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The International Trade Cycle, 1885-1896

by

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Thesis submitted for the degree of Ph.D. in Warwick University

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July 1988

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Acknowledgement

I must thank in the first place my parents, who have extended unlimited and unconditional support to me for so long. Therefore, it is natural that this study is dedicated to them. I am particularly indebted to Professor Abec G. Ford for guidance and encouragement, without which this study may not have been completed. I am grateful to Mr. G. T. Renshaw for helpful suggestions as to both argument and style. I would like to express my gratitude to Professor Jong Hyun Kim, who introduced me to economic history and has encouraged me ever since. Professor A. Maddison at the University of Groningen, Dr. G. Rich at the Schweizerische Nationalbank, and Professor I. Stone at the City University of New York kindly made invaluable data available to me. Thanks are due to my friends in Germany, Yoo Seong Cheong and Bong Bin Lim, for various help given to me, while I was collecting data there. Finally I should like to pay tribute to my wife's fortitude and patience during the past three memorable years.

Kentilworth, 1988

M. S. C.

Abstract

This study, aiming to explain the synchronisation of the national trade cycles in pre-WWI years, begins with a review of trade cycle theories. The pattern of international trade cycles in 1870-1914 are then examined and their structures discussed: the US and German home investment and British overseas lending are found to form major initial cyclical shocks. The short term fluctuations in the US and German domestic capital formation in pre-1914 period are shown to be closely related to technological development such as railways and electricity; the shifts in both the push of British home investment and savings conditions and the pull of capital importing regions are held responsible for the cyclical variations in British foreign investment. Cyclical patterns identified in money stocks of various countries are argued to result mainly from procyclical shifts in demand for money. Focusing then our attention upon the course of one international trade cycle in 1885-1896 in the US, Germany, Britain and Argentina, we find that the international upswing in the latter half of the 1880s was initiated by the start of railway building boom in the US as a consequence of the improvement in railway profitability due to agricultural development around the railways built during the previous boom in western states such as Kansas and Nebraska; the termination of largely British-financed Argentine railway construction boom due to overbuilding played an important role in triggering the world-wide depression in the early 1890s. These initial disturbances seemed to be diffused throughout the world mainly via trade and psychological channels. In contrast, it is demonstrated that international gold flows were not translated into significant monetary shocks, since banking systems were able to vary in a flexible manner supply of deposits according to demand; nor did financial crises, tending to break out after the downturn in the level of activity, seem to constitute major channels of transmission of cyclical shocks. As to the relevance of various types of trade cycle theories to the explanation of the cyclical experiences in the ten-odd years concerned, it is therefore concluded that the fluctuations in cyclical origins, e.g. US and Argentina, can largely be understood in the context of Schumpeterian theory of innovation; that although the shifts in expectations were not so purely autonomous as Keynes thought, they played important parts in the transmission of cyclical shocks from the origins to Germany and Britain; that Hickein full employment ceiling did not seem to develop in any of the four countries, which was probably to a great extent due to relatively free international trade and factor mobility; that weak multiplier-accelerator model kept alive by random shocks captures essential aspects of the pre-1914 British trade cycles; finally that monetary disturbances, such as gold flows and financial crises, did not appear important in either creating or transmitting cyclical forces.

INTRODUCTION

Economic fluctuations as a regular and recurrent phenomenon are known to be proper to industrial economies, whilst variations in the level of economic activity, those related with harvest and war in particular, were not absent in pre-industrial societies. Thus cyclical fluctuations in the modern sense seemed to develop first in Britain of the late 18th or early 19th century, the era of the 'first Industrial Revolution'.¹ Since from the initial stage of industrialisation external economic relations figured in the British economy², it is to be expected that the movements of the early 19th century British economy, the 'workshop of the world', had international repercussions: specifically, the variations in British imports reflecting changing levels of activity in Britain³ would have transmitted cyclical shocks to economies around her. The interdependence among the cyclical movements of various economies, however, seemed to become prominent in the second half of the 19th century, when industrialisation was in progress in wider parts of the world and as a consequence different regions were being connected more closely through trade and capital flows: we hear of the 'first world-wide commercial crisis' in 1867⁴, and of the tendency of cyclical

¹ P. Deane(1966) chapter 14.

² In Britain gross domestic investment was consistently exceeded by both imports and domestic exports in the late 18th century and throughout the 19th century in terms of decade average. B. R. Mitchell & P. Deane(1962), R. Davis(1979), C. H. Feinstein(1978)

³ On the relative importance of exports and investment in the early 19th century British trade cycles, opinions diverge. See A. D. Gayer, W. W. Rostow & A. J. Schwartz(1963), R. C. O.

Matthews(1964a)&(1964b), H. M. Boot(1984) J. R. T. Hughes(1956), P. Deane(1966) Chapter 14, P. Mathias(1983) Chapter 7.

⁴ J. R. T. Hughes(1956) p.194

fluctuations in major countries to synchronize in pre-WWI years.⁵ As is well-known, in the inter-war years the parallelism in the cyclical variations of economic activity among countries was displayed in a dramatic way. If in 1945-70 - with the business cycle outweighed by strong growth trend - cyclical convergence among countries was less distinct⁶, both 'classical cycles' and their international synchronisation were 'rediscovered' in the following decades.⁷

This study intends to throw some light upon the ways in which the trade cycles of major countries of the late 19th century were interconnected. The explanation of the interlocking of the key national trade cycles would, it is hoped, provide substantial clues to the understanding of the international trade cycles in 1870-1914 period. The following problems will therefore concern us: the sources of international economic fluctuations; the direction of the transmission of the trade cycles among countries; the nature of the channels of transmission; finally the extent to or the sense in which the 'world trade cycle' can be spoken of. To settle these points adequately, it would be necessary, as a first step, to determine the causes underlying the trade cycles in each of the key countries under consideration: we at least need to know whether the fluctuations of each of these economies originated exogenously or endogenously, and further questions on the nature of the factors responsible for producing fluctuations will follow. In seeking answers for these questions, we inevitably have recourse to existing theories of the trade cycle, and pass judgement on their realism.

⁵ W. Ashworth(1975) p.220

⁶ In post-1945 period, synchronization of economic fluctuations tended to be observable within, rather than among great regional trading blocs. H. van der Wee(1987) p. 78,79

⁷ OECD(1987) chapter 2 & 13, P. A. Volcker(1978)

To achieve these aims, a detailed analysis of the course of the trade cycle extending from the mid-1880s to the mid-1890s in some economies of central importance is made in this study. As emerges in the discussion in the following chapters, it was in this particular trade cycle that the working of major driving forces behind the pre-WWI international economic fluctuations was most distinctly visible.

If we delimit the area of study to the ten odd years between the mid-1880s and mid-1890s, our 'key' countries consist basically of the US, Germany, Britain and Argentina, while four more countries - France, Australia, Canada and India - will enter on the stage and make exit as occasion demands. The former four countries include the three greatest industrial powers (the US, Germany and Britain), one nation dominating international trade and finance (Britain), and one of the fastest growing primary producers (Argentina) in the years concerned. The eight countries accounted for more than half of the total world trade, and the four industrial countries around three-quarters of world industrial production in the pre-WWI years. Therefore, it does not appear unreasonable to draw some inferences about the fluctuations of the world economy on the basis of our findings on the interrelations among the cyclical movements of these economies.

We are interested here mainly in the business cycles with a period of 7-10 years, i.e. Juglar cycles, rather than in cycles with shorter (Kitchin cycles) or longer (Kuznets and Kondratieff cycles) periods. In this study, a trade cycle will be defined from trough to trough, rather than from peak to peak; to indicate the phase from a trough to the following peak, upswing, boom and expansion will be

used as synonyms, while downswing, depression and contractions will describe the state of affairs from the peak to the subsequent trough. Although the business cycles are the main object of this study, it is important to stress that long swings, Kuznets cycles in particular, form an indispensable context in which the trade cycles are to be understood.

The presence of upward trends poses the problem of separation of short-run cycles from trend. In this study, where mostly annual data are used, a 9-year moving average device is preferred to calculating rates of change or fitting mathematical trend lines, as a method of isolating cycles. All three techniques have merits and demerits. Although by applying a 9-year moving average method we lose data for four years at both ends of a series, the other two procedures were rejected since they introduce more serious problems: in the variations of rate of change, one observes high-frequency noise, rather than the strongly autocorrelated movements traditionally associated with the business cycle; by deriving smooth trend lines from raw data by regression analysis, we run the risk of 'imposing a trend on the series and thus giving the impression of smooth underlying growth even though the basic underlying process of economic growth and development might be uneven'.²

To preview the following chapters: in Chapter I, a brief survey of the theories of the trade cycle is made. Four main types of theories are identified and examined, as the variants of which most of other theories of the business cycle seemed to develop. The subsequent two chapters make a preliminary examination of the international economic fluctuations in pre-WWI years. In Chapter II,

we first of all identify trade cycles in our eight countries during 1870-1914, and examine the degree of synchronisation among these national trade cycles; then, we decide whether each of these countries was a trade cycle exporter or importer, which would enable us to suggest the mechanism of international transmission of cyclical forces. Chapter III takes a close look at the movements of investment and money, the two variables regarded by two main diverging viewpoints as key cyclical sources.

On the basis of the overview of the international trade cycles in 1870-1914, in Chapters IV-VII we make a detailed examination of the course of one particular trade cycle - from the mid-1880s to the mid-1890s - in our four key countries. Each of these chapters is devoted to the discussion of the national trade cycle in one of the four countries, and divided into sections dealing with major sectors of an economy, such as home investment, overseas trade, capital flows, consumption, government and money. Chapter VIII integrates the results of the analyses in the preceding four chapters into an overall picture of the international trade cycle in 1885-1896. In Chapter IX, finally, we discuss the relevance of the trade cycle theories reviewed in Chapter I to the understanding of the variety of cyclical experiences in the ten-odd years.

THEORIES OF THE TRADE CYCLE: A SURVEY

Prior to entering upon the examination of the reality of the trade cycles in pre-1914 years, in this chapter we make a brief survey of some theoretical frameworks aiming to explain economic fluctuations in general. Since there is a vast literature on the subject, a selection is inevitable and inevitably more or less arbitrary. Here only four models are reviewed: the theories considering the role of technological development as of paramount importance; those emphasizing the changes in the expectations on the future yields of capital; those depending upon the multiplier-accelerator mechanism; and finally those stressing the role of monetary shocks. We, however, believe the choice made here to be reasonably representative: the theories to be discussed below embody the four major contributions to the understanding of the business cycle.¹

If in the 19th century economic fluctuations were widely believed in the framework of Say's Law to be a predominantly

¹ In his comprehensive and up-to-date survey of business cycle theories, V. Zarnowitz(1985) identifies seven major types of theory(p. 548,549): monetary disequilibrium theory(Hawtrey), monetary overinvestment theory(Hayek), the original monetarist theory(Friedman & Schwartz), market clearing with rational expectations theory(Lucas), cyclical real growth theory(Schumpeter), impulse and propagation in a real model(Friedrich), and finally disequilibrium theory of investment and financial instability(Minsky). If it is allowed to group the first four types of theory together in view of the fact that they all stress monetary factors, we have four main categories, which correspond with the models dealt with in this chapter.

monetary phenomenon, "Trade cycle theory grew out of ... discontent with the basic premises in classical economics." Thus, let us start with the two major challengers of the traditional understanding of the trade cycles.

1. Robertson & Schumpeter

In 1915, D. H. Robertson expounded a theory of 'industrial fluctuations' in which real forces predominate, while monetary and psychological causes play the part of exaggerating the cyclical fluctuations set in motion by real forces.¹

Three major factors, Robertson says, can account for the beginning of an upswing: i) growth of productivity by the adoption of 'improved organisation and equipment of man in his fight against natural obstacles'² under the stimulus of depression; ii) good harvests; iii) finally, 'the increased attractiveness of investment'. Of these three factors, according to Robertson, to the first neither a sole nor a predominant place can be allowed in reviving industry as a whole, whereas the effect of good crop on industry is not always clear and can be weakened by various factors. Therefore the third factor could safely be held to be most critical in the start of an expansion.³

Attractiveness of investment or 'marginal utility of constructional goods' can be increased i) by the confidence influenced by harvest condition or ii) by 'the wearing out of an unusually large number of the instruments of production in some important trade or group of trades' or iii) finally by 'the occurrence of invention'.⁴ In view of the reservation expressed by Robertson on the working and effect of

¹ According to J. R. Prasley(1978) p.30, Robertson is 'the first British economist to stress the role of real factors and not monetary factors in the trade cycles'.

⁴ D. H. Robertson(1915) p.128

⁵ D. H. Robertson(1915) pp.125-164

⁶ D. H. Robertson(1915) p.157

depreciation', he appears to have thought harvest and invention to be two major factors affecting confidence and thereby the attractiveness of investment. It is important to note that as an example of the 'psychological influence of crop volumes' Robertson presents us the case of the British capital exports to Argentina and Canada in the pre-WWI years - especially the lagging of the changes in the Argentine imports of steel behind those in her wheat exports - rather than a case of any domestic relationship between agriculture and industry; on the other hand, domestic industries such as railway, steel, electricity are given as instances of inventions stimulating investment.

The 'essential cause' which brings the boom to an end, is 'over-investment', while the role of agriculture at the upper turning point is reduced to a 'supplementary' factor. Robertson elaborates on his concept of 'over-investment' in the following way:

The check to investment arises from the recognition not necessarily that to maintain it upon the same or an increased scale would be physically impossible, but that it would involve a sacrifice of present enjoyment disproportionate to the result. Consumable goods may be abundant, but if it is known that with the close of the period of gestation they are about to become far more abundant still, a wise community will devote them to eliciting the immediate production of other consumable rather than of constructional goods. The fundamental meaning of over-investment is failure to attain the ideal distribution of the community's income of consumable goods through time. Although therefore a country may be actually increasing both its current consumption and even its accumulation of consumable goods, it may still be engaged in over-investment.⁷

According to Robertson, it is the 'stress of competition, aggravated by the length of time which must elapse before the new

⁷ D. H. Robertson(1915) p.37 'as an explanation of general fluctuation, it is open to obvious objection ... Nevertheless, there is considerable evidence in support of careful application of the principle to particular trades.' Stress added.
⁸ D. H. Robertson(1915) p.180

instruments projected can be brought into working order' that explains why investment is carried out beyond the point 'beyond which any further investment would involve a sacrifice of present enjoyment disproportionate to the enjoyment which will be afforded by the new consumable goods which it is proposed to create.'⁹

In sum, in Robertson's model of the trade cycle the increase in investment activity mainly due both to invention, affecting domestic investment in particular, and to a good harvest, stimulating the foreign investment in primary producing regions specifically, is of central importance in accounting for the beginning of an upswing, while over-investment as defined above explains why the upswing is ultimately reversed. Thus in Robertson, short term instability is an inevitable feature of the growth path of an industrial economy.¹⁰

Side by side with Robertson, J. A. Schumpeter constructed a model of economic fluctuations, placing perhaps greater emphasis upon the role of technological advance in a broad sense.¹¹ It would be best to begin with his concepts of equilibrium or 'stationary flow', and of 'innovation', which disturbs equilibrium and thus causes an economy to fluctuate.

For Schumpeter, equilibrium values are defined as 'the values of prices and quantities which are the only ones, the data being what they are in each case, to satisfy' ... 'the relations known to subsist between the elements of the system', and equilibrium as 'the state of

⁹ D. H. Robertson(1916) p.240

¹⁰ 'out of the welter of industrial distortion the great permanent riches of the future are generated'. D. H. Robertson(1916) p.254

¹¹ His view was first formalised in *Theorie der Wirtschaftlichen Entwicklung*, published in 1912, and further developed in *Business Cycles*, published in 1939.

the system which obtains if all prices and quantities take their equilibrium values'.¹² Thus, it could be said that equilibrium values will not change, unless there are variations in 'data'; and that the 'time factor' can be abstracted from, since flows are constant in equilibrium: 'we may thus visualize an economic process which merely reproduces itself at constant rates'.¹³ Schumpeter calls such a process 'stationary flow'.

Such a view of equilibrium, according to Schumpeter, is one of general or Walrasian equilibrium, and he underlines the difference between his equilibrium on the one hand and partial or Marshallian equilibrium and Keynesian aggregative equilibrium on the other hand. Partial equilibrium, he thought, is suitable for Marshallian type of analysis, and has the advantage of 'simplicity and handiness'; but it is neither a 'strictly correct' concept of equilibrium, nor considered to be important in the analysis of the trade cycle. On the other hand, in spite of 'its usefulness for some purposes', aggregative equilibrium is unsatisfactory for the reasons given in the following passage:

it is obvious that this kind of equilibrium [i.e. aggregative equilibrium] is compatible with most violent disequilibria in every other sense. And these disequilibria will assert themselves by changing the given situation, including the aggregative quantities themselves. It is, therefore, misleading to reason on aggregative equilibrium as if it displayed the factors which initiate changes and as if disturbance in the economic system as a whole could arise only from those aggregates It keeps analysis on the surface of things and prevents it from penetrating into the industrial processes below, which are what really matters.¹⁴

In Schumpeter's model, the alternation of boom and depression can be created out of the state of equilibrium only by 'innovation',

12 J. A. Schumpeter(1939) p.41, 42

13 J. A. Schumpeter(1939) p.38

14 J. A. Schumpeter(1939) p.43,44

which is defined as simply as 'any "doing things differently" in the realm of economic life.'¹⁵ It can include the following: introduction of new commodities, technological change in the production of commodities already in use, the opening up of new markets or of new sources of supply, Taylorization of work, improved handling of material, and the setting up of new business organization such as department stores.¹⁶ In other words, innovation is 'setting up of a new production function.'¹⁷ 'Actions which consists in carrying out innovations' are called 'Enterprise, and the individuals who carry them out are 'Entrepreneurs'.¹⁸ Profit, which motivates Entrepreneurs to innovate, in capitalist society originates ultimately from innovation¹⁹; interest as well as profit cannot exist without innovation, since profit is both 'the source and cause' of interest; therefore in the state of stationary equilibrium both the interest rate and profit would be zero.²⁰

On the basis of such ideas of equilibrium and innovation, Schumpeter develops his model of the business cycle through three stages, which he calls the first, second and third approximation. The First Approximation or Pure Model shows us the basic process of economic fluctuations caused by the disruption of the state of equilibrium by the act of innovation, whereas in the Second and Third Approximation flesh is put on the 'skeleton', and thus the picture is made more realistic by taking various less fundamental factors into consideration.

15 J. A. Schumpeter(1939) p.84

16 J. A. Schumpeter(1939) p.84

17 J. A. Schumpeter(1939) p.87

18 J. A. Schumpeter(1939) p.102

19 J. A. Schumpeter(1939) p.106

20 J. A. Schumpeter(1939) p.124

In the Pure Model, upswing is initiated by the first entrepreneur who decides to produce a new consumers' good, and maintained by the 'following of the other entrepreneurs in the path of innovation'; this is likely to happen in the same or related field. The period of upswing is characterized by 'net surplus', rise in prices of factors of production and interest rate and credit expansion. During the earlier part of upswing, however, there would be 'no net increase in total output', but the composition of output will change: more of producers' goods and less of consumers' goods will be produced relatively to the state of preceding equilibrium. For in the preceding state of equilibrium all industries were producing their optimum output, and the activities of innovation implies more investment than before, which involves a gestation period. On the other hand, with the progress of upswing, the new plants established and run by the entrepreneurs get into working order and begin to pour new commodities or old commodities made by new technique into the market, and thus the possibility is given that in the later part of upswing total output increases.²¹

As long as innovating activities continue, the upswing, despite the disequilibria created in the process, can be maintained, and the upper turning point will not be reached. However, entrepreneurial activities are bound to slacken, and thus upswing gives way to downswing, Schumpeter says, for the following two reasons: in the first place, 'since entrepreneurial activity characteristically starts off in a definite direction and does not distribute itself equally all over the industrial field its possibilities are, in every instance and in every given state of the economic body, definitely limited.' Secondly, since the the enterprise creates disequilibria and thus

21 J. A. Schumpeter(1939) p.130-134

causes the 'revision of values of all the elements of the system', it becomes difficult to calculate costs and receipts in a satisfactory way, and therefore 'difficulty of planning' and 'risk of failure' are greatly increased.

In downswing, prices, the interest rate and the volume of credit decline; and the economy recedes to a new equilibrium, which is characterized by 'a greater social product of a different pattern, new production functions, equal sum total of money incomes, a minimum (strictly zero) rate of interest, zero profits, a different system of prices and a lower level of prices'. What happens during downswing, Schumpeter says,

constitutes the response by the system to the results of the entrepreneurial activity - adaptation to the new things created, including the elimination of what is incapable of adaptation, reabsorption of the results of innovation into the system, reorganization of economic life so as to make it conform to the data as altered by enterprise, remodeling of the system of values, liquidation of indebtedness.²²

Thus, the first approximation gives us a picture of a trade cycle consisting of two phases - prosperity and recession - and the relation of the cyclical process with points of equilibrium could be summarized by Figure I-1.

In the Second Approximation, Schumpeter introduces factors of superficial importance, such as speculation and errors in foresight - the Secondary Wave - into the picture. These factors play mainly the role of exaggerating and intensifying the up- and downward movements of the economy. Thus, with the Secondary Wave, the economy will expand beyond the level where it would have stopped in the Pure Model, while in the case of downswing the economy will not

22 J. A. Schumpeter (1939) p.137

Fig 1-1 Schumpeter's First & Second Approximation to the Business Cycle

First Approximation



Second Approximation



A, B, C: neighbourhoods of equilibrium

Source: J. A. Schumpeter (1939)

land softly on, but plunge below the equilibrium level which it would have reached without the working of the Secondary Wave. However, the downward movement does not continue forever; when the forces which drew the economy down away from the equilibrium spend themselves, it will stop contracting and begin to move upwards to the new equilibrium level, which does not need to be the same as the equilibrium which would have been attained in the absence of overshooting. Therefore, when we take these secondary factors into consideration, we have a schema of the trade cycle with four, instead of two, phases - prosperity, recession, depression and recovery - which are described also in Figure I-1.²³ It may be added that in the Second Approximation, while the upper turning point is determined basically in the same way as in the Pure Model, i.e. by the slackening of innovation, it is mainly the Secondary Wave that is responsible for fixing the lower turning point.²⁴

According to Schumpeter, not only can the theoretical scheme developed so far accommodate the coexistence of several cyclical movements, but also there are some reasons to think that cycles with different periods and amplitudes may proceed simultaneously. First of all, 'the period of gestation and of absorption of effects by the economic system is different for all its innovations.' Secondly, in some cases, 'innovation is carried out in steps each of which constitutes a cycle. But these cycles may display a family likeness and a relation to one another which is easy to understand and which tends to weld them into a higher unit that will stand out as a historical individual.' As examples of such cases, Schumpeter lists railroadisation, electrification and motorization of the world. Finally,

²³ In this figure is reflected Schumpeter's idea that cyclical units should be defined not from trough to trough or from peak to peak, but from one to another point of equilibrium.

²⁴ J. A. Schumpeter (1939) p.145-157

'a sequence of cycles, whether independent of one another or not, may be the result of processes which have also effects other than those which show in the cycles themselves.' The Industrial Revolution and railroadization could serve as examples of such processes.²⁵

While the number of cycles may be greater or smaller than three, Schumpeter finds it 'useful' and 'convenient' to adopt the three cycles schema of Kondratieffs (with a period of about 50 years), Juglars (with a period of 9-10 years), and Kitchens (with a period of about 40 months)²⁶; the Third Approximation consists mainly in accepting the simultaneous existence of these three different cycles. Simon Kuznets summarized the chronology of the Kondratieff cycles given in Schumpeter's *Business Cycles* in a tabular form, which is reproduced here as Table I-1.²⁷

In sum, in Schumpeter's theory of the trade cycle, the fluctuations in the level of economic activities are determined basically by the level of innovation, while at the same time it is admitted that secondary factors such as imperfect foresight and speculation transform the underlying process to a certain extent. In the words of A. Hansen, 'It is an endogenous process determined by the inner nature of a dynamic economy; but it is exogenous in the sense that innovation is a change in the basic data.'²⁸ It is worth mentioning that Schumpeter's notion of 'innovation' appears broad

25 J. A. Schumpeter (1939) p.161-169

26 J. A. Schumpeter (1939) p.169,170

27 It should be noted here that Schumpeter thought in his *Business Cycles* that innovations are the common cause of all these three major cycles (J. A. Schumpeter (1939) p.172); he is, however, said to have admitted that the Kitchen cycles were closely connected with the changes in inventory investment rather than with innovation shortly before his death. R. A. Gordon (1961) p.387

28 A. H. Hansen (1961) p.130

Table I-1 Chronology of Kondratieff Cycles

prosperity	recession	depression	revival
Industrial Revolution Kondratieff, 1787-1842: cotton, textile, iron, steam power			
1787-1800	1801-1813	1814-1827	1828-1842
Bourgeois Kondratieff, 1842-1897: railroadization			
1843-1857	1858-1869	1870-1884/5	1886-1897
Neo-Mercantilist Kondratieff, 1897- : electricity			
1898-1911	1912-1924/5	1925/6-1939	

Source: S. Kuznets(1940)

enough to include Robertson's 'invention' and 'harvests', in so far as Robertson emphasises the agricultural change in primary producing countries as a factor influencing capital exports into these regions. For, as we have seen, by 'innovation' Schumpeter meant not only technological advance, but also 'the opening up of new markets or of new sources of supply'.

After the Second World War, the line of explaining economic fluctuations mainly in terms of technological changes appears to have been succeeded and developed by R. A. Gordon and T. Wilson.²⁹ They cast doubt upon the realism and usefulness of the usual distinction between autonomous and induced investment, and tried to develop an investment function which could explain the 'complex reality' more adequately by taking various factors other than the level of output and profit also into consideration: the accelerator and profit principles are treated as 'special cases', and included in the investment function as among the key factors affecting the level of investment activities.

According to Gordon, 'the volume of current investment is a function of the (changing) state of investment opportunities, of other variables which also influence profit and sales expectations, and of the variables influencing liquidity attitudes.'³⁰ In other words, the two main determinants of the level of investment are: 'underlying investment opportunities', the stock of which at any moment is defined as 'the difference between the existing capital stock and that which businessmen would find it most profitable to have if they were well informed regarding all current cost and demand relationships

²⁹ R. A. Gordon(1955), T. Wilson(1953)

³⁰ R. A. Gordon(1955) p.27

and also the forces making for long-run growth in the economy"³¹; and 'inducements to exploit these opportunities', which change cyclically.

Variations in investment opportunities can be brought about by factors wholly or partially exogenous, such as technological change, population growth, government intervention, changes in taste etc., as well as by cyclical factors like the level of output. Thus, for Gordon, the changes not only in the level, but also in the 'composition' of output through the introduction of both new products and new technique for producing existing commodities, are critical in determining the level of investment activities. This is exactly what is meant by T. Wilson's 'structural effect': 'what matters is not only the level of total output but the kinds of goods of which this vast aggregate is composed and the suitability of existing capital for producing them.' Therefore, in spite of the existence of excess capacity, there can occur a strong investment boom, since 'motor-cars cannot be manufactured satisfactorily in blacksmiths' shops'.³² Thus, in both Gordon and Wilson technological progress influences significantly the level of investment through 'structural effect' or by changing the 'state of investment opportunities', and therefore the level of activity, as in Robertson and Schumpeter.

31 R. A. Gordon(1955) p.25

32 T. Wilson(1953) p.82

2. Keynes

While Keynes is said to have made a 'revolutionary' contribution to our understanding of the laws of motion of modern industrial economies, he did not appear to say much about the trade cycle phenomenon itself.¹ Most of his discussion on the trade cycle is to be found in a brief chapter, 'Notes on the Trade Cycle', in *The General Theory of Employment, Interest and Money*.

According to Keynes, if a series of phenomena is to be called the trade cycle, it has to show the following three characteristics: 'upward and downward tendencies [which, once started, do not persist for ever in the same direction but are ultimately reversed]; 'some recognisable degree of regularity in the time-sequence and duration of the upward and downward movements; and finally the phenomenon of crisis.' While the trade cycle defined as such is a 'highly complex' phenomenon, and involves fluctuations in almost every economic variable, it is, he thought, mainly the fluctuations in investment that matter.

Whereas in Keynes' system it is both the rate of interest and the marginal efficiency of capital that determine the level of investment activities, he considers the marginal efficiency of capital rather than the rate of interest as the crucial factor explaining the cyclical fluctuations in investment, and consequently the trade cycle itself.²

¹ 'Keynesian economics, in spite of all that it has done for our understanding of business fluctuations, has beyond doubt left at least one major thing quite unexplained; and that thing is nothing less than the business cycle itself.' J. R. Hicks(1950) p.1

² J. M. Keynes(1936) p.314

³ J. M. Keynes(1936) p.313

The trade cycle is best regarded, I think, as being occasioned by a cyclical change in the marginal efficiency of capital though complicated and often aggravated by associated changes in the other significant short-period variables of the economic system.⁴

What then determines the variations in the marginal efficiency of capital? As is well known, Keynes defines the marginal efficiency of capital 'as being equal to that rate of discount which would make the present value of the series of annuities given by the returns expected from the capital asset during its life just equal to its supply price.'⁵ The marginal efficiency of capital of a certain type of capital, he thought, will decline with the increase of investment in that type of capital for the following two reasons: 'partly because of the prospective yield will fall as the supply of that type of capital is increased, and partly because, as a rule, pressure will cause its supply price to increase: the second of these two factors being usually the more important in producing equilibrium in the short run, but the longer the period in view the more does the first factor take its place.'⁶

Besides these objective relations, Keynes points to the uncertainties underlying long-run expectations, and of 'animal spirits' as significant factors affecting the marginal efficiency of capital, though he hastens to add that 'we should not conclude from this that everything depends on waves of irrational psychology. On the contrary, the state of long-term expectation is often steady, and even when it is not, the other factors exert their compensating effects.'⁷

4 J. M. Keynes(1936) p.313

5 J. M. Keynes(1936) p.135

6 J. M. Keynes(1936) p.136

7 J. M. Keynes(1936) p.162

Thus, the marginal efficiency of capital is made to depend 'not only on the existing abundance or scarcity of capital goods and the current cost of production of capital goods, but also on current expectations as to the future yields of capital goods.'⁸ However, of these three factors influencing the marginal efficiency of capital, 'expectations of the future ... play a dominant part in determining the scale on which new investment is deemed advisable'⁹, consequently in the process of the trade cycle. So, as to the boom, Keynes says:

the later stages of the boom are characterized by optimistic expectations as to the future yield of capital-goods sufficiently strong to offset their growing abundance and their rising cost of production and, probably, a rise in the rate of interest also.¹⁰

And as to the downswing:

It is of the nature of organized investment markets, under the influence of purchasers largely ignorant of what they are buying and of speculators who are more concerned with forecasting the next shift of market sentiment than with a reasonable estimate of the future yield of capital assets, that when disillusion falls upon an over-optimistic and over-bought market, it should fall with sudden and catastrophic force.¹¹

Although it is obvious that in Keynes' explanation of the trade cycle expectations dominate the scene, he does not appear very specific on why there should occur such fluctuations in expectations: for example, on the emergence of the aforementioned disillusion at the upper turning point, he says,

The disillusion comes because doubts suddenly arise concerning the reliability of the prospective yield, perhaps because the current yield shows signs of falling off, as the stock of newly produced durable goods steadily increases. If current costs of production are thought to be higher than they will be later

⁸ J. M. Keynes(1936) p.316

⁹ J. M. Keynes(1936) p.316

¹⁰ J. M. Keynes(1936) p.316,316

¹¹ J. M. Keynes(1936) p.316, 317

on, that will be a further reason for a fall in the marginal efficiency of capital.¹²

In this passage, all Keynes does is to list again the above mentioned three factors affecting the marginal efficiency of capital, and he does not explain why the dominant factor, expectations, changes: 'disillusion' is explained by 'doubts', and they sound synonymous.

On the other hand, as to the beginning of revival, Keynes discusses 'absorption of surplus stocks' and 'a sufficiently obvious scarcity to increase the marginal efficiency of capital' due to 'the shortage of capital through use, decay and obsolescence'. But these objective factors appear to play only the role of explaining 'why the duration of the downward movement should have an order of magnitude which is not fortuitous, which does not fluctuate between, say, one year this time and ten years next time, but which shows some regularity of habit between, let us say, three and five years'.¹³ It is 'the uncontrollable and disobedient psychology of the business world' that fundamentally determines the revival of the marginal efficiency of capital and the upturn of an economy; but Keynes throws no further light upon the reasons behind the favourable turn of expectations either.¹⁴

12 J. M. Keynes(1936) p.317

13 J. M. Keynes(1936) p.317

14 R. A. Gordon(1961) p.349 says, 'this[Keynes] theory of the trade cycle] is a psychological theory that centres on the influence of errors of optimism and pessimism on the volume of investment, to which ... Keynes assigns the key role in his theory of employment. As with other psychological theories, this explanation is weak in its consideration of the "real factors" that underlie the changes in business expectation. At best, Keynes offers only a few tentative suggestions as to why the optimism of the boom must eventually end, and his explanation of why the pessimism of the downswing ends is certainly incomplete.'

To summarize, in Keynes, the trade cycle is mainly a phenomenon of investment, whose variations are determined largely by the shifts in the marginal efficiency of capital schedule, rather than those in the interest rate; the marginal efficiency of capital is affected by both objective factors, such as the amount of capital stock and price of investment goods, and subjective factors, such as expectations and 'spontaneous urge to action rather than inaction'; the latter seems to him of more significance than the former. In Keynes, the variations in the state of future expectations, however, remain unexplained or, in the words of a modern rational expectations theorist, are treated 'as exogenous in the short term'¹⁵: future expectations are merely said to have a 'very precarious basis' and to be subject to sudden and violent changes. It may finally be added that recently market psychology was again brought to the centre of the explanation of economic fluctuations by the business cycle theorists, such as R. Minsky, who stress financial instability of capitalist economies.¹⁶

¹⁵ D. E. R. Begg (1982) p.19

¹⁶ R. Minsky (1982) For the survey on the theories of financial instability, see V. Zarnowitz (1985) p.562-564.

3. Hicks

Hicks' trade cycle theory might be considered to represent one of the most important developments in business cycle modelling after Keynes, developments which lay mainly in introducing the multiplier-accelerator mechanism into theoretical frameworks together with various devices to account for turning points. To begin with, two basic features of the Hicksian model of the trade cycle may be pointed out: in contrast with Schumpeter's model a dominant position is occupied by demand with supply largely being determined by demand; and real rather than monetary factors play a central role in the explanation of economic fluctuations. Of many real factors, for Hicks, as for Keynes and Schumpeter, it is investment to which attention should be drawn in order to understand the cyclical fluctuations of an economy. However, he differs from them in that he regards the distinction between autonomous and induced investment as essential, and that in his system it is the movement of the latter that accounts for the fluctuations of the whole economy. Whereas the induced investment can be defined as the investment 'called forth, directly or indirectly, by past changes in the level of output', autonomous investment is the 'investment for which this effect is so small as to be insignificant', such as 'public investment, investment which occurs in direct response to inventions, and much of the long-range investment ... which is only expected to pay for itself over a long period.'¹ In Hicks' theory of the trade cycle, the role of autonomous investment is limited to accounting for long run growth, which is separable from short term fluctuations.²

¹ J. R. Hicks (1960) p. 69

² In contrast, in Schumpeter the trade cycles are an integral part of long run growth: 'analysing business cycles means neither more nor less than analysing the economic process of the capitalist era ...

Hicks' such a view expresses itself when he declares that 'the theory of the Multiplier offers in itself no explanation of the tendency to fluctuate', and that 'the main cause of fluctuations is to be found in the effect of changes in output (or income) on investment', i.e. in the acceleration principle. It is because 'lags in consumption tend to damp down the fluctuations in income which result from given fluctuations in investment' that Hicks considers the multiplier mechanism as 'stabilizing' rather than generating fluctuations.

This however does not imply that cyclical fluctuations can be explained solely in terms of the acceleration principle at the expense of the multiplier; on the contrary, it is 'the interaction of the accelerator and multiplier' that needs to be brought to the centre of discussion. Now, to show this in detail, he assumes a 'regularly progressive economy' in which output and autonomous investment are growing at a constant rate, despite both the multiplier and accelerator being in operation.

In the 'regularly progressive economy', the following equation will hold:

$$E_t = A_0 + (1 - s)E_{t-1} + v(E_{t-1} - E_{t-2})$$

where E_t is the current equilibrium output of the above assumed economy, s the marginal propensity to save, A_0 autonomous

cycles are not, like tonsils, separable things that might be treated by themselves, but are, like the beat of the heart, of the essence of the organism that displays them.' J. A. Schumpeter(1939) p.v

3 J. R. Hicks(1950) p.56

4 J. R. Hicks(1950) p.37

5 J. R. Hicks(1950) Chapter II & III

investment, and v the investment coefficient, i.e., the ratio of the induced investment to the change in output. On the other hand, if there is an exogenous disturbance, the actual output path will diverge from the equilibrium output path; in this case the following equation will hold:

$$Y_t = A_t + (1 - s)Y_{t-1} + v(Y_{t-1} - Y_{t-2})$$

where Y_t is current actual output. Subtracting the first equation from the second, and writing y_t for $Y_t - E_t$, we have,

$$y_t = (1 - s)y_{t-1} + v(y_{t-1} - y_{t-2}).$$

If we call y_t absolute deviation of actual from equilibrium output, relative deviation r_t is defined as $r_t = y_t/E_t$, which could be transformed in the following way: $y_t = r_t E_t \approx r_t E_t(1 + g)^t$, since $E_t = E_0(1 + g)^t$ (where g is the constant rate of growth of equilibrium output).

Substituting this for y_t in the third equation, we get⁴

$$r_t = r_{t-1} (1-s+v)/(1+g) - r_{t-2} v/(1+g)^2$$

This second-order difference equation gives us the time path of r_t , and consequently of Y_t for given values of s , v and g . Though we shall have a different time path of Y_t for every different combination of values for s , v and g , it can be shown that four major patterns are identifiable in these variant time paths: in the first case, after increasing for a few periods, output declines steadily only

to reach the equilibrium level (the case when $v < (1 - \sqrt{s})^2$); in the second pattern, output displays diminishing fluctuations approaching the equilibrium level (the case when $(1 - \sqrt{s})^2 < v < (1 + g)^2$); in the case of the third pattern, output fluctuates about the equilibrium position with increasing amplitude and without any tendency to settle at the equilibrium position (the case when $(1 + g)^2 < v < (1 + \sqrt{s})^2$); in the remaining case, output moves explosively away from equilibrium (the case when $v > (1 + \sqrt{s})^2$).⁷

Of these four patterns, Hicks considers, on the basis of the statistical evidence concerning the US investment and economic growth during 1889-1938, the third and fourth cases, i.e., explosive cases, to be the more realistic. Since this, however, is at variance with normally observable moderate fluctuations along a growth trend, it becomes useful to introduce here the device of the full employment ceiling and the asymmetry in the acceleration principle.

By full employment ceiling is meant that 'there is a direct restraint upon upward expansion in the form of a scarcity of employable resources...[which makes] it ... impossible for output to expand without limit'.⁸ On the other hand, according to Hicks, 'falls in output...do not induce disinvestment in the same way as rises in output induce investment, ... [since] disinvestment in fixed capital can only take place by a cessation of gross investment ... [and] thus the adjustment of fixed capital to a decline in the level of output can only take place by a slow process of wearing-out, which must take a considerable time'.⁹; this is the meaning of the 'asymmetry'.

⁷ J. R. Hicks(1950) p.69-72

⁸ J. R. Hicks(1950) p.95

⁹ J. R. Hicks(1950) p.101

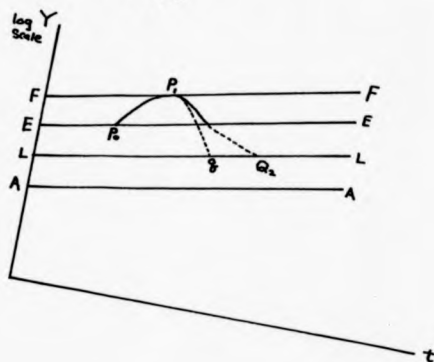
Equipped with the ceiling, the indirect check to disinvestment and the tendency to move explosively away from equilibrium, Hicks explains the process of cyclical fluctuations in the following way.(Fig I-2)

Let us start from a point(P_0) on the equilibrium growth line(EE), and assume that there is a disturbance which causes an upward deviation of actual from equilibrium output. Since we are supposing a divergent system, actual output will expand through the interaction of the multiplier and accelerator, taking the form of either simple explosion or divergent oscillation. Actual output, however, cannot increase beyond the limit of full employment ceiling(FF); but, when it reaches the ceiling, it begins to contract after 'creeping along the ceiling' 'for ... a very limited time'. Downturn is inevitable, Hicks says, because the rate of growth of output along the ceiling, which is indeed the maximum possible rate of growth at the state of full employment, is insufficient to induce the amount of the induced investment required for the maintenance of the growth of output along the ceiling.¹⁰

The acceleration principle would imply that the decline in output brings about negative investment. Due to the above explained 'asymmetry', this negative investment can occur only through the cessation of gross investment, which is equivalent to saying that the amount of negative investment is limited to the depreciation of existing capital stock. Thus, in Fig I-2, the actual course of downswing(P_1Q_1) is slower than the path which would have been followed had there been no such limit to negative investment(P_1Q_1).

