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ON CENTRAL BANKS



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CONTENTS

	Page
OPENING SPEECH DELIVERED BY MR. HERNAN FELIPE ERRAZURIZ, VICEPRESIDENT OF THE CENTRAL BANK OF CHILE	7
THE CENTRAL BANK OF CHILE DURING THE PERIOD 1925-1950, by Dr. Donald L. Kemmerer	11
Inflation and stabilization in Chile, specially in the 1920's	13
THE CENTRAL BANK OF CHILE DURING THE PERIOD 1950-1970, by Dr. Jorge Marshall	29
Introduction	31
The Central Bank and the decade of the "50's"	35
The Central Bank during the 60's	39
INTERNATIONAL ASPECTS OF CENTRAL BANKING: CURRENCY SUBSTI- TUTION AS A POLICY PROBLEM, by Dr. Roland Vaubel	45
The problem	47
The empirical evidence	48
Policy options	49
Option 1 : Announcements net of international shifts in the demand for money	49
Option 2 : Announcements allowing for expected international shifts in the demand for money	50
Option 3 : Shorter announcement periods and/or wider target bands	51
Option 4 : Announcements of monetary expansion subject to price-level constraints	51
Option 5 : Nominal exchange rate targets	51
Option 6 : Announcements of monetary expansion subject to real exchange rate constraints	52
Option 7 : Measures to reduce currency substitutability	53
Conclusion	54
THE ROLE OF CENTRAL BANK: LESSONS FROM THE EUROPEAN EXPE- RIENCE, by Dr. Pascal Salin	55

Introduction	57
I. A very simple model of currency union	58
II. The mechanisms of the European Monetary System	63
III. The actual working of the EMS: Apparent Success and hidden cost	66
IV. Does the European Monetary System provide a public good?	69
V. Why monetary integration?	73
VI. The monetary organization of a small open economy	74

TABLES:

No 1: Retail prices	77
2: Real effective exchange rates	77

**OPENING SPEECH DELIVERED BY
MR. HERNAN FELIPE ERRAZURIZ, VICE
PRESIDENT OF THE CENTRAL BANK OF CHILE**

The Central Bank of Chile has the pleasure to inaugurate this Seminar on "Experiences of Central Banks", as a contribution to the national community at a time when the new economic/industrial ruling of the country defines this Institution as being an autonomous and an essentially technical organism.

The Central Bank of Chile began to operate more than half a century ago, concretely, 56 years ago. During this period it has been influenced by the economic policies which have been adopted by successive governments.

For this reason, the possibilities of the Institution to follow stable monetary and financial policies, were permanently limited by the decisions adopted by the respective governments. Particularly, it became traditional that the Central Bank should fund any deficit of the Public Sector. Therefore, it became very easy for the different administrations to adopt expansive policies with respect to their spending, funding said expenditures with loans granted by this Institution.

There practically did not exist a mechanism to impose a limit to such a procedure. This resulted in that inflation and balance of payments problems were considered to be absolutely normal in the Chilean economy.

Even though it is true that the situation worsened at the beginning of the decade of the 70's, it cannot be denied that the roots of the problem can be traced far back.

As an average, between the years 1960 and 1970, *fiscal deficit*, as a percentage of Gross Domestic Product Expenditure, represented approximately 3.3%. During the following three years this percentage grew significantly, reaching in 1973 to a record of 23.6%. The behaviour of rates of inflation was quite consistent with the foregoing, as were the deficits in the Balance of Payments.

But the Central Bank had not only to assume responsibility for Public Expenditure; it also had to exercise numerous functions of execution of financial and trade policies which were discriminatory among the different economic activities.

Among these are to be found credit policies in favour of privileged sectors; foreign exchange assignation policies which were discriminatory as to price and quantity, according to the type of operation; and tariff policies which favoured certain activities and impaired others.

Without doubt, this linkage to contingent decisions politicized the Institution and adulterated the technical nature which had been originally assigned to it.

The present stage of our economy is that of a double adjustment. On the one hand, the adverse conditions of our export markets, and on the other, the substantial drop of domestic inflation, produce their effect.

With respect to the first of these aspects, the prevailing economic policy implies meeting this adjustment with a nominal fixed rate of exchange, in an atmosphere where public finances are on a sound basis and showing a surplus, and where the factor and produce markets have been gradually strengthened as a consequence of their having been freed from controls and distortions.

With respect to the second aspect, having adapted to an inflation which is similar or inferior to international inflation, it may be seen that this process validates and expedites the external adjustment mentioned above.

The extraordinary progress achieved with respect to inflation — measured by the changes which have occurred in price indexes at consumer and wholesale levels, and the dynamics of the external adjustment revealed by divers indicators — allows us to expect that this adjustment will continue to operate fluidly under the lineaments of the present economic policy, but maintaining the neutrality of the Central Bank.

In view of the foregoing, the experience presently being lived by the Central Bank of Chile is extremely interesting, because the Institution has re-adopted its eminently technical nature, in harmony with a modern, progressive and efficiently organized economy. Due to this, the Central Bank of Chile awaits with special interest the lectures contemplated under this Seminar. They will be delivered by distinguished personalities of vast participation in the financial ambit, and having an extensive academic experience.

The order of the Seminar will be as follows:

In the first place, the speech of Professor Donald Kemmerer of the University of Illinois, will deal with the theme "The Central Bank of Chile during the period 1925-1950". It is particularly pleasing to count on this occasion with the presence of Professor Kemmerer, since in 1925 he directly participated as Assistant Secretary of the Kemmerer Mission which was

headed by his father, and which resulted in the creation of the Central Bank of Chile.

Ending the morning session, Professor Jorge Marshall of the University of Chile will speak about "The Evolution of the Central Bank of Chile". Professor Marshall is one of the most qualified persons to express opinions on this topic, not only because of his academic activities, but because he acted as Manager of the Department of Research and therefore, as the head economist of the Central Bank, during an important part of the period under survey.

In the afternoon, in the first place, we shall hear Dr. Roland Vaubel, Director of the "Institut Fur Weltwirtschaft" of the University of Kiel, who will lecture on the theme "International Monetary Problems: The Role of Central Banks in Industrialized Countries". Dr. Vaubel is an expert on international economy and monetary economy.

The last lecture of this Seminar will be delivered by Dr. Pascal Salin, who will talk about "The Role of the Central Bank; Lessons Obtained from the European Experience". Dr. Salin is an expert on international monetary problems, on which he has published books and numerous articles. At present he is a professor at the University of Paris – Dauphiné.

**THE CENTRAL BANK OF CHILE
DURING THE PERIOD 1925-1950**

Dr. Donald L. Kemmerer
Professor of Economics, Emeritus,
University of Illinois

Inflation and stabilization in Chile, especially in the 1920s

The Financial Advisory Commission led by Dr. E. W. Kemmerer of Princeton University, renowned as the world's "money doctor", made its recommendations to the Chilean Government in the winter of 1925. At that time Chile had a population of about four million and a foreign trade of \$ 375 millions¹. She exported about 40 percent of her "measurable annual production of goods", consisting largely of nitrates and copper. During World War I the United States had become her chief customer and her chief supplier, replacing Britain in both respects. But British investments in Chile were still double those of the United States although American investments were growing rapidly, especially in mining. Chile was then producing over two-thirds of all of South America's minerals. Her foreign credit was excellent, for she had never defaulted on any of her foreign loans².

One may ask why Chile needed a foreign advisory mission and why her government selected Dr. Kemmerer.

The answer to the first question is found in the history of Chile's monetary unit, the peso, which had been declining in buying power for three quarters of a century despite the boast of one Minister of Finance in 1824 that his country would admit paper money "only at the point of the bayonet" and of another Minister of Finance in 1850 who told the Congress, "God grant that we may hold ourselves aloof from institutions such as banks of issue"³. Chile was then nominally on a bimetallic standard but from 1873 on actually on a silver standard with silver slowly depreciating⁴. She left that in 1879 when the War of the Pacific broke out and remained on

¹ *The Statesman's Yearbook*, 1927, p. 725

² Paul Drake, *Money Doctor in the Andes*, as yet unpublished manuscript, Chapter III, "Eclipse of the Chilean Papeleros, 1925-32", pp. 1-6.

³ Guillermo Subercaseaux, *Monetary and Banking Policy of Chile*, Clarendon Press, Oxford, 1922, pp. 62-63.

⁴ Frank W. Fetter, *Monetary Inflation in Chile*, Princeton University Press, 1931, pp. 134-35 and 148.

a paper money basis until 1895 although she asserted frequently her intention to return to bimetallism. Agustin Ross in 1890 was the first to propose that Chile go on a gold standard, some 22 nations having adopted it by that year. But a costly civil war broke out and delayed adoption of gold until 1895. Unhappily Chile made the fatal mistake of grossly overvaluing the peso in terms of gold. A new administration in 1898 under President Federico Errázuriz, made little effort to save the gold standard and it collapsed. For the next nine years the paper money advocates were in power and the gold standard was in low repute. Then disillusionment with paper money inflation set in and there was growing talk of going back to a gold standard. It might have taken place in 1914 if World War I had not begun. By that time the exchange rate for the peso had fallen from 94 cents in 1834 to 36 cents in 1895 to 14 cents in 1914⁵.

Thanks to war-inspired demands for Chile's nitrates and copper, the nation's exports expanded greatly, 1914-1918, and the peso increased in value against gold and by two-thirds against the American dollar. There was a heady prosperity in many parts of the land until the war's end. Then the nitrate industry was in dire distress. Nitrates were some 75 percent of Chile's exports and taxes on it provided about half of the government's revenues⁶. Accordingly resort was had to an August 3, 1914 law authorizing advances to the nitrate industry in the form of drafts on the Treasury which in turn guaranteed bank issues of legal tender "vales de tesorería". Issues of paper money with nitrate or gold backing jumped from 76 million pesos in 1918 to 174 millions in 1921⁷.

Then an important change occurred. The nitrate producers began paying off their debts and the banks had to retire the nitrate-backed vales. Nonetheless the nitrate industry's contribution to government revenues continued to be small. The government itself was thus faced with financial problems. Instead of trying to float a public bond issue to cover its deficit, because that might well have failed, the government substituted — under a new 1921 law — an almost equal amount of government bond guaranteed vales for the nitrate guaranteed vales. These funds enabled the government to meet its deficits, to avoid raising taxes and to avoid a sharp paper money deflation and probably a depression⁸.

Too many people, however, were aware of the long-run dangers of all this monetary legerdemain and fearful of how the government would finance its next round of deficits. The gold value of the peso had fallen to 12 cents and now more paper money, with rising prices following, seemed very likely. Some drastic steps needed to be taken. As Professor E. W. Kemmerer wrote in 1926, "Labor suffered greatly as a result of paper money inflation and although labor interests were generally favorable to cheap money during the years of the greatest inflation, laboring men ultimately learned their lesson and in recent years organized labor in Chile has been one of the strongest advocates of the return to the gold standard"⁹.

⁵ F. W. Fetter, Gresham's Law and the Chilean Peso, *Journal of Political Economy*, Dec. 1933, pp. 822-23.

⁶ F. W. Fetter, *Monetary Inflation*, pp. 130, 142, 151.

⁷ *Ibid.*, pp. 130, 137, 148.

⁸ F. W. Fetter, *Monetary Inflation*, pp. 48-53.

⁹ E. W. Kemmerer, "Chile Returns to the Gold Standard", *Journal of Political Economy*, June, 1926, p. 269.

In 1920 Arturo Alessandri Palma, a colorful radical politician was elected President of Chile. Earlier he had been a paper money advocate but as his financial troubles grew, he leaned increasingly to the right¹⁰. By 1923 he was considering engaging a foreign monetary expert and in 1924 the question was discussed with Chile's ambassador in Washington. Then suddenly in September, 1924 an army-navy junta ousted Alessandri and he fled the country. In January, 1925 a younger group of reformist minded officers led by Col. Carlos Ibañez replaced the first junta and invited President Alessandri to return. Monetary stabilization to halt the mounting inflation was one of their major aims and they had strong support from organized labor¹¹.

On February 26, 1925 Professor Kemmerer had a long talk in Washington with Chilean Ambassador Don Baltram Mathieu concerning the possibility of his organizing a financial mission to Chile like a recent one he had led to Colombia¹². On March 16 he wrote the Ambassador his preliminary terms for a three months (June to September) stay of three experts to cost roughly \$ 30,000. The size of the mission and the cost were later increased¹³. By the time that the mission left for Valparaiso on the Santa Luisa on June 11, it numbered thirteen persons including some who would join it en route, wives and additional secretaries¹⁴. Five of these were experts, namely,

Dr. E. W. Kemmerer, the Commission chairman and expert on money and central banking;

Howard M. Jefferson, on leave from the Federal Reserve Bank of New York, who had been on the Kemmerer mission to Colombia in 1923, and was the expert on general banking practices;

Harley L. Lutz, a professor of public finance at Stanford University and the expert on taxation;

Joseph T. Byrne, senior partner in a prominent New York accounting firm with considerable governmental accounting experience, the expert on accounting and fiscal control; and

William T. Renwick, a New York banker with much practical experience in customs administration in San Salvador, the customs revenues expert.

The Commission's general secretary was Henry West, then 26, formerly secretary to Dr. William Cumberland in Peru and also to Ambassador Fletcher in Chile, who was fluent in Spanish and skilled but often an impatient manager. Dr. Kemmerer's economics secretary was Frank W. Fetter, also 26, who had been with him in Guatemala the previous summer¹⁵. He later wrote as his Ph. D. thesis at Princeton a book entitled *Monetary Inflation in Chile*. Mr.

¹⁰ F. W. Fetter, *Monetary Inflation*, pp. 160-65.

¹¹ P. Drake, *Money Doctor*, p. 19.

¹² E. W. Kemmerer to Mathieu in Letter file in E. W. Kemmerer Collection, Mudd Library.

¹³ E. W. Kemmerer Diary. Seeley G. Mudd Manuscript Library, Princeton University.

¹⁴ After the Commission arrived in Chile the need was felt for an expert in Railroad administration and a suitable man was found right there, Professor Van Zandt of the University of Southern California.

¹⁵ Kemmerer to Mathieu, Mar. 16 and April 24, May 16 and June 1; Mathieu to Kemmerer, May 6 and 23. Also Kemmerer to Mr. Edgar Williams of Baltimore *Sun*, June 1. All letters in Letter file in Kemmerer Collection, Mudd Library.

Renwick also had a secretary, Mr. Avilés of San Salvador. This writer, then 19 and beginning his third year at Princeton, went along as an assistant secretary but was permitted to attend the daily conferences of the Commission. He had also been in Guatemala the previous summer.

Altogether the Commission was a relatively young group, most of the experts being in their forties, the secretaries in their twenties. Dr. Kemmerer, the oldest, celebrated his 50th birthday on arriving in Antofagasta. But they were all experienced advisors on problem areas in which Chile badly needed help. The country had an inconvertible currency, no central bank and an antiquated law governing its commercial banking. The tax system brought in insufficient revenues and was too dependent on the "feast or famine" nitrate industry. Customs collections were likewise inadequate and rife with corruption. The government's accounting procedures and fiscal controls were poor and needed updating. There were far too many government employees and the creeping inflation, without accompanying wage increases encouraged a considerable amount of graft and slovenliness¹⁶. The whole government mechanism, needed overhauling.

One may ask what qualifications Dr. Edwin Walter Kemmerer had for this assignment. His doctoral dissertation in economics at Cornell University in 1901 was a skilfully reasoned modernizing of the quantity theory of money, a study which quickly brought him academic renown. From 1903 to 1905 he served on a financial team to the Philippines which installed the gold exchange standard there. On returning to the United States he taught for six years at Cornell and while there wrote a book on *Seasonal Variations in the Relative Demand for Money and Capital in the United States* that was of real value in formulating the Federal Reserve Act of 1913. In 1912 he moved to Princeton University where he wrote a book, *Modern Currency Reforms*, on the gold exchange standard in various nations. In 1917 he served as a financial advisor to Mexico, then stabilizing her currency following a revolution and a serious inflation. In 1919 he was called to Guatemala to advise on stabilizing her peso. Three years later he used his sabbatical leave months to journey around South America, meeting top bankers and government leaders in Brazil, Uruguay, Argentina, Chile — where he met Guillermo Subercaseaux and President Arturo Alessandri — Bolivia, Peru and Panama. The next year he led a small advisory mission of four to Colombia. That mission's success was acclaimed throughout South America. In early 1924 he served as a top economic advisor to the Dawes Commission whose assignment was to revise German reparations payments. No sooner back from that than he was called back to Guatemala where his advice led to stabilizing the currency and reorganizing the central bank. That same fall he received invitations to go to Ecuador, Turkey and the Union of South Africa. He went to South Africa where his advice led to that nation's return to the gold standard in July, 1925. By this time he had advised six nations, was being called a "money doctor", and had been elected President of the prestigious American Economic Association.

One might add that along the way he had made numerous important contacts in New York financial circles. He lunched several times a year with

¹⁶ P. Drake, *Money Doctor*, p. 16.

Governor Benjamin Strong of the New York Federal Reserve Bank and at his urging wrote a book, *The ABC of the Federal Reserve System* to introduce that system to the public. The book went through twelve editions¹⁷. He had several acquaintances among New York's investment bankers, most of whom were much interested in Latin America during the 1920s. These bankers found his knowledge of Latin America finances of great value to them. The credit rating of a nation which had Kemmerer type reforms usually rose. He was glad to share his knowledge of these nations' finances with the bankers and they in turn spread word of his abilities. His frequent meetings with Col. Robert Hayward of Dillon, Reed and Company led to a rumor reported to Dr. Kemmerer on June 1, 1925 that he was retained by that company. He recorded in his diary that he promptly told his informant "that I have done advisory work for many banks and governments but have no connection with D.R. & Co., or any other banking house that in any way or manner affect or touches my work for Chile"¹⁸. Nonetheless the fact that he was well regarded in Wall Street investment banking circles probably worked to his advantage when Latin American governments, most of them seeking to attract American capital, considered whom to call on to head a financial advisory mission to their land¹⁹.

The Grace liner, Santa Luisa, bearing the Kemmerer Commission of Financial Advisers arrived at Valparaiso Thursday, July 2 several hours behind schedule. Dr. Kemmerer had learned from the American Consul at Iquique five days before that a labor demonstration in support of the mission was being planned by the Valparaiso trades unions. Nonetheless the Commission members were unprepared for the warmth and enthusiasm of the welcome that they received.

The next day the members of the Commission made a round of official calls on the Finance Minister Magallanes, President Alessandri and others and were cordially received by them as well as being greeted in the streets, hotel lobby and elsewhere by crowds expressing their good-will and general approval. Clearly much was being expected of them. The government declared Saturday, which was the Fourth of July, a national holiday out of courtesy to the United States²⁰.

