1 won	Total values won
1945,9			5,751	2,361	128	101	8,331
12			5,966	2,256	123	100	8,438
1946, 3			6,293	2,212	110	95	8,698
6			6,358	2,495	106	91	9,043
9			8,172	2,390	97	89	10,736
12			13,740	2,637	101	88	16,542
1947, 3			13,832	2,150	93	88	16,152
6			14,982	1,926	89	86	17,074
9			17,326	1,799	87	86	19,286
12			29,029	2,002	88	87	31,183
1948, 3			25,453	1,503	87	88	27,109
6			26,978	1,208	84	88	28,342
9			27,664	1,094	84	88	28,910
12			39,407	1,080	85	88	40,632
1949, 3			33,817	982	85	88	34,914
6			37,319	1,080	86	88	38,573
9			43,854	1,131	90	88	45,143
12			69,271	1,222	92	88	70,674
1950, 3			57,831	1,240	93	89	59,253
6			60,902	1,245	95	89	62,331
9	32,693		53,057	1,264	94	89	87,220
12	180,049		43,340	1,319	96	89	224,935
1951, 3	284,812		39,088	1,266	100	89	325,500
6	372,048		28,408	1,253	100	89	401,800
9	428,020		17,680	1,264	100	89	447,300
12	523,958		13,842	1,262	100	100	539,300
1952, 3	567,760		7,901	1,254	100	100	577,000
6	623,061		7,651	1,262	100	100	632,100
9	730,632		8,482	1,262	100	100	740,500
12	962,881		8,579	1,259	100	100	974,300
1953, 1	990,800		8,391	1,242	100	100	

Source: The Bank of Korea, The Economic Annual, 1955, 1956, 1957, 1958, and 1960; The Monthly Statistical Review (March, 1951) and The Economics Statistics Annual, 1961.

TABLE A Continued

No. of Notes	Average Denomination in Won	Index 1947=100
421	19.8	45.02
410	20.6	49.04
401	21.7	51.59
426	21.2	50.58
429	25.0	59.55
509	32.5	77.33
459	35.2	83.72
447	38.2	91.02
457	42.2	100.5
595	52.4	124.76
510	53.2	126.55
495	57.2	136.24
491	58.9	140.24
607	66.9	159.32
542	64.5	153.46
587	65.8	156.55
658	68.6	163.34
922	76.7	182.50
810	73.18	174.23
841	74.07	176.36
797	109.37	260.41
854	263.51	627.40
922	352.92	840.28
901	445.73	1,061.25
851	525.48	1,251.15
909	593.51	1,413.13
892	646.74	1,539.85
946	668.30	1,591.19
1,062	697.50	1,660.71
1,295	752.55	1,791.78
1,322	757.95	1,804.65

TABLE A Continued

AFTER CURRENCY REFORM OF FEBRUARY, 1953

	1,000 Hwan	500 Hwan	100 Hwan	10 Hwan	5 Hwan	1 Hwan	Total Values Hwan
1953, 2	951	1,812	5,344	570	92	22	6,890
3	1,482		7,536	837	104	24	9,976
6	1,371		8,084	2,774	49	21	12,284
9	3,797		8,223	5,063	225	23	17,306
12	6,613		9,377	6,241	94	24	22,334
1954, 3	6,399		12,340	5,407	64	25	24,207
6	6,858		16,236	7,257	53	27	30,406
9	6,706		19,697	7,066	60	28	33,517
12	6,801		26,362	6,766	55	29	39,979
1955, 3	6,524		25,951	3,245	49	28	35,767
6	6,747		31,750	2,040	48	28	40,595
9	6,711		41,009	1,010	50	29	49,210
12	6,625		51,064	1,019	51	29	58,777
1956, 3	6,457	323	42,085	961	51	29	49,796
6	6,486	1,754	45,126	1,003	53	30	54,361
9	6,570	4,115	49,106	1,152	55	30	60,909
12	6,521	11,205	54,413	1,216	57	30	73,338
1957, 3	6,383	19,376	36,859	1,095	58	31	63,621
6	7,698	23,152	29,122	1,120	58	31	61,191
9	7,568	23,596	33,289	1,170	60	32	65,716
12	7,870	25,478	51,277	1,300	60	33	86,048
1958, 3	7,490	24,784	40,692	1,233	60	33	74,292
6	7,597	25,270	38,714	1,256	61	33	72,931
9	8,674	30,340	47,870	1,343	61	34	88,368
12	15,559	37,108	56,773	1,362	62	34	111,057
1959, 3	16,315	39,474	41,204	1,296	63	34	98,669
6	17,334	40,992	33,988	1,332	64	35	93,973
9	19,588	43,301	37,380	1,339	65	35	101,954
12	31,251	44,469	46,116	1,311	67	36	123,595
1960, 3	42,969	38,444	27,816	1,213	70	36	111,659
6	58,781	36,309	20,312	1,126	69	36	117,873
9	70,073	36,667	16,126	1,042	69	37	123,590
12	86,660	33,644	16,028	973	69	37	139,319