10 J. R. Hicks(1980) p.98,99. It should be pointed out here that the assumption is necessary that the ceiling(FF) does not grow faster than the equilibrium growth line(EE).

Fig 1-2 Hicks' Trade Cycle



Source: J. R. Hicks(1950)

The process of downawing becomes in fact 'the case of the simple multiplier theory without an accelerator'.¹¹ At the same time, the limit to disinvestment also implies that as there was a ceiling for the upward movement, we now have a floor for the downawing, beyond which output cannot fall, and which is given by applying the simple multiplier¹² to the course of autonomous investment adjusted for depreciation by deducting a constant amount from the original autonomous investment.¹³

As the downturn was inevitable, upturn is also bound to come. Once output has reached the floor, it moves along the lower equilibrium line(LL). Since the lower equilibrium line is, as aforementioned, the product of the simple multiplier and the autonomous investment adjusted for depreciation, it must lie below the equilibrium output path(EE), obtained by applying the super-multiplier to the course of the original autonomous investment, but still has a positive slope. Thus, if output has reached and begun to move along the lower equilibrium line, this implies that output is growing again, which 'should bring the old accelerator back into action'. It depends upon the amount of existing excess capital exactly when the increase in output can bring the accelerator into operation, thus starting the upward movement in output towards the equilibrium output line(EE), where we began, and ultimately towards the full employment ceiling(FF).

11 J. R. Hicks(1950) p.102

12 The simple multiplier is defined as the multiplier which can be obtained when only the multiplier principle is in operation; this compares with super-multiplier representing the relationship between investment and income when both the multiplier and acceleration mechanisms are working.

13 J. R. Hicks(1950) p.102

In sum, in the Hicksian model, the accelerator-multiplier mechanism itself does not generate fluctuations, but only brings instability into the system; it is the full employment ceiling and non-linearity in the working of the accelerator principle that transform the innate tendency of the system toward cumulative expansion into fluctuations around a growth trend, with the former and the latter accounting for upper and lower turning points respectively.

In contrast with Hicks, R. Frisch, J. Tinbergen and M. Kalecki considered damped cycles as more realistic¹⁴: in the absence of further exogenous disturbances, fluctuations in the level of output diminish until the equilibrium position is reached, rather than growing explosively. In their models, therefore, erratic shocks are essential to keep fluctuations alive.

¹⁴ R. Frisch(1933), J. Tinbergen(1951) Chapter VIII, M. Kalecki(1954) Chap. 11 & 13 See also I & F. L. Adelman(1959) & (1960)

4. Friedman & Lucas

In the models of economic fluctuations dealt with in the previous sections, the prime mover in the cyclical process was sought in real factors - specifically, in investment. However there remains a type of theories considering the ultimate cause of the business cycle to be found in the variations of the quantity of money. Indeed, money has been regarded as a major source of cyclical fluctuations ever since the instability in the growth path of capitalist economies first attracted economists' attention: according to the Currency School the crises in the early 19th century were closely related the overabundance of currency¹; Hawtrey in 1913 and the proponents of the 'monetary' theory of the trade cycle in the interwar years, such as Hayek, considered the variations in credit supply to be at the bottom of the business cycle.² Here, we examine the post-1945 versions of the monetary tradition in the development of trade cycle theory.

According to Friedman, 'money is a pervasive element in the economy', and 'the stock of money is sizable compared with other aggregate economic magnitudes', while the phenomenon called the business cycle occurred only in monetary economies³; these seem to be the preliminary observations which led Friedman to look for the fundamental causes of cyclical fluctuations in the monetary sphere of an economy. Since these can hardly be said to be sufficient clues for suspecting the central and independent role of money in the

1 J. Viner(1937) p.221

2 V. Zarnowitz(1965) p.553

3 To be more precise, M. Friedman and A. J. Schwartz; in this section, Friedman indicates the two scholars.

4 M. Friedman & A. J. Schwartz(1963a) p.49

trade cycles, Friedman goes on to estimate the money stock in the United States since 1867, and to observe the following facts: the money stock displays cyclical movements; the fluctuations in the rate of change in the money stock precede the fluctuations in general business conditions⁵; 'the amplitude of the cyclical movement in money is closely correlated with the amplitude of the cyclical movement in general business'; 'the stock of money is much more closely and systematically related to income over business cycles than is investment or autonomous expenditures'.⁶

Friedman, however, still considers these findings to be insufficient for maintaining the monetarist theory of the trade cycle, that is, for arguing that the causal relation runs from money to business. To determine the direction of causality, according to Friedman, the evidence 'garnered from study of the historical circumstances underlying the changes that occurred in the stock of money' is needed in addition; evidence which shows us more than anything else that:

The changes in the stock of money cannot consistently be explained by the contemporary changes in money income and prices. The changes in the stock of money can generally be attributed to specific historical circumstances that are not in turn attributable to contemporary changes in money income and prices. Hence, if the consistent relation between money and income is not pure coincidence, it must reflect an influence running from money to business.⁷

⁵ Attention is drawn to the fact that the fluctuations in the rate of changes in money stock on the one hand and those in the absolute level of indicators of general business conditions on the other hand are being compared. It is, however, 'a mathematical fact that, given any time series A which oscillates in a regular ('sinusoidal' to be precise) fashion, the rate of changes of A will lead A itself by a quarter of a cycle.' N. Rau (1974) p.76

⁶ M. Friedman & A. J. Schwartz (1963a) p.63

⁷ M. Friedman & A. J. Schwartz (1963a) p.60

The evidence convinces Friedman that the 'appreciable changes in the rate of growth of the stock of money are a necessary and sufficient condition for appreciable changes in the rate of growth of money income; this is true both for long secular changes and also for changes over periods roughly the length of business cycles.'⁸ Thus, in Friedman's model of the business cycle, the changes in the money stock is given exogenously, and these changes cause the economy to fluctuate.

How do the changes in the quantity of money induce those in nominal income? In answering to this question, Friedman begins by assuming an 'Elysian state of moving equilibrium in which real income per capita, the stock of money, and the price level are all changing at constant annual rates'; in this state, it is further assumed, 'all interest rate in real terms ... and also the ratio of wealth to income are constant, so that the wealth elasticity of demand for money can be approximated by the elasticity of demand for money with respect to permanent income.'⁹

Now, let us suppose an unexpected rise in the rate of change in the money stock through open market operations by a central bank, and that the new higher rate of change is maintained. The immediate effect of this additional supply of money would be to disturb the equilibrium in the portfolios of the sellers of the securities purchased by the central bank: even though in response to the good price offered by the central bank they sold securities and received money in return, they came to hold more money than they actually want, and therefore they now want to rearrange their portfolios. The holders of the redundant balances would 'turn first

⁸ M. Friedman & A. J. Schwartz (1963a) p.53

⁹ M. Friedman & A. J. Schwartz (1963a) p.59

to securities comparable to those they have sold, say, fixed-interest coupon, low risk obligations¹⁰, and by doing so they will raise the prices of these assets. The increase in the prices of these securities will induce those trying to adjust portfolios to 'look farther afield', that is to say, to transform their redundant money into assets less similar to what they have sold to the central bank, e.g. 'higher-risk fixed-coupon obligations, equities, real property, and so forth.' This process implies the widening of the initial impacts:

first, the range of assets affected widens; second, potential creators of assets now more in demand are induced to react to the better terms on which they can be sold, including business enterprises wishing to engage in capital expansion, house builders or prospective homeowners, consumers who are potential purchasers of durable consumer goods - and so on and on; third, the initially redundant money balances concentrated in the hands of those first affected by the open market purchases become spread throughout the economy.¹¹

While the initial monetary impacts will be first felt in financial markets, it will be spread to the markets for nonfinancial assets and finally to the markets for goods and services, which implies the rise in money income. This process of inflation is, for Friedman, basically a process of adapting to the new and higher rate of change of the money stock. The adaptation process is not a smooth one, but overshooting tends to occur in the process. This is because under adaptive expectations people underestimate the rise in price level, thus overestimate their real balance in the short term, which implies that they will try to part with more of their 'redundant' money than is appropriate under the current rate of price rise, raising prices and nominal income above the hypothetical and smooth path of adaptation.¹² The 'tendency to overshoot means that the dynamic process of transition from one equilibrium path to another

¹⁰ M. Friedman & A. J. Schwartz (1963a) p.60

¹¹ M. Friedman & A. J. Schwartz (1963a) p.60

¹² M. Friedman & A. J. Schwartz (1963a) p.62

involves a cyclical adjustment process.¹³ Since the cyclical adjustment thus generated is presumed to be damped, Friedman is in need of 'additional disturbances from time to time', which 'prevent the fluctuations from dying out'.¹⁴ Thus, while in the long-run the changes in the money stock produce corresponding changes in nominal income by affecting the price level only rather than output growth (the "natural rate" hypothesis), in the short-run monetary shocks are 'capable of exerting a sizable influence on the rate of growth of output' as well as on prices.¹⁵

In the mid-1970s, with the onset of depression after the long boom in the 1960s, interest in the business cycle revived, a revival which appeared to be closely related with the emergence of 'the rational expectations school'. R. E. Lucas developed a model of the trade cycle under the hypothesis of rational, rather than adaptive, expectations¹⁶; his model is basically a Walrasian general equilibrium model with the only difference consisting in the assumption that agents have imperfect information in contrast to the perfect information held by the agents in the classical general equilibrium model.¹⁷ It is this imperfection in information which enables Lucas to make an economy in equilibrium display fluctuations, whereas the Walrasian general equilibrium economy shows only frictionless movements. In a situation of 'general' price increase, agents perceive, due to the imperfection in information, the increase in their own prices not as a part of the changes in the general price level,

13 M. Friedman & A. J. Schwartz(1963a) p.62

14 M. Friedman & A. J. Schwartz(1963a) p.64

15 M. Friedman & A. J. Schwartz(1963a) p.63

16 R. E. Lucas(1975), (1977), (1980) These articles reappeared as parts of R. E. Lucas(1981), pages numbers of which are used in the following.

17 For the details of the imperfections in information, see R. E. Lucas(1975) p.188-190.

but as relative price changes; such misperception leads to the increase in the supply of labour and in the level of output. But this would not have occurred if agents in the system had perceived the changes in their own prices correctly as reflecting general price changes¹⁸; for the proportional changes in nominal prices leaving relative prices unaffected, when correctly diagnosed, would not be able to induce the 'real response on the producer's part'. Under competition, the agents cannot afford to wait and collect more information on the nature of the price changes, since 'the ambiguous, unanticipated opportunities ... cannot be expected to stay fixed'¹⁹, and they will have failed to catch profitable opportunities, there being other agents acting more quickly. Thus, it is the changes in prices rather than those in demand or supply that are critical in Lucas' explanation of economic fluctuations. Then, what causes the general price movements? The answer given by Lucas is the 'changes in the quantity of money'; therefore, he considers 'a monetary shock as the force triggering the real business cycle.'²⁰

In sum, both Friedman and Lucas regard monetary shocks as the principal and ultimate cause of economic fluctuations, while they differ in explaining how monetary changes are transmitted to the economy as a whole: upturn and downturn are related to the increase and decrease in money supply, respectively. Both Friedman and Lucas pay particular attention to government policy as a source of monetary shocks, but, under the gold standard, changes in gold supply would have been at least as important a source of monetary shocks. Recently, W. E. Hufmann & J. R. Lothian developed a monetarist model of international transmission of the business cycles

18 R. E. Lucas(1977) p.229-232

19 R. E. Lucas(1976) p.212

20 R. E. Lucas(1977) p.233

under the gold standard, in which international gold flows play a central role²¹. We shall examine their model in Chapter III in the light of empirical evidence of international gold movements.

We have so far identified four major types of the theory of the trade cycle, which bring into relief different aspects of a modern industrial economy to explain its short run movements: technological development, expectations on future yields, the accelerator-multiplier mechanism with ceiling and floor, and finally money.

In Robertson and Schumpeter, the beginning of upswing is accounted for by the increase in investment due mainly to innovation and inventions, while the downturn starts with the decrease in investment originating either from the limit of innovation possibilities coupled with increased risk and uncertainty (Schumpeter) or from 'overinvestment' (Robertson).

In Keynes' explanation of the trade cycle, the expectations on the future yields of capital as a factor influencing the marginal efficiency of capital play a dominant role: turning points are explained chiefly in terms of the changes in expectations, which bring about variations in the level of investment. Keynes treated the changes in the state of future expectations as exogenous.

It is the multiplier-accelerator mechanism that introduces instability into Hicks' system: in his model an economy with the multiplier-accelerator mechanism tends to grow explosively, rather than to fluctuate. But the full employment ceiling and the obvious

²¹ W. E. Ruffmann & J. R. Lothian (1964)

impossibility for gross investment to be negative transform the underlying tendency into regular fluctuations: an economy cannot grow infinitely through the mechanism of multiplier-accelerator beyond the resource limit of the economy; hitting this ceiling, the economy rebounds, i.e. begins to contract; the downswing cannot continue forever, but revival is bound to come because of the limit in disinvestment.

Models developed by Friedman and Lucas find the ultimate cause of economic fluctuations in monetary shocks. To be more specific, the changes in the quantity of money bring about short term economic fluctuations. According to Friedman, the changes in the quantity of money are transmitted to the economy as a whole through the process of rearrangement of portfolios by asset-holders; in Lucas' model, it is the imperfection in information that enables monetary shocks to cause the whole economy to fluctuate by inducing general price changes, which are perceived by agents, incorrectly, as changes in relative prices, thus inducing changes in the supply of labour and output.

Now, equipped with these various theoretical frameworks, we move on to make a preliminary examination of the trade cycles in the 1870-1914 era.

II

INTERNATIONAL ECONOMIC FLUCTUATIONS, 1870-1914

Although the forty odd years preceding the outbreak of the First World War is usually treated as a period historically homogeneous and distinct from both the pre-1870 and interwar periods, from the point of view of technological development dividing thus the process of industrial growth does not seem particularly useful. For if the earlier years of the 1870-1914 era could be characterized as the final stage in the development of the 'old' industries born in the early 19th century, in the latter years there emerged 'new' industries, such as electricity and automobiles, which were to dominate the industrial scene of the interwar years. In other words, the years before World War I saw the climax of one wave of technological progress centering around railways, and subsequently the start of another.

Since such development in productive forces during the pre-WWI years was carried out to a greater extent by younger capitalist economies such as Germany and the US than by countries like Britain and France, it was accompanied by the changes in the world economic order: whereas in the pre-1870 years Britain occupied a dominant position in the world economy, in the period concerned here the younger economies came to be at least as important as Britain.¹

¹ In 1840 Britain accounted for 21% of world industrial production and 25% of world trade, while the corresponding figures for Germany were 17% and 8%, and those for the US 5% and 7%; in 1913 Britain's share in world industrial production and world trade were reduced to

With the industrial development in these advanced economies, more of the less developed areas evolved economic relationships with the industrial countries; the existing links between developed and primary producing areas were strengthened; and industrial economies came to be more closely connected with each other. This is reflected in the increase in the volume of world trade, and in the international movement of capital and labour. The volume index of world trade increased from 23.8 in 1870 to 96 in 1911-13¹; the foreign investment stock of major capital exporting countries, which was around £1600m in 1870, reached almost £8000m in 1915²; and approximately 3 million people emigrated from 19 countries on the European and Asian continent during the decade 1861-70, while the first decade of the 20th century recorded a peak of 12 million flowing out of the same areas³. The trade among various regions of the world was settled in a multilateral way, as described by Prof. S. B. Saul⁴; it was in this multilateral context that the classical gold standard worked. Thus an international economy of a more mature form emerged.

One of the interesting features of the world economy of this period is the broad synchronization among the national trade cycles, some structural aspects of which will be investigated in this and the

14% and 16% respectively, whereas Germany came to secure 16% and 12%, and the US 36% and 11% of world industrial production and world trade respectively. W. W. Rostow(1978) p.62,71,72

2 W. W. Rostow(1978) p.669

3 W. Woodruff(1866) p.150,151. It needs to be noted that in the presence of long swings in international capital movements such comparison of point estimates can convey misleading impression: for example, if 1870 was a trough and 1915 a peak year, the annual average growth rate calculated from the estimates for these two years would be greater than that which could be derived from trend values.

4 W. S. & E. S. Woytinsky(1953) p.75

5 S. B. Saul(1960)

following chapters. This chapter begins with observing various indicators expressing the variations in aggregate economic activity in eight major economies: the US, Germany, Britain, France, Argentina, Australia, Canada and India. This leads us to argue that they fluctuated to a significant degree in agreement, and that as a result five common cycles are identified. Then, as a first step to understand the mechanism of the parallel movements, an attempt is made to locate the main driving forces behind each of the five trade cycles of the eight countries. In the final section of this chapter, with the information on the nature of individual national trade cycles, an attempt is made to demonstrate how national cycles were interlocked in each of the five cases of international cycles. This chapter deals mainly with real forces and abstracts completely from the role of monetary forces, which will be taken up in the following chapter.

1. Identification of the Trade Cycles

The trade cycles, defined broadly as the cyclical fluctuations in aggregate business activity, involve the short-term variations in a large majority of economic variables including prices, employment, production and money stock.⁶ However, if one is forced to work with a single series for the sake of convenience and simplicity in determining the cyclical timing of the shifts in the level of activity, a logical choice would be national product, gross domestic product (GDP) in particular. Since, as we shall see shortly, prices tended to move in parallel with the volume of output in the course of the trade cycle, national product at constant prices should be preferred to current national product series. Unfortunately annual national product data for the 1870-1914 period, whether at current or constant prices, are not available for all of our eight countries. For industrial countries, we have national product series at both constant and current prices for Britain, Germany and the US⁷, while annual estimates of French GDP at current prices are available.⁸ As for underdeveloped countries, Australian GDP and Canadian GNP at both current and constant prices are available for the whole period under consideration, whereas constant price national product data for India and Argentina begin in 1884/5 and 1900 respectively.⁹

6 A. F. Burns observed that 'Almost nine-tenths of Mitchell's basic sample of approximately 800 time series fluctuate in sympathy with the tides in aggregate activity.' W. C. Mitchell (1951) p.xiii
7 C. R. Feinstein (1976) and W. G. Hoffmann (1985) are the sources of the British and German national product statistics used in this study; we rely upon the unpublished estimates by R. E. Gallman and worksheets underlying S. Kuanets (1961), presented in M. Friedman & A. J. Schwartz (1982), for the period 1869-1913, and upon T. S. Barry (1968) for pre-1869 years.

8 M. Lévy-Leboyer & F. Bourguignon (1985)

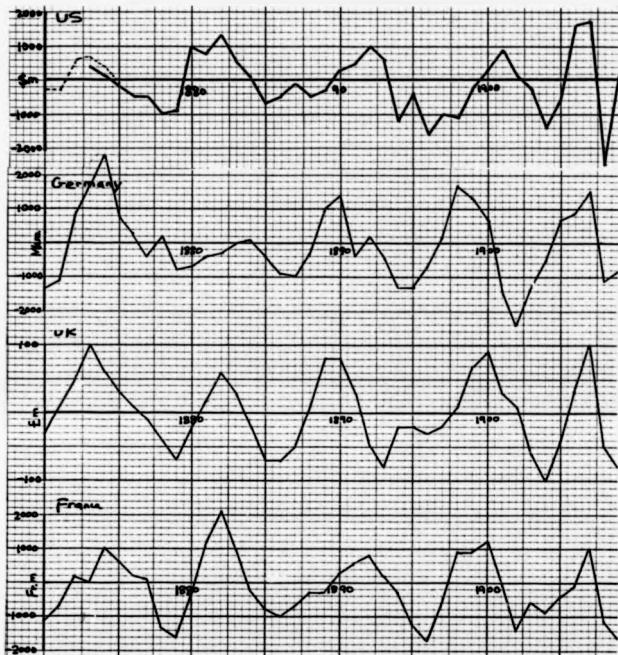
9 Sources are N. G. Butlin (1962) for Australia; B. R. Mitchell (1983) for Argentina; M. C. Urquhart (1986) for Canada; and D. Kumar & M. Desai (1983) for India.

Since the presence of distinct upward trends makes it difficult to identify short-term cycles clearly, here a 9-year moving average method is used to separate the latter from the former.¹⁰ In Fig II-1, 2 & 3 are shown the fluctuations, isolated from trends, in the current and constant national products and in the industrial production indices of our industrial economies.¹¹ Even though the human eye is known to be unreliable, it seems difficult to fail to recognize five cyclical units, defined from trough to trough, in each of the four developed countries in the 1870-1914 period, and the tendency for the four economies to expand and contract simultaneously. According to Fig II-1, showing the fluctuations in national income at current prices, and Table II-1, no two countries were more than three years apart at any of the nine turning points, while the four countries passed a turning point in the same year only once. Calculating the average of dispersion at each of the nine turning points on the basis of current national product data, we get 1.8 years, which compares with the average period of cycles of around 8 years. Such being the case, it seems possible to define five cyclical units, which are observed in all four countries in common: Cycle I starting from the trough in the late 1860s and ending in the trough in 1878-79; Cycle II from the trough in 1878-79 to the trough in 1885-7; Cycle III from the trough 1885-7 to the trough in 1893-6; Cycle IV from the trough in 1893-6 to the trough in 1902-4; and finally Cycle V from the trough in 1902-4 to the trough in around 1908. It could be added that without the loss of data due to the application of a 9-year moving average method, we

¹⁰ For reasons for opting for this at the expense of other devices, see Introduction.

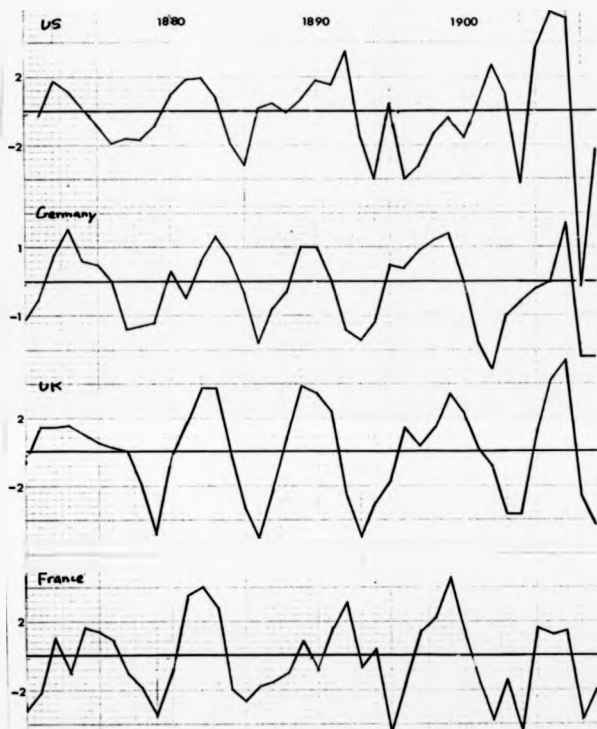
¹¹ It may be noted that GDP and industrial production index were the two major cyclical indicators in the OECD research on the post-1945 business cycles. OECD(1987)

Fig II-1 Fluctuations of National Product at Current Prices, Absolute Deviations from 9-year Moving Averages



Source: T. S. Berry(1968), M. Friedman & A. J. Schwartz(1982), W. G. Hoffmann(1965), C. H. Feinstein(1976), M. Levy-Leboyer & F. Bourguignon(1985)

Fig II-2 Fluctuations of Industrial Production Index, Absolute Deviations from 9-year Moving Averages



Source: W. A. Lewis (1978)

Fig II-3 Fluctuations of National Product at Constant Prices, Absolute Deviations from 9-year Moving Averages



Source: M. Friedman & A. J. Schwartz(1982), W. G. Hoffmann(1965), C. H. Feinstein(1976)

Table II-1 Turning Point Years: Industrial Countries

	P	T	P	T	P	T	P	T	P
National Product at Current Prices									
USA	1873	1878	1882	1885	1892	1896	1901	1904	1907
Germany	1874	1879	1884	1887	1890	1895	1898	1902	1907
UK	1873	1879	1882	1886	1890	1893	1900	1904	1907
France	1874	1879	1882	1886	1892	1896	1900	1902	1907
Industrial Production Index									
USA	1872	1876	1882	1885	1892	1894	1902	1904	1906
Germany	1873	1877	1883	1886	1890	1893	1899	1902	1907
UK	1873	1879	1882	1886	1889	1893	1899	1903	1907
France	1874	1879	1882	1885	1892	1895	1899	1904	1905
National Product at Constant Prices									
USA	1873	1876	1880	1885	1892	1894	1901	1904	1906
Germany	1874	1880	1884	1887	1890	1891	1898	1902	1905
UK	1871	1879	1882	1886	1889	1893	1899	1904	1907

Source: Fig II-1,2 & 3

might be able to identify an additional trade cycle, the downswing of which began in around 1913 and was stopped in the middle by the outbreak of the First World War.

We observe similar patterns of fluctuations in industrial production indices of the four countries (Fig II-2), although the degree of agreement declines somewhat: while maximum dispersion at turning points remain the same, i.e. three years, minimum dispersion is increased from 0 to 1 year; the average of dispersion at the nine turning points is now 2.1 years. On the other hand, in the case of national product at constant prices, minimum and maximum dispersion at turning points is increased to 2 and 4 years, respectively; this affects the average of dispersion, 2.9 years. Such deterioration in the degree of agreement at turning points occurs in spite of the fact that the number of countries being compared is reduced from four to three; this appears to be related both to the possibility of the introduction of further errors in correcting the estimates of current national product series with those of price deflators, and to the closer synchronization among price series of the four countries, which we shall see shortly.

Examining the fluctuations in national product at current prices (Fig II-1, Table II-1), one finds that the four countries were in the same phase in 23 of the total 40 years (57.5%); this compares with O. Morgenstern's figure 53.5%, which was obtained on the basis of the turning points determined by the NBER's reference cycle method.¹² According to Morgenstern, the degree of synchronization was far higher among the three European economies than when the US was also taken into account: exclusion of US raises the degree of

¹² This method gives not only turning point years, but also months.

synchronization from 53.5% to 83.1%.¹³ Neither Fig II-1 nor Fig II-2, however, does seem to suggest that the US was out of step with the three European economies to such an extent: in our case, exclusion of the US results in the increase from 57.5% to only 65%. Moreover, when Germany is excluded, the degree of parallelism increases to 70%, whilst the three countries other than either Britain or France were in the same phase in 62.5% and 57.5% of the 40 years, respectively.

Such a difference between us and Morgenstern appears to originate from the distinct methods employed to identify cyclical units. The reference cycle method used by the NBER first determines the turning points in various time series (specific cycles); then identifies the clusters of turning points, on the basis of which are determined the reference cycle turning points.¹⁴ According to the NBER, the cycles in the US determined by this technique are of a different kind to those in the European countries: the former has a shorter period of around 40 months (Kitchen cycles), while the latter shows a longer period of 7-10 years (Juglar cycles). On the other hand, as can be seen in Fig II-1 or 2, the cycles separated from trends on the basis of aggregate series, such as national product or industrial production index, do not suggest any major difference in the cyclical pattern between the US and the European countries. This appears to be related to the fact that the reference cycle method, dealing with a collection of undetrended series and concerned mainly with turning points rather than amplitude, is not capable of deciding, under the condition of the co-existence of Kitchen (minor) and Juglar (major) cycles, whether two or three Kitchen cycles are interrelated as parts of a Juglar cycle.

¹³ O. Morgenstern (1959) p.45,48

¹⁴ On the reference cycle method, see W. C. Mitchell (1951) chapter 3

Our figure of 57.5%, indicating the degree of synchronization of the trade cycles of the four developed countries, could be compared with 12.5%, which is the probability that all four countries are in the same phase under the assumption that the four countries fluctuate independently of each other, and that the lengths of up- and downswing are equal.¹⁵ It is also possible to derive a probability distribution function for various degrees of synchronization under the same assumptions as stated above, and under an additional condition of eight year period: according to this probability distribution function¹⁶, the probability that the percentage of synchronization is greater than 57.5% under these conditions is only 2.9%, whilst the probability for the opposite case to happen is as great as 97.1%. This would imply that it is more reasonable to conclude that the observed broad parallelism among the cyclical fluctuations of the four industrial countries is not a chance occurrence, with the four moving without having anything to do with each other; and that therefore a mechanism existed ensuring the synchronisation of the four national trade cycles to the observed extent.

As further evidence on the five trade cycles in the four countries, the variations in prices¹⁷ and unemployment rates¹⁸ are

¹⁵ In a year, the probability that the four countries are in upswing is given by $(1/2)^4$, which is equal to $1/16$; equally the probability that they are in downswing is $1/16$; therefore the probability that the four countries are in the same phase is $1/16 + 1/16 = 1/8 = 12.5\%$
¹⁶ The shape of the probability distribution function is as follows:

A	0	25	50	75	100
B	65.8	21.5	9.8	2.7	0.2

A: degree of synchronization(%), B: probability(%)

¹⁷ National product deflator was used for the US, Britain and Germany; and domestic price index for France. M. Friedman & A. J. Schwartz(1982), C. E. Feinstein(1976), M. Levy-Leboyer(1970), W. G. Hoffmann(1965)

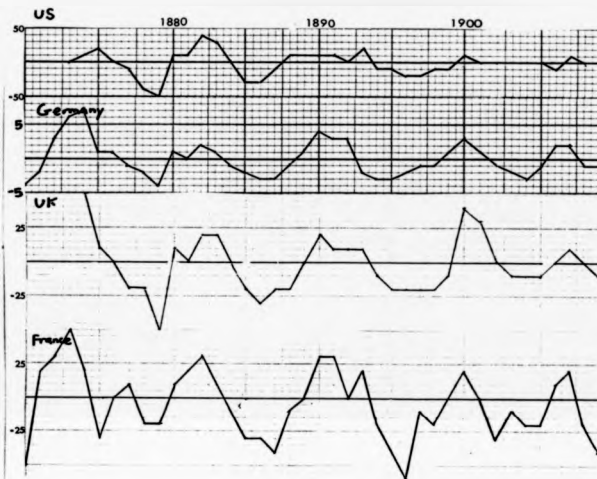
produced as Fig II-4 & 5. It is not difficult to recognize the previously identified cyclical patterns in both series, and in the case of price fluctuations we observe a similar degree of synchronization to that in national product in current prices: the average of dispersion at turning points is 1.88 years, which is comparable with 1.78 years in the case of national product at current prices series, and the percentage of years in which all four countries were in the same phase is now 52.8%. According to the above probability distribution function, under the assumption of the independent fluctuations of four countries the probability that the percentage of asynchronization is greater than 52.8% is still only 2.8%.

In Fig II-6 are shown the cyclical fluctuations in our four undeveloped countries: Argentina, Australia, Canada and India. In Australia and Canada, cycles were identified on the basis of national product at current prices. On the other hand, since the Argentine and Indian national output series, besides their inadequate coverage, display serious inconsistencies with other indicators of the variations in the level of activity, imports and railway receipts are substituted. It should, however, be born in mind that in the case of undeveloped economies the two proxies suffer from significant drawbacks: if an economy is borrowing abroad on an extensive scale, its level of imports is affected considerably by the changes in capital inflow, as well as by the level of activity; although railway traffic and receipts are in general closely related to the state of an economy¹⁸, in an

18 Unemployment in trade union for Britain and Germany. C. R. Feinstein(1976), B. R. Mitchell(1981)

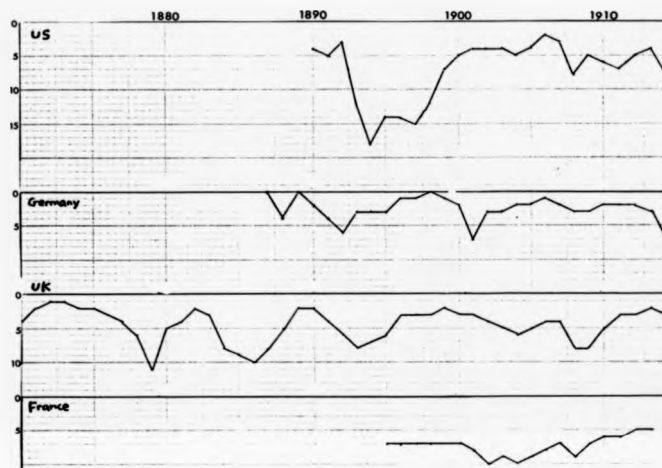
19 'Improvement in business has always been accompanied by an increase in railway freight traffic; declines in business have almost always been accompanied by declines in freight traffic or lower rates of increase ... cyclical changes in traffic are neither among the most nor among the least violent of changes in the major aspects of economic activity.' T. Rultgren, Railway Freight Traffic in Prosperity and Depression, NBER Occasional Paper No.5, Feb 1942, p.6, quoted in C. A. E. Goodhart(1972) p.74

Fig II-4 Price Fluctuations, Absolute Deviations from 9-year Moving Averages



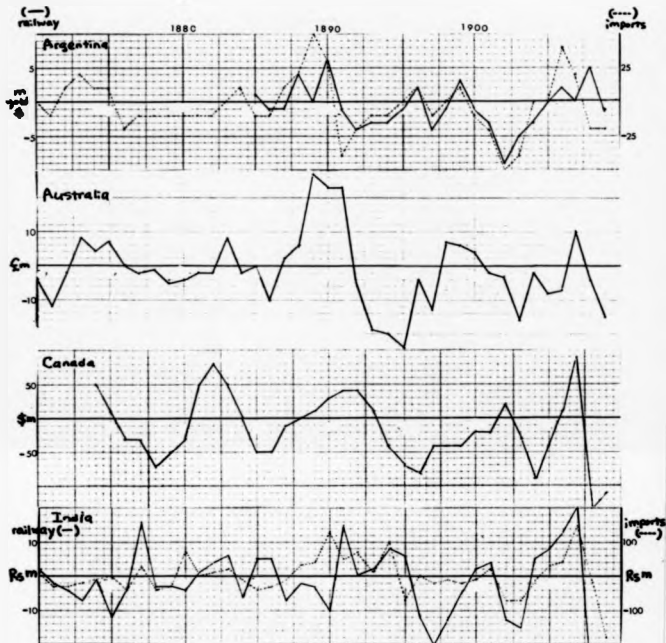
Source: M. Friedmann, A. J. Schwartz (1982), W. G. Hoffmann (1965),
C. H. Feinstein (1996), A. Levy-Leboyer (1990)

Fig II-5 Unemployment Rates, (%)



Source: C. H. Feinstein(1976), B. R. Mitchell(1981)&(1983)

Fig II-6 Fluctuations in the Undeveloped World, Absolute Deviations from 9-year Moving Averages



Source: A. G. Ford(1962), B. R. Mitchell(1983), N. G. Butlin(1962), M. C. Urquhart(1986), Railway Board, Government of India(1908),(1909)&(1913/4)

agricultural economy they will also reflect harvest fluctuations, whilst in a frontier-type economy, where railways tend to be constructed ahead of settlement, railway earnings will be influenced by the agricultural development around newly-built railway lines. Anyway, our principle here is to resort first to railway earnings data, and to complement this with imports series when the former does not cover the whole 1870-1914 period.

It is not difficult to recognize in the first chart of Fig II-6 the five Argentine trade cycles similar to those of the four industrial countries; in the Australian GDP and Canadian GNP(second and third charts) cyclical patterns are even more clear. The available indices of Indian fluctuations, on the other hand, appear to suggest that India probably did not undergo all the five trade cycles. Instead, in India cyclical movements appeared to develop gradually in the course of the period concerned. Although we can hardly speak of the Indian Cycle I in the fourth chart of Fig II-6, the third, fourth and fifth cycles are clearly recognizable; on the other hand the pattern of the Indian Cycle II is somewhat indistinct. In sum, the preliminary impression conveyed from Fig II-6 is that the three primary producing economies excluding India fluctuated in a parallel way from around 1870, producing five common cycles: Cycle I starting from the trough in the late 1860s and ending in the trough in 1876-9; Cycle II from the trough in 1876-9 to the trough in 1886; Cycle III from the trough in 1886 to the trough in 1895-7; Cycle IV from the trough in 1895-7 to the trough in 1902-4; and finally Cycle V from the trough in 1902-4 to the trough in around 1908-9(Table II-2). In India, Cycles II-V are identifiable. The timing of these five trade cycles experienced by the three undeveloped countries is thus

Table II-2 Turning Point Years: 8 Countries

	P	T	P	T	P	T	P	T	P
USA	1873	1878	1882	1885	1892	1896	1901	1904	1907
Germany	1874	1879	1884	1887	1890	1895	1898	1902	1907
UK	1873	1879	1882	1886	1890	1893	1900	1904	1907
France	1874	1879	1882	1886	1892	1896	1900	1902	1907
Argentina	1873	1876	1884	1886	1890	1897	1899	1902	1908
Australia	1873	1879	1883	1886	1889	1895	1898	1903	1907
Canada	?	1878	1882	1886	1891	1896	1902	1904	1907
India	?	1880	1883	1887	1891	1897	1901	1903	1907

Source: Fig II-1 & 6

basically the same as that found in the fluctuations of the four industrial economies.

In comparison with the cyclical fluctuations of the four industrial economies, the degree of parallelism among those of the four primary producers was somewhat lower. Considering the period after 1880, when cyclical movements are to be found in Indian railway receipts or import value as well, we observe that the maximum dispersion and the average of dispersion at turning points are now 4 and 2 years, respectively, whereas 3 and 1.8 years were the corresponding figures for the four industrial economies. In the thirty year period of 1880-1909, the four periphery countries were in the same phase in 15 years, i.e. 50% of the period, which compares with 57.5% in the core countries. Due to the discreteness of the probability distribution function, derived above, the probability that the percentage of synchronization is greater than 50% remains 2.9%.²⁰ This deterioration in the degree of agreement may be explicable both by the weaker economic links among undeveloped than among industrial countries²¹ and by the difference in the quality of data used.

In Table II-2 are shown the turning points in the cyclical fluctuations of our eight countries. Now, it is possible to define one international trade cycle experienced by the seven countries excluding India, namely Cycle I from the trough in the late 1860s to the trough in 1876-9, and four international trade cycles experienced by all of our eight economies: Cycle II from 1876-9 to 1885-7; cycle

²⁰ See footnote 14, this section.

²¹ According to P. L. Yates, in 1913 the world trade was composed in the following way: the trade among developed countries accounted for 43%, that between developed and undeveloped countries 52%, and that among undeveloped countries 5% of the world trade. P. L. Yates(1959) p.58

III from 1885-7 to 1893-7; cycle IV from 1893-7 to 1902-4; finally, Cycle V from 1902-4 to 1908-9. As may be expected, the average of maximum differences at the 7 turning points in 1880-1909 is now increased to 2.6 years, whereas the percentage of the years of asynchronization is reduced to 36.7%. The probability that all the eight countries are in the same phase under the assumption of independent fluctuations and of equal length of expansion and contraction, however, is also reduced from 12.5% to less than 0.8%. At the same time, according to the probability distribution function for various degrees of synchronization of eight countries undergoing 8 year trade cycles, consisting of 4 year up- and downswing, without their being interrelated²², the probability that the degree of parallelism is greater than 36.7% is only 0.3%. This obviously implies that it is very unlikely that the fluctuations of the eight economies, synchronized to this extent, were nevertheless independent of each other. Since our eight countries accounted for more than half of total world trade and the four industrial economies about three quarters of world industrial production, this also appears to suggest the validity of speaking of the 'world trade cycles' in the pre-WWI years.

²² The probability distribution function is as follows:

A	0	25	50
B	97.2	2.6	0.3

A: degree of synchronization(%), B: probability(%)

2. Investment, Export and Lending Economies

In an era when the role of government in an economy was not significant, the level of aggregate activity could be said to have been determined largely by the two autonomous spending items, investment and exports.¹ According to which of the two exercised dominant influences upon the changes in the aggregate income of an economy, it would then be possible to characterize the economy as an investment or an export economy. An investment economy could be considered to be capable of fluctuating for reasons which are predominantly internal or domestic; on the other hand, an export economy is defined as an economy in which variations in the level of aggregate product are fundamentally regulated by the shifts in exports, which are largely beyond the control of the economy. Such being the case, in a world economy consisting of two countries moving in a parallel way - an investment economy(A) and an export economy(B) - one could plausibly argue that the fluctuations originated in A and were transmitted to B(Figure II-7). In this world economy, it would be impossible to think of the opposite direction of propagation without contradicting the above definition of investment and export economy.

While in fact by 'investment' so far 'home investment' was meant, we need to take foreign investment into consideration as well. Now let us suppose another world economy consisting of two economies: one with abundant savings but relatively lacking in domestic

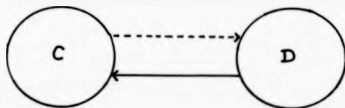
¹ We adopt here a standard Keynesian macroeconomic framework, where emphasis is placed upon real variables, and where consumption and imports are treated as dependent upon the level of income. It is also assumed that the effect of a unit change in the two autonomous spending items upon the level of income is same, i.e. $dY/dI = dY/dX$.