Finally on Monday, July 6, the Commission went to work at 8 a.m. The members' long hours of work were a constant cause of comment. Most of them had worked hard to achieve their status as experts and saw nothing unusual in their strenuous routine. Within a week several preliminary drafts were already under discussion.

President Alessandri early sent word that he particularly wanted prompt action on the currency question²¹. Dr. Kemmerer closeted himself every morning to work on this and a plan for a central bank. But he also

¹⁷ E. W. Kemmerer entry in *Who Was Who in America*, Vol. II, 1943-50, A. N. Marquis Co. Chicago, 1950; D. L. Kemmerer and Bruce R. Dalgaard, "Inflation, Intrigue and Monetary Reform in Guatemala, 1919-26, accepted for publication in *The Historian* in 1982; E. W. Kemmerer Diary, Mar. 6 and 16, 1925.

¹⁸ E. W. Kemmerer Diary, June 1.

¹⁹ D. Kemmerer and B. Dalgaard, "Inflation and Intrigue", *The Historian*.

²⁰ E. W. Kemmerer Diary, July 3-6.

²¹ E. W. Kemmerer, July 8.

found time, often late in the day, to call on or confer with fellow economists and former finance ministers Guillermo Subercaseaux and Julio Philippi and Mr. Villanueva, President of the Bank of Chile. He also had frequent conferences with Minister of Finance Magallanes²².

Perhaps because the Commission was apparently making progress, President Alessandri was becoming uneasy, or there may have been other reasons. Anyway, on Saturday, July 18, he called Dr. Kemmerer to the presidential office for a long conference. Spanish speaking secretaries West and Aviles went with him. The President explained his relations with the banks and his desire to "have our projects so as to push them through by 'decretos leyes' before October 15" when is special power to do this ended. He also asked to see the Commission's projects before they were made public but added, Dr. Kemmerer further recorded in his diary, that if he and Dr. Kemmerer "could not agree on all matters my opinion would prevail and he would support it". Kemmerer outlined his plan for a central bank and explained its principal features²³.

Should Chile have a central bank? Most countries did, and Chile needed one. Chile's loosely structured bank law of 1860 had for years allowed her commercial banks great freedom and resulted in many unsound banking practices, with the government generally rescuing the banks when they had serious difficulties²⁴.

Proposals for establishing a central bank were repeatedly made after 1912. At that time all that Chile had was an *oficina de emision* set up in 1907 along lines proposed by Minister of Finance and economist Guillermo Subercaseaux. The oficina had authority to issue paper money on a 1 to 1 basis against 18 pence of gold or gold credits in London. That was then an unrealistically high value for pesos. In 1912 the law was liberalized and the rate lowered to 12 pence of gold. Within two years some 45 million pesos had been issued by the oficina and by the end of 1918 the figure was 71 million, now against 18 pence gold because of Chile's favorable exchange during the war²⁵. Money supply increases from these and from the nitrate backed issues caused some price inflation. Minister of Finance Claro Solar offered a proposal to establish a central bank in 1918 and Minister of Finance Guillermo Subercaseaux made one in 1919. A third proposal by the Finance Committee of the Senate in August, 1924 would have given control over the Central Bank to the President who was Alessandri at the time. This was ominous to some. The cost of living index had risen 12 per cent in the previous eight months and strikes were becoming increasingly frequent²⁶.

In September, 1924 a Government Council with army and navy backing ousted Alessandri and then dissolved the Congress and suspended the Constitution. The next Minister of Finance, Julio Philippi, came up with still another central bank plan which was about to be promulgated as a decree law when the second revolution of January, 1925 turned the

²² Ibid, July 3, 4, 7 10, 11 and esp. 14.

²³ Ibid, July 18.

²⁴ F. W. Fetter, *Monetary Inflation*, pp. 8, 25-26, 29, 91-92, 137, 166-69.

²⁵ F. W. Fetter, *Monetary Inflation*, 123-24, 128, 130, 145.

²⁶ Ibid, pp. 158-64.

government over to a younger group of army and navy men dominated by Col. Carlos Ibañez. They instituted several pro-labor reforms and demanded stabilization of the peso and other financial changes. But the question that was uppermost in most minds was who should decide on the structure of those financial reforms²⁷.

By Friday, July 24th, Dr. Kemmerer had completed the English version of the Central Bank bill and showed it to Minister of Finance Magallanes who "seemed pleased with its main features". Dr. Kemmerer and Jefferson did further work on it and also sought to harmonize it with Jefferson's General Banking bill²⁸. Kemmerer also discussed some aspects of the Central Bank bill with Subercaseaux. During much of this time the political pot was boiling and Alessandri threatened to resign at one juncture²⁹. Yet according to Kemmerer's diary of August 9, "The Minister of Finance and many other prominent officials considered my remaining a couple of months longer almost imperative for success of our work. I replied if Gov't wanted it & [Princeton] Univ. consented, I would be willing but I would take no initiative in the matter. It will be taken up with Pres. [Alessandri] tomorrow". Apparently he approved, some other Commission members agreed to stay and Princeton reluctantly consented on September 3rd³⁰. There was probably a political manoeuvre behind all of this.

The administration was now anxious to have the Central Bank bill and so Kemmerer spent long hours preparing the document that accompanied this piece of legislation, the Report in Support of the Provisions of the Bill (*Exposicion de Motivos*), and on August 12 he delivered copies of the project to Minister of Finance Magallanes and to President Alessandri. The reaction was quick.

The bill resembled in numerous respects the United States Federal Reserve Act, as was the case of Dr. Kemmerer's central bank bills in several other nations that he advised. More details will be given later. Suffice to say here that it was his strong belief that central banks should *not* be dominated either by the government or by the banking community. If either gains control, in time it usually exploits the institution to its own advantage and to the detriment of the people. He liked the method devised for choosing the board of directors of the twelve regional banks of the Federal Reserve System. These boards had nine members, three chosen by and representing the member banks of the System, a second three, also chosen by them, who are businessmen or farmers and thus representing bank customers, and a final three representing the federal government and general public chosen by the Federal Reserve Board in Washington³¹. Thus no one of these three could win on any question coming before the board without help from one or more of the others. This balance of power was designed to protect the interests of all.

²⁷ *Ibid*, 164-65; Paul Drake, *Money Doctor*, p. 19.

²⁸ E. W. Kemmerer Diary, July 24, 27, 28.

²⁹ D. L. Kemmerer, typed diary, pp. 68-69, 87.

³⁰ E. W. Kemmerer Diary, Aug. 9, 24, 29, Sept. 3.

³¹ E. W. Kemmerer and D. L. Kemmerer, *ABC of the Federal Reserve System*, 12th ed. Harpers, New York, 1950, pp. 28-29; Kemmerer Commission, *The Central Bank of Chile*, "Report in Support of Bill", p. 53.

Dr. Kemmerer thus recognized, and Chilean leaders did too, that even the most skillfully devised Central Banking law is likely to be abused if the board of directors and manager are tools of the government or of the banking community. Control is what matters most. The laboring classes, victims of Chile's growing inflation and supportive of Colonel Ibáñez were particularly aware of this. Two earlier central banking bills (one by Subercaseaux in 1919 and the other by the Senate Committee in 1924) had proposed giving the public some representation but none had gone as far as the Kemmerer Commission proposal now did³².

The Kemmerer bill provided for a ten member Board of Directors. The President of Chile appointed three; Chilean member banks chose two, foreign banks selected one and the general stockholders picked one. That makes seven. The National Agricultural Society and the Society for the Encouragement of Manufacturers acting jointly chose one; the Association of Nitrate Producers and the Central Chamber of Commerce, also acting jointly, picked one, and the labor organizations of the nation selected one. The manner of choosing the labor member caused the most trouble. The Board chose the Bank's manager and deputy manager³³.

The day after Dr. Kemmerer sent in his Central Bank project word came back indirectly that the President wanted to change five or six provisions. Your writer was present and wrote in his diary that Alessandri "wants the power of appointing the Central Bank Manager, for he has already promised the job to the head of the Bank of Spain", the nation's second largest bank³⁴. That bank had been reported to be in financial difficulties and failed four months later owing to fraud, mismanagement and exchange speculation³⁵. Villanueva, President of the Bank of Chile, and his followers disliked the bill and were alleged to be bringing pressure on President Alessandri to get it changed³⁶. Apparently Carlos Ibáñez had not yet seen the bill and the question arose whether he should be alerted but it was decided by the Commission that if he wanted to see Dr. Kemmerer, he would certainly call him in. Nonetheless, the army's office spy reportedly carried word of the situation to Ibáñez³⁷. Two days later Dr. Kemmerer wrote in his diary, "*Received assurances that military party are favorable to our projects*"³⁸. And on the 20th he wrote, "Magallanes representing President recommended certain changes in Central Bank project increasing number of government directors & increasing President's control but they are all unwise in my judgement and I refused to accept them"³⁹.

On Friday, August 21st, his diary recalls that Magallanes phoned to say he would come to the Commission's office at 10 to discuss changes in the Central Bank bill. All of the Commission assembled to meet with him. "We approved a few verbal changes & refused to accept suggested changes giving President power to appoint Gerente [Manager] from a list of nominees.

³² F. W. Fetter, *Monetary Inflation*, pp. 159-65, 174-75.

³³ E. W. Kemmerer, *Diary*, Aug. 20, 26, Sept. 3.

³⁴ D. L. Kemmerer, *written Diary*, Aug. 13 p. 224.

³⁵ E. W. Kemmerer *Diary*, July 21; Fetter, *Monetary Inflation*, pp. 179-80.

³⁶ D. L. Kemmerer, *written Diary*, Aug. 13, p. 225.

³⁷ *Ibid*, Aug. 12, 13, pp. 222, 227.

³⁸ E. W. Kemmerer *Diary*, Aug. 215.

³⁹ *Ibid*. Aug. 20.

Situation [is] very strained between Pres, Cabinet & army. All, however, seem to be back of us"⁴⁰. And the next day he wrote, "Government passed our Central Bank bill thus clinching the most important work our Commission had in coming to Chile"⁴¹.

A brief description of Chile's first Central Bank as it was in 1925 are relevant.

The Bank's capital, initially to be 150 million pesos, was to come from three sources. First, the government was to put up 20 million pesos; second, the commercial banks, domestic and foreign, doing business in Chile, were to put up 10 percent of their capital and surplus or about 60 million pesos, and third, the general public might buy the balance of the Bank's stock, up to the 150 million limit. This plan was similar to that used in organizing the Federal Reserve System. All earlier proposals had the government as full owner⁴².

The Bank was to have exclusive right of note issue, the notes to be issued in exchange for Chilean gold at par or for gold deposits to the credit of the Bank in New York or London. Notes were redeemable in gold coins, or gold bars or drafts on New York or London. This was a modified gold exchange standard.

The Bank might deal with the Government, the member banks and the public. It might discount eligible paper up to 90 days maturity or agricultural paper up to 180 days. Loans to the Government or on the collateral of Government securities were limited to 20 percent of the Bank's paid-up capital and surplus but if eight directors assented, such loans might be as much as 30 percent. Loans on stocks and bonds of private corporations were forbidden and discounts collateralized by mortgage bonds were limited.

The Bank was to take charge of the redemption and retirement from circulation of all outstanding fiscal bills and vales. The Government, for its part, was to turn over to the Bank enough gold and gold deposits to redeem all this paper money in pesos of the new monetary law.

There was a minimum reserve of 50 percent against deposits and notes. If the reserve fell below 50 percent, the Bank had to pay a deficiency tax to the Government which rose as the reserve fell. The Bank had to raise its discount rate then too.

There was a cumulative dividend of 8 percent to stockholders. Out of the remaining balance, up to 12 percent, the profits were divided equally between the stockholders and the Government; beyond that the Government took 75 percent.

The Bank was subject to supervision by the Superintendent of Banks and had to publish financial statements regularly.

All in all, the public had a greater participation in banking than had ever been true before and banks had to live up to stricter rules than they had

⁴⁰ Ibid. Aug. 21

⁴¹ Ibid. Aug. 22.

⁴² F. W. Fetter, *Monetary Inflation*, pp. 174-78.

previously. It is little wonder that many Chilean bankers were uneasy about the new legislation if not downright hostile to it.

The Central Bank opened for business on Monday, January 11, 1926⁴³.

Dr. Kemmerer had begun work on the Monetary Bill almost at the same time that he started on the Central Banking Bill. Let us turn back and follow developments on that.

He was a firm believer that a central bank not operating under a gold standard could easily become a dangerous engine of inflation. His doctoral dissertation researches convinced him that undue increases in the currency supply and in bank credit were the chief cause of most price inflations. His experiences in Mexico, Guatemala, Colombia, and Germany in particular, further confirmed this conviction. He emphasized to his international finance classes at Princeton that most of the World War I inflation experiences took place through central banks, and not, as in earlier eras, by Treasury employees themselves turning the printing presses. Placing Chile on a gold standard basis as soon as she had a central bank was thus of prime importance.

At the July 17 regular morning conference of the Commission he announced that he intended to recommend a gold standard as well as a central bank very early. He had not yet decided what the new par of exchange would be⁴⁴. For several years the peso's exchange value had been hovering around six pence (English). Three ideas were discussed.

The first was to have eight pesos equal one Chileno, a new unit. That would make a Chileno worth 48 pence, the long-ago value of the peso and roughly equal to a U.S. dollar. Several members said that a decimal system was preferable.

The second plan was to create a ten peso Chileno which would thus equal a quarter of a pound sterling, or nearly \$ 1.25 U.S. One objection was that no other major nation had a unit of that size.

The third idea was to put the new unit on the metric system, adopted by Chile in 1840. A Chileno of 150 centigrams of gold would be equal to two Mexican pesos, barely exceed 48 pence, and almost equal a U.S. dollar. The peso would still equal six pence. But this too avoided the decimal system⁴⁵.

A week later, July 24, Commission members had a long discussion whether to announce publicly that the new par of exchange would be six pence to the peso. It was agreed that in stabilizing it was desirable "to stabilize as near the statu quo [sic] as possible"⁴⁶. It was argued that the announcement would calm the erratic foreign exchange market. Joseph Byrne objected that it was gamblers who were most interested in the exchange rate and the Commission was not interested in their welfare. Dr.

⁴³ F. W. Fetter, *Monetary Inflation*, p. 181.

⁴⁴ D. L. Kemmerer typed Diary, p. 49.

⁴⁵ Ibid, p. 50.

⁴⁶ Ibid, p. 69.

Kemmerer replied that "an uncertain shaky market was a bad condition, for all... are affected by it". Henry West pointed out that the members were basically advisers and this was a government decision. Yet if President Alessandri announced it, it was feared that it would be looked upon as just another rumor and "agitate the waters all the more". The final decision was to tell Minister of Finance Magallanes that the par of exchange would be six pence and let him give that information out either as a direct and authentic report of the Commission's decision or else as his belief of what the Commission's thoughts were⁴⁷.

Little more was done for three weeks while the Central Bank bill and other matters occupied everyone's time. But as soon as the Central Bank bill was in the Government's hands, on August 12, Dr. Kemmerer turned his full attention to finishing up the Monetary Bill, especially its coinage aspects and the reasons for the various provisions. It went to the translators two days later and was delivered to the Government on August 19⁴⁸.

The law would put Chile on a gold exchange standard, but did not say that in so many words^{48a}. "The new law "complemented that creating the Central Bank of Chile" and replaced the Monetary Law of 1895 which set up the earlier gold standard in Chile although many of the 1895 provisions were incorporated in the 1925 law⁴⁹. The monetary unit of Chile would still be the peso, to be exactly equal to 1/40th of an English pound sterling. From long experience many Chileans thought as much in terms of pence as they did in terms of pesos. There was to be a relatively small circulation of gold coins although Chile had ample amounts of gold. The smallest gold coin would be the 20 peso piece, known as two Chilenos. There would also be five and ten Chileno gold pieces. All gold coins were to be .900 fine. This meant that British and Australian gold coins, with a higher fineness, would no longer be legal tender in Chile. There were also to be four subsidiary silver coins .720 fine, namely pieces of five, two one and one half pesos. All lesser coins were to be of copper and nickel⁵⁰.

The Government had the bill nearly a month and then approved it on September 16 "with a few changes of a rather inconsequential kind— just enough to mess it up" Kemmerer recorded⁵¹. It did not become decree law until October 14 and was not put into effect until January 11, 1926.

Because the Commission was looked upon as very knowledgeable, impartial and honest the Government called upon it for advice on a variety of economic and even political issues. The members were asked to offer suggestions on the manner of adopting the national budget, on the financial

⁴⁷ D. L. Kemmerer typed Diary, p. 70.

⁴⁸ E. W. Kemmerer Diary, Aug. 12, 14, 19.

^{48a} The Support Report of the companion Central Bank bill did, however, p. 69.

⁴⁹ Fetter, *Monetary Inflation*, pp. 173, 181; Misión de Consejeros Financieros, *Proyecto de Ley Monetaria* (Decreto-Ley N° 606) together with Exposición de Motivos de la Misión. pp. 15-f. The 1895 gold coins were to have exactly three times the value in pesos of the 1926 ones. Art. 7

⁵⁰ *Proyecto de Ley Monetaria*, pp. 7-12, 17-25. Dr. Kemmerer originally suggested calling the gold pieces condors, reminiscent of the American eagle, or \$ 10 gold piece, but the idea was subsequently abandoned because that term had in former times been the name of a 20 peso piece. Dr. Kemmerer had pleased the Guatemala government in 1924 by suggesting that they call their gold unit the quetzal after their country's national bird. Condors are mentioned in the bill, p. 7.

⁵¹ E. W. Kemmerer Diary, Sept. 16; Fetter, *Monetary Inflation*, p. 181.

articles in the Constitution then being drawn up, on a foreign exchange problem troubling the government, and on some local issues⁵². They helped with the first two but not with the others.

After the Central Banking and Money bills Dr. Kemmerer's greatest interest was in the General Banking bill being prepared by Howard Jefferson who had been with him in Colombia. Jefferson began his supporting report by saying, "So far as commercial banking is concerned, it may well be said, 'Chile has no banking Law' "⁵³. The Banking law of 1860 was that loose. A later 1912 law providing for a Bank Inspector made him quite ineffective by its crippling restrictions. As a consequence the banking system expanded its credit about eight-fold and banks often loaded their portfolios with mortgage and other long term loans that were difficult to liquidate in time of need⁵⁴. Repeatedly the banks had been a major causal factor of economic crises in the country but the government usually came to their rescue⁵⁵. As a result some bad debts were not liquidated but instead incorporated into the government debt which in turn provided the backing for a larger supply of money and bank credit and further rises in the price level.