TABLE A Continued

No. of Notes	Average Denomination in Hwan	Index 1947=100
152	45.4	10,811
205	48.6	11,566
390	31.5	7,491
660	26.2	6,240
767	29.1	6,930
708	34.2	8,137
932	32.6	7,764
950	35.3	8,340
987	40.5	9,644
628	56.9	13,554
565	71.7	17,081
556	88.4	21,044
658	89.3	21,256
563	88.4	21,050
602	90.3	21,493
662	92.0	21,901
736	99.6	23,721
566	112.4	26,771
500	122.4	29,147
549	119.8	28,517
747	115.3	27,442
632	117.5	27,976
616	118.4	28,186
728	121.3	28,880
840	132.2	31,473
683	144.4	34,370
620	151.5	36,078
661	154.1	36,679
763	161.9	38,539
597	187.2	44,564
551	213.7	50,892
535	231.1	55,035
557	250.2	59,560

CHAPTER B

COMPARISON OF INDICES

A. Regression Analysis

Regression analysis is used to compare the movement of the indices of Seoul wholesale prices and the average denomination of the currency with four indices of the money supply and real output. Regressions are calculated with each price index as a dependent variable and various combinations of four selected indices as independent variables. The four indices selected are:

1. Index of the money supply
2. Index of real output[1]
3. Index of rice output
4. Index of foreign aid

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[1]The writer computed the index of real output from 1946 to 1954 by a very crude method. Twelve major commodities are weighed by the 1955 base used by the Bank of Korea.

Commodities	Sub-weights	Weights
1. Rice		50%
2. Mining		5.5%
a. Coal	53.57%	
b. Tungsten	15.48%	
c. Gold	30.95%	
3. Manufacturing		42.1%
a. Rubber Products	8.4%	
b. Paper Products	3.2%	
c. Ceramic Products	4.8%	
d. Cement	0.8%	
e. Textile Products	21.4%	
f. Clothes	54.8%	
g. Salt	6.7%	
4. Electricity		2.5%

This index is connected to the index of industrial production published by the Bank of Korea from 1954 on. This index is only an indication of industrial production rather than the output of the total economy. See Chapter C, Appendix.

The regressions of these variables are calculated by both natural and logarithmic methods. Index No. 1 is used as the only independent variable in four equations and is used with each of the other selected indices in a total of twelve regression equations.

The price level must be consistent with the given money supply and real output. When the money supply increases, velocity being constant, prices will go up, while prices will decrease as real output increases. In the regression analysis with natural numbers, observation is focused on the relationship between the price levels of indices and the levels of respective indices. When data are converted into logarithms, the relationship between the price index and the other indices is investigated in terms of percentage changes, rather than levels. Since the changes in prices rather than the levels of prices are important in this study, the regression analysis with logarithms may provide a better result than that with natural numbers.

Since the prices change directly with aggregate spending and inversely with the availability of goods and services, the signs of regressions are expected to be positive for the index of money supply and negative for the indices of real output.

It also should be mentioned that interdependence among "independent" variables seems to be great in the case of Korea. For example, much of the production of farm products and manufactured goods is financed by bank funds.

Results

Both the index of average denomination of currency and the Seoul Wholesale Price Index are highly correlated with the index of

money supply in natural numbers and logarithms, as is observed in equations 1, 5, 9, and 13. The correlation coefficients range from .9952 to .9654. For both indices, the correlation coefficients do not generally increase significantly as different indices of output are combined with the index of money supply. This seems to indicate that the money supply is the most important variable which affects prices. The close agreement of the correlation coefficients obtained between the index of money supply and the two indices of the price level indicates that there is little basis in this comparison for the selection of one price index over the other.

In both natural numbers and logarithms, the signs of the regression coefficients of money supply are positive in all cases for both indices. Furthermore, the regression coefficients are significantly different from zero at the 1 per cent level by the T test. These evidences, therefore, indicate that there is a strong relationship between money supply and prices.

With the data converted into logarithms, the signs of the regression coefficients of the index of foreign aid and real output are negative, as expected, while the sign of the index of real output is unexpectedly positive in the case of the index of average denomination. However, none of the regression coefficients are significantly different from zero at the 10 per cent level. In the case of the index of the Seoul wholesale prices, the regression coefficients of all indices of real output have negative signs. The regression coefficients for real output and rice output are significantly different from zero at the 1 per cent and the 10 per cent levels respectively.

TABLE B

RESULTS OF REGRESSION ANALYSIS

Y_1 (Index of Average Denomination) = $f(x_1 + x_2 + x_3 + x_4)$,

with natural numbers

	Y intercept	X_1	X_2	X_3	X_4	R
1	-521.7 (1715.4)	*** .7874 (.0590				.9654
2	1086.146 (8704.934	*** .8312 (.2404)	-28.3536 (150.2563)			.9655
3	1209.054 (10823.146)	*** .7946 (.0757		-20.3745 (125.6705)		.9655
4	2042.858 (3192.804)	*** .8494 (.0879			-9.5657 (10.0307)	.9679

Y_2 (Wholesale Prices)

	Y intercept	X_1	X_2	X_3	X_4	R
5	1711.434 (789.874	*** .4285 (.0272)				.9749
6	-1266.892 (3917.748)	*** .3473 (.1082)	52.522 (67.624)			.9761
7	9303.961 (4467.982)	*** .4600 (.3123)		-89.3802 (51.8789)		.9799
8	-617.374 (1299.627)	*** .3722 (.0358)			* 8.686 (4.083)	.9818