Fig II-7 World Economy I



A: investment economy
B: export economy

Fig II-8 World Economy II



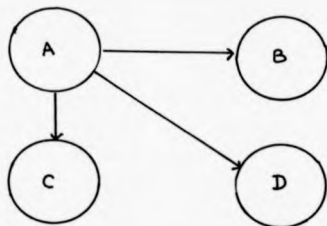
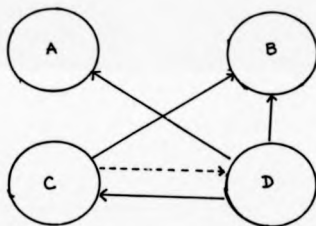
C: lending economy
D: borrowing economy

--->: capital flows
-->: trade flows

investment outlets(C) and the other in the opposite position(D). We presume that the marginal product of capital in D exceeds that in C, and that the differential in return has already induced capital movements from C to D, as a result of which the wealth of country C is distributed between home and foreign assets in an optimal way in accordance with the risk differential between the two types of assets. Now, if for whatever reasons there occurs in D an opening of investment opportunities, widening the gap in marginal return for capital between the two countries, it could be expected that in the absence of barrier to international movements of capital the savings in C flow into D; the capital lent to D for investment will have to be at least partly used to purchase capital goods from industrial C, while the rest will be spent in D, mainly to pay wages on investment projects, thus causing income and imports to rise. Hence, the multiplier effect of investment will partly leak away to C, and partly stimulate domestic demand, which implies that the investment activities in D lead to the expansion of both C and D. In other words, the increase in investment demand in D brings about the expansion of the world economy(Fig II-8). External surplus for C which makes possible the capital outflow is created through the increase in the exports from C into D: firstly by the imports of capital goods purchased with the borrowed funds, and secondly by the increase in imports through the income effect. D's exports to C will also increase as a consequence of the expansion of C owing to the increased exports to D; this, however, would be certainly smaller than the rise of exports from C to D.

Let us now consider a third world economy consisting of A, B, C, and D(Fig II-9). It would not be unreasonable to assume that A and C form the industrial and developed part of the world economy,

Fig II-9 World Economy III

case 1 : A as a cyclical origincase 2 : D as a cyclical origin

A : investment economy

B : export economy

C : lending economy

D : borrowing economy

- - - : capital flows

— : trade flows

whilst B and D a primary producing and undeveloped part. In this world economy the increase in investment activity in A will send expansionary shocks to economies B, C and D through the increase in imports by the former from the latter. Alternatively, the opening of investment opportunities in D will influence the other three economies through trade channels. The direct impact of the boom in D is likely to be felt most strongly in C. For in A the role of exports is supposed to be relatively weak by definition, while the expansion of B, a primary producer with weak trade links with D due to the similarity in economic structure, is likely to be brought about in an indirect way, that is, mainly through the increased exports to industrial economies (C in particular) which are undergoing expansion as a consequence of the investment boom in D. Thus, in this world economy we have two possible sources of fluctuations: investment activity in A and D. In other words, in this world cyclical fluctuations can start either in the developed or in the undeveloped part, and subsequently are spread to the rest of the world.

These simple models suggest the importance of locating the dominant forces which fundamentally determine the movements of major national economies as a means to understanding the mechanism of international economic fluctuations. Let us begin with the four industrial economies. In Table II-3 size of national income and of the two autonomous spending items are compared in each of the four countries. The contrast between the US and Britain is striking: in either gross or net terms home investment was of predominant importance and exports accounted for a minor portion of national product in the US, whilst the opposite was the case in Britain. Germany and France could be located between the two extremes, with Germany closer to the US and France to Britain.

Table II-3 Investment and Export Ratios, 1885-1894.X

	USA	UK	France
I	21.2	6.0	13.2
X	6.2	16.4	15.5

, where I: $GDFCF/GNP(\text{or } GDP)$, X: $\text{exports}/GNP(\text{or } GDP)$

	USA	Germany	UK
I	12.7	11.6	1.6
X	6.9	14.1	17.2

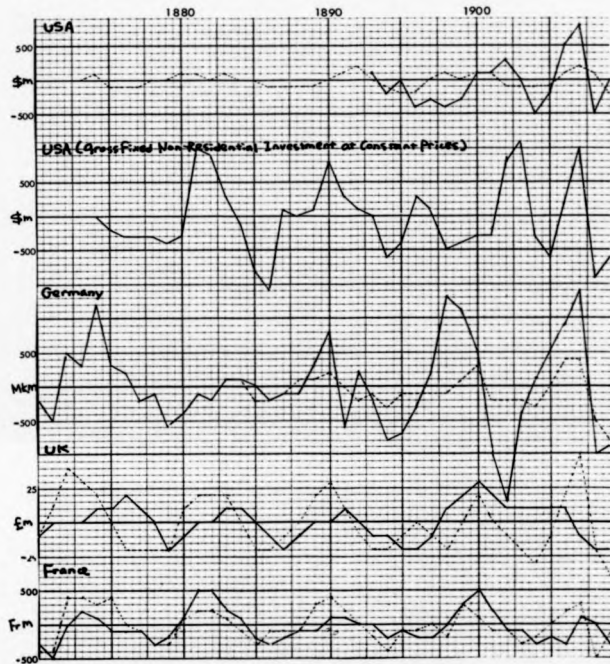
, where I: $NDFCF/NNP(\text{or } NDP)$, X: $\text{exports}/NNP(\text{or } NDP)$

Source: S. Kuznets(1961), T. S. Berry(1968), US Department of Commerce(1961), W. G. Hoffmann(1965), B. R. Mitchell(1981), C. H. Feinstein(1976), B. R. Mitchell(1962), M. Levy-Leboyer & P. Bourguignon(1985)

What really matters for our purpose, however, would not be average size, but the degree of contribution to the short term fluctuations in the level of activity. For instance, if one spending item, say, home investment, hardly moved in the short run along a higher trend, while the other item, say, exports, displayed wide deviations from a lower trend, it would be reasonable to conclude that the fluctuations of the economy concerned were largely due to export variations. In Fig II-10 are plotted the absolute deviations from 2-year moving averages of exports and home investment of the four countries. Since for the US an annual series for the current value of domestic investment is available only from 1889, we compare firstly the absolute deviations of investment and exports in 1893-1909, and find that the amplitude of the fluctuations in home investment was far greater than that in export variations (first chart, Fig II-10). On the other hand, the US gross fixed non-residential investment series at 1929 prices is available for 1870-1913². It is of course meaningless to compare the absolute deviations derived from this series with those from exports data, which are measured at current prices; but, by using this constant price data in conjunction with the above home investment series at current prices, available only for 1889-1913, we can form some ideas on the amplitude of the variations in the current value of the US domestic investment in the pre-1893 period. According to the second chart in Fig II-10, it appears that the amplitude of the fluctuations in investment at constant prices remained roughly the same throughout the period 1870-1914, while that of export value variations increased in the course of the period (first chart). On the other hand, the amplitude of the US price fluctuations declined during the period (Fig II-4), which would

² This series was compiled and kindly made available to me by Professor A. Maddison of University of Groningen.

Fig II-10 Fluctuations of Home Investment and Merchandise Exports, Absolute Deviations from 9-year Moving Averages: Industrial Countries



Source: B. R. Mitchell(1983), A. Maddison(1982), W. G. Hoffmann(1965), C. H. Feinstein(1976), B. R. Mitchell(1962), M. Levy-Leboyer & F. Bourguignon(1985)

— : home investment
 --- : merchandise exports

imply that the rise in the amplitude of export value fluctuations in the later cycles is unlikely to be explicable by price variations. Therefore, it appears reasonable to infer that in pre-1893 years the amplitude in home investment fluctuations exceeded that in exports variations, since this was shown to have been the case in the two cycles in post-1893 years, when exports displayed wider fluctuations.

Regressing the level of the US national income at current prices (Y_t) on those of home investment (I_t) and export value (X_t) - including Y_{t-1} , I_{t-1} , and X_{t-1} also on the right hand side of the equation to take distinct upward trends in the three variables into account - one obtains the following:

$$Y_t = -538.8 + 0.9Y_{t-1} + 2.3I_t - 2.2I_{t-1} - 0.3X_t + 2.1X_{t-1}$$

(0.6) (4.1) (4.5) (2.8) (0.1) (4.1)

$$\text{Adjusted } R^2 = 0.99, \text{ LM} = 10.32^3$$

(t-ratios in parentheses)

The greater coefficient associated with the current value of home investment, 2.3, than the negative and insignificant coefficient associated with current merchandise exports appears to confirm the dominant role of domestic capital formation in the US trade cycles.

The third chart in II-10 shows that in 1884-1909 the amplitude of the cycles in the German net domestic investment exceeded by far that of export fluctuations. Since the German export series begins from 1880, for the period 1870-84 absolute deviations of the German exports are unavailable. In view of the fact that (as in the US) the

³ This stands for the Lagrange Multiplier test statistic for the first order autocorrelation. Since the 5% critical point of the chi-square distribution with one degree of freedom is 3.84, we reject the null hypothesis of serial independence.

amplitude of the German export variations was growing throughout the pre-WWI period, it appears probable that in Cycle I, i.e. 1870-79, investment displayed wider fluctuations than exports. In Cycle II, i.e. 1879-87, German home investment displayed unusual stability, and it is not unlikely that this cycle was led by export fluctuations. Thus, Germany seemed to differ from the US in that domestic investment was not a consistent cyclical leader in Germany: in Cycle I, III, IV & V investment predominated, while in Cycle II Germany seemed to behave as an export economy.

Estimating for Germany the same equation as in the US, we obtain similar results, showing the central role of home investment in the German trade cycles:

$$Y_t = -57.3 + 1.0Y_{t-1} + 1.3I_t - 1.1I_{t-1} - 0.2X_t + 0.2X_{t-1}$$

$$(0.2) \quad (27.1) \quad (12.3) \quad (8.5) \quad (0.7) \quad (0.4)$$

$$\text{Adjusted } R^2 = 1.00, \text{ LM} = 0.08$$

(t-ratios in parentheses)

Turning to the fourth chart in Fig II-10, one gains the impression that in Britain, in contrast with US and Germany, exports rather than domestic investment tended to lead the trade cycles of the pre-1914 period: 'the absolute deviations in exports were some two and a half times those in investment ... and their turning points accorded more closely with fluctuations in output and employment than did those of investment'. Furthermore, it is clearly shown in the third chart of Fig II-10 that in Cycles I, II and III the turning points in gross home investment lagged behind those in exports.

As in Germany, however, an exceptional cycle is found: Cycle IV. In contrast with other cycles, in this cycle home investment seemed to be more important than exports. The recovery from the depression of Cycle III was initiated by domestic investment in 1895, whereas revival in exports came three years later, and the absolute deviation for investment exceeds that in exports at the peak year of Cycle IV(1900).⁵

The predominant part played by exports in the British trade cycles is also revealed in the following equation:

$$Y_t = 25.1 + 1.0Y_{t-1} + 0.7I_t - 1.2I_{t-1} + 1.8X_t - 1.9X_{t-1}$$

(1.4) (25.3) (1.8) (3.1) (8.5) (7.1)

$$\text{Adjusted } R^2 = 0.99, \text{ LM} = 0.11$$

(t-ratios in parentheses)

In the 1870-1914 period about a third of British annual accumulations is said to have been invested abroad in net terms⁶, and the capital exports of this magnitude made Britain the largest international lender in this era⁷. Thus, Britain was not only an export, but also a lending economy. If the turning points in British merchandise exports fluctuations tended to lead those in the British home investment variations, the cyclical movements in British overseas lending are said to have preceded those in British exports by 1-2

⁵ 'The only boom in which the rise in home investment was much more pronounced than the rise in foreign investment was that of 1900 ... All other booms from 1870 onwards seem to have been communicated through the export trades from America and other centres of investment.' A. K. Cairncross(1953) p.196

⁶ M. Edelstein(1981) p.70

⁷ According to W. Woodruff(1966) p.150 between 1870-1900 the stock of the UK foreign investment increased by almost £1500m, while corresponding figure for France, the second largest capital exporter, was less than £600m.

years⁸. According to Professor A. G. Ford(1965), this suggests that the increase in British overseas landing stimulated British merchandise exports through both bilateral and multilateral channels, and vice versa. We shall come back to this point in the following chapter.

In the fifth chart of Fig II-10 are compared the short term fluctuations of the current value of French home investment and merchandise exports. It is interesting to observe that in the pre-WWI France one cycle dominated by export variations was followed by another dominated by home investment fluctuations, which was succeeded by an export cycle, and so on. Thus if the French Cycle I(1870-79), III(1886-96) and V(1902-1908/9) could be characterized as export cycles, the French Cycles II(1879-86) and IV(1896-1902) were investment cycles.

Such having been the case, in contrast with the other three industrial countries, in the following equation for France both home investment and exports emerge as significant determinants of the level of activity, the former being perhaps more important than the latter:

$$Y_t = 1566.1 + 0.5Y_{t-1} + 1.9I_t - 0.7I_{t-1} + 1.3X_t + 0.1X_{t-1} \\ (1.7) \quad (3.8) \quad (3.2) \quad (1.1) \quad (2.0) \quad (2.2)$$

$$\text{Adjusted } R^2 = 0.98, \text{ LM} = 1.74$$

(t-ratios in parentheses)

8 A. G. Ford(1965) Best result is obtained in terms of coefficient, t-statistics, and adjusted R^2 , when the first differences of British merchandise exports were regressed upon those of British overseas landing(direct estimates by M. Simon(1968)) leading by two years:

$$X_t = 5.41 + 0.38 \text{ OLE}_{t-2} \quad R^2=0.14 \\ (4.73) \quad (1.76) \quad \text{Dwel.32}$$

France was the second largest capital exporter in 1870-1914 behind Britain⁹. According to Levy-Leboyer's estimates of French home and foreign investment, more than 15% of French savings flowed out annually to be invested abroad during 1865-1913¹⁰. As we shall see in the second section of the following chapter, French exports tended to fluctuate cyclically throughout the 1884-1909 period, whereas overseas lending varied in a cyclical way only during Cycles III and V, i.e. export cycles; furthermore in the two export cycles the cyclical pattern of overseas lending preceded that of merchandise exports by one or two years (Fig III-13). We shall also see in the following chapter whether, as in Britain, this may be interpreted as French capital exports generating cycles in merchandise exports in the years of weak domestic demand for funds.

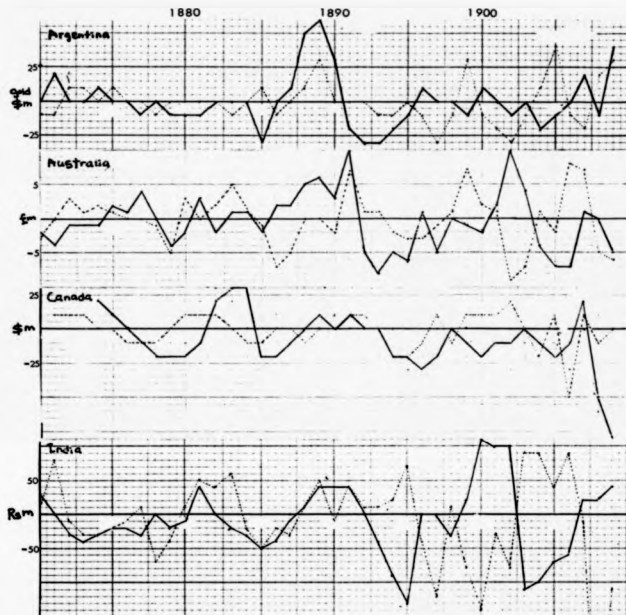
Before turning to undeveloped economies, let us make a brief summary of the results of our investigation on the nature of the trade cycles of our four industrial economies. In the US, domestic investment dominated the scene of cyclical fluctuations in the pre-WWI era, and the same was the case in Germany except for Cycle II, which appeared to be led by exports. Britain tended to undergo export cycles, while in France export and investment cycles alternated; in the export cycles of the two countries, variations in exports were preceded by those in overseas lending which suggests the antecedent influence of the latter upon the former.

In the first chart of Fig II-11 are compared the short-term fluctuations in Argentine exports and those in British portfolio investment in Argentina. In the absence of annual Argentine

⁹ See footnote 7, this section.

¹⁰ M. Levy-Leboyer (1978) p.287

Fig II-11 Fluctuations of Home Investment and Merchandise Exports, Absolute Deviations from 9-year Moving Averages: Primary Producers



Source: I. Stone(1972), B. R. Mitchell(1983), A. G. Ford(1962), N. G. Butlin(1962), M. C. Jiquhart(1986), Railway Board, Government of India(1908),(1909),(1913/4), D. Kumar & M. Desai(1983)

— : Investment
 --- : Exports

domestic investment series, the latter might serve as a rough guide to the short run movements in Argentine gross domestic capital formation, in view of the fact that 'during 1880-1914 foreign savings financed between one-third and one-half of net physical investment'¹¹: this is borne out by the observation that the variations in the UK issues for Argentina, when lagged by 2-3 years¹², broadly coincide with those in the addition to the length of railways, a major form of Argentine domestic capital formation in the years concerned. If the absolute deviations from 9-year moving averages of the UK issues for Argentina could be regarded as correctly reflecting the direction of the short term fluctuations of total Argentine investment, the amplitude of total Argentine home investment variations would have been greater than that of the fluctuations in British investment in Argentina. For it would be realistic to expect that the indigenous capital invested displayed similar fluctuations.

Even under such conjectural circumstances, one could feel quite safe in judging the Argentine Cycle III to be an investment cycle, since even the UK issues for Argentina displayed wider variations than exports. In deciding the relative importance of exports and investment in other cycles we are on a less secure ground, but it appears that the Argentine Cycles II & IV were led by exports, in view of the fact that the years of the two cycles correspond to later phase of long downswing and early phase of long upswing, when investment was at a relatively low level¹³. In Cycles I & V investment played a more important role than in Cycles II & IV, but

¹¹ C. F. Díaz-Alejandro (1970) p.31

¹² According to H. S. Ferns (1960) p.443, 'the acts of investment ... preceded by something like two years the physical growth of the railways themselves'.

¹³ Section 1, Chapter III.

in Cycle I exports still maintained dominance over investment, whereas in Cycle V investment probably outweighed exports.¹⁴ It should not be forgotten that foreign borrowing formed an essential basis of the two investment cycles.

Turning to Australia, in the *Second* chart of Fig II-11 we observe first of all that in the absolute deviations from the 9-year moving averages of Australian exports the five trade cycles identified earlier are clearly discernible, whilst the Australian domestic investment moved rather independently of the cyclical pattern. Thus the preliminary impression conveyed is that in pre-1914 Australia exports tended to play a greater cyclical role than investment. A closer look at the third chart of Fig II-11, however, shows that in contrast with other four cycles, in Cycle III Australian home investment, to a great extent British financed¹⁵, moved in broad agreement with the cyclical pattern, as did Australian exports, at the same time showing greater amplitude than exports. Therefore, the Australian Cycle III would appear an investment cycle, whereas in the other four cycles exports figured. This peculiarity of the Australian Cycle III is connected with the fact that the Australian Cycle III peak coincided with the end of the long upswing starting from around 1870 in Australia.¹⁶

Thus the following equation shows that while (as in France) both home investment and exports significantly affected the level of

¹⁴ This judgement is based upon the fact that in Cycles I & V upper turning points were determined by exports and British investment, respectively; and also that as shall be seen in the following chapter the first Argentine longswing, the peak of which corresponded with Cycle I peak was far weaker than the following two long swings, whose peaks corresponded with Cycle III & V peaks.

¹⁵ Imported British capital accounted for 51.1% of the Australian domestic capital formation in 1885-90. N. G. Butlin(1962)

¹⁶ Section I, Chapter III.

activity in Australia in the short run, the role of exports was more important than investment:

$$Y_t = 1.1 + 0.6Y_{t-1} + 1.4I_t - 0.1I_{t-1} + 1.5X_t - 0.4X_{t-1}$$

(0.3) (4.9) (5.6) (2.1) (4.7) (1.1)

$$\text{Adjusted } R^2 = 0.99, \text{ LM} = 0.36$$

(t-ratios in parentheses)

According to the third chart of Fig II-11, in the Canadian Cycles I, II and V home investment variations overwhelmed the fluctuations in merchandise exports, whereas in Cycle IV the opposite was clearly the case. On the other hand, home investment and exports appeared to contribute, to a broadly equal extent, to the cyclical movements of the Canadian economy in Cycle III years: if in absolute terms the increase in exports exceeded that in home investment in the late 1880s, the opposite happened in the contraction in the early 1890s. In the three Canadian investment cycles, foreign capital occupied an important position: in Cycle I(1870-78) overseas borrowing amounted to 38.2% of total Canadian gross investment, while in Cycle II(1878-86) and V(1905-9) years, the corresponding ratios were 33.1% and 35.7%. The following result of regression shows the relative importance of home investment in the pre-1914 Canadian trade cycles:

$$Y_t = 7.0 + 0.8Y_{t-1} + 1.5I_t - 1.3I_{t-1} + 0.9X_t - 0.1X_{t-1}$$

(0.3) (4.4) (7.0) (5.4) (3.2) (2.3)

$$\text{Adjusted } R^2 = 1.00, \text{ LM} = 0.65$$

(t-ratios in parentheses)

The final chart of Fig II-11 shows that Indian exports varied in a cyclical way during 1870-1914 except for the years of Cycle IV, whereas the annual capital outlay on Indian railway, used here as an indicator of Indian domestic capital formation, began to show cyclical movements from Cycle II. The absence of cyclical elements in the movements of Indian imports and railway receipts during Cycle I years(Fig II-6, fourth chart) implies that the cyclical influences delivered from the rest of the world to India through trade channel were not strong enough to result in the fluctuations of the whole economy. In Cycle II, although both investment and exports seemed to vary cyclically, it appears likely that exports were a stronger cyclical force than investment in terms of both amplitudes and determination of turning points. While domestic investment seemed to gain considerably in importance as a cyclical source in Cycle III, it is not clear whether the movements of exports were overwhelmed by those in home investment: the Indian railway receipts(Fig II-6) moved in closer agreement with exports than with the capital outlay on railways. We could be sure on the other hand that investment formed a dominant force in Cycle IV, since exports showed contracyclical variations. The 'overwhelming bulk' of capital invested in Indian railways was British.¹⁷ In Cycle V, where exports displayed wider fluctuations, turning points were more closely associated with the movements of the capital outlay on railways; in the absence of further information it seems difficult to determine the character of the Indian Cycle V.

As a summary of the results of our attempt to identify dominant forces in individual cycles in each of our eight countries, Table II-4 is presented.

¹⁷ D. Thorner(1951) p.391

Table II-4 Leading Forces in the Five Trade Cycles

	I	II	III	IV	V
US	I	I	I	I	I
Germany	I	X	I	I	I
UK	X/L	X/L	X/L	I	X/L
France	X/L	I	X/L	I	X/L
Argentina	X	X	I	X	I
Australia	X	X	I	X	X
Canada	I	I	X	X	I
India	X	X	X	I	?

, where I: home investment, X: exports, L: overseas lending

3. Mechanism of the International Trade Cycles

Having identified the dominant forces influencing the course of the cyclical fluctuations in each of our eight economies, we now proceed to the question of where cyclical disturbances originated, and how they were transmitted to the rest of the world, resulting in such broad parallelism among the national trade cycles of the eight countries as was seen in the first section. According to the simple models presented at the beginning of the preceding section, the cyclical fluctuations of a world economy, comprising one investment, one export, one lending and one borrowing economy, can be initiated either by the shifts in domestic investment activities in the investment economy or by those in the export of funds from the lending to the borrowing economy, or by both. It could thus be expected that countries undergoing pure export cycles¹, such as Germany and Argentina in Cycle II, alone did not initiate the turning points in the corresponding international trade cycles. Table II-5, listing the leaders at the 9 turning points, is consistent with such a prediction, except for the trough in the late 1870s, when Argentina, undergoing export cycles, is shown to have led the beginning of Cycle II. However, one may not need to take the latter proposition completely seriously, in view of the fact that the turning point in question in Argentina was determined on the basis of import value data, which are subject to influences other than the level of activity such as capital inflow and import price variations.

It is also seen in the Table that cases in which turning points were initiated by lending or borrowing economies alone to the

¹ 'Pure' in the sense that the export cycles are not related to lending abroad.

exclusion of the two major industrial investment economies, the US and Germany, were very rare: indeed, only one such case, the peak of Cycle III, is observed, which was led by Australia.² On the other hand, it is notable that at no turning point except the 1907 peak are the two developed investment economies listed as co-initiators. It seems that in earlier cycles, Cycles I & II, the US led turning points, while Germany tended to pass turning points earlier than the US in Cycle IV and V. As we shall see below, however, it rarely appeared the case that the investment boom, say, in the US induced an investment boom, say, in Germany, or the opposite.

Although at seven of the nine turning points at least one primary producer is listed among cycle leaders, this does not necessarily imply that at all the seven turning points initial cyclical shocks originated from the undeveloped world. As we shall see shortly, this indeed was the case in Cycle III; on the other hand, in other cycles the fact that some undeveloped economies passed through turning points in the same year as the US or Germany appeared to be related to their closer trade relationship with these investment economies, which ensured that the variations in the level of activity in the industrial countries were passed on to these primary producers with a short interval, i.e. in less than one year. For example Canada, most of whose export decline in the Cycle I downswing and export increase in the Cycle II upswing were accountable by the fluctuations in her exports to the US³, passed the 1878 trough in the same year as the US. It is also found in Table

² Although the 1893 trough was led by Britain, this had nothing to do with Britain's role as an international lender: as was already seen (Table II-4), the British Cycle IV was an investment cycle.

³ In 1873-78 total Canadian merchandise exports declined by \$16m, whereas the fall in the Canadian exports to the US was \$17m. On the other hand, during the upswing of 1878-81 Canadian exports rose by \$31m, which compares with the \$23 increase in Canadian exports to the US in 1878-82. B. R. Mitchell (1983)

II-5 that Argentina was associated with the US at the 1873 peak, whereas at the trough in 1902 she was accompanied by Germany. This is consistent with the changes in the geographical pattern of the Argentine export trade, which consisted mainly in the decline of the importance of the US and the rapid expansion of the German market.⁴ Finally, France and Britain are observed to appear as turning point leaders at the 1882 peak and the 1893 trough respectively, which may be related to the fact that the French Cycle II and the British Cycle IV were led by home investment (Table II-4).

Let us now take a closer look at each of the five international trade cycles, paying particular attention to the origin of cyclical shocks and the directions of their transmission. In doing so, monetary influences are ignored but will be discussed in the following chapter.

According to Table II-4, during the Cycle I years, from around 1870 to 1876-9, the US, Germany and Canada underwent investment cycles, while the fluctuations in the rest of our eight economies were led by exports. If Germany seemed capable of financing her domestic capital formation internally⁵, the US and Canada were dependent upon foreign savings. The degree of dependence, however, differed considerably: while British portfolio investment in

4 In 1870-79 the shares of the US and German market in the total Argentine exports were 8% and 2% respectively; in 1900-09 they changed to 5% and 12%. In the 1872-79 exports downswing, the decline in the Argentine exports to the US accounted for 18% of the contraction in total Argentine merchandise exports, whilst the exports from Argentina to Germany continued to rise during the downswing. In contrast, in 1900-05 exports upswing the rise in the exports to the US explained only 5.4% of the total growth of Argentine exports, whereas the contribution of the German market was 11.3%. B.R. Mitchell (1983).

5 Although it is true that in the early 1870s large amount of French capital flowed into Germany in the form of indemnity payments, according to E. Feis (1930) p.68 this provided the basis for foreign investment boom in Germany.

the US in 1870-79 amounted to only 3.5% of the US gross domestic capital formation⁶, foreign contribution to Canadian investment activity was as high as 37.1% in the same years.⁷ In other words, the role of foreign capital in the US was supplementary and reinforcing, but foreign capital inflow seemed to form an essential condition for Canadian capital formation in the 1870s. Thus Cycle I could be said to have been led by the largely self-financed home investment activity in the US and Germany and by Canadian domestic capital formation, which was to a considerable extent foreign financed and mostly British⁸.

As we shall see in Section 1, Chapter III, the investment cycles in the US and Germany did not appear closely connected with each other but explicable largely in terms of domestic factors. In contrast, it is possible and even probable that the Canadian investment fluctuations were indirectly connected with the fluctuations of the two industrial countries, the US in particular, which affected both the willingness and ability of British investors to lend abroad.

The cyclical fluctuation in the US and, probably⁹, Germany seemed to bring about corresponding shifts in their imports, thus transmitting cyclical shocks to various parts of the world: US

⁶ The data on the British portfolio investment in the US were kindly provided in the form of 5-year summary by Professor I. Stone of the City University of New York, and this source is indicated in this study by I. Stone(1985); the US GDCF figures are from S. Kuznets(1961).

⁷ A. I. Bloomfield(1968a), M. C. Urquhart(1986)

⁸ British new portfolio investment in Canada alone accounted for 62.1% of total foreign capital flow into Canada in 1870-79. A. I. Bloomfield(1968a), M. Simon(1968)

⁹ German overseas trade statistics are unavailable before 1890.

imports from primary producers¹⁰ increased by £29m and declined by £12m during the Cycle I up- and downswing; the cyclical changes in US imports from Britain and France accounted for 25.2% and 40.3% of the cyclical rise and fall in British merchandise exports and 19.2% and 18.1% of those in French merchandise exports; similarly the cyclical changes in German imports from Britain and France amounted to 14.6% and 22.7% of the cyclical increase and decrease in British merchandise exports and 33.3% and 17.3% of those in French merchandise exports. On the other hand, the Canadian investment cycle affected chiefly Britain, the main supplier of funds to Canada: Canadian imports from Britain declined during the Cycle I downswing by £7.8m, which accounted for 69.0% of total fall in Canadian imports and 12.0% of the decline in British merchandise exports.¹¹

Thus the cyclical variations in the level of activity in the US, Germany and Canada seemed to play a crucial role in initiating export cycles in both Britain and France. The expansion and contraction of the British and French economies both reinforced the initial cyclical influences upon the undeveloped world and diffused cyclical shocks to primary producers not closely linked with the US and Germany: Britain increased her imports from the undeveloped world by £57m during the Cycle I upswing and decreased by £28m during the subsequent downswing; a £17m rise and a £4m fall were observed in French imports from primary producers. The resulting cyclical variations in the level of activity in the undeveloped world were fed back into Britain and France via trade channels as further cyclical

10 In this study, primary producing or undeveloped world is defined as the world minus our four industrial countries for the sake of simplicity.

11 The data on the geographical distribution of Canadian imports began from 1872.

stimuli. Fig II-12 summarizes the structure of international trade cycle between the late 1860s and the late 1870s.¹²

In Cycle II, extending from 1876-8 to 1886, major cyclical disturbance seemed to originate from US, France and Canada (Table II-4). Whereas the investment activity in the US and France was carried out largely with domestic funds, Canada continued to import substantial amount of capital in these years. France was a major international lender throughout the period 1870-1914; and while in 1880-84 British new portfolio investment in the US accounted for only 3.4% of the US gross domestic capital formation, during the Cycle II years, 1878-86, foreign capital inflow amounted to 33.1% of Canadian home investment.¹³

The broad synchronization between the shifts in US and French home investment did not seem to result from the interaction of the two economies, but as a matter of chance.¹⁴ On the other hand, it is likely that the investment fluctuations in the US and France affected the level of Canadian investment by influencing the prospects and wealth of foreign, mainly British, investors.

The cyclical forces originating from the US and France were transmitted to the undeveloped world through trade links: the exports from the undeveloped world to the former rose by £28m and fell by £13m during the Cycle II expansion and contraction, whereas France recorded a £38m increase and a £16m decrease in her imports from the periphery. On the other hand, Britain also received

¹² In Fig II-12, as in the following four figures, only major initial shocks are shown for the sake of simplicity.

¹³ S. Kuznets (1961), I. Stone (1986), A. I. Bloomfield (1968a), M. C. Urquhart (1986)

¹⁴ See Section 1, Chapter III.

Fig II-12 The International Trade Cycle I, 1868-1876/9

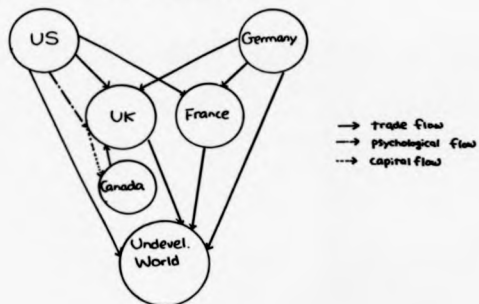
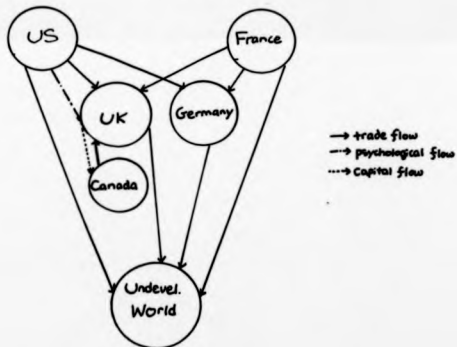


Fig II-13 The International Trade Cycle II, 1876/9-1886



cyclical shocks from the two countries through trade flows: the cyclical shifts in British exports to the US and France explained 32.8% and 6.8% of the total increase in British merchandise exports in the Cycle II upswing, respectively, and 31.3% and 13.9% of the decline in British exports in the following downswing, respectively. The effects of the Canadian investment cycle were mostly felt in Britain and the US: Canadian imports from Britain and the US increased by £4.5m and £5.5m during the upswing and declined by £2.9m and £4.5m during the downswing¹⁵; the cyclical changes in Canadian imports from Britain accounted for 9% and 10% of the cyclical rise and fall in British merchandise exports. The British export cycle, thus induced, not only gave further cyclical stimuli to primary producers through the £50m increase and £51m decrease in Britain's imports from the undeveloped countries during the trade cycle, but also contributed, together with the US and French investment cycles, to the creation of the German export cycle. The export cycles in Britain and Germany were amplified by the cyclical changes in the demand for their products from primary producers. Fig II-13 shows how the fluctuations in major countries were interlocked between the late 1870s and the mid-1880s.

The US, Germany, Argentina and Australia were major centres of disturbance in Cycle III, from 1886 to 1895-7.(Table II-4) It was in the Argentine and Australian investment cycles that foreign, mostly British, capital occupied an essential position; the US and German investment was financed by and large from domestic sources. In pre-1914 Argentina foreign capital is said to have financed between one-third and one-half of net physical investment¹⁶; British capital

¹⁵ Compare these figures with the £11m increase and £5m decrease in total Canadian imports.

¹⁶ C. P. Díaz Alejandro(1970) p.31

accounted for 41.2% of Australian gross domestic capital formation 1885-94¹⁷. On the other hand, Germany remained a capital exporter in 1880-1914, and the ratio of British new portfolio investment in the US to the US gross domestic capital formation was reduced to 2.7% in 1885-94.¹⁸

The changes in the level of the US home investment affected German domestic capital formation mainly through psychological channels¹⁹, whereas the Argentine investment activity seemed indirectly related to the state of the US economy via foreign, mainly British, investors.²⁰ Australian investment fluctuations appear insignificantly influenced by external factors²¹, nor were they wide enough to have major impact upon the rest of the world. Therefore, we shall abstract from Australia in the following discussion of Cycle III.

The greater part of the cyclical changes in US and German imports, reflecting cyclical shifts in the level of activity, was due to the variations in imports from the periphery: the US expanded her imports from primary producers by £40.7m in the upswing and contracted then by £27.8m in the downswing, changes which compare with the £66.0m increase and £12.5m decline in the German imports from the undeveloped world. The US trade cycle made itself felt not only in the periphery but also in Britain in a significant way: the cyclical changes in British exports to the US were equal to 19.9% of

17 N. G. Butlin(1962)

18 S. Kuznets(1961), I. Stone(1986)

19 See Section I, Chapter V.

20 See Section I, Chapter VI. According to M. Edelstein(1982) p.329, 'In both level and fluctuation the yield on UK-held US investment was closely related to that on Latin American assets, and to a lesser extent, those on Western and Eastern European assets.'

21 See Chapter VIII.

the rise in total British exports during the upswing and 36.6% of the decline during the downswing.

To a substantial degree the trade flow effects connected with the Argentine investment cycle were transmitted to Britain, a major lender to Argentina, which constituted the other major influence initiating the British export cycle: the changes in British exports to Argentina were responsible for 11.8% of the total expansion of British exports during the upswing and 13.7% of the total contraction during the downswing.²² The fluctuations of the British economy, together with the shifts in the US and Argentine level of activity, go very far to explain the export cycle in France.²³ As in the preceding two trade cycles, the fluctuations in Britain and France meant further cyclical shocks for the undeveloped world in addition to those from the US and Germany: Britain and France increased their imports from the periphery by £49m and £17m during the upswing, respectively, and decreased by £16m and £28m during the downswing, respectively. And the fluctuations in primary producing regions had the effect of amplifying British and French export cycles. Fig II-14 summarizes Cycle III.

Cycle IV(1895/7-1902/4) is peculiar in that all of our four industrial economies underwent investment cycles. In addition, investment fluctuations dominated the Indian Cycle IV(Table II-4). Since the US was transformed into a net capital exporter after 1896²⁴, the investment activities in the four countries could be

²² It should also be noted that if the export revival in the mid-1880s was led by the US, the following export downturn was initiated by Argentina.

²³ See Chapter VIII.

²⁴ It is interesting to note that after Cycle III British new portfolio investment in the US, approximated by Simon's estimate of British new portfolio investment in North America minus that in Canada, ceased to vary cyclically. M. Simon(1968) & (1970)

Fig II-14 The International Trade Cycle III, 1886-1895/7

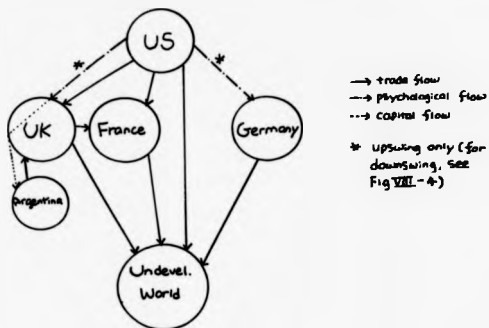
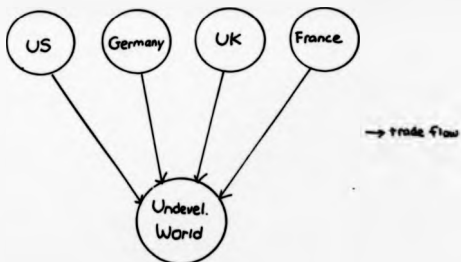


Fig II-15 The International Trade Cycle IV, 1895/7-1902/4



financed domestically; on the other hand, Indian capital formation appeared heavily dependent upon British savings.²⁵ As we shall see in the first section of the following chapter, the broad parallelism among the cyclical fluctuations in the home investment of the four countries was to a great extent, if not purely, a coincidence.²⁶ On the other hand, the pattern of variations in the level of Indian home investment was probably not determined as autonomously as in the four industrial countries, in view of India's dependence upon Britain for capital.

The cyclical influences generated by the four industrial countries were transmitted to the rest of the world by trade channels: the US increased her imports from the undeveloped world by £28m during the boom and decreased by £3m during the slump, which may be compared with the £54m increase and £7m decline in German imports, with the £57m increase and £2m decline in British imports, and finally with the £20m increase and £9m decline in French imports from primary producers. In Fig II-15 is shown a rather unique structure of Cycle IV.

Cycle V, 1902/4 - 1908/9, was led by the US, Germany, Argentina and Canada (Table II-4). If the two industrial leaders were financially self-sufficient, the two primary producers had to have recourse to foreign, mostly British, savings to a considerable extent in undergoing investment cycles: as mentioned earlier, in Argentina between one third and one half of net physical investment was financed by foreign capital, whereas in 1905-09 foreign savings

²⁵ D. Thorner (1951) p.391

²⁶ It would be relevant to note here that at the two turning points connected with this trade cycle, i.e. the trough in the mid-1890s and the peak around 1900, the maximum discrepancy among the turning points of our eight economies was greater than at other turning points.

attracted to Canada accounted for 35.7% of Canadian gross domestic capital formation.²⁷ The broad agreement between the cyclical fluctuations in the US and German home investment did not appear to result from close linkages between the two through capital or trade flows.²⁸ It is, on the other hand, possible that the fluctuations of the two investment economies influenced the level of capital formation in Argentina and Canada by affecting British overseas lending.

The investment cycles in the US and Germany made themselves felt in the undeveloped world via the shifts in exports from the latter to the former: US imports from the periphery rose and fell by £81m and £29m in the Cycle V boom and slump, whereas a £118m increase and a £37m decrease were observed in German imports from the undeveloped world. On the other hand, the cyclical changes in the imports of the two countries from Britain played a key role in generating an export-led cycle in Britain: the cyclical variations in British exports to the US amounted to 7.3% and 19.6% of the rise and fall in total British merchandise exports, and the corresponding ratios for British exports to Germany were 12.7% and 18.6%. The British financed investment fluctuations in Argentina and Canada formed further major shocks to the British economy: the cyclical rise and fall in British exports to Argentina accounted for 9.2% and 6.1% of total expansion and contraction in British exports, whilst 6.4% and 4.8% were the corresponding ratios for Canada. The fluctuations of the British economy, together with the cyclical influences from the US and Germany, were essential in creating the French export cycle. As a result of the fluctuations in Britain and France, cyclical movements of the undeveloped world were reinforced: Britain expanded her imports from the periphery by £110m during the

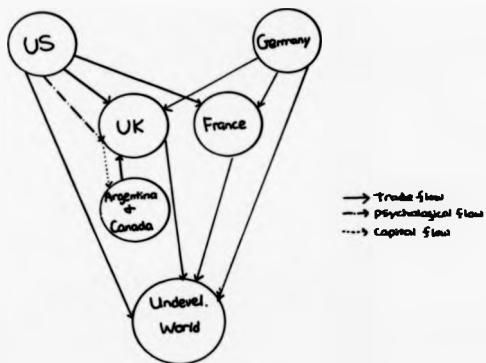
27 A. I. Bloomfield(1968a), M. C. Urquhart(1986)

28 See Section I, Chapter III.

upswing and contracted then by £36m during the downswing, while £45m and £18m were the corresponding figures for France. In Fig II-16 are displayed major cyclical shocks in the Cycle V years.