Jefferson's Chilean General Banking bill resembled his Colombian one partly because the needs and culture of the two nations were somewhat alike. Both drew heavily on the National Banking Act of the United States⁵⁶. Just a few major features will be mentioned. The bill called first for a skilled Superintendent of Banks, including the Central Bank, who had extensive powers of granting charters, conducting bank examinations, imposing penalties for infractions of rules, hiring and dismissing his own employees, and closing banks. Banks in larger cities were required to have a larger capital and surplus. Banks had to maintain a 20 percent reserve against demand deposits and 8 percent against savings. Stricter limits than before were placed on mortgage and other long-term loans and a limit of 25 percent of the bank's capital and surplus was placed on loans to the Chilean government. Commercial banks were encouraged to make loans against self-liquidating commercial paper. To encourage those the negotiable instruments law had to be revised. Banks might, of course, borrow from the Central Bank in time of need. The General Banking bill was submitted on September 23 and became a decree law three days afterwards⁵⁷.

One week later, September 30, Dr. Kemmerer noted in his diary, "President Alessandri resigned following dispute with Col. C. Ibáñez, Minister of War & V.P. (Vice-President) Barros Borgoño assumed Presidency. Dr. Kemmerer called on the new President the next morning and also the new Minister of Finance, Eduardo Matte. "He made a good impression"⁵⁸.

Before leaving Chile a week later Dr. Kemmerer and his wife said their formal good-byes not only to the new President but also to ex-President

⁵² E. W. Kemmerer Diary, July passim.

⁵³ Commission of Financial Advisers, *General Banking Bill* (Decree-Law N° 559), p. 49.

⁵⁴ F. W. Fetter, *Monetary Inflation*, p. 178.

⁵⁵ *Ibid*, p. 166, 179.

⁵⁶ *General Banking Law*, p. 50.

⁵⁷ *General Banking Law*; F. W. Fetter, *Monetary Inflation*, p. 178.

⁵⁸ *General Banking Law*, Title page.

Alessandri who "seemed very grateful for our work & said currency & banking laws were the crowning achievements of his career & nothing else counted. Gave me the abraza with tears as we said good-bye", Kemmerer recorded⁵⁹

Two members of the Commission stayed on for a few more months, Joseph Byrne to assist in installing new accounting procedures and Howard Jefferson to help set up the Central Bank. Subsequently at the Central Bank's request Dr. Kemmerer recommended Mr. Walter M. Van Deusen to serve as an on-the-spot advisor for the Bank and he served in that capacity for about six years.

As already mentioned, Chile's bigger banks were not happy about either the new Central Bank Law or the General Banking Law. They feared the potential competition of the Central Bank and the stricter regulations in both laws. After suspension of constitutional government ended October 15, the legislature had more to say. Some of the banks sought to delay the inauguration of the Central Bank. But then the dramatic failure in December of the Bank of Spain, Chile's second largest, and the somewhat scandalous reasons for that failure brought public and other pressures to bear to open the Central Bank and start the gold standard. These were done January 11, 1926. The Bank of Spain incident had emphasized that the Kemmerer Commission reforms were much needed⁶⁰.

The Chilean government was dilatory in another respect the first year. Faced with a mild economic downturn, the government intentionally overestimated its income and underestimated its expenses with a substantial deficit resulting. There was massive borrowing abroad. Then Carlos Ibañez, now President, made some administrative changes, nitrate sales rose and the new tax laws began to bring in more revenues. For the next three years the budget was in balance⁶¹.

Overcome by optimism, President Ibañez, and others too, began to think that the passage of the Kemmerer Commission reforms would let them do almost anything. Accordingly he introduced an extraordinary budget for public works to be financed from foreign loans⁶². This type of operation, more than anything else that he did or tacitly approved, was perhaps his major mistake. Nonetheless, for the time being, all went well. Foreign trade rose 25 percent between 1925 and 1929⁶³. Much of the world, of course, was feeling the same euphoria.

Before he left Chile Dr. Kemmerer had written that countries like Chile should borrow abroad, where interest rates were lower, to get the capital to develop their rich natural resources, thereby increasing their national income and the standard of living of the people. He stressed, however, that such countries should plan and accumulate debts "gradually"⁶⁴.

⁵⁹ E. W. Kemmerer, *Diary*, Oct. 6.

⁶⁰ F. W. Fetter, *Monetary Inflation*, pp. 178-80.

⁶¹ P. Drake, *Money Doctor*, pp. 41, 42, 46.

⁶² *Ibid*, p. 42.

⁶³ P. Drake, *Money Doctor*, p. 2; "During 1325-29... imports accounted for an average of 50% of the goods available in Chile", p. 59.

⁶⁴ *Ibid*, pp. 48-49. *Second Report on the Public Debt Policy of Chile, 1925* The underlining is mine. DLK.

One of the unheralded reasons for Latin American nations inviting Kemmerer led missions to advise them was to enhance their credit rating among New York and other investment bankers. This was mentioned earlier. Some bankers frequently called in Dr. Kemmerer for his opinion on the financial condition of the various nations that he had advised. He gave this advice freely, his diary shows, although he was conscientious about making the strongest case that he felt that he could for his recent clients. Doing this was not part of the bargain between him and those governments, however, and both knew it.

Upon arriving home in the fall of 1925 he discussed the Chilean situation with New York investment banking firms, encouraged Dillon, Reed and Company and in December offered to introduce the Chilean Ambassador in Washington to influential friends in several firms⁶⁶. The general improvement in 1925-29 in Chile's financial structure made her more attractive than before to foreign lenders. By 1930 Chile was South America's largest importer of American capital⁶⁷. Chile had 3.6 billion pesos of direct and guaranteed external loans. This was the U.S. equivalent of \$ 10 billions allowing for population differences but not for national income discrepancies. It was about triple what Chile had five years earlier, scarcely a "gradual" increase. Furthermore, as Dr. Paul Drake has recently pointed out, "Most of these foreign loans... went into public works, social welfare programs and budgetary deficits". Also as time went on "more foreign loans had to be shouldered to maintain payments on the old ones"⁶⁸.

While there was justification for some of the highway and railroad improvements, most of the monies had not been spent on mines, industries or other income-producing operations which was the advice that Dr. Kemmerer had given. Chile's Minister of Finance rationalized that Chile's public debt was merely 2.3 times its government expenditures whereas that ratio was 4.9 in the United States⁶⁹. The United States, however, had a stronger tax base and vastly greater diversification of industry.

Chile's total borrowings continued to climb as raw materials exports plunged and interest payments grew: likewise smuggling and more legal invisible imports such as payments for shipping were substantial⁷⁰. The drain on the Central Bank's gold reserves began slowly in 1929, grew in 1930 and in mid-1931 Chile had to default on her foreign debt payments. The peso dropped to five pence.⁷¹ President Ibañez resigned and a succession of short-lived governments, some quite radical, followed.

In April, 1932 Chile suspended gold convertibility. The Central Bank increased the money supply from 340 million pesos in 1931 to 825 million late in 1933 and the peso fell to three pence⁷². That was the worst for a while President Alessandri returned to power not long afterwards but the

⁶⁵ For example, his effort on behalf of Ecuador in 1927. E. W. Kemmerer Diary, Dec. 2, 1927.

⁶⁶ E. W. Kemmerer to Ambassador B. Mathieu, Dec. 8, 1925, E. W. Kemmerer Papers, Mudd Library.

⁶⁷ P. Drake, *Money Doctor*, p. 5.

⁶⁸ P. Drake, *Money Doctor*, pp. 51, 54.

⁶⁹ *Ibid.*, p. 51.

⁷⁰ *Ibid.*, pp. 56, 83.

⁷¹ *Ibid.*, pp. 10, 62, 63, 66, 68.

⁷² *Ibid.*, p. 74.

discipline of the gold standard was gone. After France left the gold standard in 1936 it did not exist anywhere except in a limited form in the United States. The fall in the buying power of the peso would be faster in the decades ahead.

What had Chile done wrong? President Ibañez had been a loyal and enthusiastic believer in the Kemmerer Commission reforms. Hindsight is nearly always better than foresight. The heady prosperity of 1927-29 had been treacherously deceptive, as indeed it was in most parts of the world. Just about all Latin American nations were heavily dependent on the income from the sale of one or two raw materials — copper and nitrates in Chile's case. Repeatedly past experiences in Chile had demonstrated that serious problems resulted from a fall in nitrate incomes — in 1914 and in 1918-19, to cite two examples⁷³. Chile and all her neighbors thus depended on "feast or famine" industries. Those who live in such economies should prepare themselves in good times for the virtually certain bad times to come.

The Kemmerer Commission had counselled the government to borrow "gradually". As shown, Chile's borrowings tripled in five years time.

The Commission had urged austerity on the Chilean government but the Chilean bureaucracy remained swollen and the annual budget rose sharply between 1925 and 1929⁷⁴.

The Commission had stressed that the money borrowed be spent on further developing Chile's income-producing resources. Instead, much of the money went for social welfare programs and to cover government deficits. The Commission themselves, in retrospect, might have prodded Chile to encourage greater diversification of industry although that probably could not have been achieved to any great degree.

The Commission had proposed increasing the tax burden borne by the well-to-do so that the government would be less dependent on nitrate or copper income and also so that the tax burden would rest to a lesser degree on the shoulders of the poor⁷⁵. That Commission proposal had been popular with the public. Again, in retrospect, an even heavier tax burden on the well-to-do would have helped if, of course, it had been politically possible.

After trying valiantly in 1931 and in early 1932 to maintain the gold standard by redeeming her paper money in gold as Dr. Kemmerer had vigorously urged, and emphasized again on his brief return visit in July, 1927, Chile finally abandoned the gold standard in April, 1932⁷⁶. Van Deusen is reported to have regretted that Chile had not done so many months before⁷⁷. With the drain on Chile's gold reserves at the time, the wonder is that she held on as long after her mid-1931 debt defalcation as she did.

⁷³ F. W. Fetter, *Monetary Inflation*, pp. 138-39, 147-49; *Supra*, pp. 2-3.

⁷⁴ P. Drake, *Money Doctor*, pp. 40, 42, 52, 53.

⁷⁵ The Commission urged that nitrate tax income be treated separately in the budget because it varied so widely. This was one of the few recommendations that Chile chose to ignore. Drake *Money Doctor*, p. 41.

⁷⁶ *Ibid.*, pp. 73-74; E. W. Kemmerer, *Funcionamiento de Nuestra Legislacion Bancaria y Monetaria*, Balcells & Co., Santiago, 1927.

⁷⁷ P. Drake, *Money Doctor*, p. 73.

Conceivably *IF* Chile had not fallen so deeply in debt she could have held on another year, for the U.S. did not abandon the gold standard until March of 1933 and the outlook for the gold standard was still very good. Yet in broader retrospect, given the world financial situation in the early 1930s, Chile, small when measured on a world scale, sooner or later had little alternative than to abandon gold.

Chile's major error lay not in her adopting the Kemmerer Commission reforms⁷⁸, including the gold standard — paper money standards have since proven themselves to be highly damaging — but rather in spending too freely in the prosperous 1920s and piling up heavier debts than she could carry and also ones that provided her very little income-producing capital in return.

As to who is to blame for all of that, it would appear to be, in part the Chilean government of the time, in part the New York bankers who were overly eager to lend to a customer whose finances they should have understood better, and perhaps to some degree the Kemmerer Commission for not emphasizing more than they did to the Chilean government the absolute need to prepare in good times for the bad times surely ahead in an economy renowned for its "feast or famine" tendencies. That, however, was not exactly what they had been brought to Chile to give advice upon.

Epilogue

The title of my conference talk indicates that I'll carry the story of Chile's monetary experiences to about 1950. I'll cover the remaining 17 years in one brief paragraph.

Arturo Alessandri was President again, 1932-38, and once more showed "papelero" leanings. Chile devalued her peso by 400 percent, some kind of a world record for that time, her money supply doubled, 1931-41, and the price level doubled too in the 1930s. Politically Chile drifted leftward. In the 1940s price inflation averaged 18 percent a year which meant a roughly 250 percent further rise in the price level.

Then during the following 23 years inflation became progressively more acute reaching over 1000 percent in 1973, President Allende's last year. That is the record of an irredeemable paper money standard over a forty year period. That record was poor in other nations too, including my own, but Chile's was one of the worst. Economists, many of them, and politicians refuse to abandon the belief that they can make a paper money standard work.

⁷⁸ Albert O. Hirschman appears to believe that the Kemmerer "system" was largely a mistake. This writer, understandably, shares neither his underlying economic assumptions nor his conclusions. Chap. 3, "Inflation in Chile" in *Journeys Toward Progress: Studies of Economic Policy-Making in Latin America*. 20th Century Fund, New York, 1963.

**THE CENTRAL BANK OF CHILE
DURING THE PERIOD 1950-1970**

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Introduction

The theme which will be analyzed at this meeting refers to the Central Bank of Chile during the period 1950-70. With this purpose I shall consider among other aspects, its organization, the transformations which it has experienced, the performance accomplished and the policies established during four administrations, which undoubtedly approached and solved local economic problems in different ways. The influence of the government became apparent through the actions of the Bank, placed, due to its importance, at the center of the economic policy decision making, and even more so when the main themes of public debate were inflation, its consequences and the recurrent crises of the balance of payments.

I shall try to relate the specific affairs of the Bank with the problems, tendencies and general economic policies. I shall not go into detail with respect to the divers institutional regulations or arrangements, but rather I shall set forth in outline points of view which in many cases are personal. As some of the opinions expressed by me may not be to the liking of the persons who participated in the mentioned actions, I wish to beg their pardon because there is nothing personal in what I may say, and because the mistakes which were made — if in fact they were made — are not to be blamed on any particular person.

Twenty five years after its establishment, the Central Bank was, apparently, the same institution which had been founded by Mr. Kemmerer. However, as a consequence of the great depression of the '30s', it had abandoned the gold standard which was its basis and exchange controls had been established. These changes occurred during the years 1931 and 1932 (laws N^{os} 4973 and 5107), through measures which were thought to be of a transitory nature and which were permanently established, by the reform of 1953. In the meantime, the country had adhered to the system consecrated by the International Monetary Fund, which was a more flexible gold standard regime, but actually, Chile, resorting to transitory provisions

of the Bretton Woods Agreement, never really adopted said system. As it is well known it collapsed in 1973.

In the institutional aspect, another change had come about in the year 1946. A system of parliamentary counsellorships was established in all semi-governmental and autonomous institutions of the public sector, with the appointment of two representatives of the Senate and two representatives of the Chamber of Deputies. This increased from 10 to 14 the number of directors of the Bank and thereby the power which existed within the Board of Directors — and which until then had preponderantly rested on the private sector and particularly on the banks started, in part, to be offset by the influence of the representatives of the public sector even though not necessarily from the administration itself, but of influential politicians which acted within the Board as representatives of Congress. This situation lasted until 1960.

The foundation of the Central Bank by the Kemmerer Mission and the enactment of the remaining laws which accompanied it, were a successful attempt — after several failures — but not a longlasting one to stabilize the Chilean currency which had been affected during half a century by a marked inflationary process (increases of internal prices) and by a continuous loss of its value with respect to foreign currencies. Until 1940 the yearly rates of inflation were too high for the standards of the developed world of the second half of the past century and of the first decades of this century, but now-a-days those rates would be considered quite moderate. Yearly averages of price increases of 5, 6 and 8 percent in each decade were characteristic, without there being a clear evidence of acceleration in spite of the persistence of the phenomenon during such an extended period of time. What is more, during the three decades prior to 1930, the yearly average inflation, decreased.

When the Bank was established, a prolonged span of great monetary stability had prevailed, and the rate of exchange at which the convertibility to gold was effected, was that which had freely prevailed in the market during several years. At the beginning, the new regime was favoured by the expansion of the world economy during the years immediately preceding the depression of the years '30s'. Exports of the country grew in terms of gold pesos in 15% during 1928 and in 18% during 1929. Furthermore, Chile was able to count with a substantial quantity of external credits. Only those proceeding from North America were estimated at over US\$ 300 million at the end of the decade of the '20s'. This brought about an important stimulation to economic growth and as an indicator it can be stated that industrial production grew 10% and 17% during 1928 and 1929, respectively. After that date the situation was reverted; the value of international trade dropped markedly during the first years of the decade of the '30s' and in 1932 this value was 12% of that reached in 1929. During 1931 mining production dropped to less than half of what it had been in 1929; and industrial production decreased in 21% between 1930 and 1931, showing a slight recuperation in 1932. Prices (cost of living) which already by 1929 had shown a decreasing tendency, dropped in 4% during 1931 as a consequence of the deflationary policy pursued by the Bank in order to remain within the system.

As of mid 1931 and up to the end of 1932, the Central Bank which was free from restrictions imposed by the external sector, and in order to offset the effects of the economic depression, lent important sums to the government, to several public institutions and to the nitrate industry. During this period, the means of payment were duplicated, and the cost-of-living index in 1933 was 35% higher than in 1931. The protective measures adopted, the rise in prices, the devaluation of the peso and the exchange control, already by 1932 stimulated the industrial activity, this becoming the driving element of the recuperation process.

The period which followed 1933 was crucial for Chile because its real income took a long time in recovering from the drop which it had suffered. Apparently, a global level of production similar to that of 1929 was only reached by 1940, but foreign trade did not reach the real value obtained in 1929 until nearly forty years later. The corner-stone of the recovery was the industrial growth, brought about by protective policies. It would seem that between 1930 and 1960 — period during which the world lived through the depression and the world war and its consequences — a policy different to that of import substitution would have been un-conceivable. It should be mentioned that in part, the process of recovery followed the trends of the world economy, as exports more than duplicated in real values between 1931 and 1937, and remained stabilized at a level which was 20% lower, during the next decade and more.

In spite of the departure from the gold standard regime and notwithstanding the high inflation rate of 1932, the rise in prices during the years that followed were quite moderate. The decade which followed the depression, registers an average yearly increase of 7% for the CPI, which is not too different to that which had become characteristic during prior decades.