' T test of b coefficient significant at 10% level
* T test of b coefficient significant at 5% level
** T test of b coefficient significant at 2% level
*** T test of b coefficient significant at 1% level

X_1 = Index of money supply
X_2 = Index of real output
X_3 = Index of rice output
X_4 = Index of foreign aid

TABLE B
(continued)
RESULTS OF REGRESSION ANALYSIS

Y_1 (Index of Average Denomination) = $f(x_1 + x_2 + x_3 + x_4)$,

with logarithms

	Y intercept	X_1	X_2	X_3	X_4	R
9		***				
	-.0742	.9834				.9952
	(.1017	(.0267)				
10		***				
	-.5242	.9301	.3380			.9955
	(.4707)	(.0607)	(.3452)			
11		***				
	1.4343	.9978		-.7782		.9975
	(.7625)	(.0265)		(.7153)		
12		***				
	-.0200	.9886			-.0289	.9952
	(.3377)	(.0419)			(.1713)	

Y_2 (Wholesale Prices)

	Y intercept	X_1	X_2	X_3	X_4	R
13		***				
	.3289	.8730				.9934
	(.1057)	(.0280)				
14		***	***			
	1.8624	1.0545	-1.1518			.9987
	(.2302	(.0297)	(.1688)			
15		***				
	2.0811	.8770		-.9496		.9982
	(1.0159)	(.0197)		(.5327)		
16		***				
	.6568	.9047			-.1748	.9939
	(.3377)	(.0418)			(.1710)	

With natural numbers, the regression coefficients of real output, rice output and foreign aid show negative signs in the case of the index of average denomination of currency. However, the regression coefficients are not significantly different from zero at the 10 per cent level in any case. In the case of the index of wholesale prices, the regression coefficients of real output and foreign aid have positive signs. The regression coefficient for foreign aid is significantly different from zero at the 5 per cent level. If this were true, this fact indicates a peculiar phenomena and casts some doubt on the validity of the wholesale price index.

As far as the signs of regression coefficients are concerned, the index of average denomination seems to be a better index than the Seoul Wholesale Price Index with data in natural numbers. The Seoul Wholesale Price Index, however, seems to be a better index than the index of average denomination with data in logarithms. In regard to the sign situation, there is again little basis for the selection of one price index over the others.

The behavior of each variable seems worthy of attention. For the analysis of the behavior of each variable, we will confine our attention to the regression analysis with logarithms.

It is observed that the behavior of indices of real output is not significant in the case of the index of average denomination. However, the behavior of real output and rice output in equations 14 and 15 are seen to be important in the case of the wholesale price index. According to equations 14 and 15, prices will decline with an equal percentage increase in money supply and real output, since the

sizes of regression coefficients of the index of real output and rice output are greater than that of the index of money supply. This may happen because of the high inter-correlation between the independent variables.[2] This high intercorrelation reflects the fact that much of the farming and industrial production is financed by bank funds.

The high intercorrelation does not eliminate the importance of the signs of the regression coefficients. Therefore, it appears to be that an increase in industrial output or in rice output has a strong tendency to dampen the general price level according to the wholesale price index. The partial correlation coefficients for real output and rice output are -.8917 and -.4899 respectively. The former coefficient is very significant and the latter coefficient is significant at the 10 per cent level. This observation indicates that the wholesale price index is very sensitive to increases in real output.

In the case of the index of average denomination money supply is the only variable that is significant in both natural numbers and logarithms. The other variables are insignificant. This indicates that the index of average denomination is less sensitive to changes in real output.

B. An Alternative Comparison of Indices

The most important observation in this test seems to be the

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[2]The intercorrelation coefficient between the money supply and real output (equation 14) is .8956; between the money supply and rice output (equation 15) is .5515.

fact that the two price indices are different in nature.[3] The index of average denomination reflects price changes in the money sector of the Korean economy, while the wholesale price index reflects the changes of wholesale prices in Seoul. It is entirely possible to have a relatively sensitive relationship between the increase in real output and prices in Seoul, where much of the farm and industrial output is channeled, while the general price level of the total economy is insensitive to changes in real output as the index of average denomination shows. This is especially true because of the imperfectness of markets in areas other than Seoul.

The problem of this study is that of inflaction in Korea, not in Seoul. Therefore, the index of average denomination is preferable to the wholesale price index. It should be cautioned that it is not possible to interpret the Seoul Wholesale Price Index as the general price level of the whole economy. When one treats the index of Seoul wholesale prices as the index of the price level of the whole economy, the interpretation is bound to be misleading. The annual average of the money supply and the two price indices are shown in the following table:

	Money Supply (in million hwan)	Index of Seoul Wholesale Prices	Index of Average Denomination	Index of GNP[4]
1946	183.6	66.3	59.8	1
1960	209,081.3	25,875.5	52,512.8	2
	1,136 times	392 times	878 times	2 times

[3]The writer is indebted to Professor John M. Hunter for this point.