It would now appear possible to summarize a common structure underlying the five pre-WWI trade cycles in the following way: the investment fluctuations in industrial countries, typically US and Germany, provided initial cyclical shocks; these were sent to various parts of the world through trade channels; at the same time, the prospects of foreign investors, typically Britain, were also affected, which in turn had a significant impact upon the capital formation in the periphery; both the original shocks via trade channel and the trade flow effects connected with the investment fluctuations in the periphery produced an export-led cycle in the landing economy, which formed an additional cyclical influence upon the periphery. If home and foreign investment was thus at the bottom of the international trade cycles in 1870-1914 era, the working of these underlying forces, that of foreign investment in particular, was most clearly visible in Cycle III, which we shall examine in greater detail in later chapters. Before that, we first turn to the examination of the determinants of the fluctuations in home and foreign investment in the years preceding World War I.

Fig II-16 The International Trade Cycle V, 1902/4-1908/9



INVESTMENT AND MONEY, 1870-1914

In this chapter, we first investigate the causes behind the short-run cyclical variations in domestic capital formation, which have been shown to be at the bottom of international economic fluctuations in major economies with an adequate data base. Since capital exports from Britain were seen to have played a vital role in investment cycles in some countries, in the second section we shall try to locate the determinants of the fluctuations in British overseas lending to major regions. It is next asked how the flow of funds from Britain on such an extensive scale could have been carried out without causing major balance of payments difficulties in pre-1914 years; in the same context we examine the forces tending to produce external equilibrium in other various economies. In the final section, monetary forces are introduced into the system, and their role in international fluctuations will be assessed: particular attention is paid to the explanation of the cyclical pattern in the variation of money stock and interest rates.

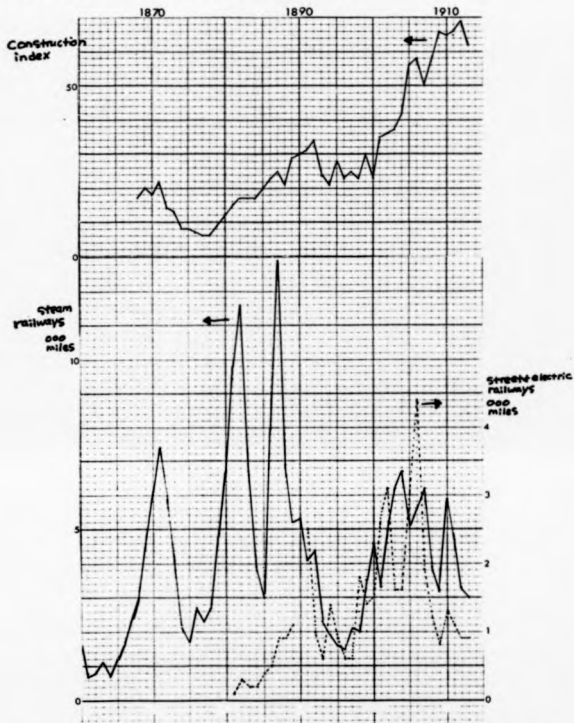
1. Home Investment

While in theoretical analyses investment is usually treated as a homogeneous aggregate, this approach appears to be of limited use: different factors seem to be responsible for the variations in the level of replacement and expansion investment, and there is a case for considering fixed and inventory investment separately. It is also well-known that, historically, fluctuations in construction investment followed a pattern different from non-construction. Hence, in trying to locate the determinants of the level of home investment in major economies of 1870-1914 period, we adopt a 'leading sector' approach: main investment fields are in the first place identified; the factors influencing the level of capital formation in these key areas will be established; we shall then see how the investment fluctuations in the leading sectors induced those in other sectors.

In the first two of the five pre-WWI US trade cycles, according to R. Fels, investment in the form of railway building was a main driving force. In the following trade cycle, Cycle III, the influence of railway building upon the course of the trade cycle, although still important, diminished. This is reflected in the fact that, by reaching a peak in 1887, railway investment failed to vary in as close agreement with total investment and national income (peaking in 1892) as in Cycles I & II.¹ Thus, one observes in Fig III-1 three major

1 R. Fels(1959) Chapters 6-10. Railway building in Cycle I and II were of different nature in that if the railway building during the upswing of Cycle I was chiefly building new main lines, in Cycle II 'much of the railroad building consisted of completing the mainlines of the roads which had been stopped by the panic of 1873 ... Even more important was construction of feeders and branches for parent lines. In addition, repairs and improvements that had been put off during the depression were now initiated.' p.115, 118

Fig III-1 Transport Development and Building Activity: US



Source: W. Isard(1942), US Department of commerce(1961), Statistical Abstract of the US, 1898, 1915

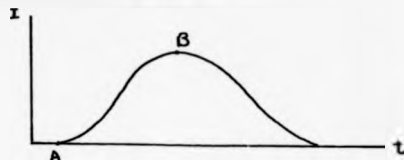
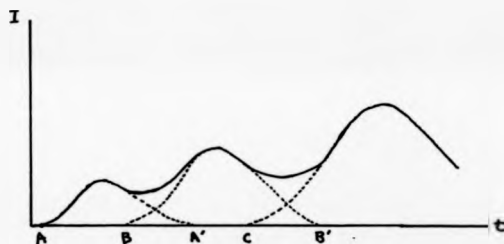
peaks in the fluctuations of the US railway building in 1870-90, whereas in 1890-1914 railway investment displayed much weaker variations. It is essential to view these short term fluctuations in the pre-1914 US railway investment in the context of the process of the introduction of railways in the US, beginning in the early 19th century and virtually coming to an end in the late 1880s. The course of the US railroadization was, W. Isard says, characterized by three major long swings, the second long swing corresponding with the course of railway investment during the Cycle I years, and the third, i.e. final, long swing comprising the variations in the level of railway building in Cycle II and III years.² The considerably shorter distance between the two peaks in the 1880s - five years as compared with 15 years between the first and second railway long swing peaks - seems to justify treating the two short waves as forming together one long swing.³

In the Schumpeterian theory of innovation with an initiator and imitators, the introduction of a single new technology would give rise to a single cycle in investment. With the start of the introduction of an innovation by a pioneering entrepreneur (A in the first chart of Fig III-2), the level of investment will rise as the number of followers increases, i.e. as the technology is diffused over the economy concerned, until the point of saturation (B in the first chart of Fig III-2), after which investment declines due to the exhaustion of profitable investment outlet. As is shown in the second chart of Fig III-2, the consecutive application of *n* different technologies

² W. Isard(1942a)&(1942b)

³ Moreover, 'the recession in the mid-eighties was not as severe nor of as long duration as those experienced in the mid-seventies'. W. Isard(1942a) p.152. According to R. Fels(1959) p.124,125, 'In contrast [to the downturn after 1873, 1893 and 1907], the downturn of the early eighties was slow and quiet.'

Fig III-2 Innovation and Investment

application of one innovationSuccessive application of n innovations

- : total investment (= Vertical Summation of ----)
 ---- : investment connected with the introduction of individual innovations

results in n waves in investment'. In reality, however, the railroadization of the US was associated with three major long swings, and moreover the final long swing consisted of two shorter cycles. As we shall see in greater detail in the first section of the following chapter, this was due to the pioneering role of the US railways in the westward movement which displayed the following pattern. First, in the US new railway lines did not connect existing centres of settlement, but were mainly built ahead of settlement and attracted people and business into previously empty regions. Second, such having been the case, a limit was sooner or later reached beyond which pioneering railway building could not be carried on without profitability gravely deteriorating. Finally, with the establishment of settlement and business around the railway lines and the consequent increase in traffic and stabilisation of railway profitability, the first stage of railway building was justified, and the second stage of the intrusion of railway into virgin land began, and so on.⁴

These railway long swings, by causing internal and international migration, induced those in construction investment with irregular lags, as can be seen in Fig III-1⁵: for instance, in the case of the

⁴ For a more formal treatment of generation of cyclical pattern in investment activity as a result of bunching of inventions, see P. Stoneman(1983) chapter 13. It is to be noted that the only condition for n different inventions to produce n investment cycles is that the points of introduction of different innovations(A, B, C) are not too close between each other; that is, it is not necessary that succeeding innovation, say B, is started at the point when the investment connected with preceding innovation, A, has fallen back to zero(A⁰). The distance between the points of introduction will determine the length of up- and downswing: for instance, supposing that the scale of technology is on the increase, one could be expected to observe 'growth cycles' in investment activity when the distance between the points of introduction is short enough, whereas 'classical cycles' will result in the opposite case.

⁵ 'railways, particularly those west of the Mississippi, were often built ahead of - and enormously facilitated - the growth of population and traffic that ultimately justified them and led to another spurt of railroadings.' R. Fels(1959) p.118

⁶ W. Isard(1942a)&(1942b)

third long swing, the trough and peak of the 'induced' construction cycle were reached two and five years after those in the railway building long swing, respectively.

It appeared that railroadization, the consequent internal and international migration and the progress in urbanization prepared the ground for the application of another set of new technology: electrical infrastructure. While in the Cycle IV & V yearly fluctuations in railway investment damped down considerably (Fig III-1), Table III-1 shows that the growth of capital stock in such industries as street and electrical railways, electric lighting and power and telephone was faster than in other major industries in post-1890 years: these electricity-based industries replaced steam railway as the leading sector of the US domestic capital formation.⁷

It is thus observed in Fig III-1 that the third railway long swing was followed by a long swing in the construction of street & electric railways⁸, and that the latter comprised two shorter cycles whose patterns correspond with those of the US Cycles IV and V. The long swing in investment in electrical industries induced a long swing in building activity, since electric traction, 'by removing the prohibitive time and cost considerations of residential location in suburbs and outlying territories', permitted 'the dispersion of population'.⁹

7 See also M. Flamant & J. Singer-Kerel(1987) p.36, 42, 43. It would be relevant to note in this context that in the US a market for industrial securities began to develop from the later years of the boom of Cycle III, 1890-93, and that the market matured during Cycle IV. T. R. Navin & M. V. Sears(1955)

8 Electric traction was the most important of the three electricity-based industries: during 1890-99, the gross investment in street and electric railways accounted for 62.8% of the total gross investment in the three electrical industries, whereas the corresponding figures for electric light and power and telephone industries were 21.6% and 15.5%, respectively. M. J. Ulmer(1960)

9 W. Isard(1942b) p.105. See also R. N. Scheiber(1976) p.271

Table III-1 Changes of Capital Stock in Major US Industries(1929 \$m)

	1880-90	1890-1900	1900-09
food etc.	942(3.4)	1921(4.6)	1919(3.7)
textile	1026(3.7)	1121(2.7)	1760(3.4)
chemical	272(1.0)	393(0.9)	662(1.3)
iron & steel	671(2.4)	438(1.1)	2706(5.2)
machinery*	746(2.7)	757(1.8)	1737(3.3)
steam railway	3886(13.9)	1571(3.8)	2550(4.9)
motor vehicle	4	56	194
electric**	419(1.5)	2308(5.5)	3636(6.9)

Source: Creamer et al(1960), M. J. Ulmer(1960), S. Kuznets(1961)

* excludes transportation equipment

** includes electric lighting and power, telephone, and street & electric railways

In the parentheses is given the percentage of the increase of the capital stock in each industry to the net domestic capital formation in the US in the corresponding period.

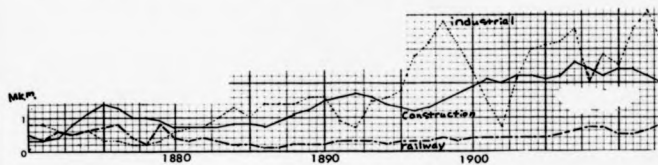
In sum, the three US building cycles in 1860-1914 were closely related to the introduction of major new transport technologies. The breaks in the final railway upswing and in the electricity upswing enables one to identify five short run cycles in 1870-1914; the breaks probably reflected the fact that, as we see in Section 1, Chapter IV, one national long swing comprised asynchronous shorter regional cycles.

Railway building was a leading sector in the German Cycle I, too¹⁰. Although railway building started in the early 1830s in Germany, it seemed to fluctuate around a relatively low level until the late 1860s. The years of the German Cycle I witnessed a major swing in railway investment, to which both the victory in the Franco-Prussian War and the establishment of a united Reich appeared to make a major contribution; after 1880 German railway investment failed to show major fluctuations. (Fig III-3)¹¹ In sum, a substantial boost was provided by the aforementioned political changes for the process of the German railroadization, which was completed during the subsequent upswing.

It was not until the mid-1890s that new investment opportunities comparable to railways emerged. Consequently, during the Cycle II years German home investment languished, with exports varying more widely; as we shall see in Section 1, Chapter V, the cyclical variations in German home investment during the Cycle III years were induced, through psychological factor rather than trade or capital flows, by the shifts in the level of the US railway construction.

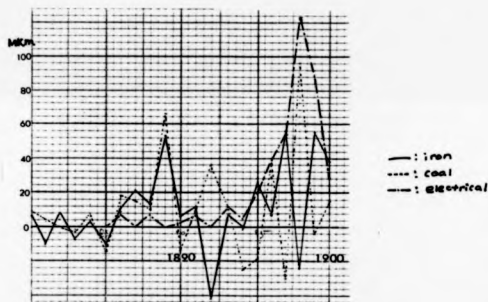
10 H. Mottek (1977) p.157. 'railway was at the first place in the investment of "Gründerjahre"'.
 11 W. G. Hoffmann (1965) p.257 Tabelle 41, W. O. Henderson (1975) p.161, R. Fremdling (1977), H. Kellenbenz (1976) p.370

Fig III-3 German Net Domestic Investment by Sectors at Constant Prices



Source: W. G. Hoffmann(1965)

Fig III-4 Annual Changes in Financial Capital of Major German Industries



Source: J. Kuczynski(1962)

Finally, in Cycles IV and V technological development opened major investment outlets in the electrical and chemical industries.¹² According to Fig III-4, showing the annual increase in the financial capital of quoted joint stock companies in Germany, in Cycle IV the annual changes in capital in the electrical industry displayed not only the clearest cyclical pattern, but also by far wider amplitude than other industries. On the other hand, in none of the three industries shown is a cyclical pattern observed in the annual variations in capital during Cycle II; and the investment in the German iron industry, influenced by the US demand for rail, seemed to lead the German home investment fluctuations during Cycle III. In sum, the courses of major German investment cycles, such as Cycle I, IV and V, represented the process of the application of new technologies.

According to Tipton, the industrial development in Germany of the late 19th century was largely a process of the industrialization of Ruhr district with the eastern part of Germany specializing in agriculture.¹³ Therefore, industrial progress was accompanied by acute regional imbalances between demand for and supply of labour, which gave rise to a large scale internal migration from the middle of the 19th century. This increased the number of people employed in industrial sector, mainly city dwellers.¹⁴ The progress in urbanization through internal migration in Germany displayed a

12 H. Mottek(1977) p182, 183, 188, K. von Borchardt(1976) p.268, 269, P. B. Whale(1930) p.21. According to M. Flamant & J. Singer-Kere(1987) p.40, the German crisis in 1900 was called 'electrical crisis'; in Cycle V, Mottek says, more importance came to be attached to electrification, and automobile and bicycle industries also began to influence the economy increasingly.

13 P. B. Tipton(1976)

14 'although the process of urbanization began around the middle of the century it reached completion essentially between 1871 and 1910 ... In 1871 23.7% of the population lived in communities of over 5000 inhabitants; by 1910 this figure has risen to 48.8%'. W. Koelmann(1969) p.62

distinct cyclical pattern,¹⁵ a consequence of which was the pre-WWI German building cycles similar to those in the US¹⁶. The first German building cycle, peaking in 1875 (Fig III-3), seemed to be induced by the industrial development centring around railway building; while in correspondence with the depression of German industrial investment activity, internal migration and construction activity remained sluggish during the Cycle II years, cyclical fluctuations in industrial investment, centring around the iron and steel industry, produced the second building cycle peaking in 1892¹⁷; the last two short run investment cycles gave rise to the third building cycle peaking in 1907. Therefore, technological development could be said to have been, though not to the same extent as in the US, also at the bottom of the German Kuznets cycles.

Fig III-5 shows the fluctuations in three main fields of investment in pre-1914 Britain: construction, ships, and plant and machinery. It is in the first place seen that construction investment displayed far wider variations than the other two components, and moved following a long swing pattern of around twenty years' duration, with peaks in 1876 and 1903; thus, in Cycle IV, the unique investment cycle in pre-WWI Britain, construction was the leading sector.¹⁸ The British building cycles were out of step with the US building cycles to such an extent that scholars initially considered the building cycles on both side of the Atlantic to be inversely related, which they sought to explain mainly in terms of the migration of capital and labour between the two economies. According to the famous 'Atlantic economy' thesis, the increase in migration from

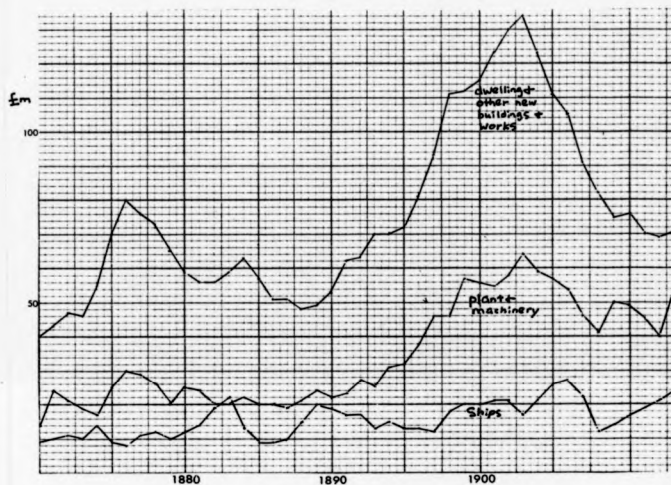
15 D. Langewiesche(1977) p.12

16 W. A. Lewis & P. J. O'Leary(1955)

17 Thus, K. Borchardt(1976) p.267 considers construction as having supported the Cycle III upswing.

18 J. Blackman & E. M. Sigaworth(1965), R. S. Sayers(1967) p.36,37

Fig III-5 UK Gross Domestic Fixed Capital Formation by Sectors at Constant Prices



Source: C. H. Feinstein(1976)

Britain to the US created favourable conditions for a housing boom in the US, which in turn attracted British capital, while the movement of labour and capital in this direction obviously had adverse effects upon the British building industry, and upon British home investment as a whole.¹⁹

It was, however, found that this line of explanation includes some difficulties: in the first place, the variations in migration rates were too small to exercise any major influence upon the building industries of both sides²⁰; long swings in British overseas lending do not reflect those in the British investment in the US, but in each long upswing the direction of outflow differed; while it is possible to expand accordingly the concept of the Atlantic economy to include the whole American continent and Australia, the fact remains to be explained that the surge of capital exports to Latin America was not accompanied by the increase in migration thereto.²¹ Additionally, the statistical test conducted by M. Edelstein shows that 'domestic investment conditions had an important exogenous influence on the aggregate rate of overseas lending'²², rather than the other way around.

Therefore it would appear reasonable, following H. J. Habakkuk²³, to explain the long swings in the US and Britain mainly in terms of factors internal to each of them, and then to consider the degree of contribution of external factors. If the US Kuznets cycles were, as seen above, 'transport-building cycles', demographic shifts,

19 B. Thomas(1968)

20 W. A. Lewis & P. J. O'Leary(1955) p.126

21 D. H. Aldcroft & P. Fearon(1972) p.70

22 M. Edelstein(1982) p.232

23 H. J. Habakkuk(1962)

due to domestic as well as to external factors, appeared responsible for the British building cycles in pre-WWI years.²⁴

Fig III-5 also shows that the variations in investment in plant and machinery largely reflected the building cycles, while the capital formation in ships varied in a trade cyclical manner. This seems to imply that the level of investment in plant and machinery was to a great extent determined by the state of home demand, which was probably heavily influenced by the building trade²⁵; on the other hand, variations in the volume of world trade, directly affecting the level of demand for British shipping service, appeared the major determinant of the investment in ships.²⁶ Therefore it could be concluded that, in contrast to the US and Germany, the non-construction component of home investment in Britain had the nature of 'induced' investment²⁷, while the fluctuations in construction investment seemed to be of more autonomous kind.

As in Britain, construction investment, undergoing 20-year cycles, dominated the scene of pre-WWI French domestic capital

24 P. Lewis(1965) Chapter 8, D. H. Aldcroft & P. Fearon(1972) p.71-72. Professor S. B. Saul(1962) says that the state of British building industry 'was largely determined by the state of demand and by the nature of the operation of the trade itself.'

25 Taking the absolute deviations from 9-year moving averages, Professor A. G. Ford(1981) p.42 observed that the cyclical variations in the investment in plant, machinery and vehicles tended to lag behind those in GNP, which he interpreted as suggesting that 'in upwings rising activity induced businessmen ... to increase their planned investment, which took time to commission and implement, and thus lagged behind activity, while the subsequent downswing scotched some future plans and led to falling investment.'

26 A. G. Ford(1981) p.42

27 It should be noted that investment of autonomous character, specifically that related to innovations, was not completely absent: for instance, in the British Cycle IV 'electric tramways and the first London "tube" railway' are said to have been important fields of investment. R. S. Sayers(1967) p.37 According to I. C. R. Hyatt(1979) p.6 and C. H. Feinstein(1976) T.85,86, the gross fixed investment in electrical industry accounted for 3.0%, 10.8% and 15.4% of the UK gross investment in 1897, 1903 and 1913, respectively.

formation(Fig III-6). The peaks of the French Kuznets cycles coincided roughly with those of the French Cycles II and IV. Hence it would seem that the alternation of export and investment cycle in France was closely related to building cycles. Considering the fact that outflow of labour and capital affected the French economy to a far smaller extent than Britain²⁸, it seems even less likely than in Britain that the French building cycles are explicable by external factors.²⁹

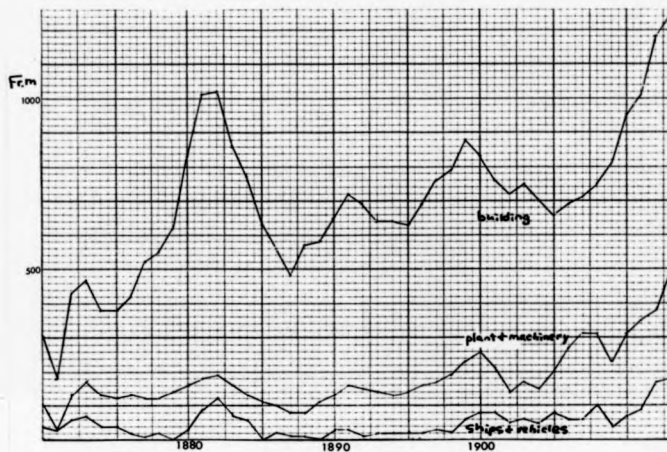
The trade cyclical pattern in the movements of French investment in ships and vehicles(Fig III-6) may be interpreted in the same way as in Britain, i.e. as reflecting the influences of the changing state of the world trade. On the other hand, in contrast to Britain, the capital formation in the form of plant and machinery also moved in a trade cyclical manner, suggesting that the level of this component of French home investment was significantly affected by overseas as well as home demand.

Turning to the capital formation in the undeveloped world, one observes that long swings were, perhaps, a even more prominent feature than in developed countries(Fig III-7,8 & 9). It could

28 In France, overseas investment(indirect estimate) was less than 18% of gross domestic investment during 1865-1913, whereas the amount of funds equal to around two thirds of British gross domestic fixed capital formation flowed out of Britain during 1870-1914(indirect estimate). As for the impact of emigration, in pre-WWI years French and British population averaged around 38m and 30m, respectively; during 1871-1910 0.3m and 10.4m left France and Britain, respectively. M. Levy-Leboyer(1978) p.287, C. H. Feinstein(1976), B. R. Mitchell & P. Deane(1962), B. R. Mitchell(1981)

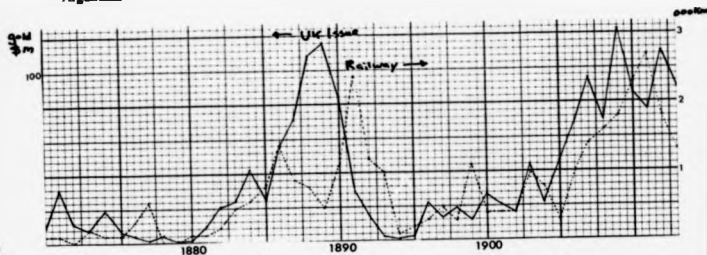
29 It, however, needs to be pointed out that the indemnity payment after the Franco-Prussian War amounting to Fr1487m on annual average during 1871-73 probably exercised considerable influence upon the inverse relationship between the German and French Kuznets cycles: the indemnity payments figure compares with the annual average of French gross domestic capital formation during 1871-3 of Fr2262m and with the annual average of German net investment of Fr2688m. M. Levy-Leboyer(1978) p.287, W. G. Hoffmann(1965)

Fig III-6 French Gross Domestic Capital Formation by Sectors at Current Prices



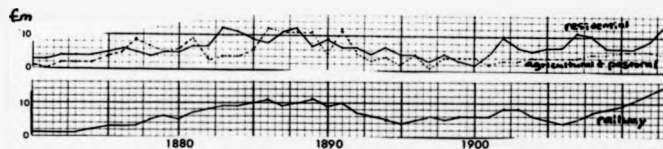
Source: M. Levy-Leboyer & F. Bourguignon(1985)

Fig III-7 Annual Addition to Argentine Railways and British New Portfolio Investment in Argentina



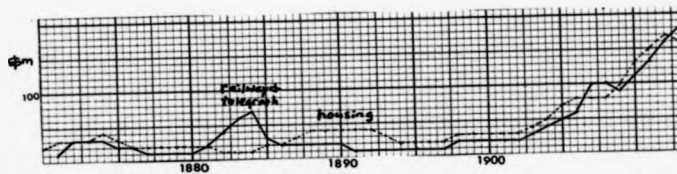
Source: I. Stone(1972), B. R. Mitchell(1983)

Fig III-8 Australian Gross Domestic Capital Formation by Sectors at Constant Prices



Source: N. G. Butlin(1962)

Fig D1-9 Canadian Gross Domestic Capital Formation by Sectors at Current Prices



Source: M. C. Urquhart (1986)

realistically be assumed that the long swings in Britain and those in primary producers were not so independent of each other as between those in the US and Britain, in view of the important part played by British capital in the capital formation in undeveloped countries. Since, as Edelstein says, home investment conditions in Britain were exogenous influences determining the level of the outflow of British savings, investment upswings in primary producing areas with insufficient internal savings would have been more likely to materialize when the level of British home investment was relatively low, e.g. in the 1880s and in the 1900s. This, however, is not to argue that the long swings in the periphery were predominantly the outcome of the British building cycles. As we shall see in the analysis in the following section, the 'pull' from capital importing regions, as well as the 'push' from the British side played significant parts in determining capital flow into primary producing economies and, consequently, their levels of capital formation.

For instance, in Argentina, where railway building was the dominant field of capital formation in pre-WWI years, such favourable changes in domestic environment as the pacification of pampas, political stability and currency reform seemed to be crucial in the beginning of the long upswing in 1880s. And the course of subsequent swing (Fig III-7) could be explained by the logic of railway development cycle as proposed by Professor A. G. Ford, which is broadly identical with the mechanism of the emergence of the state of temporary overbuilding and its dissolution in the US.³⁰

Residential construction, according to Butlin, led the Australian long swings.³¹ Fig III-8, however, suggests that there were two

30 A. G. Ford (1971)

31 N. G. Butlin (1964) p.211

other almost equally important fields of investment in Australia: agricultural and pastoral investment and railway building. The three major components of Australian home investment did not appear to be closely related to each other: in particular, in contrast to the US and Argentina, the pioneering role of railway building, inducing construction investment, was absent in Australia.³² Australian railway investment being carried out mostly by colonial government, rather than by private entrepreneurs, both political considerations, e.g. 'intercolonial rivalry',³³ and 'long term planning',³⁴ rather than short term profitability, go far to explain the movements in Australian railway building. On the other hand, the variations in residential construction seemed closely connected with those in the level of immigration into Australia. While the fluctuations in immigration resulted partly from the shifts in the state of the Australian labour market, pull of other recipient countries, such as the US, Canada and South Africa, as well as the push from Britain, seemed to exert considerable exogenous influences.³⁵ Finally, long term consideration tended to be important in the investment decision making in pastoral industry, since 'Pastoralists, intent on the building of rural estates, were often unable to predict or even discover the profitability of capital outlays.'³⁶

Investment in railways was important in all the three major periods of Canadian capital formation, i.e. in 'the first half of the 1870s, again through the mid- to late 1880s, and, above all, in the

32 N. G. Butlin(1964) p.399-404

33 E. A. Boehm(1971) p.133

34 N. G. Butlin(1964) p.327

35 A. C. Kelley(1965) Immigration affected the Australian building industry both through the changes in total population and through those in age structure. A. C. Kelley(1968)

36 N. G. Butlin(1965) p.153 Thus, on the whole, long term element figured in Australian domestic capital formation in pre-WWI years, which, Butlin says, contributed to the stability in Australian home investment.

period from 1900 to 1914³⁷(Fig III-9). The cyclical variations in Canadian capital formation in the Cycle I years were attributable to the building of the intercolonial railway, undertaken by government. The building of the Canadian Pacific Railway line to the west coast, undertaken privately but aided by 'very generous treatment from the federal government', were mainly responsible for the investment fluctuations during Cycle II.³⁸ The cyclical variations in Canadian home investment in Cycle III reflected mainly the shifts in housing construction, which, Urquhart says, were induced by the building of the Canadian Pacific Railway. It could therefore be said that the fluctuations in Canadian home investment in pre-1895 period were to a great extent influenced by government policy regarding railway building, apart from the state of London capital market.

Although railway investment continued to be a major field of investment after 1895, the Canadian investment boom in the early 20th century was 'very broadly based'. It is thus more accurate to describe the boom as having been led by investment 'related directly or indirectly to the settlement of the West'³⁹. The start of the remarkable upswing seemed to be attributable to the recovery in wheat exports in the late 1890s⁴⁰, which induced optimism in investors' prospects.⁴¹ The outbreak of WWI seemed to put an end to the expansion.

In summary: the introduction of new transport technology, steam and electric railways in particular, seemed to underlie the investment fluctuations in the US and Germany, whilst demographic

37 M. C. Urquhart(1986) p.35

38 M. C. Urquhart(1986) p.35

39 M. C. Urquhart(1986) p.35

40 For the reasons behind the increase in wheat exports, see G. M. Meier(1953) p.4.

41 R. E. Ankli(1980) p.256, M. C. Urquhart(1986) p.39

shifts, to a substantial degree domestic in origin, appeared to go far to account for the building cycles in Britain and France, which were at the bottom of the investment cycles in these countries. In primary producing countries, railroadization together with the availability of foreign capital and government policy seemed the major factors behind investment long swings. Such being the case, the broad synchronization among the investment cycles of the four industrial countries could be considered to a great extent as a matter of coincidence. However, it should be emphasized that with innovations tending to be made available for different countries more or less at the same time in a world with well developed means of communication and transportation, investment upswings connected with the absorption of new technology are likely to start simultaneously in several countries. On the other hand, if there is observed any degree of correlation between the investment variations in the developed and undeveloped world, this may be to a great extent attributable to the latter's dependence upon the former for funds.

2. Foreign Investment

In pre-WWI years long-term capital tended to flow out of developed to be invested in undeveloped areas. Of our four industrial economies, Britain and France dominated the scene of international investment: in terms of annual average British and French overseas lending in 1870-1914 period amounted to approximately £76m and £32m, respectively, whereas the corresponding figures for Germany and the US were £26m and £6m.¹ This contrasts with the fact that in pre-1914 years domestic capital formation was carried out on a more extensive scale in the US and Germany than in the two older capitalist countries.² The yearly outflow of capital of this size was equal to around two thirds of gross domestic capital formation in Britain and around 18% in the case of France; on the other hand, in the investment economies the ratio of foreign to gross domestic investment was far lower: 1% and 6% in the US and Germany, respectively.³

1 These are indirect estimates. In contrast with other three industrial countries, which remained net capital exporters throughout the period concerned, the US borrowed £13m on annual average from 1870 until 1896, and lent in the remaining years £38m annually. US Dept of Commerce(1961)

2 In our period the annual average domestic investment in the four industrial economies was as follows: £716m for the US(1871-1913), £183m for Germany(1870-1913), £121m for Britain(1870-1913), and £135m for France(1865-1913). It should be noted that the German investment figure is in net terms, while for other three countries annual averages represent gross investment. In view of that in Britain and the US replacement investment accounted for 62% and 46% of gross investment, respectively, we could reasonably multiply the Germany annual average of net investment by two, to get a rough estimate for the annual average German gross investment, £366m. W. G. Hoffmann(1965), C. E. Feinstein(1976), S. Kuznets(1961), M. Levy-Leboyer(1978)

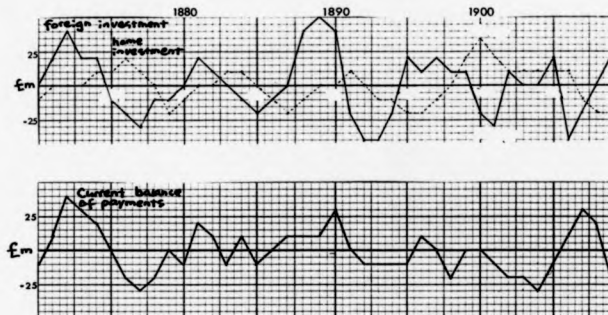
3 In the US the net inflow of capital prior to 1897 accounted for 2.9% of the gross domestic capital formation in the same period, whereas net outflow of capital amounted to 3.4% of the gross domestic investment during the later years of our period.

It is well-known that British overseas lending displayed long swings moving almost precisely in opposite directions to those in home investment: roughly speaking, the years of Cycle I, III & V corresponded to the period of relatively active capital exports from Britain, whereas in the remaining years home investment was maintained at levels above average. As was already pointed out in the preceding section, the long swings in British foreign investment were an outcome of those in domestic capital formation in Britain, reflecting largely building cycles, rather than the other way around.

In the short run, British overseas lending tended to vary in a cyclical way, except for the years of Cycle IV, between the mid-1890s and the early 1900s, during which British new portfolio foreign investment showed contra-cyclical movements (Fig III-10). This figure also shows that the cyclical pattern in foreign investment preceded that observable in domestic investment by 2-3 years, thus conveying the impression that British foreign and domestic investment fluctuated in opposite directions in the short as well as in the long run.⁴ The cyclical pattern in British capital exports did not reflect the cyclical fluctuations in British investment in every individual borrowing region; instead, the concentration of capital flows into various regions in different years produced cyclical variations in total British overseas investment. In Cycle I & II, British investment in the US and Europe was largely responsible for the cyclical movements; during Cycle III, besides the lending to the US, the capital exports to South America made an important contribution to the cyclical pattern; finally, British investment in Canada and Asia largely determined the course of fluctuations in total British overseas

4 A. I. Bloomfield (1968a) p.22. He found that the correlation coefficient of the first differences of British net capital exports and gross domestic fixed capital formation in 1860-1913 was -0.32, significantly different from zero at the 5% level.

Fig III-10 British Current Balance of Payments, Home and Foreign Investment, Absolute Deviations from 9-year Moving Averages



Source: B. R. Mitchell(1962), M. Simon(1968), C. H. Feinstein(1976)

lending during Cycle V.⁵ This suggests that the explanation of the cyclical variations in total British new portfolio foreign investment amounts to accounting for the spurts of capital flows into these particular areas in relevant years. Thus, in the following, we attempt to locate the factors influencing the fluctuations in British lending to the US during 1872-95, to Argentina during 1882-99, to Australia during 1870-99, and finally to Canada during 1895-1913.

In his attempt to explain the variations in the level of long term capital outflow from Britain into major borrowing countries during the period concerned, Professor H. W. Richardson observed that the differential in realized rate of return do not provide a satisfactory answer. On the other hand, indices of economic opportunity, such as national income, in capital importing areas were shown to affect the level of capital inflow.⁶ Considering the following difficulties included in his approach, however, such results could to some extent have been expected. In the first place, in Professor Richardson's regression equations are employed as indicators of alternative returns for capital the yield on consols for Britain on the one hand, and the average returns for capital in borrowing countries on the other hand.⁷ However, as far as capital importing countries are concerned, it appears more appropriate to use the return on the capital employed in the sector(s), upon which British investors attention was focused, such as railways, rather than an average return. Secondly, it is important to distinguish expected, or ex ante, from realised, or ex post, return, and the former rather than the latter could more reasonably be considered to affect the level of

5 M. Simon(1968)&(1970), I. Stone(1972)

6 H. W. Richardson(1972)

7 Such as annual average yield of thirty years US corporate bonds and the estimates of interest paid on foreign investment divided by accumulated net borrowing in Australia and Canada.

capital flows. In fact, this appears to be revealed in the aforementioned findings by Richardson. For the ex ante return for capital to be invested abroad can be expected to be influenced at least partly by the 'economic opportunity' in borrowing regions. Finally, with a given differential in expected returns and with the amount of wealth remaining constant, it does not appear realistic that flow from, say, Britain into the US will continue indefinitely. According to portfolio theory, considerations of risk can prevent one from investing all the resources available in the asset with highest expected rate of return.⁸

Thus, a model based upon stock theory and incorporating a partial adjustment process to account for the discrepancy between the expected and realized rate of return was estimated using yields on railway debenture stock as an indicator of the return on home investment and railway profit rate in the US, Argentina and Canada and yields on New South Wales securities as those of the return on investment in these countries.⁹ The result again was that the differential in return does not explain capital movement, which may reflect both inadequacy of the data used and problems involved in dealing with the expectations on future return by means of partial adjustment process. Hence, in the following analysis of ours, although theoretically less than satisfactory, factors considered to influence expected returns, rather than expected returns themselves on both sides will be introduced; in addition, to take the wealth

8 J. Williamson(1983) Chapter 9

9 The model is as follows: $K_t^* = ar_t + \theta W_t$, $K_t - K_{t-1} = \theta(K_t^* - K_{t-1})$, where K_t^* : desired overseas capital stock, r_t : yield differential, W_t : wealth, K_t : actual overseas capital stock. Substituting the first equation for K_t^* in the second equation, we get:

$K_t - K_{t-1} = I_t = \theta ar_t + \theta \theta W_t - \theta K_{t-1}$, where I_t : overseas investment. Leading this equation by one period and subtracting this from the original equation, we get:

$I_t = \theta a(r_t - r_{t-1}) + \theta \theta (W_t - W_{t-1}) - (1-\theta)I_{t-1}$, which is the equation estimated.

effect into consideration, the UK annual accumulation, i.e. annual home plus foreign investment, is also included.

Let us first consider the US during the years of the first three trade cycles. As was shown in the preceding section, in these years railway building formed the leading sector in the cyclical fluctuations of the US economy, and a major portion of British capital flowing into the US was attracted by the investment opportunities related to railways.¹⁰ Thus, railway profitability, represented here by railway net earnings per mile, in the preceding year could be regarded as an important factor influencing British investors' prospects on their investment in the US in the current year. On the other hand, it appears reasonable to include the level of home investment as indicating the state of investment opportunities in Britain.

1872-95

$$USC_t = -20.1 + 0.4USRP_{t-1} - 0.3UKI_t + 0.3UKS_t \\ (1.4) \quad (0.1) \quad (2.8) \quad (3.8)$$

Adjusted R²=0.62, DW=1.53, t-ratios in parentheses

, where USC: UK portfolio investment in the US

USRP: net railway earning per mile

UKI: UK GDFCF

UKS: UK annual accumulation

The above equation shows that the fluctuations in the British portfolio investment in the US during the first three cycles are

¹⁰ In 1810, 85% of the UK portfolio investment in the US (stock) was in its railway. D. R. Adler (1970) p.vi.

explained predominantly by the 'push' factors on the British side, such as home investment opportunities and the pressure of savings; on the other hand, the shifts in the US railway profitability hardly appeared to be a significant determinant.¹¹

In Argentina of 1882-1899 period, too, railway building figured in the investment by foreigners.¹² Thus, as in the US, the Argentine railway profit rate¹³ may be made to represent the pull forces from the Argentine side; the same two variables, the UK savings and domestic investment, are included in the following equation to describe the conditions in Britain:

1882-1899

$$ARC_t = -16.9 + 1.3ARRP_{t-1} - 0.3UKI_t + 0.3UKS_t$$

(1.4)	(2.1)	(5.1)	(4.7)
	<u>0.3</u>	<u>1.2</u>	<u>1.7</u>

Adjusted R²=0.65, DW=1.64, t-ratios in parentheses, beta-coefficients underlined

, where ARC: UK portfolio investment in Argentina

ARRP: Argentine railway rate of profit

The result listed above shows that in the Argentine case both pull and push forces influenced the level of British investment in

¹¹ This is consistent with the conclusions reached by M. Edelstein (1982) p.95-97.