Since 1940, the inflationary process in Chile accelerated. During the next ten years the average increase of prices rose to 18% per annum, percentage which is substantially greater than that mentioned in the preceding paragraph. It is difficult to separate this strong acceleration from the aim of the administrations of that period to tend towards a greater economic development and to achieve a more equitable distribution of income. It was intended to reach the first of these goals through the action of the Corporación de Fomento de la Producción (Economic Development Corporation). The financing came, in part, from external credits but also from resources extracted from the banking system, and from a series of specialized institutes which were supposed to supply different sectors of the economy with the required investment and working capital. Funding of all these institutions was fundamentally effected with credits proceeding from the Central Bank. The government also resorted to the Central Bank in order to finance its deficit, and the banking system met the demands of the private sector with funds coming from rediscount facilities granted by the Central Bank, at a convenient rate of interest of 4.5% per annum which was indeed much lower than the rate which banks charged their clients, and also inferior to the inflationary rate. The private sector — or at least a part of it — benefitted from the so called "transactions with the public", which were Central Bank loans granted at rates of interest lower than those of the rest of the banking system, in the handling of which, politicians which integrated the Board of Directors of the Central Bank since 1946, had great influence. The intention

of raising the rate of investment and of generating compulsory savings, through the expansion of credit, at the same time created pressures on those sectors not directly or immediately favoured. However, these sectors found flexible means of adjustment in these credit mechanisms. The result was a considerable monetary expansion which bore no relation whatever with the possibilities of growth of the real sectors of the economy.

It was mentioned previously that another aim of the governmental policy, as of 1940, was to improve the distribution of income and to protect the position of wage and salary earners, through a series of measures, among which, laws on minimum salaries, vital salaries and readjustment of salaries stood out due to their impact on the inflationary process. The increases of costs which these provisions caused, were offset by increases in prices, made possible by the aforementioned credit policy.

During World War II and particularly during 1942 and 1943, a monetary expansion similar to that of many other developing countries seemed to have presented itself in Chile as a consequence of the growth of its external reserves. In Chile this phenomenon was less evident than in other parts because the price of copper — main Chilean export commodity — was subjected to price controls by the North American government and also because Chile tended, to a great extent, to import from other Latin American countries. Efforts were made to offset this tendency with the sale to the public of certificates of deposit denominated in gold, but this mechanism, compared to other factors which have already been mentioned, had only a minor importance.

As of 1932, Chile was subjected to exchange controls and to a high tariff which sought to equilibrate the balance of payments and which at the same time constituted an incentive for the substitution of imports. This policy became more "refined" and in 1942 the National Foreign Trade Council was created, replacing the International Exchange Commission which already operated independently from the Central Bank, even when some ties existed between them. Normally, adjustments to the balance of payments were effected through direct quantitative controls (there existed a foreign exchange budget and each import transaction had to be covered by a prior-permit, which was commonly called a "previa" or import license). There existed import quotas, compensation agreements, some payment agreements, all of which, although of some importance, only channeled a fraction of total trade. As the inflationary process represented a real decrease of the value of foreign exchange, a multiple exchange rates system was resorted to — among these a very important one served the purpose of increasing the taxes on copper exports. As the system became increasingly complex the moment was reached when it was necessary to effect a devaluation, and this was generally for a considerable amount. The system was highly distortional, it was characterized by unstableness and often by the lack of rationality of decisions, being also inclined to produce exaggerated capital profits which soon brought along administrative corruption.

The Central Bank and the decade of the '50s'

The first years of this decade were very favourable for the Chilean economy, as a consequence of the boom brought on by the War of Korea. Exports expanded strongly in 1951 and 1952 (27% and 53% , respectively, as compared with 1950) and the same occurred with the capacity to import. The Gross Domestic Product, after suffering a slight drop in 1951, increased in more than 12% during 1952. Industrial production which had remained practically stagnant for five years, increased by approximately 30% in 1951 (increased derived from the initiation of production of iron and steel at the "Huachipato" Plant) and by an additional 12% during the following year. The real vital salary in the Department of Santiago which had increased in 7% during 1950 was higher by another 7% in 1951. Inflation persisted at rates which varied between 15% and 22% per annum, close to the average for the whole decade.

The success of the external sector was mainly due to the decision of the administration of that period of not accepting sales of copper at the controlled price imposed by the North American government, and to declare to the benefit of the national treasury the difference between said price and that which could be obtained in the international market. The control of the marketing of copper was put in the hands of a department created within the Central Bank, whence, in later years, arose the Department and the Corporation of Copper. It is important to mention this because it marked the initiation of formal governmental intervention in the copper industry. After an extensive process this was to lead, 20 years later, to the nationalization of the industry by the State.

During the first years of this decade (50s), even though the rate of inflation might still have appeared moderate, it was not so in accordance with historical precedents, nor as compared to what was happening in other countries. Therefore it was decided to resort to the technical assistance of international organizations in order to determine the causes and remedies. Two missions, one from the United Nations and another one from the International Monetary Fund visited the country and effected diagnoses of the problem and of the measures which they considered adequate in order to face it. Each diagnosis was quite different to the other, and only that of the United Nations was made known and discussed publicly. The report of the Monetary Fund, which imputed the reasons of the inflation of that period to the excessive expansion of banking credit, as a consequence of the passive and accommodating policies of the Central Bank, was carefully put away and never made public.

In spite of the economic well-being of the first years of the decade of the 50s, the presidential election of 1952 resulted in a fundamental change in the political tendency and in a certain sense, implied a rejection of former administrations. As all new reformist governments, it was eager to carry out changes and in the financial spheres this resulted in creating the "Banco del Estado" (State Bank) through the merging of a series of credit institutions of the public sector, and promulgating a new organic law for the Central Bank.

Both projects were object of long studies on the part of a commission made up by officials and economists designated by the government. The new organic law of the Central Bank left some provisions of the "Kemmerer" Statutes without effect, as they were inapplicable; it made clear the situation of external reserves, and defined as responsibilities of the Bank, those of maintaining the financial stability and of tending towards the economic development of the country. It empowered the Central Bank to establish qualitative and quantitative controls over bank credit, in accord with the Superintendency of Banks and to modify the cash reserve requirements and to establish them in a differentiated manner according to the different types of deposits, also in accord with the Superintendency of Banks. It also corroborated the authority of the Bank to effect open market transactions.

The modification of 1953 did not change the ownership structure of the Bank, in part belonging to the State and in part to the private sector, fundamentally, the banking system. Neither did it affect the constitution and designation of the Board of Directors. These limitations had been imposed by Congress when it authorized the Executive Power to modify the organic law of the Central Bank, and some sectors felt that they frustrated in some measure the purpose of the reform. Thus, during seven more years the Bank remained in the same hands in which it had been for the last ten years.

The administration which came to power at the end of 1952 was strongly committed to social reforms. It started out as a populist government. One of its first acts was to establish an agrarian minimum salary which favoured approximately 300,000 peasants, and a family allowance for workers which contributed to the Social Security Service. Thereby, social security contributions increased between 1952 and 1955 from 2.3% to 7% for employees and from 5.4% to 25.5% for employers. Already by 1952, during the administration which was ending its term, a retirement plan for private sector employees had been established, and as of January, 1953, the automatic indexing of salaries of public employees was decreed. None of these generous decisions were adequately financed. As of that date, each year it was necessary to obtain that Congress approve the resources needed to pay readjustments, but such resources were generally insufficient and were made available with delays. The private sector, faced with additional costs, increasingly had to resort to bank credit, eliminating eventual losses through rises in prices.

Unfortunately, the favourable international conditions which prevailed during the first years of the decade, were reverted and in 1953, exports decreased by US\$ 100 million. Furthermore, the government, intent on obtaining for copper a price higher than that of the international market, was left with a considerable stock of copper of which it could only dispose in 1954 when the United States government purchased it for its strategic reserves, as part of the economic aid granted to Chile. Then, it is not strange that the social policy undertaken under adverse economic circumstances and financed by means of monetary issues and bank credit, should have accelerated the inflationary process.

Increases of prices, measured by the consumer price index, which to that date had not surpassed 22%, augmented to 40% in 1953, to 64% in 1954 and to 86% in 1955. It was ironic that the Central Bank, at a moment at which it disposed of modernized Statute, had to face the worst inflation registered during the history of the country. Twenty years would have to go by before this record was surpassed.

Before the inflationary process worsened, the theme had been the object of discussions and study by different Chilean economists who acted at the Central Bank, at the Ministry of Finance, at the Universities and at ECLA (UN), although the 'monetaristic' and 'structuralistic' approaches which were to represent the poles of economic debate in the second half of the decade of the years '50', had not yet taken shape. However, these propositions had yet to take a political shape, which happened as a consequence of the magnitude of the social problems brought about by inflation in 1955, and due to the fears which the prosecution of this process caused entrepreneurs, who to date had been mostly opposers to the governmental policies. Then the government decided to engage the services of the private North American economic consulting firm, Klein-Saks, which a short time earlier had acted as consultants to the government of Peru. The decision was based on the belief that the recommendations of a foreign mission would presumably not be influenced by ideological views or other interests, as those of local technicians would most certainly be. Also, it was thought that the supposed contacts of the contracted consultants with the North American administration would facilitate the access to external credits which seemed to be required for the success of a stabilization program. The mission arrived in Chile at the end of 1955 and remained in the country until 1958. It formulated recommendations in a series of areas of the economy and the administration, for which it made use of many of the papers prepared by local technicians, referred to previously. However, it is worth mentioning that the government adopted the recommendations made to it, in a selective manner, according to the ideas which it had with respect to the situation of the country or to the acceptability of the proposals being made. The mission took seat at the Central Bank which supplied it with all material and technical assistance.

The main accomplishment of the mission was that of reducing the inflationary process, as the rises in prices of 84% in 1955 were reduced to 38% and to 17% during the following two years, and that of the reform of the exchange system, the main features of which subsisted for many years.

The success of the stabilization policy was based, in the first place, on the limitation of salary and wage adjustments for 1956, to 50% of the rise in prices occurred between December 1954 and January 1956. Furthermore, it was established that during 1956, the readjustment of controlled prices could not exceed 40%, unless they were imported goods or goods constituted by imported inputs. The idea was to reduce the pressure of costs in order to facilitate the aggregate demand restraining policy, but also to make known the political will of carrying out a serious stabilization effort and to move the expectations of the people in the direction of a lesser inflation.

With respect to the granting of credit, provisions of selective credit were resorted to (in order to channel credit towards the productive sector, in which the construction and sale of luxury dwellings was not included), and of credit expansion margins which were set semi-annually for each bank. The program considered a credit expansion of 15% during the first semester of 1956, compared to an actual expansion of 40% which had occurred during the same period of 1955. The desire to achieve an improvement of the fiscal situation and of its financing method, did not materialize.

During 1957, a policy similar to that of the previous year was continued, with similar results on prices, but the external situation began to deteriorate markedly due to a drop in the price of copper in the international market. This problem worsened during the following year, when the stabilization effort weakened notoriously. For this reason, deficits in the balance of payments and in the fiscal budget were growing. Furthermore, on the eve of the presidential election, the policy which granted readjustments inferior to the increases in prices experienced during the previous periods, was left aside and to the attacks proceeding from the left, the entrepreneurial opposition which maintained that the credit policy was choking the productive activity was added.

Before the Klein-Saks mission began its task, the government had dictated law 11,828 which changed the rules of the game for the large copper mines. This law, as other which granted guarantees to the entry of foreign capital (origin of the present transactions of Article 14 of the exchange law) were the basis for requesting external support for the stabilization program. Due to the sale of returns corresponding to the cost of production of large copper mines, to the Central Bank, provided by this law, the actual control over approximately 60% of the supply of foreign exchange available to the country accrued to that institution.

In the year 1958, the Klein-Saks mission presented a memorandum which contained some of its ideas with respect to the organization of the Central Bank. This memorandum was not considered, in fact, by the authorities. In it was stressed the excessive influence which certain economic groups and particularly banks had within the Board of Directors of the institution, and the exaggerated dependence of their executive officers on the Board of Directors. The lack of coordination observed between the Central Bank and the Superintendency of Banks was also stressed, as well as the unrational distribution of responsibilities which existed between the Central Bank and the Executive Power. Many governmental officials criticized the isolated and independent position adopted by the Central Bank, which acted as if it were alien to the public sector.

The mission recommended the conversion of the Board of Directors into an Advisory Council, devoid of the power to decide. At the same time a Monetary Council would be established having the economic policy attributions which the law formerly centered on the Bank. The Monetary Council would be composed of the President, the General Manager, a representative of the Ministry of Finance and two technicians of vast experience in economic activities. The latter should dedicate their services to the Bank on a full-time basis. The high authorities, instead of being designate by the Board of Directors, should be named by the President of the Republic, with

the agreement of the Senate. They would last 8 years in office and a procedure would be established whereby the renewal of the members of the Monetary Council would not occur on one and the same date. The two technicians would be responsible, one of the execution of the exchange policy and the other one, of the Superintendency of Banks.

At the same time, the mission proposed that the Central Bank absorb and take charge of the functions which had formerly been incumbent to the Foreign Exchange Commission, to the Superintendency of Banks and to the Public Debt Amortization (Sinking) Fund. It also recommended that: a) credits to the National Government and to other public entities be prohibited, except when approved by special laws; b) mandatory fundings of permanent nature be suspended, and that the funding stipulated in law N° 7,200 for seasonal reasons in favour of the National Government be reduced to 3% of the amount the annual budget. At that time this credit amounted to a twelfth part of the budget and had been converted into a permanent source of fiscal funding; and c) credits of the Central Bank in favour of the private sector be eliminated.

The Central Bank during the 60's

The Chilean administration changed at the end of 1958 and shortly after that a first conflict arose between the Central Bank and the Executive Power, derived from the setting of the exchange rate, which the government wished to establish at \$ 1,200 per dollar and which the Board of Directors of the Bank agreed to set only at \$ 1,050. This was part of the measures which tended to unify the exchange market and to liberalize financial transactions — which was extended in a far lesser degree to transactions of foreign trade. The aforementioned exchange rate remained in force up to the end of 1961, and for foreign trade transactions, until October of 1962. It was thought that this liberalization would bring about a large influx of foreign capital in order to increase investment, the pace of which would be maintained after the increases of economic activity and of production achieved the generation of a higher level of savings. On the other hand it was feared that an excessive trade liberalization could create unnecessary risks to the national industry.

At the beginning of 1959, the monetary unit of the country was changed by means of a conversion of \$ 1,000 to E° 1 (escudo) and even though this change was merely of accounting nature, it favourably influenced the expectations of the stabilization policies which the government undertook that year.

The monetary control exercised through this program was effected with instruments different to those of the former program. The credit expansion quotas distributed among banks, was done away with. The prior-deposit requirements for imports were eliminated, except for those constituted by dollars or by dollar promissory notes of the Treasury, and in due course said deposits would be converted, in the equivalent of their cost, into import surcharges. To eliminate or reduce the inflationary impact which the liberation of deposits could represent, it was established that

banks should pay back the rediscounts pending at the Central Bank, and only the remnant would be returned. The rediscount facilities were severely limited to cases which were really exceptional.

In order to reduce the secondary effects of an excessive expansion of the issue brought about by exchange transactions, in 1959 the Central Bank made use of the marginal cash reserve requirements which were originally set at 50% and later at 75% with respect to the growth of bank deposits, as of certain dates. This instrument was to remain, under different forms, in the arsenal of the monetary management, by the Bank. Also at that time, the freedom for banks to pay interests on deposits at more than 30 days was established, and they were also authorized to receive deposits and to grant credits in foreign currency. These transactions expanded rapidly during 1959.

The success of this program in abating the increases of prices resulted in a considerable rise of real interest rates. With the purpose of producing some relief and in order to meet the pressures of the different productive sectors, the Bank proceeded to utilize the marginal cash reserv s to finance special credits, in favour of certain activities to which more advantageous conditions were applied as compared to normal credits. Among these may be mentioned the purchases of certain basic elements for agriculture, credit in favour of exports and the so-called discount of production bills. Thus began the efforts of the Bank to re-channel credit towards specific directions, which it had not done until then, except for the prohibition to finance specific activities.

In the year 1960 two important events took place in the constitution and administration of the Central Bank. One of them was the elimination of the parliamentary counselorships, which put an end to the influence which representatives of Congress had on the Board of Directors of the Bank. The other event was the incorporation of the International Exchange Commission to the Bank, and the constitution of the Executive Committee, as a body of authority within the Bank. The Committee was made up by the President, the Vicepresident and the General Manager. The designation of the first two officials, required the approval of the President of the Republic. Even though the Executive Committee had only authority with respect to exchange matters and to those relating to the proposition and execution of monetary matters, it became so influential that the Board of Directors, as of then, assumed a secondary position.

A great increment of public expenditure associated with the need to reconstruct an extensive area which had been destroyed by the earthquakes which occurred in the south of the country in 1960, began to undermine the stabilization effort; and even though prices remained relatively stable, a considerable deficit in balance of payments was developed. The delay in the receipt of the awaited external credits to finance the reconstruction, augmented the gap between expenditure and production, gap which could not be filled with the important stabilization credits which the country received at the beginning of 1961. By mid-1961 a strong balance of payments crisis was perceptible. Why was it that the authorities delayed the adoption of measures, even of the nature of those adopted at the end of the year? Perhaps it was expected that at any moment a change in situation

would occur, that the price of copper which was very low, would increase or that a greater amount of external credit would be received. Nevertheless it is evident that this delay was partly due to the capital loss which would suffer debtors in foreign currency and until a law regulated their situation, the devaluation in the banking market was not effect (October, 1962).

The measures adopted at the end of 1961 in order to meet the balance of payments crisis, brought about a significant retrogression in the liberalization programs which had been implemented during previous years. The number of items of the list-of-authorized-imports was reduced, principally of capital goods; the eliminated prior-deposit on imports were re-introduced, and those which already existed, were increased; the exchange market was segregated, where the exchange rates for the trade market was fixed and where that of the financial sector was left to fluctuate; and in order to solve the problem of the impossibility to effect payments abroad, a mandatory waiting period was established for the remittance of funds abroad, which was gradually extended to 120 days, term which at times the Central Bank was even unable to meet. Notwithstanding the reduction of the deficit in the balance of payments in 1962 to US\$ 50 million, compared with US\$ 100 million in the previous year, the external situation of the country had not improved significantly as a consequence of the restrictive measures, because the difference between these two amounts was inferior to the increase in payment arrears outstanding.

The 1962 devaluation was effected under very unfortunate conditions, because the inflationary impact which that measure entailed was aggravated when the government decreed a double compensation in favour of the wage and salary earners. Thus, the process of increase of prices which had been very moderate from mid-1959 until October, 1962, was considerably revived. In 1963 and 1964, the external sector improved due to the increase in the value of exports, especially during 1964; to the curbing of import expenses; and to the maintenance with only a few modifications, of the whole restrictive system established at the time of the crisis. Also, the pursuit of a more flexible rate of exchange policy — which was only suspended during the four months prior to the presidential election of 1964 — contributed to this improvement.