The indices of variables indicated above can be arranged in the equation of the quantity theory, MV = PT. The behavior of velocity in 1960 can be speculated upon by studying the residuals after the indices of 1960 are arranged in the following equations:

M	V		P	T	
1,136 X	(1.54)	=	878 X	2	... (1)
1,136 X	(.685)	=	392 X	2	... (2)

The index of the money supply and real output are arranged with the index of average denomination in equation (1) and with the index of the Seoul wholesale prices in equation (2). In equation (2), velocity declined about 31 per cent from 1946 to 1960, while velocity increased about 54 per cent during the same period in equation (1).

In view of the fact that velocity can not possibly decline in a period of war, prolonged inflation and political instability, it is not proper to use the wholesale price index as the price index of the whole economy. This provides clear evidence that the index of average denomination is preferable to the Seoul Wholesale Price Index for the purpose of this study. It is misleading to say that the circulation of money either in Seoul or in Korea declined between 1946 and 1960. If this is what the Seoul Wholesale Price Index implies, the index is clearly a misleading one.

C. The Behavior of Velocity

For the above regression analysis to be meaningful, the

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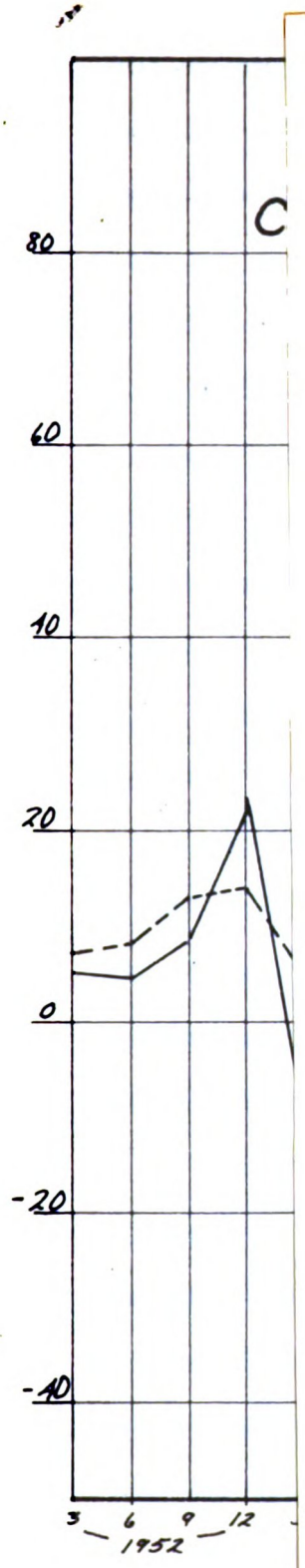
[4]See Chapter C, Appendix. It is shown that the real output of goods and services did not increase more than two times from 1946 to 1960.

behavior of velocity is crucial. Suppose that the index of average denomination increased 9 per cent and the wholesale price index increased 5 per cent as money supply and real output increased 10 per cent and 1 per cent respectively. With the assumption of constant velocity, the former price index can be considered a better index than the latter because the difference of the percentage changes between the money supply and real output should be equal to the percentage changes of prices. However, if velocity were not constant, but declined 4 per cent, the above inference would be misleading. Only if velocity is reasonable constant will the above test be valid.

Since the data for computing velocity, the national income divided by the total money supply, are not available in Korea, a possible way of studying the behavior of velocity is through some indirect method. The behavior of deposit velocity is used as the basis for studying the behavior of the velocity of money in this section. Data for the deposit velocity are available in Korea after 1952.

In Chapter V, the quarterly changes in the deposit velocity are shown to be positively related to changes in money supply. Moreover, the seasonal behavior of deposit velocity is found to be more fluctuating than that of money supply. The fact that the seasonal behavior of the deposit velocity is fluctuating should not mislead one to think that the secular behavior of deposit velocity is also fluctuating.

In Chart A, the seasonally adjusted data on the changes in the index of money supply and the level of deposit velocity from 1952 to



[illegible] by the annual averages of the seasonally adjusted data presented below.

1960 are presented. During 1952, however, the deposit velocity more than doubled: from 6.97 in March to 14.72 in December, 1952. The reason for this rapid increase is difficult to understand. An extensive substitution of deposits for notes because of the anticipation of need for cash, as explained in Chapter VI, may have been a cause of this increase. Perhaps the most important reason might have been the fact that checks were not a popular medium of exchange until the middle of 1951 at the earliest. During the Korean War, the public had practically stopped using checks. Therefore, the low base period makes the rate of change great. This is more true because trade, domestic and otherwise and manufacturing activities were very vigorous in 1952.

At the end of 1952 the deposit velocity was 14.72. It increased to 1961 at the end of 1960, a very slight change. At any rate, it may be fair to say that deposit velocity increased less than twofold during the 9 year period. This increase, however, is not significant compared to the twenty-four fold increase in money supply.

The big decline of deposit velocity in the first quarter of 1953 largely reflects the consequence of the blocking of deposit accounts undertaken during the currency reform of 1953. Therefore, the period prior to the currency reform cannot be connected with the period after the reform. With the exception of the first quarter of 1953, and the year of election and the student revolt of 1960, the behavior of deposit velocity over the period appears to be relatively constant. This can be seen more clearly by the annual averages of the seasonally adjusted data presented below.