¹² 'Something like 65-70% of all British capital invested in Argentina during the four boom years 1886-9 was employed to finance railways directly through the joint stock companies or indirectly through the medium of government borrowing.' H. S. Ferns (1960) p.409

¹³ A. G. Ford (1971) p.660

Argentina during the years concerned, while beta coefficients suggest the latter to have been more powerful.¹⁴

As we have seen in the preceding section, residential construction, pastoral and agricultural industry and railway building constituted the three major fields in Australian domestic capital formation in 1870-99. Neither did it appear the case that the three were interrelated as leading and following sector(s), nor did British investors' attention seem to be concentrated upon one of the three main outlets. Thus, in the following equation the level of Australian home investment is employed as an indicator of the pull from Australia:

1870-99

$$AUC_t = 0.4 + 0.6AUI_t - 0.04UK_t - 0.004UKS_t$$

(0.1) (6.7) (1.0) (0.1)

Adjusted R²=0.64, DW=1.55, t-ratios in parentheses

, where AUC: British investment in Australia

AUI: Australian gross home investment

14 A. G. Ford(1971) reached a somewhat different conclusion: admitting the impact of both pull and push forces, he regarded the former as direct and stronger than the latter. On the other hand, M. Edelstein(1982) believes that 'domestic UK factors were far more powerful in the Argentinian case than Ford's evidence suggests at first glance. Furthermore, given the beta coefficients of Ford's equations, it is possible that the UK variables were the stronger factor, albeit by a slim margin.'(p.104) The difference between the result shown above and that presented in A. G. Ford(1971), however, may be at least partly attributable to the fact that the former is concerned only with the last two decades of the 19th century, while the latter covers 1900-1914 as well: according to Edelstein(1982) p.304, 'The UK's lending to Argentina during the early twentieth century ... seems largely the result of Argentinian investment and savings pressure rather than of domestic UK forces.'

According to the above listed result, in contrast to the US and Argentine cases, British investment in Australia was very strongly influenced by the pull of Australian prospects, rather than by the state of investment and saving conditions in Britain.¹⁵

During 1895-1913, the Canadian economy underwent a huge investment upswing, which was partly induced by the export boom in the late 1890s, and which at the same time prepared the base for the full-scale export boom in the second decade of the 20th century.¹⁶ As we have seen in the preceding section, this boom was very broadly based, and although 41.7% of British new portfolio investment in Canada was absorbed by the railway sector in 1900-13¹⁷, it would appear more sensible to represent the state of Canadian investment opportunities by the level of Canadian home investment, rather than by Canadian railway investment¹⁸:

1895-1913

$$CAC_t = -6.6 + 0.03CAI_t - 0.1UKI_t + 0.09UKS_t$$

(0.9) (1.3) (1.3) (1.5)

0.5 0.2 0.4

Adjusted R²=0.91, DW=2.1, t-ratios in parentheses, beta-coefficients underlined

, where CAC: British portfolio investment in Canada

15 N. G. Butlin(1965) p.149 says that 'Capital imports between 1871 and 1890 accounted for half to two thirds of new capital formation, leaving Australian savings to provide the minor part. This supply of funds seems to have borne comparatively little connection with the course of events in the British economy and only a limited connection with overall short term movements in British foreign investment.' On the other hand, according to M. Edelstein(1982) p.106, 107, in 1870-1914 'UK and Australian participation and influence roughly balanced in the Australian case.'

16 R. E. Ankli(1980)

17 M. Simon(1970) p.249, Table VII

18 In fact, substituting Canadian railway investment for total home investment in the following equation, we obtain similar result.

CAI: Canadian gross home investment

The above equation suggests that the push from the British side and the pull of Canadian economy were almost equally important in determining the level of British investment in Canada.¹⁹

To summarize, both push and pull factors contributed to the production of the cyclical pattern in British overseas lending: in Cycle I & II push forces were important(US); in Cycle III pull from Argentina and Australia emerged, while push from Britain still had strong influences upon the flow of funds to the US and Argentina. Both push and pull seemed equally responsible for the variations in capital outflow in the Cycle V years. Thus, on the whole, as Edelstein argued, push forces appeared somewhat more powerful.²⁰

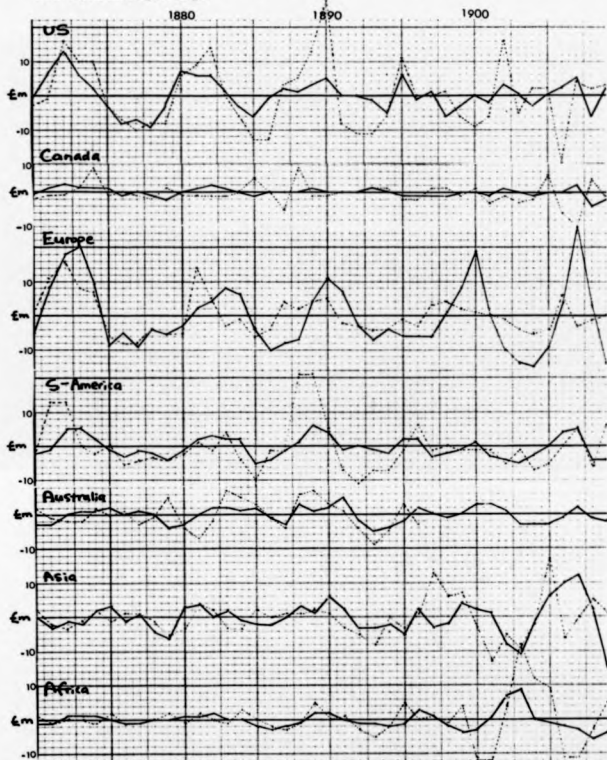
As was briefly pointed out in the second section of the preceding chapter, the precedence of the cyclical fluctuations in British overseas lending over those in British merchandise exports provided the basis for the proposition that capital outflow from Britain on such an extensive scale could be maintained without causing major balance of payments difficulties due to the capability of the exported capital to expand the market for British goods.²¹ Fig III-11, however, shows that such a temporal relationship between capital and merchandise is not always to be found on a regional level.

19 Compare this with Edelstein's conclusion: 'UK influence and participation were very important to the transfer of Britain's savings to Canada and quite possibly the dominant force.' M. Edelstein(1982) p.108. He also mentions on p.286,287 the 'overabundance' of foreign savings in Canada in the years concerned.

20 M. Edelstein(1981) p.82

21 A. G. Ford(1965)

Fig III-11 British Merchandise and Capital Exports to Various Regions, Absolute Deviations from 9-year Moving Averages



Source: M. Simon(1968)&(1970), B. R. Mitchell(1962), N. G. Butlin(1962)

— : merchandise exports, ---- : capital exports

In the first place, during the first three US cycles, when both British lending and merchandise exports to the US moved cyclically, it is hardly possible to observe the lead-lag relation between the two items; rather they tended to move in close synchronization²². As we shall see in Chapter VI, in the Cycle III years there was similarly no gap between the fluctuations in British capital and merchandise exports to Argentina and Australia. Furthermore, between the fluctuations in the British investment in and the British merchandise exports to Canada, no consistent relation is found: while the former moved in a non-cyclical way, in the fluctuations of the latter are to be identified the usual five trade cycles. These observations, being made in the regions contributing greatly to the fluctuations in British overseas lending in corresponding years, seem to suggest the need carefully to reexamine the determinants of the level of British merchandise exports.

Our first step in such a reexamination reflects the discussion in the final section of the preceding chapter which suggested that not only the shifts in British overseas lending, but also the fluctuations of the two major investment economies, US and Germany, had significant effects upon the state of the world market. Accordingly we related the level of British merchandise exports(UKX_t) to the current level of national income in the two countries(USY_t and GY_t) and to the level of British foreign investment in the preceding year(OL_{t-1}). While UKX_{t-1} , USY_{t-1} , GY_{t-1} and OL_{t-1} are included in the light of the fact that these variables are distinctly trending, we shall be mainly concerned with the coefficients associated with the current level of activity in the two investment economies and the amount of British lending in the preceding year:

²² At the peak in the early 1880s, capital exports even lagged behind merchandise exports.

1872-1913

$$\begin{aligned}
 UKX_t = & 45.0 + 0.7UKX_{t-1} + 0.01USY_t - 0.001USY_{t-1} + 0.004GY_t - \\
 & (2.2) \quad (5.3) \quad (2.6) \quad (0.5) \quad (1.5) \\
 0.006GY_{t-1} + & 0.20LI_{t-1} - 0.03OL_{t-1} \\
 (2.2) \quad (1.3) \quad (0.2)
 \end{aligned}$$

Adjusted $R^2=0.97$, t-ratios in parentheses

According to the above result, the level of US activity was the only significant factor explaining the short term changes in British merchandise exports, while the coefficients associated with the German national product and British overseas lending are not significantly different from zero. If we remember that the contribution of the US market to the cyclical fluctuations of British exports declined rapidly throughout 1870-1914²³, and that British lending to the US ceased to move cyclically after Cycle III, it would seem useful to examine the earlier and later years of the period under consideration separately:

1871-1893

$$\begin{aligned}
 UKX_t = & 83.7 + 0.7UKX_{t-1} + 0.01USY_t - 0.01USY_{t-1} + 0.005GY_t - \\
 & (2.3) \quad (4.1) \quad (3.6) \quad (2.8) \quad (2.4) \\
 & \quad \quad \quad \underline{1.3} \quad \underline{0.7} \\
 0.007GY_{t-1} + & 0.20LI_{t-1} - 0.10LI_{t-2} \\
 (4.4) \quad (2.1) \quad (0.7) \\
 & \quad \underline{0.2}
 \end{aligned}$$

Adjusted $R^2=0.88$, t-ratios in parentheses, beta coefficients underlined

1885-1913

$$\begin{aligned}
 UKX_t = & 48.8 + 0.3UKX_{t-1} + 0.003USY_t + 0.003USY_{t-1} + 0.003GY_t - \\
 & (1.8) \quad (1.5) \quad (0.9) \quad (0.8) \quad (0.7) \\
 0.002GY_{t-1} + & 0.20LI_{t-1} + 0.20LI_{t-2} \\
 (0.6) \quad (1.2) \quad (1.1)
 \end{aligned}$$

23 See Section 3, Chapter II. The rise and fall in the exports to the US accounted for 25.2% and 40.3% of the cyclical increase and decrease in total British merchandise exports in Cycle I, whereas the corresponding ratios fell to 7.3% and 19.6% in Cycle V.

Adjusted $R^2=0.97$, t -ratios in parentheses

It is shown above that while in the earlier part of our period the three independent variables had significant influence upon British merchandise exports, none of the three was associated with a coefficient significantly different from zero in the later years. According to the beta coefficients in the first equation, the state of the US economy was the most influential factor, and the level of British lending in the previous year the weakest. Since throughout the forty-odd years concerned the contribution of the US and German market to the cyclical shifts in British merchandise exports diminished²⁴, and since in quantitative terms the importance of British foreign investment declined relatively to the US and German home investment²⁵, it would seem sensible to interpret the deterioration in the explanatory power of USY_t and GY_t as reflecting the rapidly increasing influence of the indirect effect, i.e. impact via the undeveloped world, of the fluctuations of the two investment economies. On the other hand, the insignificant contribution of the shifts in British overseas lending to those in British merchandise exports in the later years may be to a considerable extent related to the aforementioned relative decline of British foreign investment. It is, however, not very clear to what extent the significance of the coefficient associated with British overseas lending in the earlier years can be considered as revealing the causal sequence between British capital and merchandise exports; for in these years the

24 See the preceding footnote. The cyclical changes in British merchandise exports to Germany accounted for 14.6% and 22.7% of the rise and fall in total British merchandise exports in Cycle I; in Cycle V the corresponding figures were reduced to 12.7% and 18.6%.

25 Net investment in the US and Germany grew from £258.9m and £74.2m, respectively, in 1878-82 to £462.9m and £232.3m, respectively, in 1928-1932, whereas British new portfolio investment increased from £49.1m to £258.6m during the same period. S. Kusnets(1961), W. G. Hoffmann(1965), M. Simon(1968).

cyclical pattern in British overseas lending reflected to a great extent the variations in British investment in the US, where the role of British savings was seen to have been marginal.²⁶

Thus, the overall impression is that the effect of British overseas lending upon merchandise exports was relatively weak when compared with the influences coming from the two investment economies. This would imply that in the production of the cyclical pattern in British current balance of payments (Fig III-10), underlying the smooth transfer of capital, at least as important a part was played by the tendency for current balance of payments to vary cyclically during export cycles²⁷, as by the expansion of merchandise exports due to capital exports. If the latter mechanism was in operation in Britain's relation with undeveloped economies, it appeared to be in British investment in the US that the working of the former was more prominent.

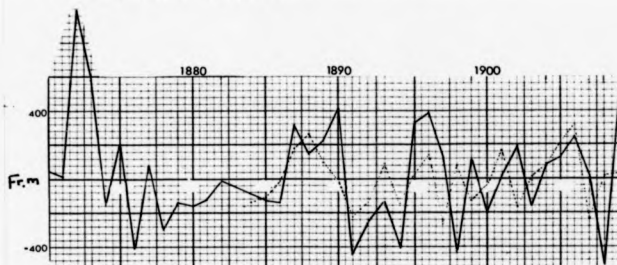
Fig III-12 shows the short-run fluctuations in French foreign investment and balance of payments. It is observed that in export cycles (Cycle III & V) both varied in a trade cyclical way, whereas in an investment cycle (Cycle IV) irregular fluctuations are found in both series. Such having been the case, no great balance of payments difficulties arose in the course of French capital exports either.

As in the case of Britain, the cyclical pattern in current balance of payments during export cycles appears to be explicable by weak

26 See Section 3, Chapter II.

27 An export cycle is by definition a trade cycle, in which the fluctuations in exports outweigh those in home investment. Thus it could be said that the concept of export cycle involves the assumption that the accelerator effects related to the changes in export demand are weak. Such being the case, during an export cycle imports are likely to show relatively weak fluctuations, as a result of trade balance moves cyclically.

Fig III-12 French Foreign Investment and Current Balance of Payments, Absolute Deviations from 9-year Moving Averages



Source: H. D. White(1933), M. Levy-Leboyer(1977)

— : balance of payments
 ---- : direct estimate of French capital exports

domestic investment variations inducing likewise mild fluctuations in imports; under the condition of weak domestic investment demand, scope was given to the cyclical fluctuations in capital outflows. In contrast, during investment cycles, wide fluctuations in the level of home investment brought about correspondingly sharp movements in imports, which outweighed the cyclical variations in exports, causing the trade balance to fluctuate in a contracyclical manner; dynamic changes in home investment demand at the same time put on a brake upon the cyclical variations in capital outflow.²⁸

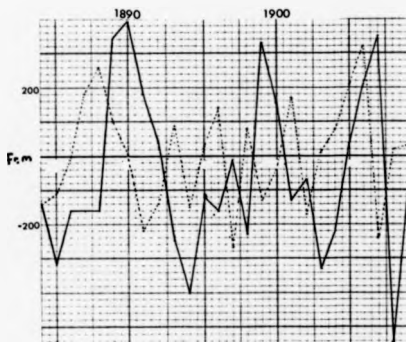
Fig III-13 shows that in the export cycles the cyclical fluctuations in French overseas lending tended to precede those in French merchandise exports by one to two years. It could thus be asked whether this suggests the linkage between French foreign investment and merchandise exports. On this point opinions are divided: some²⁹ argue that French capital exports did not stimulate merchandise exports to any significant extent, whilst R. Cameron emphasizes the linkage between capital and merchandise exports from France.³⁰ Although in the absence of detailed data on French overseas lending it is difficult to have a definite answer to this question, Table III-2 suggests that foreign investment was far less closely related to merchandise exports in France than in Britain: in France is observed a serious discrepancy between the geographical distribution of overseas lending and that of export markets.

Moreover, while an extensive geographical redistribution of French overseas capital stock occurred in the course of 1870-1914, French

28 For alternative explanations of the transfer mechanism of French capital exports, see R. D. White(1933), J. S. Pasmazoglou(1951a).
29 R. D. White(1933) p.296,297, C. Trebilcock(1981) p.181, R. Girault(1979) p.230

30 R. Cameron(1961) p.504. He cites the example of French capital exports to southern Europe for railway building. See also M. Levy-Leboyer(1977) p.21

Fig III-13 French Merchandise and Capital Exports, Absolute Deviations from 9-year Moving Averages



Source: H. D. White(1933), R. Cameron(1961)

—: merchandise exports
 ---: direct estimate of capital exports

Table III-2 Geographical Distribution of Merchandise Exports and
Stock of Capital Invested Abroad, France and Britain(%)

France

	Capital Stock		Exports	
	1880	1910	1880	1913
N & W Europe	14.1	33.3	60.2	60.4
S Europe	56.4	22.6	10.4	8.2
Near East	20.2	12.3	2.4	2.1
US	2.5	4.7	9.6	7.3
Other	6.7	27.2	17.4	22.0

Britain

	Capital Stock		Exports	
	1880	1913	1880	1910
N & W Europe	16.4	5.1	27.9	28.3
S Europe	2.0	1.9	6.2	6.0
Near East	5.6	1.8	4.6	4.3
US	23.3	19.3	13.9	7.3
Other	52.7	72.0	47.1	53.5

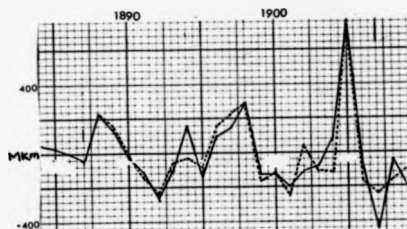
Source: M. Levy-Leboyer(1977), Annuaire Statistique de la France, B.
R. Mitchell(1962)

export market underwent only minor geographical shifts. In contrast, in the British case, geographical distribution of the capital stock abroad corresponded roughly with that of export markets; with the exception of the European continent excluding Southern Europe the changes in the geographical pattern of overseas capital stock agree with the redistribution of British external market.³¹ Therefore, it might be concluded that the smooth transfer of French capital in pre-1914 period was due to a greater extent to the tendency for the current balance of payments to vary cyclically in export cycles than in Britain.

The current balance of payments of the US and Germany tended to deteriorate during upswings and improve during downswings, in accordance with what could a priori be expected of the short term variations in the balance of payments of economies undergoing investment cycles (Fig III-14 & 15). In Germany, which remained a net capital exporter, though on a relatively small scale, throughout 1880-1914 period, direct estimates of foreign investment moved in almost precise parallel with the current balance of payments, i.e. in a contracyclical way. (Fig III-14) Such equilibrating movements in the balance of payments and capital exports may be rendered comprehensible in the following way: with the advance of an investment boom, the increase in imports tended to worsen the

31 Such differences between the two countries may be related to the fact that French overseas lending was more political and less developmental in nature in comparison with British overseas investment: the lending to foreign governments accounted for 35% of total British new portfolio investment in 1865-1914, whereas around 80% of total French capital stock abroad in 1914 is said to have consisted of government securities. M. Simon (1968) p.23, R. Girault (1979) p.227

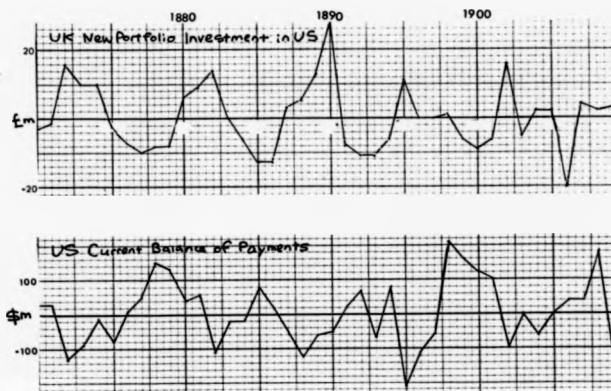
Fig III-14 German Current Balance of Payments and Capital Exports, Absolute Deviations from 9-year Moving Averages



Source: W. G. Hoffmann (1965)

— : current balance of payments
 ---- : direct estimate of German capital exports

Fig III-15 US Current Balance of Payments and UK New Portfolio Investment in the US.
Absolute Deviations from 9-year Moving Averages



Source: M. Simon (1968) & (1970), US Dept of Commerce (1961)

balance of payments, while at the same time the increasing home demand for capital put on a brake on capital outflows.³²

The US was transformed from a borrowing into a lending country from the mid-1890s. Since during 1870-95 Britain was the main investor in the US, for this period the UK new portfolio investment in the US might serve as a proxy for the direct estimate of the capital inflow in the US, which is unavailable. As is shown in Fig III-15, British portfolio investment in the US fluctuated in a distinctly cyclical way during these years of first three Juglar cycles, which in the context of contracyclical pattern in the current balance of payments contributed to the US external balance. In 1895-1914, when British investment in the US failed to vary according to the course of the trade cycle, and when the US was lending abroad in net terms, it appears probable that the US overseas lending varied in a contracyclical way, as a result of the cyclical fluctuations in domestic demand for funds, thus balancing the US external accounts.³³

In primary producing areas, such as Argentina, Australia and Canada, where imported capital played an essential role in capital formation, the current balance of payments and long term capital inflow also tended to move in a stabilizing manner. The studies on

32 The close government control over capital exports also seemed an important factor contributing to the German external equilibrium. I. M. Drummond (1987) p.24

33 This cannot be ascertained due to the unavailability of direct estimates of the annual US capital exports in these years. According to C. Lewis (1938) the US capital was invested predominantly in the American continent, which received 72.7% and 71.7% of total exported US capital in 1897 and 1914 respectively; among the countries on the American continent, Canada and Mexico figured as two biggest importers of the US capital. It was characteristic of the US overseas lending that it was largely direct rather than portfolio investment.

the balance of payments adjustment mechanism in these areas³⁴ show that this is attributable by and large to the fact that the increase in foreign capital flows into these regions was associated with the simultaneous rise in total investment activities, giving rise to the increase in imports and the consequent deterioration in current balance of payments, and vice versa.

To summarize the discussion in this section: the cyclical fluctuations in British overseas lending were the outcome of both the 'push' forces depending upon the investment and savings conditions in Britain and the 'pull' of the prospective return on British investment in various regions. It was also shown that both the market-expanding capacity of overseas lending and the cyclical pattern likely to be observable in the current balance of payments during export cycles contributed to the smooth transfer of British capital; the latter in general appeared to be somewhat more important. In French capital exports, the former mechanism seemed to be even less important. In Germany, both the current balance of payments and capital exports tended to vary in a contracyclical fashion. This was attributed to the cyclical movements in imports induced by the changing level of activity, and to the competition between foreign and domestic demand for funds. The same mechanism seemed to be in operation during the later two US cycles. In the earlier three US cycles the contracyclical variations in the US balance of payments were matched by the cyclical movements in the inflow of capital from Britain. Capital inflow and current balance of payments deficit displayed broadly parallel movements in Argentina, Australia and Canada. Foreign capital having financed a major

34 On Argentina, see J. H. Williams(1920), A. G. Ford(1962); on Australia, see E. A. Boshm(1971); on Canada, see J. Viner(1924), G. M. Meier(1953), J. C. Ingram(1957).

portion of domestic investment in these regions, the pattern of the variations in capital inflow reflected that in total capital formation, which induced similar movements in imports and current balance of payments deficit. These various mechanisms ensured the largely equilibrating movements in the long term capital flows and balance of payments of major economies in pre-WWI era, and this seemed to underlie the 'smooth' working of the classical gold standard, to which we now turn.

3. Money and Banking under the Gold Standard

An outstanding feature of pre-1914 monetary scene was, as is well-known, the maintenance of the *de facto* or *de jure* gold convertibility of major currencies: among our eight economies, only in Argentina and India circulated currencies without gold basis for a major part of 1870-1914 era.¹ This system of gold standard is known to have worked in a relatively orderly way, particularly in comparison with that of the interwar years. As was shown in the preceding section, at the bottom of the 'success' seemed to lie the broadly stabilizing fluctuations in current balances of payments and long term capital flows. The movements of these two items, however, hardly cancelled each other off to such an extent as to preclude international gold movements of considerable magnitude. International migration of gold meant changes in the national stocks of gold of countries involved. And this, under the gold standard, in turn could affect the quantity of money and interest rates in the countries in accordance with various institutional settings. Thus the possibility emerges that, even in the absence of government action

¹ In Argentina, convertible and inconvertible periods alternated: 1867-76, 1893-95, and 1900-14 were the years when Argentine currency was based upon gold, whereas in the rest of pre-WWI years, inconvertible paper money circulated. India was a silver standard country until 1893, when gold exchange standard was introduced. For a useful account of the Argentine and Indian monetary history, see A. G. Ford (1962) Chap. VI, M. de Cecco (1974) Chap. IV. With the resumption of specie payments in 1821, Britain returned to gold standard. Australian and Canadian currency remained convertible throughout the period concerned. H. C. Coombs (1965), R. Pomfret (1981) Chapter 8. In the US silver was demonetized in 1873, but the subsequent agitation for silver succeeded in the partial reintroduction of silver during 1878-1893. Although the central position of gold was reaffirmed after the repeal of the Sherman Silver Act in 1893, it was not until 1900 that the gold standard was legally adopted. M. Friedman & A. J. Schwartz (1963b). In Germany a full gold standard was established by law in 1876. France was on bimetallicism before 1873, when the coinage of silver was limited; in 1876 France stopped silver coinage. M. de Cecco (1984) Chapter III.

influencing money supply, exogenous monetary shocks are administered to an economy.

Such is the broad framework in which we shall examine the shifts in the money stock, in its components, and in the interest rates of four gold standard countries: the US, Germany, Britain and Canada. The selection of these countries is almost entirely based upon the availability of data. Although for France too key monetary and financial data are available, the problems in their reliability force one to exclude her from investigation.² The case of Argentina during her inconvertible era, from the mid-1880s to the mid-1890s, will be dealt with in Chapter VII.³

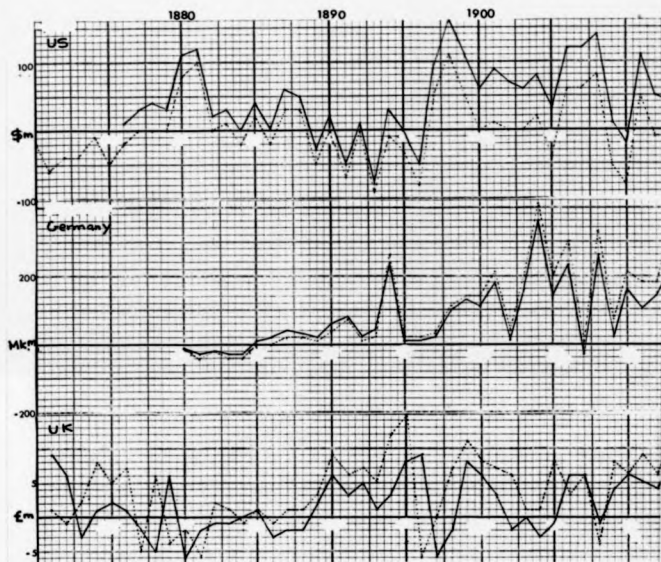
Let us start with examining the changes concerning gold. Generally speaking, the volume of gold in a country could be said to be affected by both i) world production of new gold and ii) redistribution of given stock of gold in the world; if the former is mainly connected with the long term changes in national stock of gold, short term fluctuations may be considered to originate chiefly from the latter. In Fig III-16 are shown both the net gold imports into the US, Germany and Britain and the annual variations in the national monetary gold stocks⁴ of the three countries. The first

² For instance, the estimates of French 'money stock' published in M. Saint Marc(1983) includes not only the currency held by the public, but also bank cash.

³ For the Argentine experience as a gold standard country in the early 20th century, see A. G. Ford(1962) Chap. VI.

⁴ National monetary gold stock is defined here roughly as gold currency in circulation and gold reserve held by central(or issuing) bank. In the UK and German monetary gold stock are also included some non-gold elements, such as silver and bronze subsidiary coins, which are believed to be of insignificant magnitudes. The US monetary gold stock comprises not only gold coins and bullion held by the public and by issuing and non-issuing banks, but also gold in the US Treasury. It should also be noted that for Germany net imports of precious metal are used instead of net gold imports in Fig III-16 & 18.

Fig III-16 Net Gold Imports and Annual Changes in Gold Stock



Source: B. R. Mitchell(1962), F. Capie & A. Webber(1985), UK Statistical Abstract, P. Cagan(1965), US Department of Commerce(1961), B. Sprenger(1982), W. G. Hoffmann(1965)

— : gold stock
 --- : gold imports

thing to be noticed in this figure is the close agreement between the movements of the two items in each of the three countries. This would suggest both that the shifts in the gold stocks of these countries resulted mainly from international movements of gold rather than from the changes in domestic gold production⁵; and that the data on the international gold flows concerning the three countries are reasonably accurate.⁶

Fig III-17 shows that international gold movements resulted in: 1) the broadly cyclical pattern in the US monetary gold stock during Cycles II-V; 2) the cyclical fluctuations in German gold stock during Cycle I & V, contracyclical variations in Cycle II & IV, and very weak and irregular movements during Cycle III; 3) the contracyclical pattern in British gold stock during Cycle II & III, procyclical pattern in Cycle V, and irregular movements in Cycle IV. Among these various patterns of movements in gold stock, of particular interest are the cyclical movements in the US and contracyclical variations in the UK gold stock in Cycles II and III and, probably, in Cycle I.⁷ For, as is well-known, W. E. Beach argued that in both Britain and the US of the pre-WWI period gold flowed in during upswings and out during downswings.⁸ If Beach's such findings are consistent with ours as far as the US is concerned,

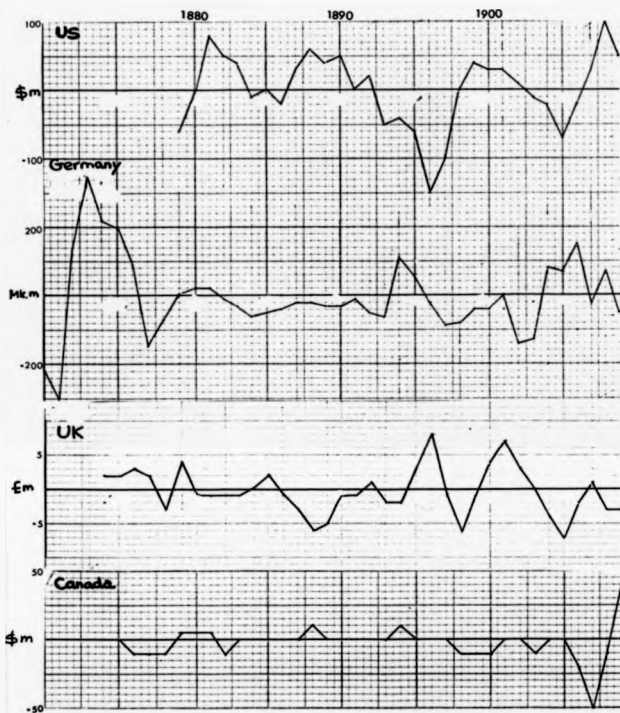
5 This should not be confused with the statement that the annual changes in the stocks of gold in the countries concerned were due to the redistribution of existing world stock of gold. For new-mined gold from gold producers such as South Africa and Australia were mostly sent to London and redistributed to the rest of the world, thus affecting international gold flows. A. G. Ford(1962) p.19

6 O. Morgenstern(1955) expressed doubts upon the reliability of international gold movement statistics, while C. A. E. Goodhart(1968) was less pessimistic. See also F. Capié & A. Webber(1985) p.207,208.

7 Calculating the phase average of absolute deviations from 9-year moving averages of net gold imports into the two countries for the Cycle I up- and downswing, one observes that the average was higher in the Cycle I boom than in the subsequent depression in the US, whereas the opposite was the case for Britain.

8 W. E. Beach(1935)

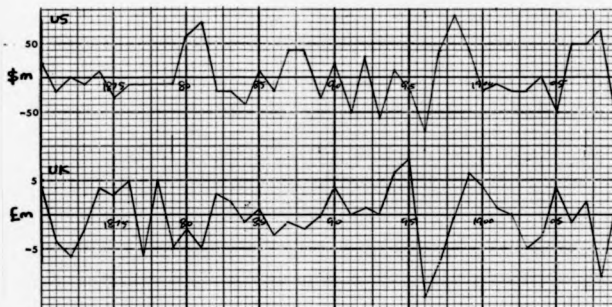
Fig III-17 Fluctuations in Monetary Gold Stock or International Monetary Assets, Absolute Deviations from 9-year Moving Averages



Source: P. Cagan(1965), B. Sprenger(1982), B. R. Mitchell(1962), F. Capie & A. Webber(1985), G. Rich(1987)

as to Britain during 1870-95 period they seem to conflict. Beach's generalization on the gold movements involving Britain is derived from examining the four-quarter moving averages of net foreign movements of gold reported by the Bank of England during the years of Cycle II-V; on the other hand, the argument made here is based upon the absolute deviations from 9-year moving averages of the proxy for the UK gold stock as defined above. Such differences may go far in explaining the conflicting conclusions on the pattern of gold movements in the course of the British trade cycles. It is, however, important to note that Beach observed that 'in general gold imports [into Britain] became important during the latter stages of the period of business expansion'; one finds in Fig III-18 that the absolute deviations from 9-year moving averages of net imports of gold into Britain indeed tended to rise during the last 1-2 years of the upswing of the first three pre-1914 cycles, whereas the opposite happened in the case of the US. It is also seen in Fig III-17 that in terms of absolute deviations from 9-year moving averages the US gold stock reached peaks 1-2 years before cyclical peaks in Cycles II and III, while the UK gold stock begins to rise from the troughs preceding the peaks in the level of activity by 1-2 years. In short, in 1870-1895, the years of Cycles I-III, gold appeared to flow into the US during the early years of upswing and flowed out in the final years of boom and during the subsequent downswing, whereas the opposite happened to Britain. Such contrasting experiences of the two countries with close economic links would seem to suggest that in Cycles I-III gold flowed from Britain into the US in the early years of upswing and in the reverse direction in the rest of the trade cycle years. The gold flow from Britain into the US in the early boom years and the reverse flow in depression appeared to be

Fig III-18 Absolute Deviations from 9-year Moving Averages of Net Gold Imports into the US and UK



Source: UK Statistical Abstract, US Dept of Commerce (1961)

related largely to the wider amplitude in the cyclical fluctuations in British investment in the US than that in British current account surplus in Anglo-American trade; the flow of gold from the US into Britain in late years of upswing was, as shall be argued later in this section, probably due to the inflow of short term capital into London following the increase in short term interest rates.

Of the first three German trade cycles, it was during Cycle I that German national stock of gold varied in a distinctly cyclical way, whereas in the following two cycles it showed only weak movements, either contracyclical(II) or irregular(III). It is probable that the cyclical fluctuations of wide amplitude during Cycle I were closely connected with the indemnity payments by France after the Franco-Prussian War, which reached as high as 55% of German net capital formation during 1871-73. On the other hand, the remarkably close agreement between the movements in the German current balance of payments and those in German foreign investment(Fig III-14) may be held responsible for the absence of wide short term variations in German gold stock during Cycle II and III.

From around 1890, besides the state of current balance of payments and the level of capital flows, supply of new gold began to affect significantly international gold movements. World stock of monetary gold was augmented by 29%(by 161m) between 1870-90; the increase between 1890-1913 was more than twofold(by 862m).¹⁰ More than half of the new gold produced after 1890 contributed to the growth of the gold stocks of the US, Germany and Britain.¹¹

10 M. de Cecco(1984) p.247

11 British gold stock, which was maintained at the level of approximately 110m until 1890, rose thereafter consistently to reach 183m in 1913; in Germany gold stock fluctuated around 120m after the aforementioned indemnity receipt from France until 1890, but in the following period it grew steadily to reach 260m in 1913. The

Thus, the wider and irregular fluctuations in British gold stock during Cycle IV seemed to originate as much from the disruption of the rising gold supply from South Africa during the Boer War as from the fact that this was an exceptional investment cycle, during which both current balance of payments and long term capital outflow displayed patterns of fluctuations distinct from the preceding three cycles. On the other hand, during the German and US Cycle IV, the shifts in gold production seemed to affect trend rather than the pattern of short term variations in gold stocks. Thus, in this cycle German monetary gold stock continued to show mild variations, while in the movements of the US monetary gold stock is observed the same pattern as in the preceding cycles: broadly cyclical, with the upper turning point preceding that in the level of activity by 1-2 years.¹⁸

Cycle V is unique in that gold stocks of all the three developed countries tended to move in a cyclical way. This is the only cycle, when British gold stock varied as W. E. Beach described; in this cycle the German gold stock showed its widest fluctuations since Cycle I; in the US the beginning of the decline in gold stock did not precede, but lagged behind the cyclical peak in 1907. While changes in the pattern of fluctuations in current balance of payments

dramatic growth of the US monetary gold stock began in the late 1890s; in the 1880s and the early 1890s it remained at around 110m; in 1913 it reached 370m. Sources are the same as in Fig III-17. 12 In the case of Cycle IV, however, the US having been transformed into a net capital exporter, the broadly cyclical pattern may be attributable to the wider contracyclical variations in the US foreign lending than those in current balance of payments. However, the beginning of the decline in gold stock two years prior to the cyclical peak(1901) may still be due to the outflow of short term capital to London as in the earlier cycles.

and capital flows¹³ underlay such peculiarities of Cycle V, in the absence of the increase in gold production simultaneous cyclical variations in the gold stocks of the three countries would have been less likely to occur.

According to G. Rich¹⁴, Canadian current balance of payments showed contracyclical variations, whereas the capital inflow into Canada moved cyclically. While thus the two items varied in an equilibrating manner, the short term fluctuations in current balance of payments seemed to be wider than those in capital inflow, which resulted in the contracyclical pattern in the stock of Canadian International monetary assets (Fig III-17).¹⁵

Under a gold standard regime the shifts in the issue of paper currency are normally regulated by those in gold stock or international monetary assets held by issuing authorities, although the relation between the two quantities may be close or loose.¹⁶ Therefore, the amount of currency in circulation in a gold standard country, consisting roughly of gold coins and paper currency, would tend to vary in agreement with its gold stock. The fluctuations in

13 Specifically, it needs to be remembered that British investment in the US ceased to vary cyclically, and the US began to lend in net terms from Cycle IV.

14 G. Rich (1977) & (1984)

15 International monetary asset in Canada is defined as Canadian monetary gold stock plus secondary reserves held by chartered banks. International monetary asset defined as such could be considered as the Canadian counterpart of monetary gold stock in the above examined three industrial economies, for the reasons given on G. Rich (1977) p.6. Canadian international monetary asset data, together with other key Canadian monetary and financial series, were kindly provided by Dr. G. Rich at the Schweizerische Nationalbank. This source is indicated in the following by G. Rich (1987)

16 For instance, under a fiduciary system like Peel's Act the fluctuations in the Bank of England notes in circulation follow closely those in the gold held in its Issue Department; in contrast, in Germany the law of 1876 stipulated a more flexible relationship between the Reichsbank notes in circulation and its gold reserve, i.e. a proportional system. For details, see Section 4, chapter V and VI.

monetary base (high-powered money, HPM), defined as the currency in circulation plus bankers' deposits in central bank, would thus reflect those in the currency in circulation and therefore in gold stock, if the bankers' deposits in central bank do not shift widely.

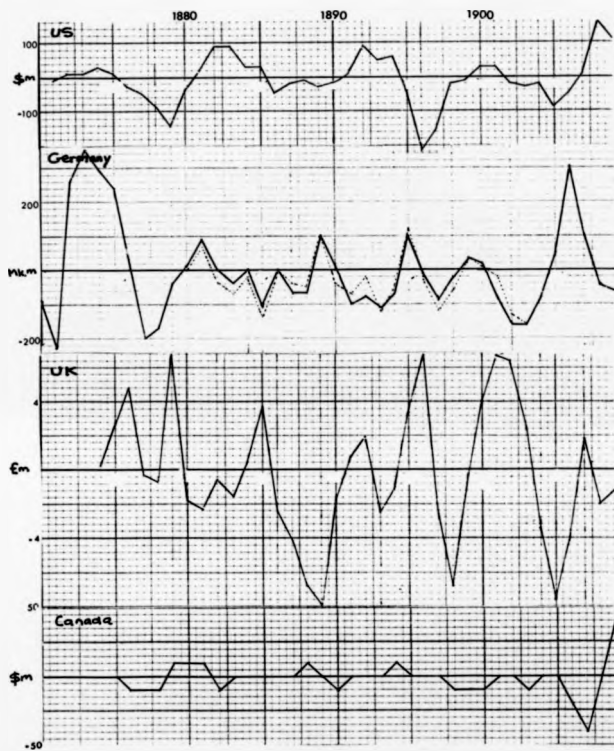
Comparing Fig III-17 and 19, one observes that such indeed was the case in the four countries in pre-1914 years: as in gold stock, the US HPM tended to vary procyclically; in agreement with gold stock, German monetary base followed the course of the trade cycle in Cycles I & V and moved contracyclically in Cycle II & IV, although distinct cyclical pattern is found in monetary base during Cycle III, when the German gold stock hardly fluctuated; in British HPM are observed the patterns identified in gold stock, i.e. contracyclical in Cycles I, II & III, irregular and cyclical in Cycles IV and V, respectively; Canadian monetary base moved contracyclically, faithfully following the international monetary assets. On the other hand, if in some countries the agreement in the movements of the two series was not too precise, but only broad, this may be considered to be due to the violation of the 'rules of the gold standard game', as interpreted by Nurkse¹⁷, by central banks.¹⁸ We shall see in more detail in the following chapters how the central bank or its equivalent failed to observe faithfully the 'rules' in the Cycle III years.