The second half of this decade was under the sponsorship of a highly reformist administration, the objectives of which were to achieve simultaneously, the restraining of the inflationary process, a higher economic rate of growth, a better distribution of income and a greater participation of the lower sectors in the process of political and economic decision making. Of these goals, two were relatively and temporarily achieved, and the third goal was apparently achieved, but to the detriment of the attainment of the other two, as of 1967.

The Executive Committee strengthened its position as an authority within the Bank, due to the quality of its components as well as to the cohesion which existed between them. The Board of Directors became an instance of dialogue, in order to hear the points of view of the sectors there represented or to reach agreements with respect to certain matters, but the final decisions were in the hands of the Executive Committee.

The greater accomplishments of the Bank during this period appear to have occurred in the external sector, since the reserves in foreign exchange

were quite considerable in 1970 and the restrictive system had been gradually and slowly simplified. Also, delays in the payments made abroad had been eliminated. A very favourable price of copper in the international market, foreign investments made in this industry and a strong influx of official capitals, within the North American aid program, contributed to this situation. But, the policy of minidevaluations — which were intended to create a stable and predictable real value of the foreign currencies — was also a significant factor. The initial intents of the government to control the balance of payments by means of the re-introduction of the prior-permits, failed because Congress only authorized the Bank to reject import licenses, but by global areas of products, which it did during the first years of the period, but soon it realized that this was a very inappropriate instrument to obtain a reduction of payments to be made abroad.

The government planned the creation of a Ministry or an Administration Office which would take charge of all the problems of foreign trade, and while this occurred — which never did occur — an exports fostering department was established in the Bank. This department took charge of the drawback or subsidy to exports and of prompting the integration process which was in vogue in Latin America at that time, especially in the financial area of the reciprocal credits and of the Lima multilateral compensation, in all of which the Bank played an active and important role.

During the last years of this period the Bank undertook a study — with the participation of many of its technicians — in order to rationalize foreign trade and the payments system; to eliminate useless restrictive practices, reduce and rationalize the protective system, set levels of protection considered to be appropriate, per activity, etc. The Bank managed to implement some of these proposals.

The efforts of the government to reduce the inflationary process led the Bank to effect an active monetary programming, based on empiric estimates of money and on an appraisal of the inflationary pressures of costs, computed as per a model prepared by Mr. Jorge Cauas, first a director and later, vicepresident of the Bank.

The global control of credit granted to the private sector was carried out by means of the combination of a system of very high marginal cash reserves — in effect, so high that practically no banking institution could meet them — and a cash reserve aid (loan granted by the Central Bank in order to cover the deficits of same) given to all the banks which, during the month, conformed to the expansion margin assigned to it. Said margins were determined in accordance with the program and were subject to several refinements in order to stimulate banks to attract resources by way of time deposits. The truth is that the Bank, through this system, attained a very precise control over the expansion of credit of the banking system in favour of the private sector, which it had not achieved when similar techniques were applied in the years following 1955.

The gradual reduction program for the inflationary process failed due to the exorbitant growth of public expenditure and due to the granting of salary adjustments which were far in excess of those compatible with mo-

netary stability. The expansion of public expenditure was accounted for by the high copper revenues and by external credits, and did not cause an excessive bank financing to the public sector. Rather, the expansion appeared as a consequence of the surplus in the balance of payments and it was this expansion which the Bank wished to offset with its policy of global control of credit.

Measures regarding float regulations, the elimination of overdrafts not agreed upon in writing, or the non-payment of checks drawn against clearance funds, were intended to augment the demand for money, which apparently increased considerably during the first years of the administration, due to the greater monetization of the agrarian sector. Those measures were taken as it was not possible to restrain the supply of money.

During that period, transactions with the public that is, direct credit granted by the Bank to individuals were eliminated.

The practices initiated in the previous administration with regard to the selective rechanneling of credit, were continued and extended. Instead of effecting them to the debit of bank reserves, they were effected by means of special rediscounts. Among these practices it is worth mentioning the so-called 'line of credit per cash budget' due to the relative importance which it acquired and due to the belief of some of the authorities of the Bank in the sense that it would be the appropriate instrument to foster economic development.

Thereby, an enterprise which wished to secure the necessary financing during a certain period, presented a program of its cash flows during that period and committed itself to effect all payments to suppliers on a cash basis. If the amount of the line of credit surpassed the financing possibilities of any single bank, the formation of a consortium was resorted to, in which each participant committed itself to a portion of the necessary financing.

Lines over a given amount required the approval of the Central Bank and part of these were financed by the Bank, through rediscounts. Banks were obliged to furnish growing percentages of the loans which they granted through the line system, and the non-compliance with these quotas was penalized in the same fashion as cash reserve requirement deficiencies were penalized. Without discussing the advantages and inconveniences of the system, during the period in which it was applied, it appeared to have been a concentrating element of the banking credit.

During this period the Bank received additional powers with respect to the fixing of interest rates. To them were added powers to establish a variable tax on interest, which was adjusted according to the magnitude of the inflationary rate. The purpose was to obtain the existence of real positive rate of interest, of between 7 and 8 per cent per annum, but at the same time avoiding that very high nominal rates of interest increased the profits of banks.

The government intended to attain a higher growth of the national product and of income, by means of a better utilization of installed capacity and of an increase of public investment during the first years, and during the remaining years, it was thought to resort to a considerable incentive in

favour of private savings. This never came about in spite of the fact that the government implemented various incentive practices with this purpose. The National Savings and Loans System, which had been started during the previous administration in order to finance the construction of intermediate-cost dwellings, was extended; the indexing of time deposit savings in the "Banco del Estado", up to certain limits, was established; and the Central Bank created the Adjustable Savings Certificate (Certificado de Ahorro Reajutable, CAR) with the purpose of financing long-term investments. In the measure that CAR found a good market, the Bank utilized this instrument to attract resources which would reduce somewhat the expansion of issue used to finance increasing public sector expenditure; however, there was not much demand for re-adjustable resources in the light of the possibility of obtaining credit which was not subject to re-adjustments.

Also, the high marginal cash reserve requirement was utilized by the Bank for certain objectives which it wished to attain within the banking and financial sector, such as that of promoting mergers of banks, leading to a more reduced number of institutions and of similar size, and for limiting the presence of foreign banks or foreign investments in banks to a lesser percentage of the banks operating in the market.

At the end of this period, a law was dictated whereby the low cash reserve requirements to which regional banks (defined as those which had no branches in Santiago or Valparaiso) were subject, were extended to the provincial branches of national banks. With this measure a great quantity of resources was freed, which rendered ineffective the control which up to then the Central Bank had exercised over the secondary expansion of credit. At the same time Congress considered and discussed projects of law in order to reorganize the Bank and its board of directors. However, Congress did not succeed in converting these projects into laws.

**INTERNATIONAL ASPECTS OF CENTRAL BANKING:
CURRENCY SUBSTITUTION AS A POLICY PROBLEM**

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The problem

At the latest in 1978, central banks in Europe have become aware of the problems which international shifts in the demand for money may present for preannounced monetary expansion. In that year, the Deutsche Bundesbank and the Swiss Nationalbank missed their monetary targets by record margins. Both central banks attributed their difficulties, at least partially, to currency substitution in demand. Whereas the Bundesbank was converted to explicit target bands rather than point targets, the Nationalbank adopted a minimum exchange-rate target in relation to the mark and refused to announce a money-supply target for 1979.

The policy problems posed by international shifts in the demand for money have been foreseen by several authors¹ and can be described as follows. A shift in the demand for money from currency A to currency B must, other things unchanged, raise the price of currency B and lower the price of currency A. With regard to the exchange rate — that is, the relative price between two moneys — this means that currency B must appreciate with respect to third currencies and even more so with respect to currency A. With regard to the relative price of money in terms of goods, let us

¹ See, notably, Arthur Laffer, "Optimal Exchange Rate Systems", Paper presented at the American Economic Association meeting, Atlantic City, September 1976; Herbert Giersch, "Exchange-Rate Surveillance", in R.A. Mundell and J.J. Polak, eds., *The New International Monetary System* (New York: Columbia University Press, 1977); David T. King, B.H. Putnam, and D.W. Wilford, "A Currency Portfolio Approach to Exchange Rate Determination: Exchange Rate Stability and the Independence of Monetary Policy", Federal Reserve Bank of New York, Research Paper no. 7733, July 1977; reprinted in Bluford H. Putnam and D. Sykes Wilford, eds., *The Monetary Approach to International Adjustment* (New York: Praeger Publishers, 1978); John F.O. Bilson, "The Current Experience with Floating Exchange Rates: An Appraisal of the Monetary Approach", *American Economic Review*, vol. 68, no. 2, 1978; Lance Gorton and Don Roper, "Theory and Implications of Currency Substitution", Federal Reserve Board International Finance Discussion Paper, no. 86, 1976; rev. May 1978; idem, *Substitutable Monies and the Monetary Standard*", in M.P. Dooley, H.M. Kaufmann, R.E. Lombra, eds., *The Political Economy of Policy Making. Essays in Honor of Will E. Mason* (Beverly Hills, London, 1979); Mark Miles, "Currency Substitution, Flexible Exchange Rates, and Monetary Independence", *American Economic Review*, vol. 68, no. 3, 1978.

assume that the two price levels would have *remained constant in the absence* of the international shift in the demand for money. It then follows that the rise in the relative price of currency B implies a fall in the price level of country B; analogously, the fall in the price of currency A implies a rise in the price level of country A. Because the exchange rate tends to react faster than the two commodity price levels, moreover, international shifts in the demand for money tend to produce transient real exchange-rate changes, which temporarily affect the international competitiveness of the countries' export- and import-competing industries: and even in the absence of such differences in adjustment speeds, shifts in the foreign demand for a currency that lead to net monetary movements in the balance of payments will tend to affect the real exchange rate and international competitive positions so that the current account balance can change by the same amount as the capital account. To fix monetary expansion in advance is to validate the assumption of *ceteris paribus* with regard to the rate of growth of the money supply.

International shifts in the demand for money are thus another cause of international economic interdependence under flexible exchange rates besides the real factors making for changes in the terms of trade and capital movements². It is of course not true, however, that international shifts in the demand for money destroy the "independence of monetary policy" or "monetary autonomy" under flexible exchange rates (as has been claimed)³. Although the *demand* for money may be internationally interdependent, money supply is *not* under flexible exchange rates. Unlike under fixed rates, each national monetary authority is thus in principle free to attain its preferred price-level target by adjusting money supply to money demand. This is not to deny that such a policy creates identification problems.

The empirical evidence

The determinants of private demand for foreign monies have been estimated in a number of studies, but since they ignore demand for the domestic money, they do not indicate the size of the effect that international shifts in the demand for money have on inflation rates and exchange rates⁴.

² That such interdependencies had not been denied by the advocates of exchange rate flexibility is shown by a rereading of Milton Friedman, "The Case for Flexible Exchange Rates", *Essays in Positive Economics* (Chicago: University of Chicago Press, 1953), p. 199.

³ See, for example Laffer, "Optimal Exchange Rate Systems", p. 9; and King, Putnam, and Wilford, "Currency Portfolio Approach to Exchange Rate Determination", p. 4.

⁴ Mordechai E. Kreinin and R.F. Gilbert, "The Demand for Foreign Currency Holdings by European Banks", *Southern Economic Journal*, no. 1, 1971; Pentti J.K. Kouri and M. G. Porter, "International Capital Flows and Portfolio Equilibrium", *Journal of Political Economy*, no. 2, 1974; K. Alec Chrystal, "Demand for International Media of Exchange", *American Economic Review*, no. 5, 1977; Miles, "Currency Substitution"; id. et Marion B. Stewart, "The Effects of Risk and Return on the Currency Composition of Money Demand", *Weltwirtschaftliches Archiv*, no. 4, 1980; id., "Currency Substitution: Some Further Results and Conclusions", *Southern Economic Journal*, no. 1, 1981; Roland Vaubel, *Strategies for Currency Unification. The Economics of Currency Competition and the Case for a European Parallel Currency*, (Tübingen: Kieler Studien, vol. 156, 1978); Arturo Brillembourg and S.M. Schadler, "A Model of Currency Substitution in Exchange Rate Determination, 1973-78", *International Monetary Fund, Staff Papers*, no. 3, 1979; Guillermo Ortiz, L. Solis, "Inflation and Growth: Exchange Rate Alternatives for Mexico", in John Williamson, ed., *Exchange Rate Rules. The Theory, Performance and Prospects of the Crawling Peg* (New York: St. Martin's Press, 1981).

Another group of studies tries to locate those shifts by estimating domestic money-demand functions, or transformations thereof, and by analysing the resulting forecast errors⁵; this approach is suboptimal because such forecast errors may also reflect domestic shifts in the demand for money. A third group of studies, therefore, tries to capture currency substitution explicitly by incorporating the forward premium discount or a weighted world or foreign interest rate as an argument in the money demand function⁶. They show that, in the period since 1973, currency substitution in demand has been significant for the U.S. dollar, the Canadian dollar, and the Deutschmark, and almost significant for the Swiss franc and the Japanese yen, and that in some cases, it contributes considerably to the explanation of changes in the inflation rate.

Policy options

Should central banks, in conducting their monetary policies, allow for such international shifts in the demand for their currencies? If so, how? A number of optional policy responses might be considered.

Option 1: Announcements net of international shifts in the demand for money. Given that price-level stability is the only ultimate aim of monetary policy, the "ideal" solution would probably be to preannounce target rates of monetary expansion only net of international shifts in the demand for the national money and to offset all such shifts through compensatory money-supply adjustment. The central banks could still follow a clear and predictable rule for domestic money-supply growth according to the expected growth of the domestic demand for real balances, thus stabilizing monetary-policy expectations and even dampening those short-run fluctuations in output that are not due to monetary-policy instability; but at the same time they would prevent temporary and permanent international shifts in the demand for money (and expectations thereof) from destabilizing national price levels or exchange rates (and expectations thereof).

⁵ Peter Trapp et. al., "Überwindung der Konjunkturschwäche in der Bundesrepublik Deutschland", *Die Weltwirtschaft*, no. 2, 1978; Harmen Lehment, *Devisenmarktinterventionen bei flexiblen Wechselkursen*, (Tübingen: Kieler Studien, vol. 162, 1980); Enno Langfeldt und Harmen Lehment, "Welche Bedeutung haben Sonderfaktoren für die Erklärung der Geldnachfrage in der Bundesrepublik Deutschland?", *Weltwirtschaftliches Archiv*, no. 4, 1980; Bruce Brittain, *International Currency Substitution and the Apparent Instability of Velocity in Some Western European Economies and in the United States*, Bank for International Settlements, Working Papers, no. 2, 1980.

⁶ Jacob A. Frenkel, "The Forward Exchange Rate, Expectations and the Demand for Money: The German Hyperinflation", *American Economic Review*, vol. 67, no. 4, 1977; id., "Further Evidence on Expectations and the Demand for Money: The German Hyperinflation", *Journal of Monetary Economics*, no. 1, 1979; id., "The Forward Premium on Foreign Exchange and Currency Depreciation during the German Hyperinflation", *American Economic Review*, vol. 70, no. 2, 1980; Andrew Abel, Rüdiger Dornbusch, John Huizinga, Alan Marcus, "Money Demand during Hyperinflation", *Journal of Monetary Economics*, no. 1, 1979; Roland Vaubel, "International Shifts in the Demand for Money, their Effects on Exchange Rates and Price Levels, and their Implications for the Preannouncement of Monetary Expansion", *Weltwirtschaftliches Archiv*, vol. 116, no. 1, 1980; id., "West Germany's and Switzerland's Experience with Exchange Rate Flexibility", in J. Drever, G. Haberler, T. Willett, eds., *The International Monetary System under Stress* (Washington, D.C.: American Enterprise Institute, 1981); José L. Gutiérrez-Camara, R. Vaubel, "International Shifts in the Demand for Money in a Small Monetarist Model: Some Further Evidence", *Institute of World Economics, Kiel, Kiel Working Papers*, no. 121, May 1981.

The problem about this approach is that international shifts in the demand for money cannot be directly observed. In particular, it is not possible to infer from changes in money balances held by foreigners whether foreign demand for the money has changed and in which direction. If, for example, more marks are held by foreigners, this is consistent with both an increase and a decrease of foreign demand for marks; for if at the same time residents' demand for marks decreases and does so by more than foreigners' demand for marks, foreigners' nominal holdings of marks will increase (with the DM depreciating), although foreign demand for real mark balances is falling⁷. Of course, this difficulty is merely one implication of the more fundamental point that balance-of-payments statistics (that is actual quantity movements between countries) do not permit any conclusions about total demand for, and supply of, a money or, for this reason, about its exchange rate.

Option 2: Announcements allowing for expected international shifts in the demand for money. Because international shifts in the demand for money can be verified not from monetary statistics but only, if at all, by tracing such shifts back to their determinants, central banks may base the formulation of their money-supply targets on estimates of the coefficients and the likely values of these determinants (foreign income, foreign interest rates), just as they now tend to allow for expected domestic demand for substitution between money and nonmonetary assets due to changes in the domestic interest rate. The Swiss National-bank seems to be following such as anticipatory feedback rule⁸. This may explain why it adopts its monetary target always a few weeks after the German Bundesbank.

The problem about this option is that the available parameter estimates are usually not very reliable, the more so as a change in policy is likely to change the parameters. In order to allow for errors about the size of the parameters and, probably even more important, about the future values of the variables concerned, central banks may declare their money supply targets conditional upon whether their parameter estimates prove to be correct. As Finn Kydland and E.C. Prescott have shown, however, iterative adjustment of the parameters may fail to produce convergence⁹. Moreover, if the possibility is to be excluded that central banks (ab-) use forecast errors about the values of the determinants to justify deviations from the money supply target that, in fact, are of a discretionary nature, they would have to be asked to announce also the parameter estimates so that the public can verify the feedback rule that is used for the revision of targets.

⁷ The empirical evidence for seven major countries in 1973-1978 shows that, except in the case of sterling, nominal exchange rate changes were not significantly correlated with changes in money balances held by nonresidents of the two countries concerned. See Vaubel, "International Shifts in the Demand for Money".

⁸ See Kurt Schiltknecht, "Monetary Policy under Flexible Exchange Rates: The Swiss Case", in Karl Brunner, Manfred J. Neumann, eds., *Inflation, Unemployment and Monetary Control*. Collected Papers from the 1973-76 Konstanz Seminars, Supplements to *Kredit und Kapital*, Berlin, 1979, p. 8.

⁹ Finn, E. Kydland and E. C. Prescott, "Rules Rather than Discretion: The Inconsistency of Optimal Plans", *Journal of Political Economic*, no. 3, 1977.