The Annual Average of Deposit Velocity, Seasonally Adjusted

1952	...	10.68	1956	...	11.25
1953	...	7.68	1957	...	11.10
1954	...	8.84	1958	...	10.99
1955	...	10.14	1959	...	11.19
			1960	...	14.03

In order to see the relationship between the changes in money supply and deposit velocity, a simple correlation analysis is made. When the quarterly data of deposit velocity are run against the quarterly changes in money supply, the correlation coefficient is -.0022. When the quarterly changes in deposit velocity are run against the quarterly changes in money supply, the correlation coefficient is -.0035. In either case, the correlation coefficients are not significant at all. The correlation coefficient between the percentage change in the annual average of deposit velocity is shown to be -.1932. In order for the correlation to be significant at the 10 per cent level with 8 observations, the coefficient should be .621. These results indicate no evidence of a relationship between the money supply and the deposit velocity.

Cagan argues that velocity is a function of changes in prices during a period of hyper-inflation.[5] The annual change in prices in Korea is about 60 per cent, a very high rate though it is not hyper-inflation. A simple correlation analysis was run between the percentage changes in the annual average of deposit velocity, using

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[5] Phillip Cagan, "Dynamics of Hyper-inflation," ed. Friedman, Studies in the Quantity Theory of Money (Chicago: University of Chicago Press, 1956), pp. 25-117.

both the wholesale price indice and the index of average denomination. The correlation coefficient were .2863 and .2925[6] respectively. In order for the correlation to be significant at the 10 per cent level with 8 observations, the coefficient should be .621. These results also indicate no evidence of a relationship between deposit velocity and price changes.

The above results clearly indicate that there is no evidence of a relationship between deposit velocity and either money supply or price changes. The velocity of demand deposits is usually less stable than that of the total money supply. This is especially true in the case of Korea because about 50 per cent of total national income acrues to the agricultural sector.

> In agricultural countries where peasants readily hoard money, an inflation, especially in its early stages, does not raise prices proportionally, ... more money flows into the pockets of the peasants, it tends to stick there; deeming themselves that much richer, the peasants increase the proportions of their receipts that they hoard.[7]

Fisher also states that "an increased trade in the southern states, where velocity of circulation is presumably slow, would tend to lower the average velocity in the United States."[8] Notes, rather than checks, are used in the agricultural sector. It is important to observe that the use of notes not only tends to decrease the

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[6] J. M. Keynes, A Tract of Monetary Reform (London: MacMillan Co., 1923), p. 81.

[7] The year of currency reform, 1953, is excluded from the computation.

[8] Irving Fisher, The Purchasing Power of Money (New York: Macmillan Co., 1911), p. 166.

the average velocity of the total money supply, but also make the behavior of velocity stable.

A similar contention is also fo und in a study made by Professor Bloomfield, a noted expert on central banking in underdeveloped countries.

> Although all too litttle is known about the behavior of money in underdeveloped countries, there is reason to believe that the income-velocity of money in such countries tends, in the short run at least, to be much more stable than in developed ones. This stems from the fact that holdings of inactive money balances tend to be relatively small (although in some Far Eastern countries a substantial amount of currency may be hoarded), or at least are not subject to large or sudden short-run shifts. [9]

It has been argued that the behavior of total velocity would be more stable than that of deposit velocity. Therefore, the magnititudes of changes in deposit velocity will certainly overstate the actual behavior of total velocity.

In this connection, a peculiar development of the money supply should be mentioned. The value of notes increased about 1,659 times, while the value of deposits increased 1,245 times from 1945 to 1960, as shown in the following table.[10]

	Notes	Deposits	Note/Deposits
	(In Million Hwan)		
1945	84	29.7	2.8
1960	139,319	37,000.0	3.8
Changes:	1,656 times	1,246 times	

[9]Arthur I. Bloomfield, "Monetary Policy in Underdeveloped Countries," Public Policy, A Yearbook of the Graduate School of Public Administration (Harvard University Press, 1956), Vol. VII, pp. 241-2.

[10]Banl of Korea, The Economics Statistics Annual, 1961, p.28.

Several observations can be made about the information above. Notes have been an increasingly important factor in the total money supply. Thus, the ratio of notes to deposits increased over the period, indicating that deposits have been increasingly used in less proportion to the total money supply. The fact that the percentage change in the number of dishonored checks increased from 0.35 per cent in 1945 to 1.78[11] per cent of the total number of checks in 1960 may explain the above situation. Also, the tight monetary policy implemented in terms of the loan ceiling policy was mainly concentrated in restricting the expansion of private checking deposits. Then how can the 1,246-fold increase in the value of deposits be explained? To a large extent, checks may have been used primarily in business circles, particularly big businesses which had close connections with banks. Bank loans are made in the form of checks to business concerns. This development must have made the velocity of deposits more sensitive than otherwise. This sensitive behavior of deposits may be relatively unimportant when it is viewed with the economy as a whole.

The above argument seems to lead to the conclusion that behavior of velocity in Korea was relatively constant over the period of this study. This conclusion comes close to Friedman's contention.

> True, the ratio of money income to the stock of money,... is not by any means a numerical constant, either for different countries or over times. However, in any one country it generally changes relatively little from year to year except under circumstances of extreme instability such as hyper-inflation.[12]

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[11] Ibid., p. 81.