If HPM failed to vary according to a uniform pattern in the four gold standard countries, the currency held by the public tended to

17 That is, the changes in the holding of domestic assets by a central bank should be in the same direction as those in its holding of international assets.

18 See A. I. Bloomfield (1959) p.49 for evidence on the violation of the 'rules'.

Fig III-19 Fluctuations in High-Powered Money, Absolute Deviations from 9-year Moving Averages



Source: M. Friedman & A. J. Schwartz (1970), B. Sprenger (1982), F. Caple & A. Webber (1985), G. Rich (1987)

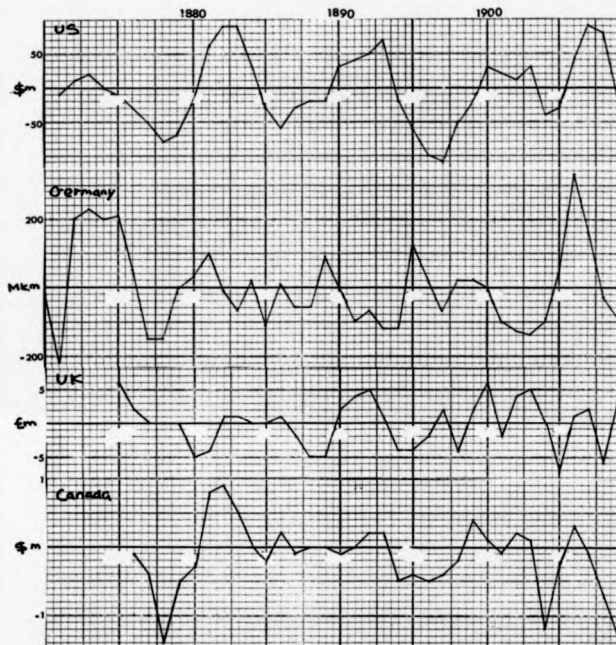
move cyclically in all the four countries(Fig-20).¹⁹ It would be reasonable to interpret the cyclical pattern in the currency held by the public as reflecting the changes in demand for currency; for, as we have just seen, the supply of currency was regulated largely by the fluctuations in gold stock, in which, except for the US, is hardly observable any cyclical pattern.

The cyclical fluctuations in the currency held by the public resulted in varied patterns in the movements of commercial bank reserves(Fig III-21): the US bank reserve moved cyclically in Cycles I, II & IV, and contracyclically in Cycles III & IV; German bank reserve showed cyclical pattern only in Cycle I, while in other cycles it tended to move contracyclically; British bank reserve also fluctuated contracyclically except for Cycle IV. In the Canadian case, although bank reserve data are not available, they most probably moved contracyclically, since the currency held in the public, represented here by Dominion notes held by the public, showed cyclical variations, while monetary base tended to fluctuate in opposite directions.

On the other hand, as Fig III-22 shows, deposits displayed cyclical pattern in the four countries under examination, irrespective of whether commercial bank reserves moved cyclically or contracyclically. The amplitude of the cyclical fluctuations in deposit money was much wider than that in the currency held by the public. The cyclical fluctuations in deposits also overwhelmed the varying patterns of the fluctuations in reserves, so that the

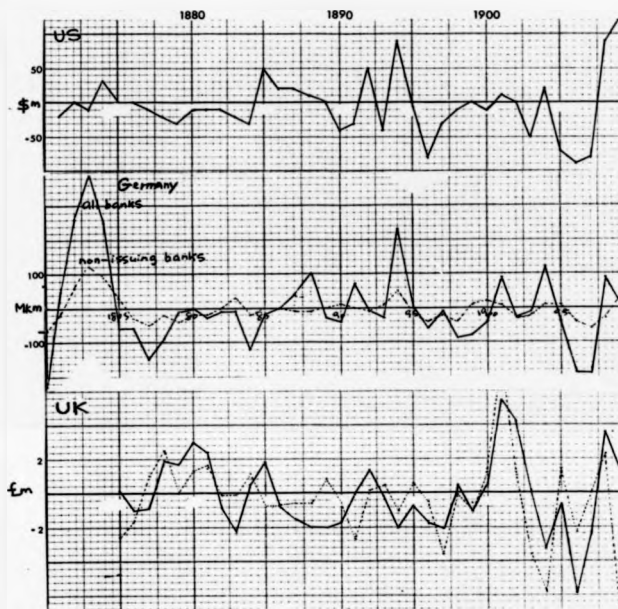
¹⁹ In the chart for Canada in Fig III-20, Dominion notes held by the public is substituted for the currency held by the public. According to R. Pomfret(1981) p.176, 'Restriction of the chartered banks' note issue to a minimum face value of \$5 gave Dominion notes a monopoly of small bills', while 'gold coins were rarely encountered in Canada. I. M. Drummond(1987) p.10

Fig III-20 Fluctuations in the Currency held by the Public, Absolute Deviations from 9-year Moving Averages



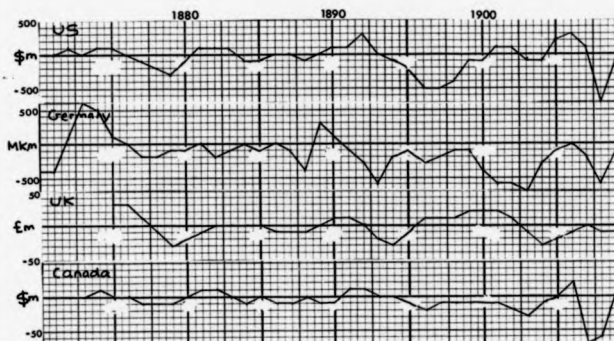
Source: M. Friedman & A. J. Schwartz(1970), B. Sprenger(1962), F. Capie & A. Webber(1985), M. C. Urquhart & K. A. H. Buckley(1965)

Fig III-21 Fluctuations in Bank Reserves, Absolute Deviations from 9-year Moving Averages



Source: M. Friedman & A. J. Schwartz (1963), B. Sprenger (1982), F. Capie & A. Webber (1985)

Fig III-22 Fluctuations in Deposits, Absolute Deviations from 9-year Moving Averages



Source: Same as Fig III-20

deposit/reserve ratio tended to move cyclically in these countries (Fig III-23).²⁰ This would imply that the cyclical pattern in deposit money can more realistically be related to the cyclical fluctuations in the demand for money, rather than to the procyclical shifts in the conditions governing the supply of credit by the banking system: commercial banks in the three developed gold standard countries increased the supply of deposit money during upswings despite the declining deposit/reserve ratio, and vice versa. The cyclical variations in short term interest rates, to be examined below, also suggest the dominant part played by demand in the short run variations of deposits: if the cyclical changes in deposits were due to the shifts in supply, it is more likely that short term interest rates vary contracyclically, rather than procyclically. Thus, R. Minnsky observed²¹, the monetary sector became more and more unstable as an economy expanded, and thus the setting for the outbreak of financial crises was prepared.

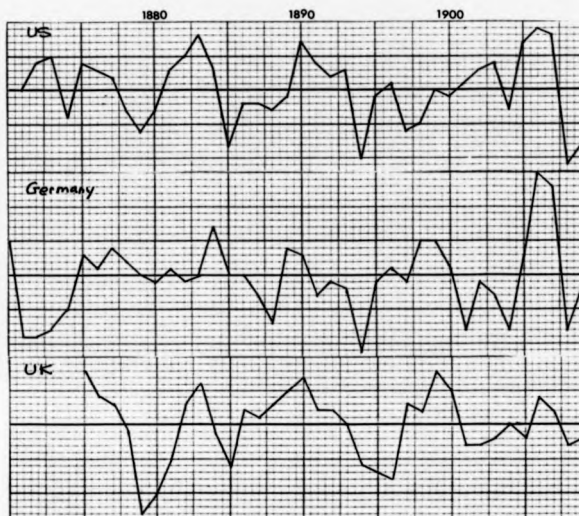
The cyclical movements of the two components of money stock, i.e. the currency held by the public and deposits, naturally resulted in a similar pattern of variations in money stocks of the four gold standard countries (Fig III-24). Since the cyclical variations in the two components were related to the shifts in demand, it would follow that the cyclical pattern in money stock is explicable in the same terms.

The cyclical changes in demand for money appeared to express themselves also in the cyclically fluctuating levels of market short term interest rates (Fig III-25), which probably encouraged commercial

²⁰ Although Canadian deposit/reserve ratio is not shown in Fig III-23, it would have fluctuated cyclically, since in Canada deposits varied cyclically and bank reserves contracyclically.

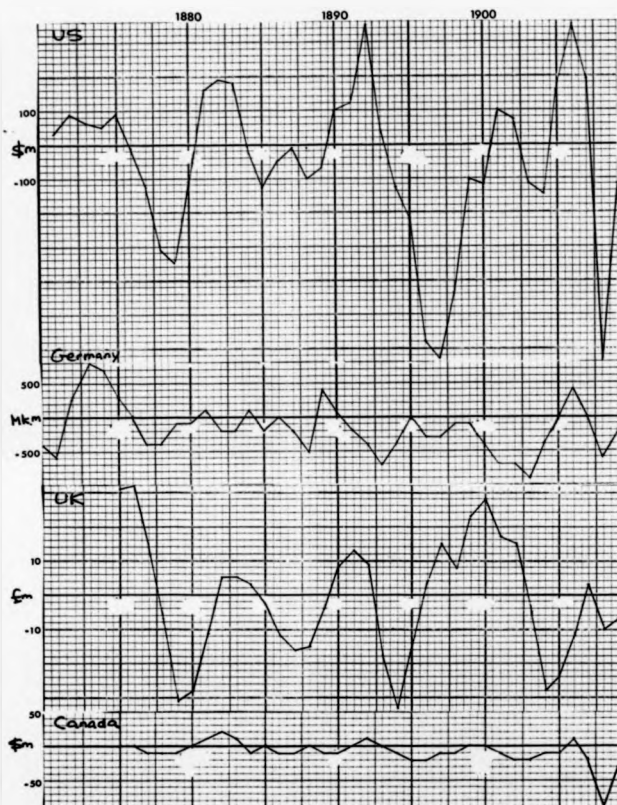
²¹ R. Minnsky (1982) chapter 5

Fig III-23 Fluctuations in Deposit/Reserve Ratio, Absolute Deviations from 9-year Moving Averages



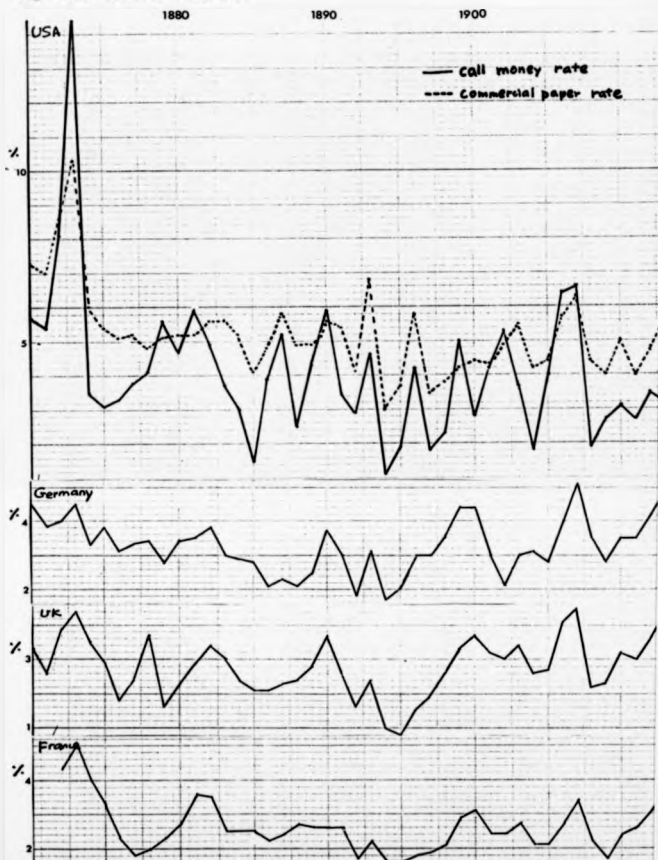
Source: Same as Fig III-21

Fig III-24 Fluctuations in Money Stock. Absolute Deviations from 9-year Moving Averages



Source: Same as Fig III-19

Fig III-25 Short Term Interest Rates



Source: M. Friedman & A. J. Schwartz(1982), *The Economist*, 1870-79, H. D. White(1933), F. Capie & A. Webber(1985)

banks to vary supply of deposit money in a corresponding way. The cyclical pattern in short term interest rates, however, was not brought about through domestic money market mechanism alone. Cyclical changes in demand for money also implied similar variations in the level of internal drain of gold coins from central banks into domestic circulation, affecting the gold reserve held by central banks and their reserve ratios in a contracyclical manner. Since in the pre-1914 gold standard system the primary objective of central banks lay in maintaining the gold convertibility of their currencies, the level of central bank discount rates by and large depended upon the state of gold reserve.²² Therefore, the internal gold drain from and reflux to central bank could be expected to have contributed to the cyclical changes in central bank discount rates in the pre-1914 period.

In Britain, the internal drain of gold from the Bank of England during upswings tended to be coupled with external gold outflows, which, as was shown above, was connected with the excessive foreign investment relatively to the state of current balance of payments surplus; conversely, during downswings gold coins in circulation returned to the Bank of England, while gold tended to flow into Britain. Since external flows, as well as internal drain, of gold affected the absolute level of gold held in the Bank of England, the latter tended to vary contracyclically. On the other hand, the 'Proportion' of the cash reserve to the liabilities of the Banking Department declined during upswings and improved during downswings, reflecting the accommodating response on the part of the Bank to the cyclically changing demand for cash from the banking

system.²³ The level of gold in the Bank and the 'Proportion' were the two main indices, consulted when the Bank rate was revised.²⁴ Thus, the Bank rate fluctuated cyclically, which reinforced the cyclical tendency in market rates, reflecting the cyclically changing demand for money.

The rise in the London short term rates attracted short term capital from the rest of the world to London, stemming the outflow of gold from Britain or inducing gold inflow.²⁵ This meant in other financial centres, such as Paris, Berlin and New York, the reduction of the supply of short term capital, exerting further upward pressure upon the short term interest rates in these centres.²⁶ At the same time, to the increase in the London short term rates during upawings, the Reichsbank and the Banque de France reacted by raising their own discount rates; in doing so, they could defend their gold reserve mainly by attracting short term funds from peripheral European countries, rather than by preventing capital from flowing into London.²⁷

To summarize our discussion so far, in the cyclical fluctuations of two major monetary variables, i.e. money stock and short term interest rates, under the pre-1914 gold standard, changing level of

23 C. A. E. Goodhart(1972) p.218,219. Since note issue was strictly tied to the level of gold in the Issue Department by Peel's Act, it was through such interaction with the banking system, affecting mainly the bankers' balance in the Banking Department, that the Bank of England could violate the rules of the game.

24 R. S. Sayers(1976) p.30

25 W. E. Beach(1935), A. G. Ford(1962), C. A. E. Goodhart(1972)

26 It will be noted that the market short term rates in these financial centres were already showing rising tendency, since they were undergoing simultaneous upawings; and that as aforementioned the cyclical changes in domestic drain of gold from central banks tended to influence central discount rates cyclically.

27 P. B. Lindert(1969) p.52,53

demand for money in the course of the trade cycles played a role of central importance.²⁸

According to Friedman and Schwartz, money stock is determined by three factors: high-powered money, deposit/currency ratio, deposit/reserve ratio. It is not asked in this 'multiplier' approach to the determination of the quantity of money how these determinants themselves are determined, and to what extent they are exogenous. The equation relating money stock to the three determinants²⁹ is in fact an identity, and therefore, does not explain the process, but only describes the result of the determination of money stock.³⁰ It was shown above that HPM was determined under the pre-WWI gold standard largely by the level of national gold stock, which fluctuated as a result of international gold movements; that the cyclical pattern in deposit/reserve ratio was mainly due to cyclical variations in deposits reflecting the accommodating response from the banking system to changing demand for money, whereas the fluctuations in the two elements forming deposit/currency ratio were also determined predominantly by demand.³¹

28 In other words, short term fluctuations in money supply reflected those in demand for money. The conclusions reached by C. A. E. Goodhart (1972) & G. Rich (1977) & (1984) upon the behaviour of the British and Canadian monetary sector in pre-WWI years are consistent with the argument made here. I. M. Drummond (1976) p.686 also stresses the role of demand in the determination of the Russian money stock during gold standard period, 1897-1914.

29 M. Friedman & A. J. Schwartz (1963b) Appendix B

30 C. A. E. Goodhart (1975) p.136

31 Thus, when M. D. Bordo (1981) p.124 finds that in the determination of the UK money stock not only HPM but also deposit/currency ratio played an important part - while HPM was the sole dominant determinant of the US money stock - , he could not be said to 'explain' how the money stocks of the two countries were determined, but he is in fact describing the difference, seen above, in the pattern of the variations in the gold stocks and HPM of the two countries: cyclical in the US and contracyclical in the UK.

On the other hand, the main concern of Friedman and Schwartz lies in the temporal relationship between the fluctuations in money stock and those in the level of activity: comparing the cyclical pattern identified from the rates of change in the US money stock with the NBER reference cycles, they found that the cyclical variations in money stock preceded those in the level of activities, which they consider as evidence supporting their proposition that monetary forces are the ultimate cause of the trade cycles.³²

Since the reference cycle method relies basically upon identifying turning points from various unprocessed economic time series, what they in fact did was to compare the turning points fixed from one series of raw data with those determined by looking at the variations in the rate of change calculated from the other. However, 'it is a mathematical fact that, given any time series A which oscillates in a regular ('sinusoidal' to be precise) fashion, the rate of change of A will lead A itself by a quarter of a cycle'.³³

W. E. Huffman & J. R. Lothian (1984) appear to have recognized such difficulties in the work of Friedman & Schwartz (1963b). They thus compare the rates of changes in both real income and money stock, and reach the conclusion that 'the monetary shocks ... in almost all instances preceded or were coincident with the cyclical contractions' in the US and UK, and therefore that 'money was an, and almost likely the, important causative factor in the major cyclical contractions in both countries'.³⁴ However, plotting the annual rates of change in real income and money stock in each of the two countries on the same space, one observes on the contrary that the

32 M. Friedman & A. J. Schwartz (1963a), see also section 4, Chapter II.

33 N. Rau (1974) p.75

34 W. E. Huffman & J. R. Lothian (1984) p.478,479

fluctuations of the rates of change in real income tended to precede those in money stock in the period concerned.³⁵

Whereas M. Friedman & A. J. Schwartz(1963b) was mainly concerned with the economic fluctuations in a relatively closed economy, Huffman & Lothian(1984) also discuss the mechanism of international transmission of the trade cycles. They explain international propagation mainly in terms of external gold flows and the consequent shifts in the money stocks of the economies involved:

An unanticipated decrease in monetary growth in the UK, for example, initially reduced output growth in the UK, raised (real) interest rates, produced downward pressure on the rate of rise of prices, and induced a balance-of-payments surplus and hence inflow of specie and capital from the US. Monetary growth in the US decreased as a result of the specie outflow, the real rate of interest rose, output growth and the rate of rise of prices fell.³⁶

Let us see in more detail what this monetarist model of transmission implies for the pattern of fluctuations in trade balance, capital movements and gold flows in the word economy consisting of two countries fluctuating in broad synchronization: A, trade cycle exporter, and B, trade cycle importer. As the expansion in A, initiated by some exogenous increase in money supply, continues, according to this model, the trade balance will deteriorate and capital outflow(inflow) will start(stop); this causes gold to flow from A to B, transmitting expansion to B and initiating downswing in A; in the downswing A's trade balance will improve and capital outflow(inflow) will stop(start); as a result, gold flows back to A, exporting depression to B and reviving A, and so on. This amounts to saying that trade balance(consequently current balance of payments) and

³⁵ It is also to be noted that one has difficulty in identifying Juglar cycles in the movements of rates of change.

³⁶ W. E. Huffman & J. R. Lothian(1984) p.459

capital flows fluctuate in a disequilibrating way in both countries, giving rise to large scale gold movements, which play a central role in this model of international transmission of the trade cycles. Furthermore, this model appears to imply that rates of interest move in opposite directions in the two economies.

It was shown in the preceding section that this tended not to be the case under the pre-WWI gold standard. The current and capital accounts moved in such a way as to cancel roughly each other off, with gold flows left as a balancing item. Furthermore, as far as the four gold standard countries examined above are concerned, gold movements affecting national stocks of gold did not have a strong and direct impact upon the quantity of money: money stock was determined predominantly by the variations in the amount of deposit money³⁷, which the banking system appeared willing to supply according to demand. On the other hand, short term interest rates showed the tendency to fluctuate in parallel in various economies.³⁸

D. N. McCloskey and J. R. Zecher argued that 'the world of the 19th century gold standard' was 'a world of unified markets, in which flows of gold represented the routine satisfaction of demands for money' ... 'not satisfied by domestic sources'³⁹. Since the national trade cycles in 1870-1914 tended to synchronize, the operation of such a mechanism would produce simultaneous external surpluses and

37 Not only did deposit money accounted for a greater part of money stock than the currency held by the public on average, but also, as is shown by the comparison of the amplitude in the cyclical fluctuations of the two items in Fig III-20 & 22, the short term fluctuations in money stock were explicable mostly by those in deposits.

38 It is true that 'real' rather than nominal interest rate is in question in Ruffmann & Lothian. In the late nineteenth century world, where inflation expectations were absent, however, there would not be much point in distinguishing between real and nominal interest rates.

39 D. N. McCloskey & J. R. Zecher (1976) p.382, 385

deficits in all countries, which is logically impossible. In fact, as was shown above, gold tended to flow in during upswings and out during downswings only in the US, whilst in the other three countries gold stock either did not vary following a uniform pattern (the UK and Germany), or moved contracyclically (Canada). To repeat, gold movements were determined by i) the state of current balance of payments, ii) capital flows, and finally iii) supply of new gold; and the cyclical fluctuations in demand for money were met mainly by varying the level of credit supply.

In conclusion, the possibility suggested at the beginning of this section, that international gold movements affect the quantity of money and consequently the level of activity seemed to remain largely a possibility rather than reality under the 19th century gold standard. For in the determination of money stock, deposits played a dominant role, and their supply seemed to vary largely in response to demand. This implies that central banks did not observe the rules of the game, interpreted in Michaely's sense, either.⁴⁰ If the shifts in money stock could not be considered as exogenous shocks upon the level of activity in the period concerned, the influence of interest rates upon the level of investment was negligible in pre-1914 Britain⁴¹, whereas in Germany interest rates affected investment decisions to some extent.⁴² Did then financial crises affect business activity to any significant extent in pre-1914 years? To answer this question properly would require a detailed research on major crises in our period⁴³; but as far as Cycle III is concerned, as the analyses in the following chapters show, financial crises tended to

40 According to M. Michaely, the rules of the game require that the quantity of money varies in accordance with the shifts in gold reserves. A. I. Bloomfield (1968b)

41 J. Tinbergen (1951), J. S. Pasmazoglu (1951b)

42 J. S. Pasmazoglu (1951c)

43 Such as those in 1873, 1890, 1893 and 1907.

occur after the cyclical peak in the level of activity, thus playing the role of aggravating the contraction already started, rather than initiating downturn. Thus, all in all, the conclusion appears inevitable that the impact of monetary forces upon the course of the trade cycles in pre-WWI years was of limited nature.

IV

THE TRADE CYCLE, 1885-1896: THE USA

From this chapter on, we shall concentrate our attention upon the course of one particular trade cycle, extending from the mid-1880s to the mid-1890s(Cycle III). The cyclical experiences on national dimensions in these years will first be discussed for the four countries playing central parts in the international economic fluctuations concerned(Chapters IV-VII); then, it will be shown how the broadly synchronous movements of these countries were interlocked and affected the rest of the world(Chapter VIII).

We begin with the US Cycle III. The US was shown to be one of the major driving forces in the international economic fluctuations of the pre-1914 period. In US economic history, the ten odd years covered by Cycle III appeared to be a watershed: the railway network, the essential basis for the subsequent full-scale industrial development, was completed during the upswing of this trade cycle; as a result, the frontier largely disappeared by 1890; the US became financially independent of Europe, of Britain in particular, by being transformed into a net capital exporter in the mid-1890s¹; the controversy over bimetallism practically came to an end, and gold standard was confirmed by the defeat of the Democratic candidate, W. J. Bryan, in the campaign of 1896.

1 The US continued to import considerable amount of capital from Britain even after the 1890s, but her lending exceeded borrowing.

Thus, it is not surprising that Cycle III has received more attention from scholars than the other American trade cycles: G. Hoffmann(1970) examined the period of depression after the 1893 crisis; S. Basneck(1963) was concerned with the social aspect of the depression; and in R. Fels(1968) is included the analysis of the process of the US Cycle III along with that of the earlier two trade cycles. However, the former two are mainly about the downswing on its own rather than about the whole process of Cycle III; only after the publication of Fels' study were estimates made available of the key US macroeconomic aggregates for the period concerned.² More fundamentally, all these studies are interested largely in the fluctuations of the US economy in isolation from the effects upon and the influences coming from the rest of the world.

² Such as those published in D. Creamer et. al.(1980), M. Friedman & A. J. Schwartz(1963b)&(1970), S. Kusneta(1961) and T. S. Berry(1968), among others.

1. Home Investment

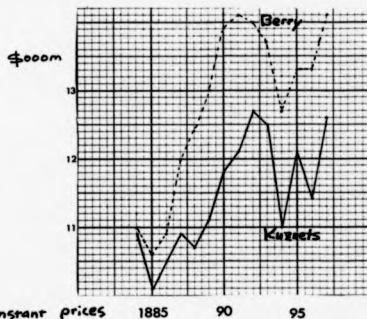
Two different estimates of the US national product, at both current and constant prices, are available for the Cycle III period: the series by T. S. Berry(1968) and that compiled by R. E. Gallman & S. Kuznets and presented in M. Friedman & A. J. Schwartz(1982). Apart from these data, we have J. W. Kendrick's estimate of the US GNP at current prices starting from 1889. These are produced as Fig IV-1. According to Gallman & Kuznets series, at both constant and current prices, 1895(T)-1892(P)-1894(T) are the three turning points related to the US cycle III, which is consistent with the pattern identified in Kendrick's data. On the other hand, Berry's estimate at current prices gives us 1895-1891-1894 as the three turning points; in his constant price data, it is difficult to determine a trough in the mid-1890s, but 1892 and 1893 were the subsequent peak and trough years. In view of the fact that W. A. Lewis' US industrial production index(Fig II-2) and unemployment rate(Fig II-5) varied in accordance with Gallman and Kuznets estimate, we shall define the pattern of the US Cycle III as 1895(T)-1892(P)-1894(T).

The annual estimate of US gross domestic fixed investment at current prices begins from 1889, which is produced as Fig IV-2. In the same figure are also shown the fluctuations in non-residential investment in the US at 1929 prices. The two need not show close agreement, since residential construction accounted for more than a quarter of total investment³; it could, however, reasonably be assumed that the US GDCF broadly followed the cyclical pattern observable in the non-residential investment, rising from the trough

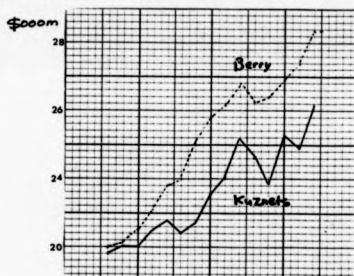
3 In 1895-94, non-farm residential investment amounted to 28.6% of the US gross domestic capital formation. S. Kuznets(1961) p.672,677

Fig IV-1 Estimates of the US National Product

D Current prices

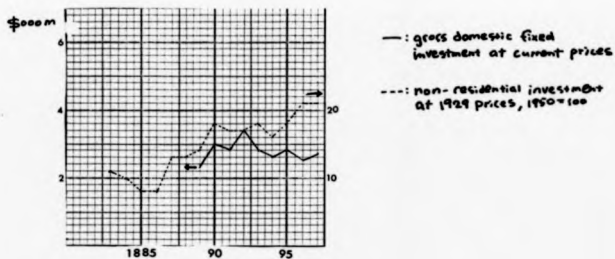


2) Constant prices



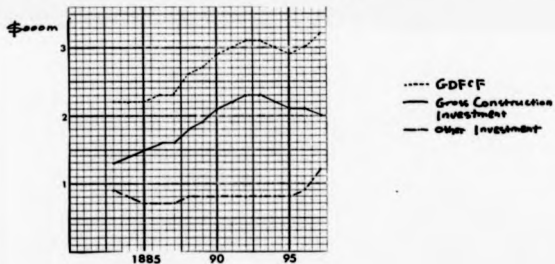
Source: M. Friedman & A. J. Schwartz(1982), T. S. Berry(1968), J. W. Kendrick(1961)

Fig IV-2 Estimates of the US Home Investment



Source: J. W. Kendrick(1961), A. Maddison(1986)

Fig IV-3 US Gross Domestic Capital Formation & Gross Construction Investment including Railway at Current Prices, Five Year Moving Averages



Source: S. Kuznets(1961)

in the mid-1880s to the peak in 1892, and falling back to the trough in 1896. Since the increase in the US gross fixed domestic investment between 1889 and 1892 was \$1124m, the total increase during Cycle III upswing would have been far greater than this; on the other hand exports grew during the upswing, 1886-92, by only \$350m. During the downswing, domestic investment contracted by \$921m(1892-96), whereas the decrease in exports was only \$223m(1892-96)(Table IV-1). The greater amplitude of the fluctuations in domestic investment than in exports would suggest the leading role of investment in the US Cycle III.

Although annual data on capital formation by industry are unavailable, Fig IV-3 seems to indicate that the cyclical pattern in the US home investment during Cycle III reflected predominantly that in railway and construction investment, which also in terms of averages accounted for the far greater part of the total US gross investment. According to E. Fels, if the US Cycles I and II were driven largely by railway investment alone, in Cycle III the importance of railway building declined and construction investment became more influential.⁴ The weakened position of the railway sector in this cycle is revealed in the fact that the annual addition to the US railway mileage(Fig III-1), used here as an indicator of the changing level of railway investment, failed to vary in this cycle in as close agreement as in the earlier two cycles with the level of activity: whereas railway building activity expanded from the trough in 1886 to peak in 1887, the US boom did not come to an end until after 1892.⁵ On the other hand, it appeared that the construction

4 E. Fels(1969) Chap. 6-10.

5 A similar pattern of fluctuations is observed in the US rail consumption. J. E. Partington(1929) In M. J. Ulmer(1960) are provided the annual estimate of capital formation in steam railway in pre-WWI period, but during the years of Cycle III they display a pattern of fluctuations which is at considerable variance with that

Table IV-1 Key Macroeconomic Aggregates: US

Year	Y	I	X	M
1883	11228		804	723
1884	10889		725	668
1885	10127		727	578
1886	10521		666	635
1887	10887		703	692
1888	10717		684	724
1889	11099	2272	730	745
1890	11752	3042	845	789
1891	12112	2795	872	845
1892	12691	3396	1016	827
1893	12497	2842	831	866
1894	11005	2596	869	655
1895	12089	2764	793	732
1896	11445	2475	863	780
1897	12613	2656	1032	765

Y: Nominal National Income, I: Gross Privat Domestic Investment, X: Domestic Merchandise Exports, M: Merchandise Imports

Source: W. J. Kendrick(1961), US Department of Commerce(1961), M. Friedman & A. J. Schwartz(1982)

investment supported the investment upswing until 1892: Fig III-1 shows that the expansion of the US construction activity, beginning from 1877, was continued after the peak in railway building until 1892. Thus, it could be summarised that the revival of home investment in the mid-1880s reflected that in railway investment; that in the earlier years of the investment upswing both railway and construction industries played a central role; and that construction investment alone underlay the investment boom in 1888-92. In other words, in the cyclical fluctuations of the US home investment during Cycle III the upswing was initiated by railway investment, continued by construction investment, and the eventual downswing was led by construction activity.

According to Table IV-2, the railway building during the first long upswing, coming to an end in the late 1850s, was concentrated in the eastern part of the US, such as Middle and South Atlantic and Central Northern district; in the second long boom of the 1860s South Atlantic lost its importance as an area of railway investment, while Northwestern emerged as a new centre of railway building besides Middle Atlantic and Central Northern region; the front of railway building moved south and further west in the 1880s, i.e. during the third railway long upswing. The westward expansion of railway network seemed to bring about the rapid population growth in the west through internal and international migration: in the 1850s and 1860s Central Northern area showed the largest increase in population, but in the following two decades population grew fastest in the South Western region.⁶

observed in the annual addition to the US railway mileage and rail consumption: whilst the latter peaked in 1887, Ulmer's estimate of railway investment continued to rise until 1893. 2. Fels(1962) p.180 also cast doubt upon the reliability of Ulmer's estimate.
⁶ US Dept of Commerce(1961) p.12,13

Table IV-2 Increase in the US Railway Mileage by Decade and Region

	up to 1860	1860-70	1880-90
New England	3660	834	855
Middle Atlantic	6353*	4224*	4891
Central			
Northern	9583*	5118*	11818*
South			
Atlantic	5463*	1018	8827
Gulf & Miss. Valley	3272	1379	6348
South			
Western	1162	3463	18803*
North			
Western	655	4349*	14847*
Pacific	23	1911	6903

Source: Statistical Abstract of the US, 1899

* indicates three most important areas of railway building in corresponding decade.

In the first railway long swing the extension of the railway network in the states of Ohio and Illinois was most remarkable⁷; Illinois appeared the sole leading region in the second railway long swing.⁸ The railway building in the further western states of Iowa, Texas, Kansas and Nebraska supported the third railway long swing.⁹ It is seen in Fig IV-4 that although the relatively eastern states of Ohio and Illinois participated in all of the three railway booms, the largest addition to railway mileage was made during the first and second long swing. In contrast, it was only from the mid-1860s that the four western states came under the influence of railway long swing, and they experienced the strongest railway booms in the 1880s. If 1875-87 were the years of the final railway long upswing, Fig IV-4 further shows that it can be decomposed into two shorter upswings in two regions: the railway boom from the late 1870s to the early 1880s in Texas and Iowa and the other in the late 1880s in Kansas and Nebraska. Such geographical shifts of the centre of railway building in the course of the long expansion explain the break in the long upswing during 1883-86, which enables one to identify two Juglar cycles superimposed upon the US Kuznets cycle extending from the late 1870s and the mid-1890s.

In contrast to pre-Civil War period, according to L. J. Mercer, evidence shows that land grant railways were built ahead of demand

⁷ The railway construction in the two states up to 1858 amounted to one fifth of the total railway construction in the US. Poor's Manual of Railways, 1876/77

⁸ The increase in the railway mileage in Illinois between 1861-71 was equal to 10.3% of the total increase in the US during the same years. Poor's Manual of Railways, 1876/77

⁹ The addition to the railway mileage in the four states between 1875-87 accounted for 27.2% of the total addition to the US railway mileage in the same period. Poor's Manual of Railways, 1886 and 1890.

Fig IV-4 Annual Addition to Railway Mileage in Six Western States



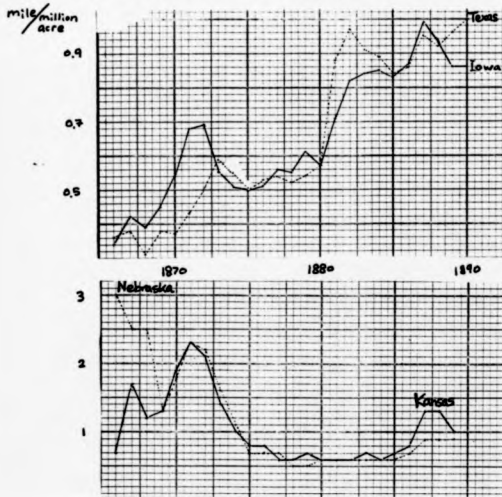
Source: Poor's Manual of Railroads

in the postbellum West.¹⁰ In an agricultural region where railways were built ahead of demand, it could be expected that during a pioneer railway building boom railway mileage increases faster than the acreage of cultivation; and that during the years immediately after the boom areas of cultivation increases, whilst railway mileage remain relatively stagnant. Thus, the ratio of railway mileage to the acreage of cultivation would tend to rise during the building boom and to fall during the subsequent depression. The movements in the ratio in the four leading states in the third railway long swing (Fig IV-5) suggest that 'building ahead of demand' indeed was the case in these states during the period between the mid 1860s and 1880.

Iowa and Texas participated in the second railway long upswing, which resulted in the rise of the ratio from the late 1860s to the early 1870s; then the ratio declined until 1875 reflecting the increase in the cultivated land around newly built railways; the slight rise in the ratio in 1875-78/9, in spite of the low level of railway building in these years, would suggest that a limit was reached in the expansion of the area of cultivation on the basis of the new railway lines built in the preceding boom. On the other hand, similar developments are observed in Kansas and Nebraska between the late 1860s and the mid-1880s: building ahead of demand seemed to be carried out until 1871; then the ratio of mileage to acreage declined until 1877/78 with the agricultural development facilitated by the preceding railway investment; between 1877/78 and the mid-1880s both railway building

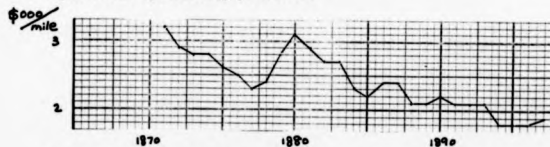
10 L. J. Mercier (1974) p.422. He concluded thus after testing the following two hypotheses derived from Fisklow's definition of 'building ahead of demand': if railways were built ahead of demand, firstly 'rate of profit in its early years will be less than alternatives for the railroad built ahead of demand'; and secondly 'there should be a positive correlation between the firm's profit rate and its age'.

Fig IV-5 Ratio of Railway Mileage to Acreage of Cultivation in the Four Western States



Source: Poor's Manual of Railroads, US Department of Agriculture, Agricultural Marketing Service, Statistical Bulletin No.28,29,158,164

Fig IV-6 Railway Net Earnings per Mile: US



Source: Statistical Abstract of the US, 1898

and land development stagnated, as a result of which the ratio stabilised at a relatively low level.

According to C. E. Harley, the railway companies in a frontier area in the period of westward movement 'found themselves in a "Prisoners' Dilemma" with respect to new construction. Collectively the railroads maximised their profits by not building any line until the present value of the investment reached its maximum. But individually each railroad would be best off, assuming its rivals' action given, by building all lines in its own and its rivals' territory that it perceived to have a positive present value.¹¹ Whether railways pursued the joint maximising strategy or chose competitive solution depended upon the following two conditions: 'the barriers to outside entry' and 'the enforceability of the collusive agreement', both of which change 'to make cooperative behaviour more difficult as agricultural settlement proceeded'.¹²

The railway building boom started in the late 1870s in Texas and Iowa with the collapse of cooperative atmosphere as a consequence of the agricultural development and growth of traffic, which appear to have contributed greatly to the improvement in net railway earnings per mile after 1877 (Fig IV-6).¹³ The boom came to an end in the early 1880s, with the emergence of the state of overinvestment¹⁴, as is reflected in the decline of net earnings per mile after 1880. (Fig IV-

11 C. E. Harley (1982) p.804

12 C. E. Harley (1982) p.804 Such was the case, both because with the progress in settlement 'the benefits of entry grew relative to the costs', and because 'threat to the maintenance of the cooperative option among the existing companies arose from specifying and enforcing the cooperative outcome.'

13 For a detailed description of collusion and competition among the railways in the states concerned, see J. Grodzinsky (1982) Chap. VIII & X.

14 E. Fels (1969) p.124-128, L. M. Becker (1988) p.197

6)¹⁶ The downturn was followed by the years of decline in the ratio of railway mileage to land under cultivation, which, as in 1872-75, was due to agricultural development.¹⁶

It was not until 1885 that collective restraint from building ahead of demand was lost, and that railway companies yielded to competitive building with the progress of agricultural settlement in Kansas and Nebraska.¹⁷ It would appear probable that the agricultural development in these states was at least partly responsible for the brief halt in the fall of the net earnings in 1885-87 (Fig IV-6). The improvement in railway profitability would have contributed to the start of the railway building boom also by reviving stock market: attributing the rise in stock prices from the mid-1885 to the beginning of the New York Central-Pennsylvania-West Shore negotiation, *Commercial and Financial Chronicle* argued that 'the transformation in 1885 was based almost entirely on the one idea of a tolerably certain status in railroad profits, whenever the companies are placed in such a position that they find it both practicable and necessary to maintain rates.'¹⁸ The upswing, thus started, continued until 1887, when signs of overinvestment developed, including the decline in net earnings per mile. (Fig IV-6)¹⁹ In short,

16 The positive relationship in 1873-1895 period between the net US railway investment and railway profit rate lagged by two years, which was identified by J. Kmenta & J. G. Williamson (1966) p.178, may pick up such a sequence of events related to 'building ahead of demand' in the West, as well as the 'capital stock adjustment' by established firms, as they interpreted. (p.178)

16 In Iowa, the ratio fell after the railway building peak only in 1885 and resumed to rise until 1887. This appears to be due both to the slow growth in settlement in the closing stage of westward movement, even relatively to the not so active railway building in these years, and to the decline in acreage harvested in 1887 and 1888, which probably had something to do with bad harvest.