Option 3: Shorter announcement periods and/or wider target bands. In the presence of intense uncertainty, economic agents tend to shorten the time horizon of their commitments or to insist on escape clauses. The same may hold for the commitments that monetary-policy makers undertake. Whereas Giersch has considered the possibility of shorter announcement periods (or, rather, of not lengthening announcement periods, which he would otherwise have preferred)¹⁰, the Bundesbank has chosen a target band. Just as economic agents are well advised, however, to prefer indexed contracts to shorter maturities and vaguer commitments whenever the source of the increased uncertainty can be measured by ex post indexes, so the monetary authorities would better explain in advance which indicators (indexes) they intend to use to adjust their targets and what their parameters in the feedback rule are (option 2).

Option 4: Announcements of monetary expansion subject to price-level constraints. If, as is assumed here, price-level stability is the aim of monetary policy, there can be no doubt that monetary targets have to be revised if they prove to be (more than temporarily) inconsistent with that aim. The price level, however, is not only the ultimate and, therefore, the only incontrovertible indicator of the appropriateness of monetary policy; it is also a (too) late indicator. If inflation or deflation is already developing (for some time) or if disinflation is already proceeding at an excessive and disruptive speed, revision of monetary targets and policy will come too late to stop the process from continuing for at least another year. What one would like to have is an "early warning indicator" of errors about international shifts in the demand for money.

Option 5: Nominal exchange rate targets. These considerations explain why some authors have wondered whether the problems raised by unpredictable international shifts in the demand for money could be solved by returning from preannounced monetary expansion to pegged exchange rates and why the Swiss Nationalbank has acted in this spirit by setting a ceiling for the DM/Swiss franc exchange rate it would tolerate¹¹. Exchange-market pressure would then register international shifts in the demand for money immediately, and the monetary authorities would merely have to adjust their money supplies so as to keep the exchange rate constant. Whereas demand for substitution between domestic money and financial assets would be satisfied through open-market operations, demand for currency substitution would be met through foreign-exchange interventions or through open-market operations of opposite sign in both countries concerned.

Currency substitution may weaken the case against exchange-rate pegging but it does not suffice to establish the case *for* it. Since this is not the place to give an exhaustive discussion of the debate over pegged versus flexible exchange rates, I confine myself to the elementary point that, by pegging its currency to another currency, a central bank loses control over the domestic price level: it imports the monetary policy from abroad. To avoid this disadvantage, one may think of a preannounced crawling peg, say,

¹⁰ Giersch, op. cit., para. 14.

¹¹ See Laffer, op. cit., p. 35; Giersch, op. cit., para. 11.

vis-à-vis the U.S. dollar, where the speed of the crawl would be determined by the desired inflation-rate differential plus the real exchange-rate trend in relation to the dollar. But such preannouncement is not promising unless monetary policy in the U.S. and real exchange-rate variations in relation to the dollar are predictable. Very often, currency substitution itself is due to the fact that such predictability is lacking. In these cases, a preannounced crawling peg would only be a satisfactory solution to the problem if the problem did not exist in the first place.

Option 6: Announcement of monetary expansion subject to real exchange rate constraints. In view of the difficulties that uncertainty about foreign monetary policies implies for a preannounced crawling peg with respect to nominal exchange rates, some economists — notably the Optica Group appointed by the EC Commission and the German Sachverständigenrat (Council of Economic Advisers) — have suggested that unpredictable international shifts in the demand for money should be dealt with by announcing monetary targets subject to the condition that the real exchange rate does not change very much¹². Indeed, both the Bundesbank and the Nationalbank have indicated that their intervention policy vis-à-vis the dollar aims at real exchange-rate stability.

To use real exchange-rate criteria to deal with international shifts in the demand for money is directly analogous to using real interest rate criteria to deal with shifts in portfolio preferences between the domestic currency and other domestic assets. In both cases, relative price changes are assumed to signal changes in money demand. Such changes, however, may also be of a nonmonetary nature, and although there is a trend component in postwar real exchange rate changes, not all large and abrupt deviations from it signal monetary shocks and ought to be avoided¹³. A large and abrupt real exchange-rate change is likely to be due to: (1) a sudden international shift in the demand for goods and services ("fashion"); (2) a sudden supply shock (for example, an oil-price change caused by the collapse of the OPEC cartel, a discovery of new oil reservoirs, or a political upheaval); and/or (3) an international difference in unexpected changes of the supply of, and demand for, money.

If one of the first two causes applies, the case against a counteractive monetary policy is the same as in the case of trend-oriented real exchange rate changes. If the third cause applies, three cases have to be distinguished. If, first of all, the real exchange-rate change is due to an unexpected and divergent acceleration (or deceleration) of monetary expansion abroad, domestic monetary policy should not try to prevent the temporary real

¹² Optica Report 1976, Study Group on Optimum Currency Areas, Inflation and Exchange Rates, Commission of the European Communities, D.G. II (Brussels, 1977), pp. 83ff., esp. p. 88. Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung. 1978-1979, Stuttgart, Mainz, paras. 405-6, 411.

¹³ For critiques of the Optica proposal, see Jürg Niehans, "Dynamic Purchasing Power as a Monetary Rule", in John S. Chipman and Charles P. Kindleberger, eds., *Flexible Exchange Rates and the Balance of Payments* (North Holland, 1980); Harmen Lehment, op. cit.; Roland Vaubel, "A Europe-wide Parallel Currency", in Samuel I. Katz, ed., *U.S.-European Monetary Relations* (Washington, D.C.: American Enterprise Institute, 1979), pp. 181-83; and Genberg, "Purchasing-Power Parity as a Rule for a Crawling Peg", in John Williamson, ed., op. cit.

appreciation of the domestic currency because to do so would mean to join the foreign countries in their monetary acceleration or deceleration and thus to abandon the domestic price-level target. If, second, the real exchange-rate change is due to unexpected changes in the real determinants of demand for the foreign money, a monetary policy designed to avoid real exchange rate changes is likely to imply full transmission of any foreign real shock and, quite possibly, a larger shock to the home country's output than a do-nothing policy¹⁴.

Thus full money-supply adjustment can only be justified if and to the extent that the abrupt and larger-than-normal real exchange rate change must be attributed to an unexpected change in the demand for the domestic money, for example, to an international shift in the demand for money between the domestic currency and foreign assets. Because, however, "large and abrupt" changes in the real exchange rate are by no means necessarily due to such shifts and disturbances, they cannot be, as such, an automatic indicator of the need for a deviation from the target rate of monetary expansion¹⁵.

Option 7: Measures to reduce currency substitutability. In view of these difficulties, it must be tempting to deal with the policy problem posed by unpredictable international shifts in the demand for money through measures to reduce currency substitutability. This is the "solution" that Kareken and Wallace have advocated¹⁶ and that the Nationalbank and, to a lesser extent, the Bundesbank have tried with little success.

There are many powerful and well-known arguments which show that restrictions on international monetary movements can be very costly (to the extent that they reduce such movements at all). Moreover, they are likely to be ineffective in reducing exchange-rate changes due to currency substitution in demand. This is because exchange rate changes are dominated by changes in expectations of future money demand and money supply. If exchange-rate expectations change among foreigners and residents alike (as seems typical)¹⁷, the absence of actual currency substitution does not prevent the exchange rate from moving and thus contributing its share to price-level change. Measures to reduce currency substitutability do not only fail to solve the problem; they may not even suppress it.

¹⁴ See the numerical example used by Jürg Niehans, op. cit.

¹⁵ With respect to Germany, this conclusion appears to be supported by Lehment's and Langfeldt's finding that unexplained reductions in the domestic income velocity of M1 were not usually accompanied by real exchange rate appreciation in 1973-1978. As Lehment admits, however, his residuals cannot be interpreted as an indicator of international shifts in the demand for money because they may also reflect demand shifts between money and domestic nonmonetary assets and because, owing to the use of a monetary aggregate (M1) that does not include foreigners' holdings of the money, they must temporarily signal an unexplained increase of the demand for real balances (i.e., an unexplained reduction of velocity) when the increase in residents holdings of the money is in fact due merely to a reduction of foreigners' demand for the money.

¹⁶ John Kareken and Neil Wallace, "International monetary Reform: The Feasible Alternatives", Federal Reserve Bank of Minneapolis Quarterly Review, Summer 1978, p. 7. For a critique, see Gottfried Haberler, "Flexible Exchange Rate Theories and Controversies Once Again", in John S. Chipman and Charles P. Kindleberger, eds., op. cit.

¹⁷ Ibid. See p. 5, n. 1.

Conclusion

The analysis of the various policy options shows that there is no neat short-term solution to the policy problems caused by international shifts in the demand for money. The only neat solution is of a medium-term or long-term nature: the return to price-level stability in all major industrial countries.

How should national central banks proceed in the meantime? Because such shifts seem to be neither sufficiently predictable nor even clearly verifiable, should monetary policy authorities behave as if these shifts did not exist and firmly stick to their traditional targets, even where there is evidence that the shifts are substantial? Or should money-supply targets be made "conditional" on real exchange-rate performance? Should they be given up altogether?

I agree with those who consider monetary preannouncement an indispensable precondition for a satisfactory functioning of a flexible exchange rate system. Without credible long-term preannouncement of the rules governing future monetary expansion, expectations are unstable and exchange rates erratic¹⁸. To the extent that international shifts in the demand for money can be shown to be a function of some more-or-less predictable variables, such as real income growth at home and abroad and international interest-rate relatives, such shifts should be taken into account when formulating the money-supply targets (option 2). The targets should then be revised automatically according to the estimated parameters (which should be published) if those variables take other values than expected.

To the extent that international shifts in the demand for money cannot be traced back to a sufficiently simple and reliable relationship, somewhat wider target bands for preannounced monetary expansion can be defended. Abrupt real exchange-rate changes may trigger adjustments within the band, but only if they cannot plausibly be attributed to causes other than international shifts in the demand for money. Of course, such a limited emergency clause for monetary expansion is not without risks. As Friedman noted in 1967, "monetary policy can contribute to offsetting major disturbances in the economic system arising from other sources... though experience is not very encouraging that it can do so without going too far... Experience suggests that the path of wisdom is to use monetary policy explicitly to offset other disturbances only when they offer a "clear and present danger"¹⁹.

¹⁸ This was predicted by Meade many years ago: "The system of fluctuating exchange rates will operate with fully smooth effectiveness only if it is built on the fairly solid foundation of reasonable domestic stability in the main countries. ...If (money holders) cannot rely upon reasonable stability in the general level of domestic prices and costs, then they will have to speculate not only on the future of domestic underlying real factors, but also upon the future of domestic financial policies. ...It is possible that this speculation against the currency may itself give rise to the very evils whose expectation has motivated the speculation in the first place". (James E., Meade, "The Case for Variable Exchange Rates", *Three Banks Review*, no. 27, 1955, pp. 19-20).

¹⁹ Milton Friedman, "The Role of Monetary Policy", *American Economic Review*, vol. 58, no. 1, 1968, p. 14. In a sense, of course, international shifts in the demand for money are always due to monetary policy, but it may be changes in foreign monetary policy that induce them.

**THE ROLE OF CENTRAL BANK: LESSONS
FROM THE EUROPEAN EXPERIENCE**

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Introduction

The European Monetary System (EMS) began to operate on March 14, 1979 and we may now be able to evaluate how it works.

It has been felt for long that monetary union was a necessary supplement to the common market in commodities. This feeling is correct in some respect, since the goal of a common market is to allow individuals to make their choices as buyers of commodities on a purely competitive basis all over the European space without having to care about the national origin of the commodities. However, it is considered that this goal is less easily reached if exchange rate changes reintroduce differentiations between national systems. However, this argument is not sufficient for two reasons:

i) Exchange rate changes would not have any “disintegration effect” if the purchasing-power parity principle was true, even in the very short-run; in other words, if the day-to-day fluctuations in the exchange rate were equal to the change in the price differentials. One important reason for discrepancies between price differentials and the corresponding exchange rate — i.e. for real exchange rate changes — is the fact that information is not perfect. In that sense monetary unification — at least if it is assumed to mean fixed rates — is a substitute for a better information on prices in different countries. We shall return to this information problem later.

ii) Monetary unification, as it understood in Europe, is not exactly similar to a common market in currencies and one may even argue that it is quite the contrary. In fact, there is no competition in currency inside each European country, since the national currency still benefits from a monopoly position in each country. Fixed rates just mean that, as regards the financing of intra-European transactions, the monetary authorities try to supply currencies which are perfect substitutes, which, in turn, implies a coordination of monetary policies. However, one must not forget that competition implies that each producer tries to differentiate its products — via differences in quality, specifications or prices — from that of its competitors.

Fixed rates rather mean the contrary of competition, i.e. the creation of a cartel. We thus see in the monetary field an example of the general tendency of European integration to shift from the concept of "common market" to that of "common policies", which may be quite the contrary.

The European authorities and the public opinions have always accepted the traditional view according to which monetary unification meant fixed rates. Moreover they never considered that the usual organization of monetary systems ought to be modified. In particular the main characteristics of these systems remained unchanged: they are national, state-managed and pyramidal, i.e. a central bank is in charge of monetary control in each country. It would be fruitful to explore the possibility to change these features and to evaluate the consequences of such changes. However, in the present paper, we shall not discuss at length other possible monetary systems¹ and we shall rather focus on the implications of central bank interventions for social welfare. A closer examination of the European experience with monetary integration may help to solve an important problem, namely whether open economies — especially if they are small — must enter a process of monetary integration. Milton Friedman, for instance, considers that a small country has to peg its currency to the one of a major country and he gives the example of Chile as one such case². However, he does not discuss the solution adopted by the European countries where several small or middle-sized countries link their currencies together in order to be independent from any big country and to set an organization between "equals". Can such a solution be recommended to other small or middle-sized countries? Or have we to find still a further system? These are some important questions on which we would like to give some thought without having the possibility to give a full treatment of the issues.

In section I we propose a very simple model of currency union, which will help us to evaluate the working of the EMS. In section II we recall the main mechanisms of the EMS, which have to be known in order to use our simple model for evaluation. After having considered the rules and their coherence we examine the actual working of the EMS (section III), using not only the official criterion of exchange rate stability but other criteria suggested by our initial model. In section IV we try to answer the question "Does the European Monetary System provide a public good?", which would justify the fact that this system is managed by central banks and not simply by the market. In section V we discuss the reasons for looking at monetary integration and in section VI we discuss the possible monetary organization of a small open economy.

I — A very simple model of currency union

We assume that a currency union exists between n countries and that there are a national currency and a central bank in each country. For the

¹ We suggest a typology of exchange and monetary systems in our paper "The Political Economy of Alternative Approaches to Monetary Integration", Firenze, Colloquium on New Economic Approaches to the Study of International Integration, June 1979 (to be published in a book edited by Pierre Salmon).

² He has expressed this view, for instance, in his paper, "Monetary System for a Free Society", presented at the Mont Pélerin Society meeting, Viña del Mar, Nov. 1981.

present time we use the traditional definition of a currency union, namely a system of fixed rates between the participant countries³, whereas there are floating exchange rates between these countries and the countries which are outside the zone. We take the extreme view that floating exchange rates allow perfect isolation, so that, for instance, monetary policies or interest rates in a country are totally independent from what occurs in another country outside the union.

The working of the currency union can thus be described very simply by the following equations:

$$(1) \quad M_{zj} = \sum e_{ij} M_i \quad (i = 1 \dots n)$$

$$(2 \dots n) \quad e_{ij} = f(M_i, M_j, k_i)$$

where M is the quantity of money, e is the exchange rate, and k is a proxy variable. Subscript z refers to the zone, subscripts i and j to countries, i and j belonging to the zone. The currency of country j is the numéraire. When the value of a variable is expressed in terms of this numéraire there is a second subscript j : thus M_{zj} is the quantity of money in the currency zone in terms of currency j , e_{ij} is the exchange rate between currency i and the numéraire j . But M_i is the quantity of units of currency i (therefore it is defined in terms of currency i).

The above model of exchange rate determination is the reduced form of a complete macro-economic model of the zone. As there are n currencies in the zone, there are $n-1$ exchange rates between any currency and the one which is chosen as a numéraire, j , so that there are $n-1$ equations to determine the exchange rates. In the equation for one given exchange rate, for instance the one between currency i and currency j , two variables only are explicitly stated, the quantity of currency i and the quantity of currency j . All other variables are included into the proxy variable k , which may, for instance, be a proxy for interest rates, the quantity of money in other countries, the factors influencing real exchange rates, etc.

Our aim in the present paper is not to make a discussion of the theory of exchange rate determination but only to try to draw some conclusions from what can be accepted as the main features of this theory and to apply them to the theory of currency unions. We shall now make two simple assumptions namely that $k_i = 0$ in the long run and $k_i \neq 0$ in the short run. In other words, we assume that exchange rates are determined in the long run by the purchasing-power hypothesis (PPP) — the law of one price — and a purely monetary determination of prices.

- (1) Let us first examine the *long-run* working of the system. There are n equations and $2n$ variables (n quantities of money, M_i , $n-1$ exchange rates). In order for the system to be coherent n variables have to be exogenous and n variables have to be endogenous.

³ In fact, we believe that currency unification does not necessarily imply fixed rates: see our book, *European Monetary Unity: For Whose Benefit?*, Ipswich, Mass., Ipswich Press, 1980 (with a foreword by Friedrich Hayek). Spanish translation: *La unidad monetaria europea: otro monopolio*, Madrid, Instituto de Economía de Mercado, 1982 (with a presentation by Pedro Schwartz).

The working of a floating rate system is quite clear: monetary authorities in each country determine M (or the rate of change of M) independently and there is an endogenous determination of the exchange rates and the quantity of money of the zone (in terms of a given numéraire).

Obviously a fixed rate system means that the $n-1$ exchange rates are exogenous⁴. In order for the system to be fully determined another variable has to be exogenous. To that end, several possibilities are open so that there are several different sorts of monetary systems. Monetary authorities may choose as a target variable (an exogenous variable) either M_3 or one of the national quantities of money. Let us have a look at each possibility.

(i) *Solution a*

In this system — which is the simplest one — one national currency is the “key-currency”: all central banks intervene in terms of this n^{th} currency, except the bank which issues it. The monetary policies of the intervening banks have to be passive (they must not neutralize external influences on the national quantity of money). The dollar standard is an example of such a system. It was a consistent system just because the “Fed” did not intervene on the exchange market. The “benign neglect” policy of the U.S., which was frequently criticized by other countries, was necessary for the system to be correctly determined. However, such asymmetrical systems, giving a specific role to one currency and one country, are not easily accepted, except mainly in monetary areas inherited from a colonial organization (zone franc, sterling area, etc.). They have never been proposed for instance for the EEC, all countries being assumed to be equal.