[12] Milton Friedman, "Monetary Data and National Income Estimate," Economic Development and Cultural Change, IX No. 3, April, 1961, p. 267.

CHAPTER C

INDICES OF REAL OUTPUT

In the regression analysis presented in Appendix B, the index of industrial production was used as the index of real output. From 1946 to 1954, a crude index based on 12 major commodities, including rice output, was connected to the index of industrial production published by the Bank of Korea. The reason for including rice output in the index was to eliminate the upward bias of the index which would occur with only 11 representative commodities. The index shows roughly a threefold increase of real output from 1946 to 1960. This index compares favorably with the index of coal consumption.

A very crude index of gross national output is estimated for the purpose of this study. All indices of real output computed in this study are only rough estimations to help gauge the over-all level of real output.

Annual data for national income is published by the Bank of Korea from 1953 on. The reliability of this data is questionable. Prior to 1953, several attempts were made to estimate the gross national product. For example, the Nathan Report published "Gross National Product in ROK Fiscal Years, 1949-50 and 1953-1954."[1] The Natham Report, however, explicitly warns that this estimate is less adaptable to the analysis of inflation. The estimation was made for the purpose of physical programming.

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[1] UNKRA. An Economic Programme for Korean Reconstruction ("Prepared for UNKRA by Robert R. Nathan Associates, Inc." New York: UNKRA, 1954), pp. 436-454.

GNP data from 1953 to 1960, published by the Bank of Korea, is connected with Nathan's estimation in Index 1. (See: Table C) Nathan's estimate was made on the U.S. dollar at 1953-52 prices, while the Bank of Korea data for GNP was based on the 1955 prices of Korean currency. In order to maintain the consistency of both data, Nathan's estimate is converted into hwan value, by multiplying his figures by 500 hwan, the exchanges rate which was effective in 1955. Practically the same result was obtained by multiplying Nathan's 1952 and 1949 figures in Table C by the ratio of its 1953 figures over the BOK's 1953 figures.

Index 2 is a crude measure of GNP computed by the writer on the basis of the quantity index of 33 major commodities in agriculture, mining, manufacture and electricity as follows:

	Weight	Adjusted Weight
1. Agriculture 2 commodities	40 %	71.7%
2. Mining 6 commodities	1.1%	1.9%
3. Manufacturing 24 commodities	14.4%	25.8%
4. Electricity	.3%	.53%
	55.8%	100%

In the table above, weight is the average value, at 1955 prices, accrued to respective sector in the GNP of 1953, 1954 and 1955. This index is no different from the index of industrial production except for the adjustment of weights. By adjusting weights for the respective

sector of economy. However, this index reflects real output of goods and services, rather than industrial production.

Sectors other than agriculture, mining, manufacture and electricity comprise roughly 44 per cent of total economic activity, other sectors being trade, utilities, government services and other services. It is assumed that the services of these other sectors are shared by agriculture, mining, manufacture and electricity in proportion to their respective weights. For example, two commodities in agriculture represent 40 per cent of the total gross national product. In our adjusted weights, the agricultural sector contributes additional income of 21.7 per cent for service sectors. That is to say, the agricultural sector not only provides 40 per cent of the total income directly in terms of farm output, but also creates income for service sectors closely related with agricultural production. In this way, the measure of goods and services can be established.

Index 1 and Index 2 both indicate that real output in Korea roughly doubled from 1946 to 1960.

TABLE C

INDICES OF REAL OUTPUT

	GNP (in billion hwan)	Index[1] of GNP 1946=100	Index[2] 1946=100	Index of Industrial Production 1955=100	Index of Coal Consumption 1955=100
1946	(625.2)**	100	100	40.9	
1947			112.5	48.0	56.2
1948			131.8	61.2	75.7
1949	(893.1)*	142.3	139.6	70.2	68.5
1950			131.0	60.8	43.1
1951			100.8	48.5	40.4
1952	(698.4)*	111.7	99.0	55.2	51.6
1953	868.5	138.9	143.9	81.2	65.1
1954	913.5	146.1	161.8	93.1	77.9
1955	950.2	151.9	168.3	100	100
1956	952.8	152.4	159.5	104	112.8
1957	1,035.3	165.6	189.0	134.9	132.8
1958	1,107.0	177.1	200.9	132.4	144.9
1959	1,164.8	186.1	209.3	140.5	171.5
1960	1,192.3	190.7	207.9	142.9	233.0

Sources: For GNP index, from Nathan's Report for 1949,1952 and 1953, for rest of years from Economics-Statistics Annual, 1961 (Bank of Korea, 1961), pp. 10-11. Data for all other indices are from the Economic Annual, 1955, 1956, 1957, 1958, 1959 and 1960.