17 J. Grodinsky (1962) Chap. XV describes the shift from cooperation to competition among railway lines in the two states.

18 January 8 1886, *Commercial and Financial Chronicle*

19 *Commercial and Financial Chronicle* reported on 5 Jan 1889 that 'The effects of excessive railroad building during the three consecutive years 1886, 1887 and 1888 were distinctly visible; the

the movements in the level of railway investment during the US Cycle III is explained both i) by the breakdown of collusive maximising policy due to agricultural development and the consequent improvement in profitability, and ii) by the disappearance of the room for profitable railway building in around 1887 in western states such as Kansas and Nebraska, which virtually signalled the extinction of the frontier in the US.

As shown in the movements of the index of the US building activity (Fig III-1), compiled on the basis of the value of building permits, the third railway long upswing, extending from 1875 to 1887, was accompanied by the longer expansion in construction industry (1877-1892). It appeared, as W. Isard argued, that the railway building boom induced the long prosperity in the construction industry by encouraging both internal and international migration.²⁰ The presence of such a causal relationship seems to be confirmed not only by the precedence of railway over construction long upswing, but also by the fact that the boom in construction activity figured in western and southern part of the US, where railway investment in the 1880s was concentrated: *Commercial and Financial Chronicle* observed in its 'Retrospect' of the year 1887 that 'The real estate speculation in town lots became very active in some of the Western and Southern cities'²¹; again in the summary of the business conditions in 1891, it was reported that 'The World's Fair bill giving Chicago the award was passed by Congress late in February, and this led to much real estate activity and speculation in the city. Other western cities were boomed still more, and public improvements as

supply of new railroad securities that had been created was immense, the effects of competition were disastrous to rates, and the decline in net earnings of certain prominent railroads west and southwest of the Mississippi River was almost without precedent'.

20 W. Isard (1942a) & (1942b)

21 *Commercial and Financial Chronicle*, 7 January 1888

well as private building projects were carried on with undue extensions.²²

If the start of the long upswing in construction lagged behind that in railway building by two years, the downturn in the latter came five years after the railway investment peak, i.e. in 1892. Since prosperity in the construction industry depended upon the volume of the investment opportunities opened by railway building, construction activity came to an end, when in 1892 the stock of opportunities created by railway sector until 1887 were fully exploited, while new outlets for profitable construction were not being opened up rapidly enough with railway building in depression.²³ Thus, in discussing the causes behind the financial crisis in 1893, Sprague observed, 'In the Southern States real estate speculation in town lots and mineral lands seems to have been the most unsound element in the situation'; 'the enterprises which had failed were not worthy, and there were many more whose situation would have been made worse rather than better by additional capital, and an even greater number whose further expansion would have served only to

22 *Commercial and Financial Chronicle*, 3 January 1891. The Economist is more specific on the connection between railway building and construction in the US: 'Some months ago the speculative activity in the US, which had begun to withdraw from the stock markets, found a new and congenial sphere in land and real estate speculation ... this land speculation is daily becoming more prominent in the West and South-West. It is following ... in the wake of the new railroad building, and encouraged by the large immigration present and prospective ... In Kansas, it is stated, the speculation keeps full abreast of the railway surveys for routes ...' (11 June 1887)
23 When the level of construction activity in the US (CIt) was regressed for the period 1868-96 upon the level of railway building leading by five years (RI_{t-5}), long term interest rate (R_t) and the index of construction cost (CC_t), the following result was obtained:

$$CIt = 72.16 + 0.001RI_{t-5} - 13.25R_t - 0.02CC_t, \\ (4.07) \quad (1.74) \quad (6.03) \quad (0.04)$$

Adjusted $R^2=0.67$, $DW=1.64$

(t-statistics in parentheses, statistics based upon Cochrane-Orcutt iterative technique)

provide facilities for the production of commodities already in excess of profitable demand'.²⁴

The downswing in the US domestic investment, thus started, touched a bottom in 1896, and thereafter resumed its rise. As was already shown²⁵, the revival of home investment was largely attributable neither to construction nor to railway building, but to the development of electricity-based industries, such as electric light and power, telephone and street and electric railways.²⁶ Various inventions related to the use of electricity may be held responsible to a considerable extent for the emergence of these industries; it also appeared that the growth of numerous cities during the construction boom of the 1880s and the early 1890s stimulated the development of these industries of mainly urban nature, in particular street and electrical railway, the most important of the three electrical industries.

To summarize our discussion so far: the upturn in 1885 was related to the beginning of railway building boom in Kansas and Nebraska, where the cooperative policy collapsed under the influence of the progress in agricultural settlement around the railway lines built during the preceding upswing (late 1860s - early 1870s); the downturn in 1892 reflected the end of expansion in construction activity following the exhaustion of profitable opportunities created by internal and international migration, which was induced by the

²⁴ O. M. W. Sprague (1910) p.161,165

²⁵ Section 1, Chapter III.

²⁶ E. Fels discounts the importance of electrical industries in the revival of the US home investment in the mid-1890s: 'neither railroad nor building construction offered opportunities comparable to those a few years earlier ... New industries that were later to become so important - automobiles and electric power - did not yet amount to much. Investment opportunities apparently were few and uninviting in the first half of 1897. E. Fels (1968) p.208

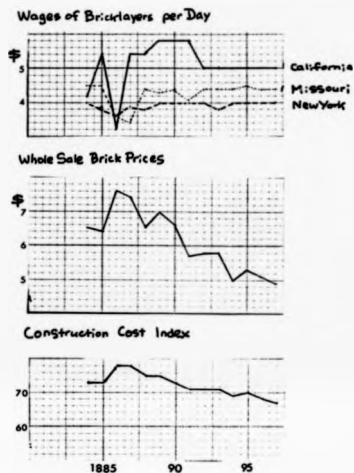
railway building boom in 1875-1887; the revival in the mid-1890s seemed to be supported to a great extent by the development of electrical industries, which is at least partly explicable by the growth of urban centres in the previous construction boom. Thus, the picture emerges that one form of investment opens up the outlet for another form of investment: railway building in the late 1860s and early 1870s prepared the ground for the railway boom in the 1880s, which induced long upswing in construction, during which in turn was created the basis for the development of electrical industries after the mid-1890s.

Finally, two points remain to be mentioned: firstly, the downturn of the US construction activity after 1892 did not appear to be closely connected with the development of 'full employment ceiling'. The variations in the wages of bricklayers, in brick prices, and in construction cost index (Fig IV-7) do not reveal any serious shortage in the supply of productive factors around the upper turning point. Secondly, while the existence of a monetary ceiling will be discussed in the fourth section of this chapter in the context of the determination of money stock, according to Harley the rate of interest of railroad bonds fails to account for the fluctuations in the US railway investment in the late 19th century.²⁷ In contrast, as we have seen above²⁸, the variations in long term interest rate appeared to have significant influence upon the level of construction activity.

²⁷ C. K. Harley (1982) p.516-518

²⁸ See footnote 22, this section.

Fig IV-7 Movements of the Prices of Productive Factors: US



Source: US Department of Labour(1934), US Department of Commerce(1961)

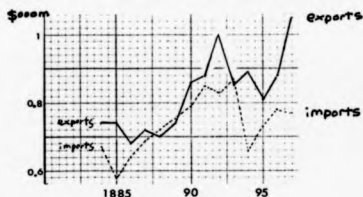
2. Overseas Trade and Borrowing

During Cycle III the value of US merchandise exports and imports showed cyclical fluctuations(Fig IV-8). It is unfortunate that neither the US overseas trade volume data nor export and import price indices are available. The cyclical pattern in value, however, seems to reflect that in volume: quantities of major articles exported and imported¹ varied broadly following the pattern of the US Cycle III. If the cyclical fluctuations in imports reflected the shifts in the US level of activity led by home investment, the state of the world market, influenced to a great extent by that of the US economy among others, determined the level of the US exports.

Not only did exports display far weaker cyclical fluctuation than domestic investment during the US Cycle III, but also the turning point years in exports variations tended to lag behind those in changing level of activity(Fig IV-8, Table IV-1 & 3). Comparing the cyclical patterns of level of activity on the one hand and the US home investment and imports on the other hand, one finds that the peak in the level of activity(1892) preceded that in imports(1893); that the revival in home investment(1896) lagged behind that in the level of activity(1894); and finally that in other cases, turning point years were identical between the level of activity on the one hand and home investment and/or imports on the other hand. It is also found that the troughs in exports fluctuations lagged behind those for imports.

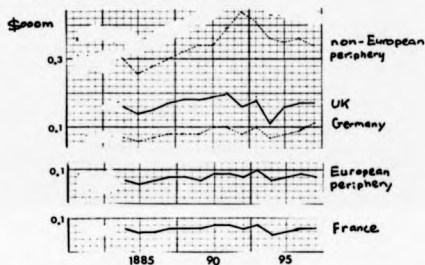
¹ Such as coal, coffee, rubber, tin plate, silk, tobacco and raw wool in import trade and cattle, corn, wheat, copper ore, raw cotton, meat products in export trade. Statistical Abstract for Principal and Other Foreign Countries.

Fig IV-8 Value of the US Merchandise Exports & Imports



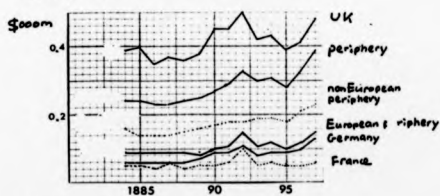
Source: US Department of Commerce(1961)

Fig IV-9 US Imports from Various Regions



Source: US Department of Commerce(1961)

Fig IV-10 US Exports to Various Regions



Source: US Department of Commerce(1961)

Table IV-3 Turning Point Years: US

	Trough	Peak	Trough
I	1885(?)	1892	1896
X	1886	1892	1895
C	?	1893	1894
M	1885	1893	1894
Y	1885	1892	1894

In view of both the leading part played by home investment in the pre-WWI US trade cycles, and the dominant position of the US in the pre-1914 world economy, such a sequence among turning point years in the level of activity, investment, exports and imports would suggest the following: with the rise of home investment from 1885, the US economy began to expand, increasing its imports from and thus exercising expansionary influences upon the rest of the world; this resulted in the increase in the US exports from the following year. The decline in construction activity from 1892 brought about the contraction of the economy from the same year, which is reflected in the downturn of imports from 1893. At this turning point, in contrast with the preceding one, the downturn of exports preceded that in imports, which suggests that contractionary forces other than the US slump were in operation: the end of Argentine and German investment booms in 1889 and 1890, respectively. The interruption of the fall in national product in 1894 was due neither to the recovery in home investment, nor to the exports revival, but to the movements of consumption expenditure (Table IV-3)²; consequently, imports picked up from the same year, while exports and investment began to recover from the troughs in 1895 and 1896, respectively. The revival in exports may be attributed to the earlier beginning of investment booms in Britain (1893) and Germany (1894) than in the US.

In Fig IV-5 are shown the fluctuations in the US imports from different areas of the world. The major part of the cyclical variations in the US imports during Cycle III was attributable to the

² It needs to be noted that the recovery in 1895 was not valid, as can be seen from the fact that the current US GNP declined again in 1896, though not to a level below that in 1894 (Fig IV-1, Table IV-1); the solid revival in the level of activity came after 1898 with the expansion in home investment. Correspondingly, the recovery in the US imports after 1894 proved to be temporary by coming to an end in 1896 and falling until 1898 below 1894 level.

shifts in the imports from the undeveloped world, specifically from the non-European periphery: the rise in the imports from non-European primary producers corresponded to around 80% of the total increase in the US imports during the upswing, while the fall in the imports from the same region accounts for more than half of the decline in the total US imports during the downswing. Of various non-European undeveloped regions, Latin America was most strongly affected by the US investment fluctuations through trade channels.³ The second most powerful impact of the US investment cycle was delivered to Britain: the size of the increase in the imports from Britain was about 20% of the total increase in the US imports during the upswing, and the decrease amounted to around 40% of the total fall in the US imports during the downswing. Thus, the variations in the US imports from Britain and the non-European periphery explained around 80-90% of the total cyclical changes in the US imports.

Correspondingly, primary, rather than manufactured imports accounted for the greater part of the total fluctuations in the US imports: the cyclical fluctuations in the imports of coffee, sugar, crude rubber and raw silk accounted for almost 60% of the total cyclical variations in the US imports during Cycle III.⁴ Thus, the variations in the US import demand for primary products during

³ The rise in the US imports from Latin America explains more than 80% of the increase in the US imports from non-European periphery. US Dept of Commerce(1961).

⁴ US Dept of Commerce(1961) To the cyclical fluctuations of primary imports, price movements seemed to make at least as important a contribution as volume variations: for instance, in the case of coffee, volume showed 48% increase during the upswing and 16% decrease during the downswing, while price rose by 164% and fell by 67%; on the other hand, sugar import volume rose and fell by 68% and 16%, whereas 32% and 35% were the corresponding figures for sugar import price. US Dept of Commerce(1961) Presumably these prices were world prices and could have had cyclical effects on some European import values.

Cycle III could be said to have made themselves felt almost entirely in Latin America, whilst the shifts in the US manufactured imports seemed to be reflected mostly in her imports from Britain.

The cyclical fluctuations in the US exports to various regions are presented as Fig IV-10. In contrast to the US import trade, in the US exports Britain played a much more important part than the periphery. Not only were the US exports to Britain far greater than the US exports to undeveloped areas in terms of average, but also the former displayed wider fluctuations than the latter. Moreover, although the US exports to the non-European periphery tended to exceed those to European agricultural areas, the former remained more stable than the latter, and even than the US exports to France; however, the exports to non-European primary producers showed wider variations than those to Germany.

The important position occupied by developed markets such as Britain and France in the US exports fluctuations and the relative stability of undeveloped market appear to be connected with the predominance of primary products in the US exports: almost 80% of the increase in the US exports during the upswing of Cycle III is explained by the expansion in the exports of such primary products as raw cotton, wheat and wheat flour, meat products, and animal fats and oils; on the other hand during the following downswing the decline in wheat exports alone amounted to 65% of the total decrease in the US exports.⁴

⁴ Similar figure is obtained in terms of average: during 1896-1898 around 75% of total US exports consisted of crude material, crude food stuffs and manufactured foodstuffs. R. M. Robertson(1973) p.368. As in imports, price fluctuations made a significant contribution to the cyclical pattern in the US export value: wheat export price displayed 30% cyclical increase and 44% decline, whereas wheat export volume rose by 241% during the upswing and fell by 61% during the downswing; in the case of cotton, price rose and fell

Such having been the case, as Professor S. B. Saul has shown, the US maintained a balance of payments surplus in her relations with Britain, while the opposite resulted from the transactions with undeveloped world.⁶ It appears that, as Table IV-4 shows, the deficit and surplus grew during the upswing and contracted during the downswing of Cycle III. Furthermore, since the deficit with the undeveloped world changed by a greater amount than the surplus with Britain, the overall visible trade balance(VTB) moved in a roughly contracyclical way(Fig IV-11). VTB declined during the first three years of upswing(1896-98), mainly due to the rise in imports; then it improved until 1892, which is explicable by the rapid rise in the US exports, reflecting the expansion of the world economy with the progress of the US and German investment booms and the active British overseas lending. The sharp decline in 1893 could be related both to the further rise in imports to a peak as a lagged response to the peaking in the level of activity in the preceding year and, more significantly, to the downturn in exports, reflecting the beginning of the contraction of the world economy due to the termination of the German home investment boom in 1890 and the decline in British overseas lending after 1889⁷; the depression and the consequent sharp decline in imports brought about the big improvement in VTB in 1894. With the resumption of growth in the level of activity and the consequent increase in imports, VTB fell in 1896; in the following two years, however, it improved, instead of continuing to fall as at the beginning of Cycle III. This may be related both to the rapid

by 7% and 45%, while volume showed 66% increase and 26% decrease.
US Dept of Commerce(1961)

6 S. B. Saul(1980) p.68

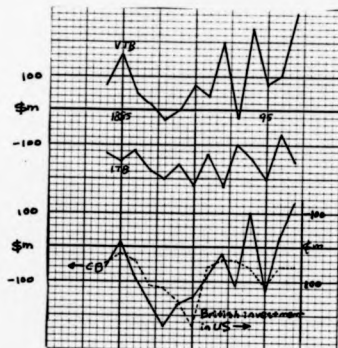
7 Since the German domestic investment and imports reached peaks in 1890 and in 1891, respectively, and since the level of activity in Britain and British imports peaked in 1891, it could be attributed to prime movements that the US exports to the two countries did not begin to fall until after 1892.

Table IV-4 US Trade Balance with Britain and Undeveloped World at
Turning Points, \$m

	Trough (1885)	Peak (1892)	Trough (1894)
Britain	261	343	324
Periphery	-86	-193	-117

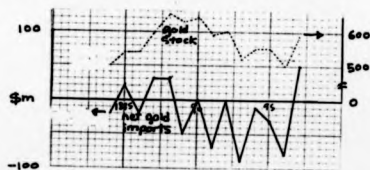
Source: US Department of Commerce(1961)

Fig IV-11 US Trade and Current Balance of Payments; British New Portfolio Investment in the US(Inverted)



Source: US Department of Commerce(1961), M. Simon(1968)&(1970)

Fig IV-12 Net Gold Imports into the US and US Gold Stock



Source: US Department of Commerce(1961), M. Friedman & A. J. Schwartz(1963b)

increase in exports in 1896 and 1897 due to the earlier start of investment booms in Germany and Britain and to the relatively slow increase in imports owing to the weak and unstable nature of the expansion in these years.

If visible trade tended to show surplus, the US recorded deficit in her invisible trade with the rest of the world during the years of Cycle III (Fig IV-11). Since the deficit tended to exceed the surplus, the US current balance of payments (CB) usually remained in deficit. The current balance of payments moved in close agreement with VTB, for the invisible trade balance (ITB) varied in neither cyclical nor contracyclical, but in a weakly irregular way. In Fig IV-11 are also shown the movements of the British new portfolio investment in the US, which, when inverted, broadly fall upon the line showing the variations of the US current balance of payments. This would imply that the US current account deficit was by and large financed by the import of long term capital from Britain.

It was seen in Section 2 of Chapter III that the level of the British portfolio investment in the US during the years 1872-95 was determined largely by the push factors on the British side, rather than by the pull of investment opportunities in the US, the latter represented by the net railway earnings per mile in the preceding year under the assumption that most of British investment in the US was directed to railway sector. In Cycle III, however, 'Purchases of American railway shares [by British investors] were important only in the early part of this boom', i.e. in 1885-87; in the later years of the expansion in the British investment in the US, 1888-90, investment in American trust companies and industrial enterprises, such as brewing,

ment packing and milling, assumed new importance.⁸ Therefore, as far as the British investment in the US during Cycle III is concerned, railway earnings may not be regarded as the best index of the American 'pull'. And it could be the case that in Cycle III the influence coming from the US investment conditions was not so weak as the US equation in Section 2 of Chapter III suggests. Indeed, D. R. Adler stresses the role of the changes in American conditions in the beginning of the expansion of the capital exports to the US: if the boom in American railway shares in London starting in the middle of 1885 was 'in part a result of the optimism generated by the sale of West Shore to the New York Central', it was also influenced by the 'large expansion of trade then taking place' in the US.⁹ On the other hand, the crisis connected with the financial difficulties of the Barings seemed to contribute to a great extent to the downturn of the British lending to the US in 1890.¹⁰

Gold flowed into the US during the early years of the Cycle III upswing (1885, 1887 and 1888) in net terms, whereas gold outflow began in the later years of the upswing and continued throughout the subsequent downswing period (Fig IV-12).¹¹ Such a pattern of

⁸ D. R. Adler (1970) p.169

⁹ D. R. Adler (1970) p.169 According to Commercial History and Review of 1886 by The Economist on 20 Feb 1886, the rise in American securities in 1885 in London 'after an almost unbroken fall since 1881' was caused by the 'reestablishment of the trunk-line compact by the action of Mr. Vanderbilt'.

¹⁰ D. R. Adler (1970) p.169 According to G. M. W. Sprague (1910) p.132, during the summer of 1890, i.e. before the outbreak of the Baring crisis, South American securities were crowding out the US securities in London.

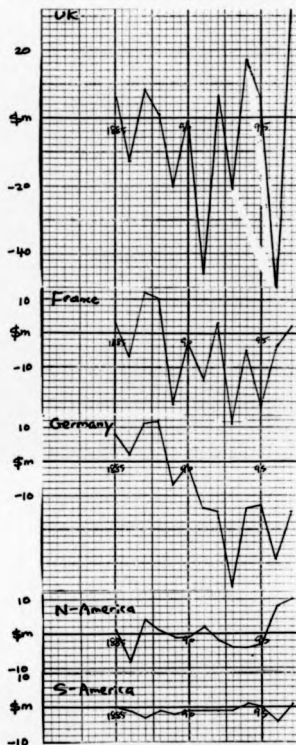
¹¹ Besides the close agreement between net gold imports into the US and the annual changes in the US gold stock (Fig III-16), the almost precisely opposite movements between the net gold imports and the percent premium or discount of sterling/dollar exchange rate, defined as '(dollars per pound quotation - \$4.8665)/\$4.8665' seem to reassure one of the reliability of the US gold movements statistics. L. R. Davis & J. R. T. Hughes (1980) p.54

gold flows reflect largely the gold movements between the US and the industrial European countries, Britain in particular.(Fig IV-13).

The net gold imports in 1885 could be attributed to the favourable trade balance connected with the low level of imports in the trough year. In the following year, the first year of expansion, the direction of gold flows was reversed; this was due to the rapid deterioration of current account balance with the increase in imports, while overseas borrowing grew only slowly. Gold flowed into the US in 1887 probably as a result of foreign investment exceeding current account deficit. It appears that short term capital inflows also contributed to the gold imports in this year: as Fig IV-14 shows, the short term interest rates differential between New York and London widened since 1885 as a result of the rise in the New York rates reflecting the expanding demand for money during these early years of upswing.¹² Probably the gold imports from France and Germany had more to do with short term capital flows than with long term borrowing, whereas in the case of the gold imports from Britain long term investment was more important. The slight reduction in net gold imports in 1888 could be related to the recession following the termination of railway building boom. As a result of the recession, the growth of foreign investment slowed down, and short run interest rates declined in New York, bringing about the fall in the interest rate differential and short term capital inflow. In the following two years(1889 & 1890), gold flowed out in net terms, in spite of the improvement in current balance and the continued increase in long

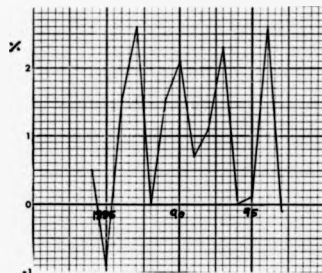
12 *Commercial and Financial Chronicle* also indicates the important part played by short term capital flows in the determination of gold movements in the early years of the boom. *Commercial and Financial Chronicle*, 14 Nov 1886, 21 Aug 1886, 5 Jan 1888. According to this magazine, four major factors influenced exchange rates: short term interest rate, long term borrowing, trade balance, and finally silver question.

Fig IV-13 Net Gold Imports into the US from Various Regions



Source: Statistical Abstract of the US, 1894 & 1897

Fig IV-14 Short Term Interest Rate Differential: New York over London



Source: M. Friedman & A. J. Schwartz (1962)

term borrowing; therefore, it would appear most likely that the net exports of gold in these years were the outcome of short term capital outflow consequent upon the rise in European interest rates. The flow of short term capital from the US to Europe occurred in 1889 and 1890 in the face of a widening short term interest rate differential (Fig IV-14), indicating that the short term capital movements in these years had more to do with the difference in the pulling power among financial centres, as shown by P. E. Lindert¹³, than with interest rate differential. While the increase in short term rates in Britain, France and Germany in these years basically reflected the simultaneous economic expansion in the three countries, as we shall see in the following chapters, defensive action by European central banks against gold outflow also contributed to the rise in the European rates. The net gold exports after 1890 was explicable by the sharp decline in long term capital inflow following the Baring crisis.

Thus, in gold movements were summarised i) the fluctuations in imports, determined by the level of activity in the US; ii) those in exports, affected by the size of the world market, which was jointly influenced by the level of home investment activity in the US and Germany and by that of British foreign investment; iii) those in long term capital flows into the US, for which the 'push' on the British side, the 'pull' of the investment opportunities in the US, and, finally, the Argentine conditions were responsible; and lastly iv) those in short term capital flows, explicable largely in terms of short run interest rates differential and the discrepancy in pulling power among financial centres.

13 P. E. Lindert (1968)

3. Government¹ and Consumption

During 1885-1895 the US federal government expenditures² amounted to \$316 million on annual average, which was equal to 2.6% of the annual US GNP in the same years. Federal government spending varied cyclically, rising from the trough in 1886 to the peak of 1893 by \$141 million, and falling between 1893-96 by \$31 million (Fig IV-15). These figures may be compared with the amplitude in the fluctuations of the US domestic investment, \$1124 million increase in the last three years of the upswing and \$921 million decline during the downswing. The cyclical variations in federal government expenditures are explained mostly by the fluctuations in the payments of veterans' pensions, which were also the largest single item in these years in terms of average. It appeared that the cyclical fluctuations in pension payments resulted from the lobbying efforts of the veterans' organizations during the upswing, which were directly influenced by the increasing government revenue during the upswing.³

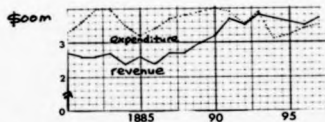
On the other hand, the US federal government revenue fluctuated also in a trade cyclical way, which was attributable mainly to the cyclical pattern in the movements of customs revenue. The cyclical movements in customs revenue reflected the similar pattern of variations in overseas trade, examined in the preceding section. The result of such variations in expenditures and revenue was the stabilizing movements in government surplus, shown in Fig IV-16,

¹ In spite of its important role in the US economic development in the nineteenth century, state and local finances will not be discussed here due to the lack of adequate data.

² This includes transfer payments such as veterans' pensions and interest on public debt, but excludes debt repayment.

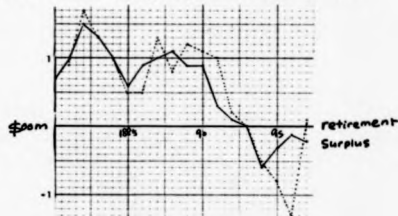
³ P. Studenski & E. H. Kroosa (1971) p.206, 207

Fig IV-15 US Federal Government Spending and Revenue



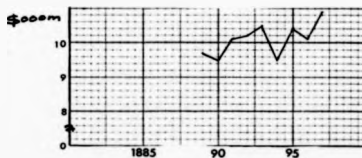
Source: US Department of Commerce(1961)

Fig IV-16 US Government Budget Surplus and Public Debt Retirement



Source: US Department of Commerce(1961), P. Cagan(1965)

Fig IV-17 US Consumption Expenditure



Source: J. W. Kendrick(1961)

rising during expansion and declining during contraction; this 'came about primarily because the revenue base ... expanded and contracted with the business cycle', rather than being 'the result of a positive policy on the part of the government'⁴.

In the same figure are shown the variations in the level of public debt retirement, which broadly followed those in federal budget surplus: 'The peace time debt policy of the federal government over the 19th century was, in a word, retirement'.⁵ They, however, did not cancel precisely each other off, which brought about the changes in the Treasury cash and consequently those in the US monetary base. Although, whether one measures the real effects of government sector upon the short term fluctuations of the US economy by the size of variations in expenditure or by that in budget surplus, they were of minor significance, the monetary effects of fiscal operations appeared to be important, as we shall see in the following section; moreover, if in the determination of expenditure and revenue the federal government remained largely passive, it seemed to assume a more conscious attitude in varying the level of borrowing or debt repayment, fully understanding the impact of such actions upon the availability of circulating medium.

Consumption expenditure constituted an item in the US national income far larger than investment or exports. Since the annual estimate of consumption begins from 1889⁶, a comparison of magnitude could be made among these three major components of national product for the years 1889-1897: in these years, consumption

⁴ J. M. Firestone(1960) p.8,9

⁵ J. A. James(1964) p.193

⁶ As far as we can infer from the movements in Frickey's non-durable output index, consumption appeared to make its way out of the slump in the early 1890s after 1886.

amounted to 74.6% of GNP, whereas 22.1% and 8.4% were the corresponding figures for gross domestic investment and exports.

Consumption, however, seemed to display greater stability during the upswing than both gross domestic investment, in both absolute and relative terms, and exports, in a relative sense: between 1889 and 1892 domestic investment and exports increased by \$1124 million and \$286 million, whereas between 1889-1893 consumption showed an increase of \$750 million. The downturn in consumption expenditure came one year after that in the level of activity, i.e. in 1893, and the downswing lasted only one year (Fig IV-17), although the size of the decline in consumption during the one year slightly exceeded the fall in domestic investment between 1892-1896. The stability of consumption during the upswing and the delayed downturn appear to suggest a passive role for consumption expenditures during the US cycle III: the shifts in consumption appeared to be induced by the fluctuations in the level of activity, in which domestic capital formation played a central part. It is, however, important to note that the quick recovery in consumption was responsible for the resumption of the US GNP growth after 1894. The recovery in consumption seemed to be connected with the temporary upward deviation of domestic investment in 1896 from the course of the downswing (1892-96). While home investment fell again in 1896 below 1894 level, the induced decline in consumption and national income in 1896 was slight, so that they remained above the 1894 level. Thus, the growth in national product between 1894-96 could be regarded as unstable and lacking in a firm basis, which was provided after 1896 by the revival in home investment supported by the development of electrical industries.

4. Money and Banking

The National Banking System, established during the Civil War and replaced by the Federal Reserve System in 1913, consisted of two distinct groups of banks: national banks and non-national banks. One of the important differences in banking functions between them was that the former was empowered to issue national bank notes, which 'circulated at par throughout the country, no matter where they had been issued'.¹ Both national and non-national banks were mostly 'unit banks', and under the banking system prior to 1914 they were connected with each other through the correspondent banking network, in such a way that the demand for and supply of short term capital in the US were aggregated in the New York money market.²

The National Banking System lacked a central bank, although the functions of central bank were carried out by the US Treasury in an inadequate way: the US Treasury controlled the amount of high-powered money by manipulating the balance in the Treasury;³ while national bank notes were issued by individual national banks, they were to be redeemed by the Treasury, and national banks were required to deposit with the Treasury redemption funds amounting to

1 J. A. James(1978) p.75 Legally, state banks were also able to issue notes, but the imposition of a 10% tax on the note issue of state banks 'made it virtually impossible for state banks to issue bank notes'. E. Sylla(1972) p.237

2 C. A. E. Goodhart(1968)p.1 says that 'during the period 1900-1913, the institutional structure of the banking system practically ensured that strains arising from fluctuations in the demand, or supply, of money within the country would be concentrated within the New York money market - particularly in the market for loans at call secured by stocks as collateral.' See also J. A. James(1978) Chapter IV.

3 C. A. E. Goodhart(1968) p.33-37

5% of their note issue⁴. The US Treasury, however, did not act as a 'lender of last resort', which appears to go far in explaining the instability of the National Banking System.⁵

Although specie payment was resumed from 1879, this did not mean the establishment of a full gold standard scheme in the US: the agitation for silver was strong enough to add \$2 million - \$4 million of silver per month between 1878 and 1890 (Bland-Allison Act), and 4.5 million ounces of silver monthly between 1890 and 1893 (Sherman Silver Purchase Act) to the stock of currency. Thus the US currency under the National Banking System, at least until 1896, when the uncertainty over the monetary standard was practically settled, consisted basically of gold and silver coins, notes redeemable into gold, e.g. national bank notes and the US notes (greenbacks), and notes convertible into silver, e.g. silver certificates and the Treasury notes of 1890.

Such a composition of stock of currency in the US was remote from a full-fledged gold standard not only in that the amount of the purchase of silver by the federal government affected the size of the stock of currency, but also in that the issue of the national bank notes, redeemable into gold, was by no means closely connected with the gold held in the Treasury. The 'fluctuations in notes in circulation may be accounted for by variations in the profitability of note issue, which were caused primarily by fluctuations in the yield

⁴ 'Though national bank notes were nominally liabilities of the banks that issued them, in effect they were indirect liabilities of the federal government thanks to both the required government bond security and conditions for their redemption' M. Friedman & A. J. Schwartz (1963b) p.21

⁵ In times of financial crises, New York banks could be said to have assumed the role of a lender of last resort to some extent, by issuing Clearing House Certificates.

on government bonds⁶, required as the backing for the note issue by national banks; on the other hand, while the national banks were required, in addition to the government bonds security, to maintain redemption funds in the Treasury equal to 5% of their note issue, the Treasury gold was also subject to fluctuations according to the state of government budget balance, the level the debt repayment, and internal and external gold flows.⁷

The US monetary base(RPM) under the national banking system is defined as the total stock of currency in the US minus the Treasury cash, i.e. the cash held in the Treasury. The total quantity of currency was affected during the years of Cycle III mainly by i) the external flows of gold, ii) silver laws, and iii) the level of national bank note issue. On the other hand, the cash held in the Treasury varied largely according to the state of government budget balance and the level of public debt repayment or borrowing.⁸ Since, as aforementioned, the fluctuations in the yield on government bonds influenced national bank note issue, and since the Treasury operations in bond market affected the yield on government bonds, i)international gold movements, ii)silver laws, and iii)the budget balance and the Treasury operations could be considered as the three major determinants of the US RPM.

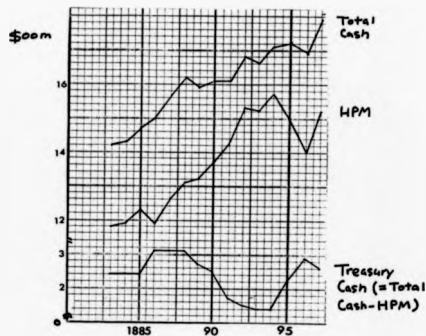
The quantity of total cash in the US showed a distinct rising trend, along which only mild short term fluctuations, neither cyclical nor contracyclical, are observable during Cycle III years(Fig IV-18). According to Fig IV-19, in 1885-88 the rise in total currency in the

6 J. A. James(1978) p.77

7 C. Hoffmann(1970) p.221-223

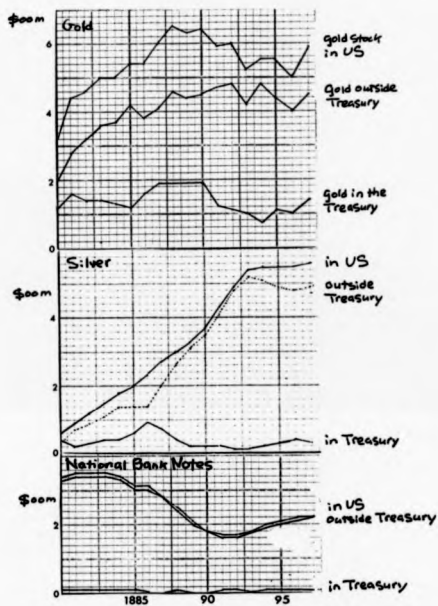
8 Besides, the Treasury deposits at commercial banks and other miscellaneous accounts, such as listed in F. Cagan(1965) p.337, influenced the level of cash held in the Treasury.

Fig IV-18 Total Stock of Currency, Monetary Base and Treasury Cash: US



Source: M. Friedman & A. J. Schwartz (1963)

Fig IV-19 Gold and Silver Currency and National Bank Notes in the US, in the Treasury and Outside the Treasury



Source: M. Friedman & A. J. Schwartz (1963b)

US was due to the gold inflow and the monetization of silver under the Bland-Allison Act, whereas national bank notes outstanding declined as a consequence of expanding public debt retirement.⁸ The increase in public debt retirement after 1885 was basically related to the rising budget surplus.⁹

During 1880-1891, total cash remained stagnant (Fig IV-18), which was the outcome of the reversal in the direction of external gold flows, coupled with the continued operation of silver laws and the decline in national bank notes outstanding. The stock of currency in the US resumed its growth from 1892, and this could be explained mainly by the beginning of the increase in national bank note issue, following the virtual disappearance of budget surplus and the consequent drastic reduction in the scale of public debt repayment from the same year (Fig IV-16 & 19). For in these years gold continued to flow out and in 1893 the monetization of silver under the Sherman Act was suspended in the wake of financial crisis.

As can be seen in Fig IV-18, the Treasury cash moved roughly in a contracyclical way, which in conjunction with the more or less linear rising trend in the total stock of cash in the US resulted in the broadly cyclical pattern in the US RPM, growing from 1886 until 1894, and then declining during the following three years. Such movements in the Treasury cash originated largely from the fact that public debt retirement tended to exceed budget surplus during the Cycle III upswing, and that government borrowing was greater than

⁸ A. D. Noyes (1909) p. 108-112

⁹ See Section 3, Chapter IV and Fig IV-18. Debt retirement raised the price of government debt, worsening the profitability of note issue by national banks, for which was required the backing of government bonds.

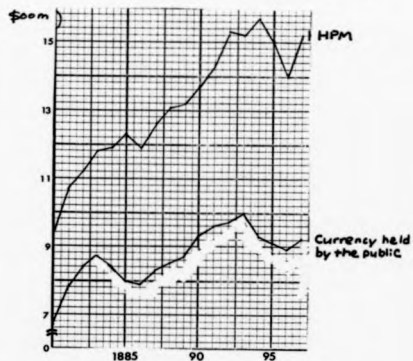
the budget deficit during the subsequent downswing.¹¹ If the broad agreement in the pattern of fluctuations in budget surplus and government debt retirement as shown in Fig IV-16 reveals the policy of retirement in the 19th century US, it is important to note that the excess of retirement(or borrowing) over surplus(or deficit) in upswing(or downswing) was closely connected with the cyclical shifts in the demand for money during the US Cycle III: for instance, the Report of the Secretary of the Treasury makes it clear that in the bond purchases in 1890 the federal government was influenced by the request from 'the industrial and commercial interests of the country ... that large additional amounts [of cash] should be at once returned to the channels of trade.'¹² In other words, the cyclical fluctuations in the US HPM during Cycle III reflected to a considerable extent the changes in the demand for currency, which induced accommodating response during the boom from the Treasury in the form of both excessive debt retirement relatively to the size of government surplus and the deposits of Treasury cash with commercial banks.

If the pattern of the fluctuations of the US HPM was influenced by the changing level of demand for cash through the Treasury operations in capital market as well as by international gold movements and the Silver Acts, the cyclical pattern identifiable in the movements of the currency held by the public(Fig IV-20) appeared to be almost completely the reflection of the shifts in the economy's need for currency. Thus, whilst the monetary base and the currency held by the public moved in broad agreement, it is

¹¹ The difference between budget surplus(deficit) and debt repayment(borrowing) moved in close agreement with the annual variations in the Treasury cash.

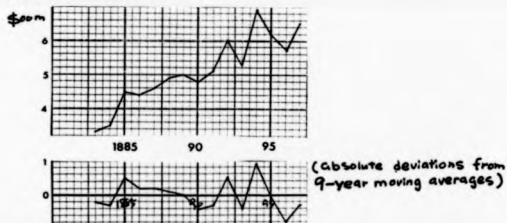
¹² Quoted from the extracts included in O. M. W. Sprague(1910) as Note F, Appendix.

Fig IV-20 Monetary Base and Currency Held by the Public: US



Source: M. Friedman & A. J. Schwartz(1963b)

Fig IV-21 US Bank Reserve



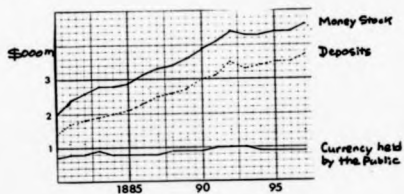
Source: M. Friedman & A. J. Schwartz(1963b)

observed that the latter conforms more closely to the cyclical variations in the level of activity than the former, and that cyclical pattern is more distinct and better defined in the latter.

The result of the broadly synchronous cyclical variations in HPM and the currency held in the hands of the public was the apparently acyclical movements in bank reserves, in which growth trend predominates (Fig IV-21). To determine more precisely the pattern of the weak fluctuations along the trend, absolute deviations from 9 year moving averages were calculated and produced in the same figure, where one observes mildly contracyclical movements. The cyclical variations in deposits (Fig IV-22) with bank reserves changing in opposite directions resulted in the contracyclical pattern in reserve/deposit ratio. (Fig IV-23) This, together with the cyclical variations in short term interest rates (Fig III-25), would seem to suggest that the US banking system varied the level of its supply of credit in accordance with the changing demand for money during Cycle III; rather than the changes in the supply of deposit money being determined by the state of the reserves held by the US commercial banks.