In other words the key-currency country has a monetary policy and the peripheral country has an exchange policy, which means that each country respects the rule according to which a country cannot have both a monetary policy and an exchange rate policy in the long-run. As regards the key-currency country it may follow a monetary rule or decide a completely discretionary monetary policy. As regards the peripheral country, problems often arise as far as the monetary system is a pyramidal system without a 100% external reserve rule: if the external reserves amount to a low proportion of the total assets of the central bank, the national quantity of money may fluctuate deeply, which means that the central bank is doing a sort of “dirty exchange policy”; it is doing a monetary policy interfering with the exchange rate policy.

The Chilean example in recent years is interesting, since it is a successful case of a “pure exchange rate policy”, i.e. an exchange rate policy without interferences from an independent monetary policy. Moreover, the target of the exchange rate policy has not been a fixed dollar/peso rate, but a predetermined change in the rate until 1981.

⁴ In fact there is a broader class of exchange rate systems where the rate of change of the exchange rate is exogenous (for instance, the central bank announces a weekly or a monthly change) - $de/dt = f(t)$

where t stands for time. Function $f(t)$ can be a constant, in which case the rate of change of the exchange rate is constant. A fixed rate system corresponds to the special case where $de/dt = 0$.

The existence of a 100% external reserve rule protects the monetary system from possible inconsistencies (between an exchange rate policy and a monetary policy). However, it does not necessarily mean monetary stability, since the country imports the monetary fluctuations from the key-currency country. It is in the interest of the peripheral country to be linked to a country where monetary policy is stabilizing and where, if possible, it is following a monetary rule, which gives informations to the peripheral country about the possible future course of events.

(ii) *Solution b*

The only other solution⁵ is to choose M_3 as the n^{th} target variable. Now, M_3 cannot be observed directly and one can know it just by summing up all the M_i 's. In other words there is no institution in charge of managing M_3 (for instance, the European quantity of money). Therefore, there are only two practical ways to run solution b:

- Every country determine its quantity of money independently and the system is over-determined. From time to time one or the other target variable have to be adjusted, which means that it is no more a target variable: there are either parity changes or changes in monetary policies. What is often named a "currency crisis" is nothing else than the explicit consequence of the working of a system which has been wrongly designed. In the long run countries cannot have both a monetary policy and an exchange rate policy.

- The second possibility to run solution b occurs when there is some sort of policy coordination: through mutual agreement each monetary authority determines its quantity of money (or its rate of growth) so that the sum be equal to the target value of M_3 . This system of organization — which is often called "monetary cooperation" — is generally considered as the best solution, perhaps because it seems to mean that human beings are able to agree with each other, to be friends and not enemies, as is suggested by the word "cooperation". However, the fact that this solution — as many other economic problems — is viewed under a moral point of view does not imply that this system is a first best solution to the problem of international monetary organization. In our view, it is rather a second-best solution: if, for instance, floating rates are not desired, if there does not exist an $n+1^{\text{st}}$ currency (for instance gold), if solution a is not accepted because it is asymmetrical, there is a need for a common determination of M_3 : cooperation is "better" than no cooperation, but other systems might be "better".

However the lack of information is an important obstacle which makes this solution rather dubious. Every one does know the practical difficulties of monetary management in one single country (for instance as

⁵ We do not consider, here, the case where there is an $n + 1^{\text{st}}$ variable. An example of such a system is the gold standard. This system is coherent and all countries are on an equal footing. It has also often be proposed that a man-managed $n + 1^{\text{st}}$ currency — an international currency — be created but there are risks of mismanagement which do not exist in the gold-standard.

regards the definition of the quantity of money to be controlled, the stability of the money multiplier, the short-run fluctuations in the demand for money, etc...). The knowledge got by central banks is not and may never be sufficient to make policy coordination satisfactory. Errors on the right rate of monetary expansion in each country may, therefore, induce unbearable troubles and make the fixity of exchange rates impossible.

Either in solution a or in solution b, it can be considered that there is only one currency in the monetary area, at least when perfect fixity of exchange rates occurs, since it implies that all national currencies are equivalent, except for the unessential aspect of denomination. To make a comparison with industrial organization, one could say that there is one good produced by several firms, namely the different central banks or the different national banking systems. Solution a is similar to a hierarchical industrial organization with headquarters — the central bank or the banking system issuing the key-currency — and several subsidiaries — the other central banks or national banking systems — which does not prevent each firm to be a profit center (the profit being the seigniorage in the case of money).

Solution b is similar to a cartel, each firm — i.e. each central bank or national banking system — being on the same footing as the other ones. The cartel decides its common target, for instance the rate of growth of its production (the quantity of money) and determines the share of each member. However, as is well known, a cartel is an unstable organization, since there is always the possibility that one or several members find that it is profitable to do free-riding⁶. This may be the main explanation for the "monetary crises" we already mentioned.

- (2) If we now turn to the *short-run*, there are n additional degrees of freedom since $k_i \neq 0$. Once more, several possibilities are open, especially since the k_i 's are proxy variables for a certain number of variables which can either be used as targets by the authorities or be endogenous. Let us consider, for instance, the case where the monetary authorities of the zone pursue independent monetary policies in a system of fixed rates. The k_i 's then adjust to the exchange rates and the quantities of money. Therefore there is an impact of monetary and exchange rate policies on variables such as the interest rates and/or the real exchange rates and/or monetary and exchange rate expectations, which may be components of the proxy variables k_i 's. However, if the various monetary policies are not consistent in the long run, the variables which are summarized by k_i have to converge towards their long-run equilibrium values. In comparison with a system of steady long-run equilibrium, the use of independent monetary policies under a fixed rate system introduces variability in variables such as interest rates, real exchange rates, wages, etc. Existing models of exchange rate determination in the short-run make this variability more explicit.

⁶ We have developed the idea of the European monetary organization as being of a cartel-type in our book (see footnote 3).

The simple and formal model we used in the present section will help us to evaluate the principles and the working of the European Monetary System.

II — *The Mechanisms of the European Monetary System*

Our aim in the present section is not to describe all the features of the complex EMS, but only to stress those which are relevant for our present discussion. As is well known, the main currencies of the EEC participate into the EMS, except for the sterling pound. This system mainly aims at enforcing fixed exchange rates between the participating currencies, at least within a band, whereas exchange rates are floating in relation with outside currencies (although the real system is rather one of dirty floating). The internal fixity of exchange rates implies central bank interventions and a complex system of indicators has been designed to help into the determination of respective responsibilities of central banks.

The need for intervention could be determined by all sorts of indicators. Two systems had been particularly considered as regards the EMS:

- A "snake-type" system, as the one which worked under the European snake arrangement in the beginning of the seventies: there is a need for intervention when the bilateral exchange rate between two currencies reaches its upper or lower limit. In such a system it is clear that both these currencies are concerned by intervention, but discussion is open about the choice of the intervening central bank(s). This decision can be made by day-to-day negotiations or via permanent rules. The "snake-system" failed because it was built according to what we called "solution b" — the egalitarian solution — without any precise rule to determine the growth of M_z . The experience of the European countries in the seventies is consistent with the idea that a fixed rate system based on discretionary decisions for monetary management and a multiplicity of decision centers — supposed to be equal — may not be able to work.

- A "basket-type" system is a system where the need for intervention is determined by the fact that one currency reaches its upper or lower limit in relation with the basket of currencies (the European Currency Unit, ECU, for instance). It is clear that the corresponding central bank has to intervene, but it is not clear in which currency it has to intervene. Here again, discretionary decisions or institutional rules can be used.

The actual system tries to combine both systems:

- The need for intervention is determined on a bilateral basis, the exchange rate between two currencies not being allowed to go out from a band of 2.25%. In that respect, the EMS is similar to the former snake arrangement and there is no justification for presenting it as a "new" system.

- A "divergence indicator" has been designed which does not make any action obligatory, but is a signal for possible action. The ex-

change rate between each currency and the ECU — the basket of participating currencies — is computed every day. If a currency reaches the lower or the upper limit of its band in relation to the ECU — the band is different for each currency because of the different weights of the currencies in the definition of the ECU — it is assumed that there is a risk that the concerned currency may later reach its bilateral floor or ceiling. Monetary authorities may then decide, for instance, discretionary interventions on the exchange market, exchange rate changes or changes in their monetary or fiscal policies. Thus, the divergence indicator is not an automatic rule for monetary management, but a way to favor discretionary decisions and negotiations between European monetary authorities.

Some difficulties came, under the snake arrangement, from the fact that there was no clear determination of the central bank which had to adjust when the limits of the band were reached in the relations between two currencies. The divergence indicator does not help much in that respect or it may give a questionable answer to this problem. In fact, let us assume that two currencies are not far from the limit of their common band but that, in relation with the ECU, one is close to its parity and the other is far, being close to the limit of its divergence indicator. Why would it be optimal that adjustment be made by the central bank issuing the second currency? It may happen for instance that monetary policy is more restrictive in one European country than in all other ones. Looking at the divergence indicator, the European authorities would be induced to ask a change of its policies to the corresponding central bank and, for instance, to decide a less restrictive monetary policy. In fact, the utility of money being linked to its ability to maintain its purchasing-power, the criterion for optimality ought to be the more or less restrictive nature of monetary policy. In our example, all central banks ought to decide a more restrictive monetary policy, except the one which already had a restrictive policy.

By choosing as a norm to determine the European common monetary management the "average" behavior of central banks instead of the "best", the designers of the EMS made impossible to transform the EEC into an "European zone of stability" contrary to what has been continuously assumed. Alternatively, it could be said that there are two possible interpretations of the word "monetary stability", namely the absence of inflation or the fixity of exchange rates. The second does not imply the first. Lowering inflation implies imposing constraints on national monetary policies of the most inflationary countries. But the EMS — as did the snake — implies nothing more than a common rate of inflation. In spite of its technicalities, the EMS does not provide any mechanism, any rule to minimize this common rate of inflation. There may even be an inflationary bias since excess money creation may spread over Europe. The most inflationary countries get support from the other countries via so-called balance of payments financing.

It is often pointed out that the EMS is a new system — in comparison with the snake — for two reasons: the existence of the divergence indicator and because it is generally considered that monetary authorities are willing to change the exchange rate more often than had been the case in the past.

We already discussed the role of the divergence indicator. What about the assumed greater "flexibility" of the system?

In our view this greater flexibility is not an advantage, since a system is the better the more precise are its rules: a pre-announced rate (or change in the rate) allow people to adjust, which is not the case if the monetary authorities are allowed to change the rate in a discretionary way. Therefore, both new features of the EMS point towards the same direction, namely that of discretion (vs rules). In consequence there is a risk that:

- In the short run both a monetary policy and an exchange rule (fixity of exchange rates) are followed.
- In the long run neither a monetary rule nor an exchange rule exist.

In some sense it could be said that the complex techniques of the EMS are only cosmetic changes designed in such a way that the public cannot see that the new system is the same as the older one, which had failed.

Basically it is a system of fixed rates

- without rules to maintain fixed rates
- without rules to get price stability.

The system has two further characteristics: the creation of an European Monetary Fund and the creation of the ECU (European Currency Unit). Let us have a rapid look at each of them.

– *The European Monetary Fund:*

There exists presently a common Fund, endowed with about \$ 30 billions. The Fund to be created will receive 20% of the reserves of the participating countries and the countries will be created in ECUs. As in the case of the IMF credits are granted to countries which have "balance of payments problems". Such a practice is opposed to the logics of a fixed rate system which implies that national monetary creation be adjusted to the changes in international reserves. Unhappily, it has become usual during the XXth century to adjust reserves to the quantity of money. This is the reason why people have continuously used the expression "lack of international liquidity", which has no meaning. Thus the country which is doing excessive monetary creation gets seigniorage and is granted extensive credit facilities at a low rate of interest.

– *The ECU*

The ECU, which is a weighted average of European currencies, is assumed to be a new currency. In fact it is nothing more than a "numéraire", which is used to denominate assets and liabilities in transactions between central banks and between them and the European Fund. But the ECU is not money since the characteristic of money is to be liquid, i.e. to be tradable against any other good, at any time and with anybody. It is not the case since the ECU can be held by central banks only. Central banks can credit each other in terms of ECUs, but they are unable to intervene on the

market in terms of ECUs, which mean that the ECU does not play any role of monetary regulation no more than any role as a liquid asset for individuals. The existence of the ECU can be viewed as a way to require a given diversification of their portfolios by central banks in terms of the different European currencies. But it can be assumed easily that, if free to do so, these banks would prefer a different diversification since, for instance, gold, dollars or DM would be better both in terms of their long-run purchasing-power and in terms of their short-run variability.

If European citizens are allowed to hold ECUS freely in the future, there would exist some limited competition between, on the one hand, each national currency and, on the other hand, the product of the cartel of central banks.

For the ECU to play a role, there ought to be either private holdings of ECUS, which would make intervention by central banks possible and/or an obligation for them to hold a given proportion of their assets under the form of ECUs. In such cases there would be $n + 1$ currencies and the ECU — the $n + 1^{\text{st}}$ currency — could play a role for monetary regulation: all central banks would have to adjust their monetary policy to their holdings of ECUs. However, there would be a risk of mismanagement in the issuance of ECUs, as there is with national monetary management. The same problem of defining rules and enforcing them would appear. There is no reason for this problem to be more easily solved in an European context than in a national one. There is rather a great risk that the multiplicity of decision centers would make the task more difficult.

III. The Actual Working of the EMS: Apparent Success and Hidden Cost

As far as the aim of the EMS is the fixity of exchange rates, one could argue that it has been more or less successful. In fact, some parity adjustments did take place, since there was a 2% reevaluation of the DM and a 3% devaluation of the Danish crown on September 23, 1979, another devaluation of the Danish crown (5%) on November 29, the same year, the Italian lira was devalued by 6% in March 1981; there were a devaluation of the French franc (3%) and of the Italian lira (3%) and a reevaluation of the D.M. (5.5%) and the Dutch guilder (5.5%) on October 4, 1981. On February 21, 1982, the Belgian franc and the Danish crown were devalued and it quite certain that other parity adjustments will take place in the near future.

Therefore, it would be an extreme view to hold that the EMS allowed perfectly fixed exchange rates and, from this point of view, one can be astonished by the fact that, for instance, the decisions taken in September 1979 were officially considered as a proof of the good working of the EMS. In fact, if ever words have any meaning, a parity change in a system of fixed rates does mean that this system did not work well. We shall not dispute the fact that it is better not to have waited for a longer time before deciding parity adjustments which were unavoidable, so that the European countries did not suffer from the traditional "monetary crises" which had been so frequent in the past. However, it is strange to interpret a parity change as a

success for a system of fixed rates, since it can only mean one of the two following things:

- either the rules of a fixed rate system have not been correctly played, which implies that the working of the system has been “bad”;
- or, the system has not been correctly designed.

However, one may argue that these parity changes have not been too numerous and that they have not been of a great dimension. It is true that during the year after the first realignment of parities in 1979 there was no further change (except for the Danish crown). Therefore, as far as the objective of the EMS is the fixity of exchange rates, the system has apparently been successful. But such a statement is not sufficient and one has to ask an additional question: what was the cost of this apparent success?

The EMS has been presented as a mechanism able to get monetary stability in Europe. If monetary stability means zero inflation or lower inflation this claim is questionable. In fact, the inventors of the EMS have been very inventive in introducing precise and sophisticated techniques in the system, but they have forgotten any rule in order to determine the long-run common rate of inflation and to determine it at a low level. In terms of our model above, there is no rule for the determination either of M_2 or of the M_1 s so that there is an important risk that the system be over-determined, each monetary authority deciding its monetary policy more or less independently.

If the European monetary authorities are unable to cooperate in order to implement converging national monetary policies (implying, if possible, a decreasing rate of inflation), as it seems to be the case, the inconsistencies between the different monetary policies might shake the very existence of the EMS. Such an end can be considered as likely, as it has been the case with the snake arrangement for this same reason, and in spite of the apparent success of the EMS at its beginning.

In fact, we have recalled that a fixed rate system has some degree of flexibility in the *short-run* due to the possible changes in the variables k_i 's. However, an “excessive” variability of k means a social cost. Now, the theory of the short-run determination of exchange rates is not sufficiently reliable — and will probably never be — for anyone to be able to make precise computations about the cost of this variability in comparison to what it could have been in other systems. The builders and defenders of the EMS are very skillful in that they gave an observable variable — the fixity of the exchange rate — as a criterion of success, whereas the cost of the performance is unknown. And they have been skillful enough as to find a way of refusing the only possible criticisms: if national monetary policies are inconsistent, devaluations and revaluations which occur in the more or less long run, ought to be considered as proofs of the fact that the system of *fixed rates did not* work well. But the idea has been imposed that in means that the system is flexible, which is considered a priori as a “good” thing.

To try to evaluate the working of the EMS, in spite of the fact we cannot have sufficient information, for instance on the optimal variability

of k , we may not be able to do more than to choose some indicators, for instance inflation rates, real exchange rates or interest rates.

Let us first have a look at recent inflation rates in the member countries of the EMS (Table 1). There has been an acceleration of inflation in all countries, since the introduction of the EMS so that one can be skeptical about the ability of the EMS to create a zone of monetary stability in Europe. It is true, for instance, that Germany adopted a less restrictive monetary policy in 1979 than before, although it is difficult to know if she did so in order to help the working of the EMS — which would mean a cost of the EMS — or to give a positive answer to the (unjustified) demands from her European partners in favor of a German expansionary policy.

Under the EMS the inflation rates remained much different from country to country. Thus, in 1980, the French inflation rate was 13.7% and the German rate was 5.5%. It was certain that the exchange rate had to be changed one day or the other.

Maintaining fixed rates in a situation of diverging inflation rates had consequences on real exchange rates, as may be suggested by Table 2, which gives effective real exchange rates for some European countries in recent years. From this table, one can see that:

- (i) The changes of real exchange rates in the long run (March 1973 to December 1980) are limited, which is in agreement with the PPP-hypothesis.
- (ii) In 1980, i.e. in a period where there has not been exchange rates adjustment in the EMS, there were rather important changes in real exchange rates. For instance, there was a 7.3% decrease in the German real exchange rate and a 5% decrease in the Belgian real exchange rate. These figures are high in comparison with the long-run evolution of real exchange rates. These changes have a cost, since they imply changes in relative prices.

The case of Germany in 1980 has been interesting from another point of view: in fact, the DM has been close to its lower limit of fluctuation for long, contrary to what could have been expected from a simple application of the PPP theory to the determination of exchange rates in the short run, which only means that PPP does not hold in the short run and that other forces were present (for instance, expectations, a wrong evaluation of the equilibrium exchange rate in the parity adjustment of 1979, etc.). Whatever was the cause of this situation, Germany has been obliged to accept higher interest rates than those which could be considered as consistent with inflationary expectations. Excessively high *real* interest rates also mean a cost for the economy.