* Nathan's figures are converted into hwan value

** Hwan values are estimated on the basis of Index[2]

CHAPTER D

NOTE ON RELATIONSHIP BETWEEN REAL OUTPUT AND NUMBER OF NOTES

One of the most instructive comments Professor Lerner made on my thesis is his conclusion that changes in the number of notes measure changes in real income or the real value of the stock of money. "The increase in the number of units of currency which is equal to the increase in the real value of the money stock will therefore be equal to the increase in the real national income. This comes to an increase of by a factor of 12 over the 15 years and this seems to be much greater than is plausible."[1]

Professor Lerner drew the above conclusion from statistics of average denomination presented in the appendix of my thesis. The suggestions he made are greatly appreciated because they provide a new insight, with some modifications, on the measurement of real output in an underdeveloped country. Friedman suggests the use of monetary data as the national income estimate.[2]

Professor Lerner's conclusion is very important. It is true that real income will seldom increase by 12 times in 15 years in any country, especially Korea. If so, the conclusion drawn by Professor Lerner implies either that the index of average denomination is not

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[1]Abba P. Lerner, Rough Notes on Chung's Thesis. June 4, 1962. p.2.
[2]Milton Friedman, "Monetary Data and National Income Estimate," Economic Development and Cultural Change LX, No. 3, April, 1962. pp. 267-286.

an accurate measure of price changes or that velocity, which is argued to be constant in my thesis, has not been constant.[3]

The purpose of this paper is to demonstrate that Professor Lerner's conclusion is not applicable to my thesis. Professor Lerner states:

> Very fundamental is the assumption of a constant velocity of circulation,... As it stated and if it is assumed that the index of average denomination is correct in measuring the price level, then the increase in the number of notes over the period would be a measure of the increase in real income. This is because the increase in the number of notes multiplied by the increase in the average denomination gives increase in the nominal value of notes. If the increase in denomination is an accurate measure of the increase in the price level, then deflating the nominal increase in money by the increase in the price level which would give us the increase in the real value of the money stock becomes equal to the increase in the number of notes.[4]

The first part of the above underlined statement infers that,

$$dN \times d(Ad) = dM$$

Does the increase in the number of notes multiplied by the increase in the average denomination give the increase in the nominal value of notes? It does not. The following example is made in such a way that the number of notes measures real output. Velocity is constant and the average denomination reflects price changes accurately. An assumption implicit in this example is that the total money supply is composed solely of currency.

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[3]My contention of relative constant velocity does not mean that velocity has been numerically constant during 1952 and 1960 in Korea. The behavior of velocity is shown to be relatively constant during this period. If this is true, I think that velocity is not a crucial factor for the purpose of my study. However, I am fully cognizant of Professor Lerner's suggestion that it is necessary to make certain adjustments especially because the period prior to 1952 was the period in which the behavior of velocity was not stable.

[4]Lerner, op. cit., pp. 1-2. (underlines are provided by the writer)

t	AD	N	M	V	P	T
0	\$2	10	\$20	1	\$1	20
1	\$4	10	\$40	1	\$2	20
2	\$5	12	\$60	1	\$2.5	24
3	\$5	20	\$100	1	\$2.5	40

Observe the following figures:

t	d(AD)		dN		dM
1 - 0	\$2	X	0	$\neq$	\$20
2 - 1	\$1	X	2	$\neq$	\$20
3 - 2	\$0	X	8	$\neq$	\$40

The above illustration clearly demonstrates that Professor Lerner's contention should be reformulated as follows;

$$(N.Ad) = M$$

$$d(N . AD) = dM$$

$$N\, d(Ad) + AD\, dN = dM \qquad \ldots \qquad (1)$$

Equation (1) indicates that changes in nominal value of the notes are equal to the number of notes multiplied by the changes in average denomination, plus the average denomination multiplied by the changes in the number of notes.

The difference between the absolute changes and the proportional changes is often confusing. The above illustration is the case of the absolute changes. If Professor Lerner means the proportional changes, then his statement is true. That is, if N increases by a factor of 3 and AD increases by a factor of 2, then M increases by a factor of 6.

It may be worthwhile to examine Professor Lerner's conclusion in terms of the equation of the quantity theory. I do realize that he infers a relationship between the number of notes and real income or the

real value of the money stock. To be specific, he states that the increase in the number of units of currency, which is equal to the increase in the real value of the money stock, will be equal to the increase in real income. This conclusion may be derived from following argument. The Fisherian equation can be written as,

$$(AD \cdot N) V = P \cdot T$$

And AD equals p,

$$(AD \cdot N) V = AD \cdot T$$

then, $$N \quad V = T, \text{ or } V = \frac{T}{N}$$

$$d\ N = d\ T, \text{ if } V \text{ equals } 1.$$

In the above illustration, an error is made in treating AD as equal to p. It is impossible to do so because they are not the same things. Because of this, the increase in the number of notes is not equal to the increase in real income. This will be shown by the following illustration.

Let us define the index of average denomination.

$$AD = \frac{\text{Total value of currency}}{\text{No. of notes}} \quad \ldots \quad (2)$$

$$(Ad \cdot N) = \text{Total value of currency} \quad \ldots \quad (2a)$$

The price at t(1) is,

$$P_1 = \frac{AD1}{r}, \text{ when } r = \frac{AD_o}{P_o}, \text{ because } \frac{P_{1o}}{P_o} = \frac{AD1}{AD_o} \quad \ldots \quad (3)$$

Substituting equations (2a) and (3) into the Fisherian equation,

$$(AD_1 \cdot N_1) V = \frac{AD_1}{r} \cdot T_1$$

$$N_1 (V r) = T_1 \quad \ldots \quad (4)$$

Equation (4) indicates that there is a proportional relationship between N_1 and T_1. (V r) being constant, N_1 measures T_1 and thus $\frac{M_1}{P_1}$.

That is, $N_1 \neq \frac{M_1}{P_1}$, but

$$N_1 r = \frac{M_1}{P_1}$$

The proportional relationship between the number of notes and real income can be explained in another way.

$$(AD \cdot N) V = P \cdot T$$

$$\frac{AD}{P} V \quad \frac{P}{T}$$

or,

$$AD = \frac{1}{V} \left(\frac{T}{N} \right) \cdot P$$

The above equation indicates that there must be a proportional relationship between T and N for the average denomination to be a perfect index of price changes.

The contention of equation (4), that there is a proportional relationship between N and T, is based on the assumption that the total money supply is composed solely of currency. When this assumption is removed, the contention does not hold true. The number of notes fails to measure real income and the real value of the money stock. The Fisherian equation can now be written as:

$$M' V' + M'' V'' = P T$$

$M' V'$ ... Transactions carried out by notes.
$M'' V''$ ... Transactions carried out by checks.

If $V'_1 = V''_1 = V_o$,

$$V (AD'_1 \cdot N'_1 + AD''_1 \cdot N''_1) = \frac{AD_1}{r} \cdot T_1$$

If $AD'_1 = AD''_1 = AD_1$,

$$AD_1 V (N' + N'') = \frac{AD_1}{r} \cdot T_1$$

$$V r (N'_1 + N''_1) = T_1 \qquad \ldots (5)^5$$

In equation (5), it is indicated that N' (the number of notes) alone cannot measure T. Only if N" (the number of checks) stays constant will changes in N' measure T only under the two assumptions that V' = V", and AD' = AD". Once again here is a proportional relationship between the number of notes and real output assuming N" stays constant.

$$N' = \frac{T}{V r} - N''$$

$$dN' = \frac{dT}{Vr}, \text{ if } N'' \text{ is constant.}$$

If N" is not constant,

$$dN' = \frac{dT}{Vr} - dN''^{6}$$

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[5]The total clearing of checks is equal to M"V", the total clearing of checks divided by the amount of demand deposits will give us a velocity of deposits. The amount of deposits can be conceived as (AD" • N"). It was assumed that $V'_1 = V''_1 = V_o$ and $AD'_1 = AD''_1 = AD_o$ in deriving equation 5. The assumptions are extremely unrealistic, but serve the purpose of establishing the proportional relationship between the number of notes and real output.

[6]Professor Victor Smith suggests an interesting point. If N"=kN', k being constant, (This is a famous statement of Fisher. See: Irving Fisher, The Purchasing Power of Money(1911)See the passagen on p.52: "Both money in circulation ... and money in reserve ... tend to keep a fixed ratio to deposits ... If that ratio is disturbed temporarily, there will come into play a tendency to restore it.") changes in N' and T are in the same proportional relationship.

$$N'_1 + k N'_1 = \frac{T_1}{V r}$$

$$N'_1 (1 + k) = \frac{T_1}{Vr}$$

$$N'_1 = \frac{T_1}{V r (1+k)}$$

The number of deposits is very likely to change in any country. Therefore, changes in the number of deposits should be deducted from the right side of the equation. Even doing this seems to be very unrealistic because the two assumptions mentioned are required. In an economy in which deposits are included in the total money supply, therefore, the relationship between the number of notes and real output becomes very obscure. In the case of an underdeveloped country in which there are no deposits or the number of deposits is constant, Professor Lerner's suggestion contributes greatly in the measurement of real output.

Let us observe the following example;

t	AD'	N'	V'	M'V'	AD"	N"	V"	M"V"	MV	P	T
0	$5	3	1	$15	$5	1	2	$10	$25	$1	25
1	$6	4	1	$24	$6	1.2	2	$14.4	$38.8	$1.2	32
2	$7	5	1	$35	$7	1.3	2	$18.2	$53.2	$1.4	38
3	$8	6	1	$48	$8	1.4	2	$22.4	$70.4	$1.6	44

In the above example, the note/deposits ratio increases, as in the case of Korea.[7] The velocity of notes is not equal to that of deposits, but both are constant. AD' and AD" are equal and AD correctly measures the price changes. It must be noted that N' rose two times from t(0) to t(3), but T did not rise by two times. The point

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[7] The notes/deposits ratio increased from 2.8 per cent in 1945 to 3.8 per cent in 1960 in Korea. (Deposits include private checking accounts, and accounts of local governments and others which are defined as the parts of the money supply.)

of this illustration is that the number of notes alone cannot measure real output. It will be expected that we will have further distortion if AD' and AD" are not equal. Thus it is safe to say that the proportional relationship between the number of notes and real income does not hold when deposits are taken account of in the total money supply.

Professor Lerner states that the number of notes thus the real value of the money stock increased by a factor of 12 over the last 15 years in Korea, This seems to be an incorrect estimate for the reasons explained above. When the nominal stock of money is deflated by the index of average denomination and the index of the Seoul wholesale prices, the real value of the money stock increased only 5 per cent and 133 per cent respectively between 1946 and 1960. In the previous chapter it was also shown that real output roughly doubled from 1946 to 1960.

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