According to the common opinion the “low” German exchange rates were unrealistic and floating exchange rates would have allowed still lower exchange rates, so that fixed rates prevented excessive fluctuations in the DM exchange rate. However, we believe, on the contrary, that the fact that these low exchange rates could not be perfectly explained supports the idea according to which a fixed rate system introduces costly rigidities. In other words, by limiting the fluctuations of the exchange rate, one does get

a higher stability of the exchange rate — by definition — but at a cost which is not well known, precisely because the short run determination of exchange rates is not well known. Numerous variables are interdependent and in a floating rate system the exchange rate would fluctuate as an answer to changes in other variables, for instance interest rates, inflationary expectations for various currencies, etc... If the variability of some variables is constrained by public intervention, other variables have to carry a greater part of the burden of adjustment. Thus, when keeping and exchange rate which is not in harmony with inflation differentials, expectations on exchange rates and inflation rates, monetary and credit policies and all sorts of other variables, one cannot, for instance, obtain the interest rates which would permit equilibrium on credit markets.

Thus, the apparent "good" working of the EMS hides disequilibria somewhere in the macro-economic system. These disequilibria cannot last for long and adjustment has to occur, for instance via exchange rate changes or via changes in monetary policies.

IV. Does the European Monetary System provide a public good?

The EMS is a system of fixed rates. Fixed rates between different currencies, issued by different banking systems, are possible because of public intervention on the exchange markets. As the justification for public intervention is the provision of a public good, one may ask whether the EMS provides people with a public good.

A public good has to be provided by the public sector if it would not be provided by the market because the return would be too low for the potential producers in comparison with the costs they would incur, although the social return is higher than the social cost of providing it. The non-exclusion principle explains such a situation. Economic stability certainly enters the category of public goods since it cannot be provided only to those who pay for it. However, the words "economic stability" are rather vague. In fact it does not mean perfect fixity of variables and we shall rather define economic stability as a situation in which the gap between the actual value of a variable and its equilibrium value is minimum.

Therefore, according to this definition, exchange rate stabilization does not mean fixity of actual exchange rates since the equilibrium exchange rate may be changing. In fact, and as we have seen, a fixed rate system is a special case of a broader category, that of systems where the producers of currencies — the central banks in the present organization of the world — announce in advance the long-run trend and possible variations of exchange rates between their currencies. The role of this announcement effect is to decrease uncertainties in production and trade decisions and it may be considered as a public good. However the designers of international monetary systems do not usually consider other systems of predetermined long-run exchange rates than the special case of fixed rates. This is true for the EMS.

In our view, the public good argument is the only valid criterion to evaluate any exchange rate regime. Fixed parities or broader bands, for

instance, are not desirable *per se*. They are only if they increase social welfare, which cannot be appreciated just by considering the evolution of exchange rates, but that of the over-all economic system.

As we have already seen, the EMS is a system where:

- In the short-run exchange rates are maintained into a limited and publicly known band;
- In the long-run exchange rates are adjustable.

In terms of our model, there is an independent determination of the various quantities of national currencies, M_i , and, therefore, of M_z .

Adjustment takes place in the short-run via the variables k_i 's. In the long-run it takes place either via the quantities of money, M_i , which then become endogenous, according to the principles of a fixed rate system, or via exchange rate adjustment. It must be stressed that adjustment via M_i or e_i depends on discretionary decision and not on predetermined rules. It means that the market does not get any precise information about the possible use and magnitude of monetary policy and/or exchange rate policy.

The conditions under which the market and the central banks can work may be different either as regards the knowledge they have about the working of the macro-economic system or as regards the informations they have about the precise value of the relevant variables.

There is no reason to believe that the central banks have a better explicit or implicit macro-economic model of exchange rate determination either in the short-run or in the long-run and it is well known that the market can provide, due to speculation, as good a stabilization service as the central banks can do. It may even be argued that private speculators would perform a better stabilization service since they have a private interest in getting a profit through efficient forecast than may be the case for a central banker more or less linked to short-run political considerations.

However, the main difference between both may not lie in their views about the working of the macro-economic system, but in the informations they may have on the future value of some important variables. The main reason for that is that central banks benefit from a monopoly position in the creation of their own currency. Therefore a central bank has not to guess its own future monetary policy and, if it wishes to do so, it can decide it in advance and hold on to it. This information is not sufficient to get a precise idea of the future value of the exchange rate or of determinants of the exchange rate since a central bank does not determine the production policy for other currencies. However, it may be in a better position than a private speculator to get informations from the other central banks about their future policies. This is a reason to believe that interventions by central banks on the exchange market can increase social welfare since they have a better information than the market, at least on one important determinant of exchange rates, namely monetary policies.

However, at this point, some remarks have to be made:

- i) From the theory of public goods it can be said that the public sector is in a better position than the market to provide some specific goods, for instance if exclusion is not possible. However, the case we are studying does not enter into this category and it would be wrong to infer from what we have just said that the social welfare can be maximized via interventions of central banks on the exchange market. In fact, central banks can have better informations than the market on future monetary policies and, therefore, on the future value of exchange rates in the long-run because there is no perfect competition on the money market since the central banks have a monopoly in the production of money. Therefore, the fixity of exchange rates in the EMS or any system of fixed rates (or, more broadly, the exogenous determination of exchange rates by central banks) may not correspond to a first-best solution, but to a second-best solution, *given* the constraint that there is no perfect competition for the production of money. However, we shall not discuss the issue of the competitive production of money here.

In that sense it cannot be said that central bank interventions on the exchange market correspond to the provision of a public good. Certainly, if the exchange rate, or the over-all macro-economic system, is more stable due to interventions by the central banks, all individuals benefit from these interventions, and there is no possibility to exclude anyone from the advantages of a more stable economy. But this does not mean that this public good has necessarily to be provided by the public sector since it is not necessarily true that it can thus be produced at a lower cost or in a greater amount. Thus, the case of economic stabilization or exchange rate stabilization has nothing in common with, for instance, the case of national defence in which no individual would have an interest in paying voluntarily to get defence services, but in which all people can gain from being obliged to pay for defence expenditures.

- ii) Even if we accept to limit ourself to the narrow framework in which the production of money is monopolized by the public sector, it does not follow that central bank interventions on the exchange market make people better off than they would otherwise be.

In fact, we did see that the only difference between the central banks and the market as regards the available informations is constituted by the information the central banks can get on their own intentions about the quantity of money, since they have the control of the supply of money. Does it imply that they have a better information on the long-run or short-run evolution of exchange rates? The answer could be positive if one assumed that the central banks and the market had the same explanatory models of exchange rate determination so that the relative advantage of central banks in the informations about monetary policies would remain. But let us put things otherwise; given the fact that central banks have a better information than the market about future monetary policies, there are several ways in which they can supply this information and, thus, give a public good to the individuals:

- They can use this information to evaluate the long-run and the short-run values of the equilibrium exchange rate and try to minimize actual discrepancies, as we have already seen.
- They can provide directly the specific information they have, namely that about the future monetary policies they intend to perform.

In the present case of the EMS, the central banks transform the monopoly they have in the production of money into a monopoly in the ownership of some information. We have assumed previously that the market and the central banks were equally efficient in using a given information to forecast the exchange rate. However, it may happen that, at least in some specific occasions, the market is more efficient (has a better model of exchange rate determination). Therefore, competition in the use of a given information could increase social welfare.

We can thus compare two different systems, taken as examples:

- One is the EMS arrangement, where the central banks more or less keep the informations they have for their own use, but claim to defend a given parity, at least in the short-run;
- Another one would be a system without any exchange rate arrangement, but where central banks would announce monetary targets for the future and where people would be confident in these information. The exchange rates would be flexible, but people would get the most numerous possible informations about the determination of exchange rates.

The second system being closer to a competitive system than the first one, there are some reasons to believe that it would be more stabilizing.

- iii) One of our initial principles was that exchange-rate determination was the simpler to evaluate the longer was the period under examination. More precisely, we believe that everyone could accept the following principle: the shorter is the period under consideration, the lower is the explanatory power of the relative growth rates of the quantity of money in the respective countries.

From that it follows that the relative advantage of central banks over the market in stabilizing the exchange rate is smaller the shorter is the period under consideration, even when the central banks keep informations on their monetary policies for themselves.

In turn, this implies that, in the case in which the central banks do not give free information to the market on their future monetary policies, they can provide a public good by giving a reliable information on the future course of "predetermined" exchange rates, which implies that they are ready to take any necessary action to make this future course effective. A special case of such a situation is that of fixed rates, but we have exactly the same sort of situation if the central banks announce, for instance, a certain rule of evolution of exchange rates. However, it must be clear that the public good is provided only as far as the central banks give a good information on future exchange rates in the long run. It can then be concluded that the EMS arrangements are in no way optimal since the central banks claim that they defend fixed rates

within bands in the short-run, but do not take any firm commitment for the long-run: as we recalled, they even consider as an improvement in comparison with the snake arrangement that long-run exchange rates are more flexible.

However, one could consider that they contribute to the stabilization of exchange rates in the short-run so that they would provide a public good to some degree. In fact, we cannot be certain of that since we know that the determinants of the exchange rate in the short-run are numerous and it may well happen that the short-run *equilibrium* exchange rate is much more volatile, so that the stabilization, via the band, of the *actual* exchange rate may imply a social cost and not a social gain. In other words, public intervention is justified only if there is some sufficient information and if it can provide a public good which would not be provided otherwise. These conditions are not warranted in this special case.

We thus come to the conclusion that the EMS exchange rate arrangement is not optimal. In fact, if we let aside the solution of a truly competitive system in the production of money, a (second-best) solution would imply perfect flexibility of the exchange rate without intervention in the short-run, whereas some information would be given to the market for the long-run value of the exchange rate, either because all central banks would use a policy of monetary targets or because they would be committed to the attainment of predetermined values of the exchange rate for the long-run and would be able to hold their commitment. The EMS arrangement is quite the reverse.

What we mean by "predetermined exchange rate in the long-run" is not necessarily "fixed rates". In fact, fixity of exchange rates is a quite unessential problem. If, for instance, information on the future course of exchange rates was perfect, there would not be any reason to prefer fixed rates. Fixity would mean only that there is a link between the national inflation rates, which has no justification, especially if the "common" inflation rate is high. In fact, social welfare can be increased by central banks via two different ways:

- By giving good information on the future of exchange rates and/or monetary policies.
- By doing monetary policies such as the inflation rate is minimum.

Exchange rate fixity does not imply that any of these functions is correctly performed, in particular if there is no firm commitment to maintain the fixity of exchange rates.

V. *Why monetary integration?*

The usual meaning of monetary integration is that of fixity of exchange rates. We have just seen that a regime of fixed rates has the following implications:

- In the long-run, if fixity does exist between the currencies of a zone, it only implies a common rate of inflation and one may wonder whether it is really an important achievement. In fact mo-

netary management cannot be evaluated without referring to the role of money. In that respect, the aim of monetary management must be price stability. Fixity of exchange rates *per se* does not imply a low inflation rate. Let us imagine, for instance, that there is a high inflation rate in a zone with fixed rates. The holders of money have no more currency option. Had exchange rates been floating, it could have happened that monetary management be stricter in some countries, so that their citizens would have benefited from flexible exchange rates. Moreover, the valid solution for such a situation — where there are different inflation rates in different countries — is not to impose fixity of exchange rates to all (with the possibility of a high common rate of inflation) but to suppress all obstacles to currency competition so that the citizens of countries where the rate of inflation is higher can choose another, more useful, currency.

— In the short run, fixity of exchange rates may have costs and it may not be superior to a system of stabilization by the market.

To summarize, we do believe that the claim for monetary integration under the form of fixed exchange rates rests on a misunderstanding of the meaning of "integration". Economic theory does teach us that consumers benefit from the "integration" of markets, i.e. the possibility to choose freely the goods they prefer without having to consider the place of production, the name or the nationality of the producer. The advantages of such an integration are those of competition. What is called "integration" in the international monetary field is quite the contrary: it does not mean "integration of free markets", but "integration of producers". The aim of monetary integration is not to increase the freedom of choice by consumers (currency-holders), but to restrict the number of producers by integrating them, by obliging them to produce only one good, whatever it is. In other words what is called "monetary integration" usually is nothing else than the building of a public monopoly for the production of money all over a given zone. The EEC experience is perfectly clear in that respect. More generally it is also evident that EEC has shifted from the building of a "common market" to the contrary notion of implementing "common policies". Monetary integration is but an example of this tendency.

Because there is no free competition for the production of money in each country, integration is conceived not as competition between different producers of different countries, but as a common and monopolistic organization of existing public producers, who want to avoid competition for the financing of international transactions. The present European monetary unification is nothing else than the organization of a cartel between national monetary systems, with all the difficulties which necessarily arise in such systems. The EMS is a more or less successful attempt at unifying the production of money, but not at constituting a zone of optimal money production.

VI. *The monetary organization of a small open economy*

The European experience is concerned by the common organization of a monetary system between countries which are more or less similar and

monetary unification has meant the adoption of an exchange rule. We do know that such a rule is not sufficient and that another rule is necessary: either an additional one to define the common rate of growth of the quantity of money in the zone; or an alternative one, as can be the case with currency competition (which implies floating rates).

The problem is slightly different for a small country which is considering possible choices. For instance, an exchange rate rule is sufficient, since the small country has not to care about the determination of the rate of growth of the quantity of money in the zone to which it belongs. The monetary policy of the zone is, for instance, independently determined by the key-currency country. The citizens of the small country just get the same stability as those of the key-currency country, at least if the monetary fluctuations are not amplified by the national monetary system of the small country. As we have already underlined, a 100% reserve system favors the good working of such an organization. This case is that of Chile.

The theory of optimum currency areas, which has been mainly developed in the sixties, was concerned with similar problems. Its aim was to propose criteria in order to help decide whether a given country had interest in being linked to some other countries or to be independent. The general conclusion of the literature was that the choice depends basically on the more or less great ability of the country to do a stable monetary policy in comparison to that of other countries to which it could potentially be linked.

The propensity to import stability or instability from abroad was linked to such criteria as the degree of openness, the degree of financial integration, etc... However, it seems to us that such criteria are only of a secondary importance. In fact, the "ability to have a more or less stable monetary policy" than other countries is not an exogenous fact. It all depends on the free decisions of monetary authorities. Therefore, rather than looking at countries which are potentially more stable and from which monetary stability could be imported, it would be more important to look at possible rules and organization in order for the concerned country to have a stabilizing monetary policy. There is no reason for a stable monetary policy not to be possible in a small country. Therefore, the choice of the exchange regime is only a consequence of relative monetary policies in the country and abroad.

It is often said that a small country has to be linked to its main trading partner⁷. We do not believe this opinion to be generally valid for the basic reason that there is no theoretical or practical justification for the production and the circulation of a currency to be linked to a given national territory. In the present paper we do not discuss the issue of world competition in currency; but even if we consider the national organization of the present world monetary system, we have to admit that the fact that a country is "small" may not be of importance as regards its monetary organization. Switzerland gives us the example of a small country which has advantage in not being linked to other countries. Its efficient monetary

⁷ As we mentioned in the introduction, this opinion has been expressed, for instance, by Milton Friedman.

policy has the consequence that the monetary area of the Swiss franc is much larger than the Swiss territory. There is no real obstacle for a small country to issue a stable currency of very wide acceptance.

It is also frequently argued that the short run variability of exchange rates under floating rate, would be too large for a small country which has, for instance, very specialized exports. The volatility of export proceeds would imply rapid changes in the exchange rate, with possible important effects on national prices. However, we are not convinced that such a situation makes fixed rates necessary. In fact, monetary arrangements cannot cope with real shocks, as is the case for trade fluctuations. Real problems call for real solutions (for instance diversification of exports adaptability of national *real* incomes to the fluctuations of export proceeds, etc...). Moreover, the short-run variability of exchange rates could be of minor importance if there was an efficient financial market (with stabilizing speculation) in order to smooth out the fluctuations in proceeds.

In other terms, the consideration of the short run variability of variables ought not to let people forget the necessary long run stability. As we have seen with the example of Europe the worst system is the one where there is fixity of exchange rates in the short run and variability in the long run, where people do not get any additional information from the existing monetary and exchange rate arrangements and where the long run stability of money is not warranted.

It seems to us that two solutions only have to be considered:

- Freely floating rates with a stable monetary policy, which implies probably a monetary Constitution.
- A unified currency, i.e. perfect equivalence between the currency of the small country and that of one large country, if there is a sufficient confidence in the ability of the large country to do a stable monetary policy. In such a case it is preferable not to have a band of fluctuation around the parity (i.e. perfect fixity) and a 100% reserve system.

The organization of a monetary zone where countries have the same rights and the same obligations is to be avoided. In our opinion, this conclusion may be the main one to be drawn from the European experience.

TABLE 1

Retail Prices

Countries	1977	1978	1979	1980
Germany	3.7	2.7	4.1	5.5
France	9.4	9.1	10.8	13.7
Italy	17.0	12.1	14.8	21.0
Belgium	7.1	4.5	4.5	7.6
Netherlands	6.4	4.1	4.2	6.7

TABLE 2

Real Effective Exchange Rates

Date	Germany	Belgium	Denmark	France	Italy	Netherlands
1977	102.7	100.0	97.5	96.6	92.4	104.0
1978	103.4	99.9	103.7	97.3	90.9	103.9
1979	104.2	97.3	101.8	99.2	90.7	100.5
1980	101.2	92.2	93.7	101.0	92.0	97.9
1980						
Jan.	104.5	94.9	95.7	99.9	93.1	100.1
Feb.	103.5	94.0	94.8	99.9	93.8	99.3
Mar.	102.0	93.0	94.2	100.3	92.5	98.6
Apr.	101.4	92.9	93.5	100.4	92.0	98.5
May	102.1	93.5	94.2	100.3	92.8	97.1
June	101.8	93.4	94.3	100.4	92.9	97.0
July	101.4	92.9	96.0	101.3	92.8	97.9
Aug.	100.6	91.6	95.7	101.6	92.9	97.8
Sep.	100.0	92.0	94.1	101.5	93.3	97.6
Oct.	98.9	91.1	93.4	101.3	92.7	96.6
Nov.	97.5	90.2	92.6	100.5	93.8	96.0
Dec.	96.9	89.9	92.2	100.5	93.5	95.3

Source: Morgan Guaranty, *World Financial Markets*, Jan. 1981.

N.B.— Index 100 in March 1973. The index of the real effective exchange rate is the index of the effective exchange rate adjusted for inflation differentials, measured by wholesale prices of non-food manufactures. Annual figures are averages of months.

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