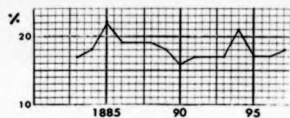
The impression of the central role of demand in the fluctuations of deposits is strengthened, when we look at the shifts in the interregional distribution of bank cash in the course of Cycle III (Fig IV-24). If the total bank reserves in the US varied contracyclically during the trade cycle, this seemed to reflect largely the fluctuations in the cash reserves of the banks in the eastern part of the US, such states as New York, New Jersey and Pennsylvania. In contrast, the high-powered bank reserves in western and southern states, such as Kansas, Nebraska, Iowa and Texas displayed cyclical

Fig IV-22 Money Stock, Deposits, Currency Held by the Public: US



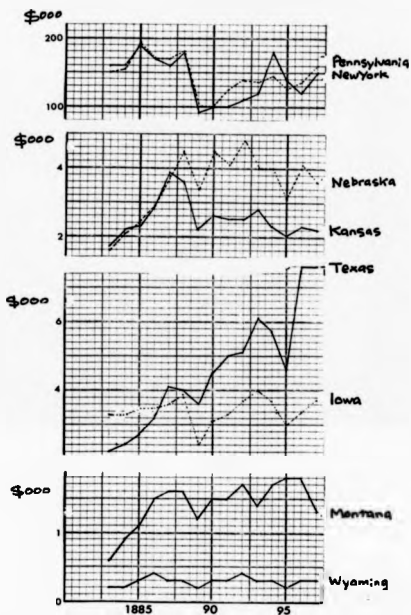
Source: M. Friedman & A. J. Schwartz(1963b)

Fig IV-23 US Reserve/Deposit Ratio



Source: M. Friedman & A. J. Schwartz(1963b)

Fig IV-24. Cash Held by National Banks in Selected States



Source: Report of the Comptroller of the Currency, 1897, Vol I

variations.¹³ Bank cash did not show much variations in remote and mountainous states like Montana and Wyoming. In short, during the upswing the total bank reserve in the US, declining as a whole relatively to trend as a consequence of the rising demand for cash from the public, was redistributed in favour of the banks in western state and at the expense of eastern states banks, and vice versa. This seemed to be related to the flows of short term capital from East to West (the latter being the centre of domestic capital formation during the Cycle III upswing) which were induced probably by the increase in interest rate differential between the two regions¹⁴. According to the report by the *Commercial and Financial Chronicle* on the money market in 1887, "The banks and other regular money lenders reaped good profits on a demand for money which kept up from March to December. The tendency of the operation was to draw funds away from the Atlantic cities to the Interior and keep them there, as the railway building in the far West and South, the speculation in town lots, and the wheat corners in Chicago and San Francisco, all called for a large amount of money"¹⁵. Average gross rate of return on private earning assets of the US banks was highest in the group of western states comprising North and South Dakota, Nebraska, Kansas, Montana, Wyoming, Colorado and New Mexico during

13 It is true that cyclical pattern is less distinct in Kansas and Iowa than in Nebraska and Texas. This is mainly due to the sharp decline in bank cash in 1887/1888 in the former states following the termination of railway building boom; in the rest of the upswing years, however, bank cash increased in these states, and during the subsequent downswing declined.

14 This would remind one of the autumnal drain of cash to the West, which to many contemporaries seemed to go far in explaining the recurrence of financial crises. Important differences appear to be present between the autumnal and cyclical transfer of funds to the West: in the former case trade deficit on the part of the eastern states in their relation with the West was the underlying factor, whereas short term capital flows related to regional interest rates differential largely account for the latter phenomenon. O. M. W. Sprague (1910), C. A. B. Goodhart (1969), J. A. James (1978).

15 *Commercial and Financial Chronicle*, 7 January 1888

the Cycle III years, and was maintained in this region at levels 3-4% higher than in middle Atlantic states.¹⁶

As a consequence, with the rise in the level of activity the cash reserve base of the banks in western states was being broadened, so that they were better able to accommodate the surging application for funds during the upswing. It appears that the expansion of the reserve base by means of capital imports from Atlantic cities was essential in meeting the demand: for instance in the case of the national banks in Chicago, if reserves had not been augmented after 1887 and thus had remained stable, they could have supplied in 1892 less than three quarters of the credit actually provided in that year without violating the National Banking Law; in St Louis, the reserve ratio of national banks fell below the legal 25% level during 1890-92, in spite of the enlargement of bank reserve during the upswing.¹⁷

In the cyclical fluctuations of the money stock in the US during Cycle III (Fig IV-22), demand for money thus played a dominant role. Then, was it not the case that the decline of money stock after 1892 was due to the presence of 'monetary ceiling'? As was pointed out above, under the less than full-scale version of the US gold standard the supply of cash to the US economy (HPM) depended upon three factors: international gold movements, silver laws, and the scale of Treasury operations relatively to the state of budget balance. Since gold stock declined after 1888, external gold flows could be said to have been affecting the HPM adversely around the upper turning point in 1892. According to the Sherman Silver Act, however, after 1890 around twice as much silver was being added to the US currency stock as before, and this appeared to contemporary

¹⁶ G. Smiley (1978) Table A-3, A-4

¹⁷ Report of the Comptroller of the Currency, 1897, vol I, p.424

observers as excessive rather than insufficient; they therefore blamed the Silver Acts for the 'mischiefs of inflation', and eventually repealed the Sherman Act as a means to tide over the crisis in 1893. Finally, although the Treasury cash had been declining rapidly since 1888, in 1892 the Treasury still held almost half as much as it had in 1888. This would imply that there was sufficient room for the Treasury to increase the cash supply to the economy by purchasing government bonds.¹⁸

As to the supply of deposits, while it is true that the US national banks were required by law to maintain minimum reserves against deposits¹⁹, the US national banks as a whole maintained reserve ratios far higher than the required level during Cycle III.²⁰

The movements of short term interest rates (Fig III-25) do not suggest any particularly severe strain in money market in the final years of the boom, either: the short term interest rates for call loan market, said to be 'considerably more important than the commercial paper market'²¹, after reaching a peak in 1890, was on the decline in the last years of the upswing.²²

18 Nevertheless, it needs to be remembered that the Treasury gold was approaching the \$100 million minimum safety line. Although this constituted no legal limit, reducing the Treasury gold, accounting for most of the Treasury cash in the early 1890s, below \$100 million could not have been achieved without difficulties.

19 The legal minimum reserve ratio was 25% and 15% for reserve city and country national banks, respectively. On the other hand, non-national banks, i.e. state and private banks, were not under any restrictions concerning reserve. J. A. James (1978) p.27, 28

20 P. Cagan (1986) p.359

21 C. A. E. Goodhart (1989) p.20

22 This, it should be noted, however, is by no means unambiguous evidence for the relative ease in the money market of 1893 than in 1890, since it is most probable that the increase in European short term interest rates connected with the Baring crisis contributed greatly to the high level of the US short term rates in 1890.

If a monetary ceiling was not responsible for the decline of money stock after 1892, neither did the banking system appear to foresee the prospective deterioration in business conditions and as a response began to curtail credit supply prior to the decline in demand for funds, triggering the financial crisis in May, 1893. The depressed trade conditions after the downturn in construction activity had been worsening the profitability of enterprises, and the number and value of business failures were on the increase during the early months of 1893²³, the most notable example being the insolvency of the Philadelphia & Reading Railway Company on 20 February. Under such conditions the decline of stock prices is to be expected: index number of the prices of American Railroad Stocks fell from 47.70 in January to 45.42 in April, and it reached 42.14 in May, falling more in one month than it did during the preceding four months²⁴. Correspondingly, there was a slight contraction (by \$10 million) in the loans of the national banks between September 1892 and May 1893. This, however, was mainly due to the reduction of loan making by the banks of the New England and Middle Atlantic States, whereas during the same eight months there was a further increase of \$25 million in the North Central and Western states, leading regions in the business expansion.²⁵

Thus, it is clear that when the crisis broke out, the US economy was already in downswing, and that nevertheless in western states banks had been expanding credit supply. The financial crisis, which

23 C. Hoffmann(1970) p.55

24 F. R. Macaulay(1938) p-A151

25 O. M. W. Sprague(1910) p.189, 190 'During 1892 the lower rates for loans were a clear indication that banks would have been glad to lend more than the demand of borrowers made possible. This situation was in marked contrast to the months preceding other crises when every available credit resource at the money centers has been stretched to the extreme limits of safety and beyond.'(p. 182)

began in May 1893 with the bankruptcy of the National Cordage Company, did not reveal its scale to the full until the following month, when large withdrawals of money from New York to the interior began. This was 'directly due to the failure and suspension of large number of banks, both state and national, and of private bankers in the West and South'; 'Quite apart from mismanagement it was inevitable that some banks should have gone to the wall in consequence of the many mercantile failures, ... which occurred during the period from January to July 1893'.²⁶

These mercantile failures seemed to originate, directly or indirectly, from overinvestment in the construction industry.²⁷ Thus, the line of causation seemed to run in the following direction: with the overinvestment in the US construction industry began the contraction of the US economy, which found expression in the deteriorating profitability and increasing failures of enterprises; this brought about the decline in the stability or failures of country banks, triggering bank runs; as a result, country banks began to withdraw deposits from their correspondent banks in New York, and thus started the nationwide banking panic.²⁸

26 O. M. W. Sprague(1910) p188, 189

27 See Section 1, this chapter.

28 Thus, in our opinion, the stringency in the money market developed as a result of the dislocation of financial system, rather than monetary contraction causing financial crisis and business downturn. M. Friedman and A. J. Schwartz(1963b) also considers the decline in money stock as a result of the panic in 1893.(p.108-110) On the other hand, our understanding of the crisis is at variance with that by E. Minsky(1982) & G. F. Kindleberger(1978). See also M. Bordo(1988). While Minsky and Kindleberger stress the increasing fragility of financial structure itself, in our explanation the emphasis is placed upon the already depressed trade conditions, originating from the exhaustion of investment opportunities, rather than upon the decline in reserve/deposit ratio during upswing. In other words, it is our view that the deterioration of financial stability, as expressed in reserve/deposit ratio of the banking system, tends to be associated with business expansion under the gold standard, since the increase in money supply is made possible, as was shown in Section 3, Chapter III, largely through the creation of deposits; but that the possibility of further 'real' expansion decides whether

In summary, the US expansion from the 1885 trough was due to the start of the railway building in Nebraska and Kansas consequent upon the agricultural development, which brought about the improvement in railway profitability; the downturn in 1892 was related to the overinvestment in the construction industry under the condition of the depression in railway building. The fluctuations of the US economy, led by home investment, induced cyclical variations in the level of merchandise imports, whilst the cyclical pattern in exports resulted from the shifts in the state of the world market, which was influenced greatly by the state of the US economy. The cyclical variations in the US money stock seemed mostly to reflect the cyclical changes in demand for money.

further destabilisation of financial system is to be allowed. It would be relevant to note in this context that in the US 'panics have not precipitated cyclical downturn; all of them here cited have followed peaks in economic activity'. P. Cagan(1966) p.227

THE TRADE CYCLE, 1886-1891: GERMANY

After the 'preliminary stage' of industrialization in the first half of the 19th century, Germany is said to have 'taken off' during 1850-1873; having levelled off in the 'Great Depression' era, German industrial development entered 'maturity' stage between the mid-1890s and the outbreak of WWI. During the take-off period, railway construction was the leading sector, while electrical and chemical industries played a central part in maturity stage.¹ Thus, it appeared that in the second half of the 19th century and in the early years of the 20th century, Germany and the US followed similar paths of economic growth, which consisted basically in the absorption of two major innovations, railway and electricity; the fact that these technologies affected in turn the two economies at roughly the same time underlay the broad parallelism between the trade cycles of the two countries, resulting ultimately in the international synchronisation of trade cycles in the 1870-1914 period.

The years of the German Cycle III form a part of the 'Great Depression' period. While in the US railway building continued to drive short term cyclical fluctuations in the 1880s, the railway network was largely completed in Germany during the boom culminating in the 1873 crisis, and investment opportunities comparable to railway expansion did not appear until the 1890s. As

¹ W. W. Rostow(1971), K. Borchardt(1973), R. E. Tilly(1978)

a result, German domestic investment activity stagnated during the Great Depression years relatively to the following period, which was translated into the considerably lower rate of growth.²

The other side of the relative lethargy in German domestic capital formation in the late 1870s and in the 1880s was that in the cyclical fluctuations of the German economy during the Great Depression external influences assumed greater importance than in other pre-WWI trade cycles. In the German Cycle II the investment variations were so mild that they seemed to be outweighed by exports fluctuations, and although in the subsequent trade cycle domestic investment certainly varied more widely than exports, the state of the world market appeared to exercise significant exogenous influences upon the level of domestic investment, as we shall see shortly.

² Measured from peak to peak, the German NNP at constant prices grew at the annual rate of 1.7% between 1874 and 1890, whereas the corresponding rate for 1890-1913 was 2.6%. The growth rates calculated from the German NNP at current prices are 1.2% and 3.6%; the greater difference in the rate of growth would be attributable to the contrasting price movements in the two periods. W. G. Hoffmann (1965)

1. Home Investment

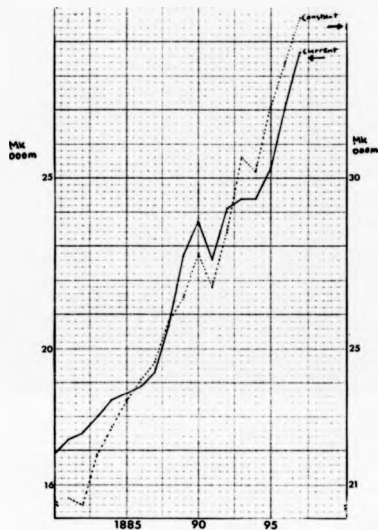
It is observed in Fig V-1 and Table V-1 that the growth of German national product was not interrupted in the 1880s, and was resumed after a brief halt in 1891; moreover, in the German industrial production index, which never declined in absolute terms in 1880-99, cyclical elements are readily discernible only after detrending. The presence of such a strong upward trend led K. Borchardt to conclude that Germany experienced 'growth cycles' in pre-1914 years as well as in post-1945 period.³ If on the basis of national product series we may regard 1890 and 1891 as the German Cycle III peak and subsequent trough, it is not straightforward to decide when this trade cycle started. A similar pattern is to be found in the movements of German home investment, but one is given some clue as to when the investment upswing started: net capital formation in current prices did not grow at all, and in constant price terms it increased by only Mk10m between 1884 and 1885 (Fig V-2). On the other hand, German merchandise exports (Table V-1) followed a distinct cyclical pattern: 1885(T)-1890(P)-1892(T). Such having been the pattern of movements in the two autonomous spending items, we may be allowed to consider 1885 as the starting point of the German Cycle III, which was followed by the 1890 peak and 1891 trough.⁴

German net domestic capital formation at current prices showed an increase of Mk 1400 million between 1885-1890 and declined by Mk 1290 million in 1890-1891, which can be compared with the growth of exports by Mk 481 million during the boom 1885-1890 and the Mk 308

3 K. Borchardt (1982) p.96

4 According to German unemployment rate, as seen in Fig II-5, 1889 and 1892 were the final two turning point years.

Fig V-1 German NNP



Source: W. G. Hoffmann(1965)

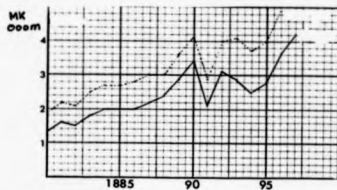
Table V-1 Key Macroeconomic Aggregates: Germany(Mk m)

Year	Y	I	X	M
1883	18014	1810	3259	3221
1884	18540	1960	3190	3236
1885	18731	1960	2854	2923
1886	18935	1980	2976	2874
1887	19280	2230	3136	3109
1888	20716	2400	3207	3253
1889	22249	2940	3167	4015
1890	23676	3360	3335	4162
1891	22624	2080	3175	4151
1892	24061	3140	2954	4010
1893	24357	2930	3092	3962
1894	24361	2530	2961	3942
1895	25254	2830	3318	4119
1896	26979	3590	3525	4307
1897	28714	4150	3635	4681

, where Y: NNP at current prices, I: NI at current prices, X: merchandise export value, M: merchandise import value.

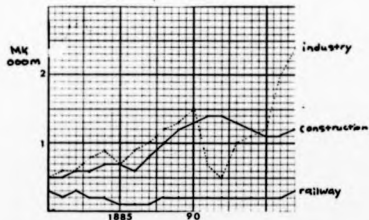
Source: W. G. Hoffmann(1965), B. R. Mitchell(1981)

Fig V-2 German Net Home Investment



Source: W. G. Hoffmann(1965)

Fig V-3 German Home Investment by Sector , current prices



Source: W. G. Hoffmann(1965)

million reduction in exports in 1890-1892.⁵ Since it was already shown to be reasonable to assume that in the years concerned the German gross investment was approximately twice the amount of net investment⁶, during the German Cycle III the amplitude of domestic investment variations could be said to have outweighed that in exports movements to a great extent.

The variations in net investment in the three main fields - commerce and industry, construction⁷ and railway - show that the cyclical pattern in German net investment is attributable mostly to the fluctuations in industrial and construction investment. (Fig V-3) According to the annual changes in the financial capital of major listed German industries⁸, it appeared that the cyclical movements in investment in iron, steel and coal industries go far to explain the cyclical pattern in overall German industrial investment. Correspondingly, in the German stock market boom between late 1886 and early 1890, 'the shares of the mines and of the iron and steel concerns ... [were] ... the backbone'.⁹ The investment booms in the two leading industries were closely related to each other, for iron and steel trade was 'the largest consumer of coal'¹⁰. Since German joint stock banks ('Kreditbanken') played an active role in mobilising capital for the investment in the two industries during the Cycle III

⁵ The sizes of exports fluctuations in Cycle III are calculated from the exports at current prices series which excludes the trade with Hanse towns. Statistical Abstract for the Principal and Other foreign Countries.

⁶ Footnote 2, Section 2, Chapter III

⁷ Construction investment includes non-agricultural residential construction, public building and works.

⁸ J. Kuczyński (1862) p.49-52. These were already presented as Fig III-5.

⁹ 11 May 1889, *The Statist*

¹⁰ 21 Sep 1889, *The Economist*

upawing¹¹, besides iron and coal, bank securities occupied an important position in the boom of the late 1880s.

The investment activities in iron and steel industry seemed to revive in late 1886¹², a revival which originated from the increase in demand for iron and steel and the consequent price rise.¹³ The increase in demand for and prices of iron and steel products was due to the rise in exports, connected with the revival of the US railway investment from the trough in 1885.¹⁴ In view of the fact that in terms of weight overseas sales accounted for around one third of the final production of the German iron and steel industry¹⁵, and that sales in the US were only around 10% of German iron and steel product exports¹⁶, the nature of the influence of the increased exports upon the investment activity in the German iron and steel

11 For the close relationship between banks and industry in the pre-WWI Germany, see Chapter II, P. B. Whaley (1930).

12 It was as late as on 4 Dec 1886 that *The Statist* first reported the 'wild speculation' in Berlin bourses, whilst *The Economist* mentioned for the first time the speculation in 'bank and industrial shares' a week ago.

13 On 6 Nov 1886, *The Economist* reported that 'Some improvement is felt in the Rhenish Westphalian iron and steel industry, extensive orders having been received. Still prices have remained in their depressed condition'; two weeks later, 'The steel and metal makers in the Rhine Province, Westphalia and Silesia are improving, and prices are a little higher.'

14 'The big increase [in the US railway building] made considerable demand upon iron and steel industry. Since from other areas [than railway building] too emerged strong demand, which could not be met by [US] domestic industry in spite of its rapid development, a considerable demand was made upon the European production.' Annual Report of the North Western Group of the Union of German Iron and Steel Industrialists for the year 1886, quoted in *Stahl und Eisen*, 1887, p.122. According to the report of the merchants of Berlin, 'the rise of prices during the second half-year [of 1886] caused an improvement in commerce first and industry afterwards. The increased demand from the US gave the first impetus to an improved state of things.' 9 Jul 1887, *The Economist*. See also Mottek (1977) p.171,172.

15 Pig iron production is used here as the proxy for the Germany final iron and steel production, for according to R. C. Allen (1979) p.312 the divergence between final iron and steel production and pig iron production is not large. T. E. Burnham & G. O. Soakins (1943) Appendix I, W. Feldenkirchen (1982) Tab: 66 & 67

16 W. Feldenkirchen (1982) Tab: 71

industry would appear to a great extent psychological. The expansion of iron and steel trade stimulated the production and investment in German coal industry.

According to Langewiesche, the fluctuations in German internal migration to and from cities in pre-WWI years followed a trade cyclical pattern¹⁷: his index of internal migration to and from German cities with population over 50,000 shows clearly the cyclical influences upon internal migration, rising between 1887-89 by 19 points in contrast with the 6 point increase between 1881-87, and then declining until 1893 by 14 points. Furthermore, more than half of the internal migration in the 1880s was from the eastern part of Germany to the suburbs of Berlin, and to central, northern and western Germany.¹⁸ These facts would suggest that the economic expansion, due both to the rise in exports of iron and steel and to the consequent revival in coal mining activity, attracted labour from agricultural regions to commercial and industrial centres, where employment opportunities were improving.

It appears that the internal migration and the consequent progress in urbanization created profitable investment opportunities for the German building industry. As is shown in Fig V-3, the movements of construction investment during the German Cycle III lagged consistently behind those in industrial investment by one year, suggesting that the variations in industrial investment produced those in construction investment by affecting the level of internal migration. It is, however, worth pointing out that the increase in construction investment during the upswing exceeded,

¹⁷ D. Langewiesche(1977) p.9

¹⁸ F. B. Tipton(1976) p.90

although not by very much, that in industrial investment.¹⁹ The wider variations in the 'induced' investment could be explicable at least partly by the fact that the German internal migration in the years concerned was affected not only by the 'pull' of economic expansion in industrial regions and urban centres, but also by the 'push' forces in agricultural districts suffering from declining primary product prices during the Great Depression period.²⁰ In other words, the agricultural labourers in eastern Germany appeared to react more sensitively to the industrial and commercial boom in the rest of the country than they would have under rising agricultural prices, thus producing a substantial building boom.

Thus, if the expansion of external demand was at the bottom of the revival of the investment in iron and steel industry in 1886, further growth of investment activity in the following year was based upon the widening of both overseas and home markets, which was supported by the progress of the US railway investment boom and the beginning of the German construction boom, respectively²¹: Pig V-4 shows that the domestic consumption of iron and steel final products²² revived from the trough in 1886, i.e. one year after the upturn in the exports of iron and steel final products. After peaking in 1887, however, the export market for the German iron and steel industry began to contract, which seemed to be closely

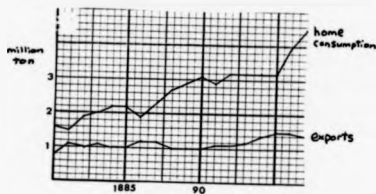
19 This may explain why K. Borchardt(1976) considers construction investment as the sole supporter of the German Cycle III upswing.

20 The emigration from agricultural areas was negatively related to 'the value of grains produced'. F. A. Tipton(1976) p.81

21 In September 1887, Stahl und Eisen reported, 'Particularly striking is the extraordinarily strong demand for structural iron from all bigger cities; the demand suggests not only an extremely brisk building activity, but also the increasing use of iron in every kind of building. The US market remains persistently firm...'

22 The domestic consumption of iron and steel final products is approximated by pig iron production minus iron and steel exports, for the reasons given in footnote 15.

Fig V-4 Home Consumption and Exports of Iron and Steel: Germany



Source: T. H. Burnham & G. O. Hoskins(1943), W. Feldenkirchen(1982)

connected with the termination of the US railway building boom.²³ Although the home market was being enlarged in 1888, the decline in exports affected the investment activity in the German iron and steel industry adversely, though to a minor degree. (Fig III-5) In 1889, however, investment in the iron and steel industry recovered to a level higher than in 1887, for which the further expansion of domestic demand for iron and steel with the continuing prosperity in construction industry provided the justification.²⁴

The development of the symptoms of partial overinvestment in the building industry at the end of 1889²⁵, together with the uninterrupted contraction of overseas sale of iron and steel products after 1887, appeared to affect significantly the expectations of the investors in iron and coal industries in an unfavourable way from the beginning of 1890.²⁶ The downturn in the investment in the two

²³ The share of the US market in the exports of iron and steel products from Germany declined drastically from the peak of 13.5% in 1887 to 2.1% in 1888 in terms of weight. W. Feldenkirchen (1982) Tab: 71

²⁴ On 7 Sep 1889, *The Statist* reported that 'the present prosperity in the iron, steel and textile trades ... [is] ... preeminently founded on the consumption of the domestic market'. According to the Annual Report of the Union of German Iron and Steel Industrialists, at the beginning of 1890, i.e. immediately prior to the downturn in the German iron and steel industry, 'when the state railways and the marine ... made greater demand [for iron and steel] ... at the same time, and when the building activity for private purposes found greater business, these simultaneous demands [for iron and steel] could not be satisfied within short time.' *Stahl und Eisen*, 1891 p. 488

²⁵ On 30 Nov 1889, *The Statist* reported that the 'speculators in house building and real estate experience a touch of the unfavourable times, for they find it almost as difficult to let the large and rather expensive dwellings they have made as to get money advanced on their property. The shadow of catastrophe in the building trade is already on the wall though, so far, all hope is not yet discarded'; in the review of the business conditions in Germany in 1889, *The Economist* mentioned that 'The rent for small dwellings has risen - for larger and dearer ones there is a stagnation. Although the surface of the general position seems satisfactory, it cannot be denied that the real estate business also was more than once on the brink of a crisis.' (11 Jan 1890)

²⁶ The weakening in iron and coal shares in German stock exchanges was first reported in 18 January 1890 by *The Economist*, and the decline of share prices continued throughout the year. According to

leading heavy industries put on the brake on internal migration, so that it declined after the 1889 peak, delivering contractionary shocks to and bringing about the eventual downturn in the construction industry after the 1891 peak. As a result, the investment activities in iron and coal on the one hand and construction on the other hand varied in opposite directions during 1889-91, the former declining and the latter expanding, the consequence of which was the 1890 peak in overall German domestic investment.

The export demand for German iron and steel products resumed its increase after 1890, probably due to the opening-up of undeveloped markets, such as East Asia and Latin America.²⁷ This appeared to be due to the endeavour on the part of German iron and steel entrepreneurs to relieve the pressure of overcapacity during the depression in the early 1890s, and was realized through the competition with and at the expense of other industrial countries exporting iron and steel to these regions, Britain in particular.²⁸ Such having been the case, the widening export market in the early 1890s did not lead to the increase in investment in the German iron and steel industry, in contrast to the mid-1880s.

On the other hand, Fig V-4 shows that the home consumption of iron and steel manufacture revived after the brief set-back in 1891, which appeared to be related mainly to the emergence of electrical industry, playing a leading role in the following two German trade

Stahl und Eisen, March 1890, the German iron and steel industry was also significantly influenced by the collapse of the speculation for pig iron warrants in Glasgow in February 1890.

27 The shares of Latin American countries (Argentina and Brazil) and East Asia in total German iron and steel exports rose dramatically from virtual nil to 7.5% in 1889 and 6.7% in 1891, respectively. W. Feldenkirch (1982) 7:5b:71

28 D. Burn (1961) p.81, 82, R. J. S. Hoffman (1933) p.239-243, R. C. Allen (1979) p.913, F. L. Payne (1968) p.86

cycles.²⁰ In fact, as we see in Fig III-5 investment in the German electrical industry began to rise after 1891 until the 1898 peak, which is precisely the pattern found in the movements of total German net investment. Therefore, the aforementioned predominance of growth trend in German home investment and national product during the Cycle III years could be ascribed to the expansionary forces connected with the emergence of electrical industry in the early 1890s outweighing the fall in construction investment.²¹

It is important to emphasize that the innovation in steel production at the end of the 1870s underlay the investment boom in the latter half of the 1880s: the Thomas process enabled Germany to exploit phosphoric iron ore, with which she was richly endowed. In the absence of this technological development, the German iron and steel industry could have increased the exports to the US in 1885-87 only to a smaller degree, since German iron and steel products, having had to be made from imported non-phosphoric iron ore, would have been less competitive in the US market than, say, British product.²² In such a case the prosperity in Rhineland and Westphalia would have been quite moderate, which would have implied lower levels of internal migration and building investment.²³

20 A. V. Demai(1968) p.99, C. Trebilcock(1961) p.47-49. See also Fig III-5.

30 See footnote 4, section 1, chapter III.

31 "Thomas had 'dealt a blow' - a fatal blow - 'at the supremacy of English hematite steel'". D. Burn(1961) p.77 R. C. Allen(1979)

considers the reduction in the excess profit earned by the German iron and steel industry and the consequent decline in iron and steel product prices as the main factor responsible for the emergence of Germany as a major exporter of iron and steel by 1890. In 1883-89, he says, 'The combined ore and coke costs of making hematite pig iron suitable for acid Bessemer and open hearth steel in Britain's major producing districts was very similar to the ore and coke cost of making basic pig iron in Westphalia'; the ratio of price to unit costs was, as a result of the reduction in the excess profit in Germany, more or less equal in the two countries.

32 It appeared that during the investment upswing in the late 1880s the introduction of the Thomas process was in progress: on 8 August 1887 *The Economist* reported, 'Nearly all works in ...

There hardly appears to be any evidence suggesting that the development of a full-employment ceiling choked off the boom in the late 1880s. In the first place, the movements of German wages do not suggest any particularly acute shortages in the supply of labour at the end of the 1880s; they rather displayed a slowly rising trend³³, which may be explicable by the fact that during the years concerned German industry could still depend upon over-populated rural areas to satisfy its increasing need for labour. The massive country-to-city migration continued until around 1910 - not to mention overseas migration.

Secondly, the prices of pig iron, one of the most important basic materials in this period, showed clear cyclical fluctuations rising sharply from the middle of the 1880s to reach a peak in 1890.³⁴ This, however, would be far from sufficient to enable us to conclude that the bottleneck in iron production contributed at least to some degree to the downturn in 1890; for, even if there had developed any bottleneck, Germany could have depended upon overseas suppliers, and the imports of pig iron in fact increased from 167,102 tons in 1887 (3.2% of domestic production) to 385,328 tons in 1890 (8.3% of domestic production).³⁵ Whether the upsurge of the demand for iron from Germany overwhelmed the production capacity of overseas suppliers, especially that of Britain, the most important single iron exporter to Germany³⁶, remains to be seen in the following chapter.³⁷

[Rhine- and Westphalia] ... have introduced the Thomas process'; on 20 Aug 1887, 'the Thomas process is spreading, so that Austro-Hungarian works, with their good iron, which is nearly free from phosphorus, are being more and more placed at a disadvantage'.

33 G. Bry(1960) p. 329, Table A2

34 W. Feldenkirchan(1982) p.184, Abb.15

35 W. Feldenkirchan(1982) Tab:66

36 P. L. Payne(1968) p.82,83

37 See footnote 15, Section 2, Chapter VI.

Finally, it is possible that a ceiling developed in the production of non-traded material for the building industry, for example bricks. However, while the downturn in building activity occurred in 1891, the building cost index was on the decline from the peak in 1889.

To summarize: the upturn of the German domestic investment activity in the mid-1880s was directly connected with the rise in the exports of iron and steel products consequent upon the beginning of the US railway building boom. Considering both the minor position of the foreign relative to the home market and the negligible share of US sales in total German iron and steel exports, the shock from the US would seem largely psychological. The prosperity in industrial regions, such as Rhineland and Westphalia, induced internal migration from the agricultural east, which stimulated building investment. Although the downturn in US railway investment led to the contraction in the German iron and steel exports after the 1887 peak, the continuing expansion of domestic demand due to the upswing in construction investment underlay the increase of the investment in the German iron and steel industry until 1889. The appearance of symptoms of partial overinvestment in the construction industry, together with the depressed export market, seemed to reverse the optimism held by the German iron and steel industrialists and the investing public at the beginning of 1890. The decline in the investment in the leading industries of Rhineland and Westphalia brought about the fall in internal migration after the 1889 peak, which induced the downturn in building activity after the 1891 peak. The quick revival in domestic investment in the early 1890s seemed to reflect the growth of German electrical industry. It appeared that the Thomas process and the falling agricultural prices contributed

considerably to the strength of the investment upswing in the late 1880s.

2. Overseas Trade and Lending

During Cycle III, German merchandise exports and imports(current value) showed distinct cyclical fluctuations: exports rose from the trough in 1885 to the peak in 1890, and then declined to the trough in 1892; the upswing in imports extended from 1886 to 1891, and the downswing from 1891 to 1894.(first chart, Fig V-5) On the other hand, in the movements of the volume of German merchandise trade cyclical patterns are far less clear: if in the relatively mild variations of export volume the same three turning point years are still identifiable as in the value series, it is not possible to determine the two turning points following the trough in 1886 in import volume fluctuations.(second chart, V-5) The virtual absence of cyclical elements in the fluctuations of import volume during the years of Cycle III seems to be related to the stability in consumption expenditure during the German Cycle III¹, which in turn reflects the predominance of rising trend in the movements of German national product.² On the other hand, the cyclical variations in German exports were determined by the state of the world economy, which in turn was affected to a great extent by the level of the US activity and British overseas lending, as well as by the state of the German economy.

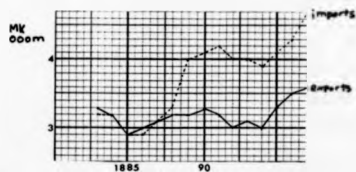
The cyclical variations in German exports(value) to different regions of the world in the course of Cycle III are shown in Fig V-6. While exports to undeveloped areas accounted for around half of the

¹ Section 3, Chapter V

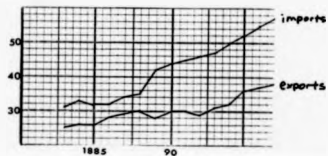
² At the same time, however, the possibility could not be excluded that the application of an exaggerated price deflator on the current value of German imports series wiped out the cyclical components in import variations.

Fig V-5 German Merchandise Exports and Imports

① value



② volume, index numbers



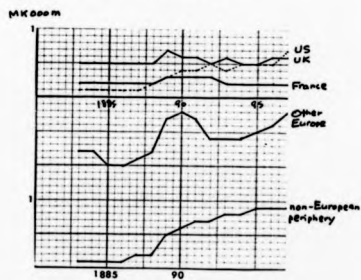
Source: W. G. Hoffmann (1965)

Fig V-6 German Exports to Various Regions



Source: Statistical Abstract for the Principal and Other Foreign Countries

Fig V-7 German Imports from Various Regions



Source: Statistical Abstract for the Principal and Other Foreign Countries

cyclical changes in German exports during Cycle III, among developed markets the US fluctuated most widely.³ Furthermore, the revival came earliest in the exports to the US and undeveloped countries, i.e. after 1885. If the expansion of the US market was related to the beginning of the US railway construction boom, the revival of exports to the periphery, to the extent that it reflected changes in volume, probably resulted from the more or less simultaneous rise in British overseas lending, rather than from the expansion of the underdeveloped world consequent upon the US boom. It should be noted that the British foreign lending boom was initiated by the start of the US railway building boom and the consequent increase in the British investment in the US railway.⁴ Therefore, one could argue that the upturn of the US economy affected German exports favourably in the mid-1880s both directly, i.e. by increasing the German exports to the US, and indirectly, i.e. by enlarging undeveloped market through the increased British overseas lending. In contrast, the rise in the exports to Britain started one year later, i.e. after 1886, as was the case for total merchandise imports into Britain.

The downturn in exports to non-European periphery came earlier than in exports to other areas, reflecting the contraction of British lending and the consequent decline in imports into Argentina.⁵ The cyclical peak in 1890 in exports to the US appeared to be mainly explicable by both the introduction of the McKinley Tariff and

3 The increase and decrease in the exports to undeveloped areas accounted for 54.4% and 47.7% of the cyclical up- and downswing in total German exports(excluding those to Hansa towns); the corresponding figures for the US market were 24.8% and 47.7%. Statistical Abstract for the Principal and Other Foreign Countries.

4 Section 1, Chapter VII

5 Whereas the German exports to non-European primary producers fell by Mk 21 million between 1889/90, the imports into Argentina and Patagonia from Germany declined by Mk 33 million. Statistical Abstract for the Principal and Other Foreign Countries.

competition with the US industry, as was also true of British exports to the US.⁶ On the other hand, the downturn in 1890 in exports from Germany to European agricultural regions and Britain appeared to be closely connected with the collapse of British overseas lending⁷ and the consequent downturn of the British economy.

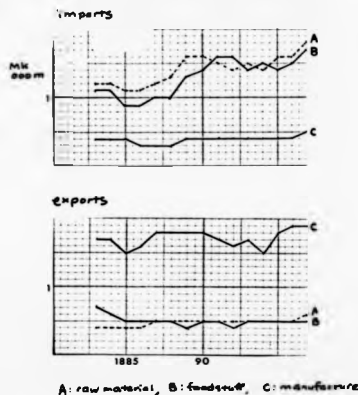
The subsequent upturn was observed earliest, in 1890, in the exports to non-European primary producers, which may be, as was argued in the preceding section, attributable to the efforts of German exporters to expand markets under the pressure of overcapacity at the expense of competitors. While the revival of exports to the European periphery from the 1882 trough may be understood in a similar context, the contemporaneous resumption of the growth of exports to Britain could be explained by the beginning of the domestic investment boom in Britain in the early 1890s. The exports to the US reached a trough last, in 1894, when the falling level of activity in the US also touched a bottom.

In Fig V-7 are shown the movements in the imports into Germany from various regions of the world during Cycle III. It is observed that imports from Europe fluctuated in a distinctly cyclical fashion, whilst those from the US and non-European periphery showed continuous growth devoid of cyclical components. Such diverging patterns of fluctuations could not be explained in terms of the differences in the commodity composition of imports from these regions; for, as is shown in Fig V-8, imports of foodstuff, raw material and manufacture all displayed cyclical variations. Rather, they seem to suggest the emergence of the US and non-European

⁶ W. A. Sinclair(1967) p.96,96

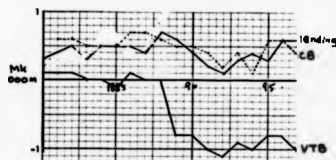
⁷ British investment in Europe rose from the trough in 1885 to the peak in 1890. M. Simon(1968)

Fig V-8 German Overseas Trade by Type of Commodities



Source: W. G. Hoffmann(1965)

Fig V-9 German Trade and Current Balance of Payments and Overseas Lending



Source: W. G. Hoffmann(1965), B. R. Mitchell(1981)

primary producing countries during Cycle III as the suppliers of raw materials and foodstuffs to Germany, replacing less developed European countries, where industrialization was in progress.²

The impact of the investment boom in Germany was conveyed through trade channels most strongly to undeveloped areas, particularly to the European periphery; the next biggest rise was recorded in the imports from the US; the size of the increase in imports from Britain during the Cycle III upswing was about half as large as that in imports from the US. On the other hand, while, as aforementioned, the US and non-European periphery were not affected by the German slump in the early 1890s, imports from agricultural Europe declined by the greatest amount, which was followed by the fall in imports from Britain.

The German overseas trade during the years of Cycle III revealed the typical commodity composition of an industrial economy: the predominance of manufactures and primary products in export and import trade, respectively (Fig V-8). It is further seen that cyclical fluctuations are observable mainly in the trade of these major items, whereas the manufactured imports and primary exports varied only mildly during Cycle III. This is consistent with the fact that the cyclical fluctuations in German exports and imports during Cycle III are accounted for to a great extent by the variations in the German exports to and imports from undeveloped countries.

The cyclical variations in German imports and exports (value) during Cycle III gave rise to the contra-cyclical pattern in the movements of German visible trade balance (VTB in Fig V-9), which fell

with the start of the upswing from 1886 until 1892, and then rose during the following four years. In the broadly contra-cyclical variations of German VTB is reflected the fact that although exports fluctuations had significant exogenous impacts upon the shifts in the level of German domestic capital formation the movements in the latter overwhelmed those in the former in quantitative terms. The invisible trade balance having varied in a neither cyclical nor contra-cyclical fashion, German current balance (CB) fluctuated largely following the pattern found in VTB.

On the other hand, the direct estimates of German long term capital exports⁹ moved without diverging considerably from the path followed by the current balance. Thus, both CB and long term capital exports showed contracyclical movements, as a result of which no serious balance of payment difficulties arose for Germany during the trade cycle concerned. Behind such stabilising variations in the two items of balance of payments seemed to lie the fact that the rise in home investment activity during the Cycle III upswing both worsened the current balance of payments and deterred the outflow of funds, and vice versa. The close correspondence in the fluctuations of German current balance of payments and overseas lending appeared due also to the fact that 'the process of long term capital export was under close regulation'.¹⁰

The other consequence of the equilibrating changes in the German current balance of payments and foreign lending was that the gold movements involving Germany were on a relatively minor scale.¹¹

⁹ These are the statistics of foreign issues in Germany, produced in W. G. Hoffmann (1965) p.262.

¹⁰ I. M. Drummond (1987) p.24

¹¹ In 1885-94 net precious metal imports into or exports from Germany added up to Mk 451 million; in the same years the amount of net gold movements involving the US and Britain were Mk 1295

Fig V-10 seems to show that throughout the years of Cycle III Germany remained a net gold importing country, and that as a result her monetary gold stock¹² varied in a mild and acyclical way along a strong upward trend.(Fig III-16)

The relative stability in the net gold imports into Germany conceals wider and more varied fluctuations in the gold movements between Germany and different regions of the world, as shown in Fig V-11. The gold flows between Germany and Britain seemed to be determined largely by the state of the trade balance between the two countries which shifted increasingly in favour of Germany during this particular trade cycle. It is significant that the rise in London short term interest rates in the late years of the Cycle III upswing could not reverse the direction of gold flows between the two countries. In the presence of the substantial trade deficit on the part of Britain and with the defensive rise in the German interest rate and the consequent increase in the interest rate differential between Berlin and London(Fig V-12), the financial superiority of London over Berlin¹³ alone seemed insufficient to draw gold from Germany.

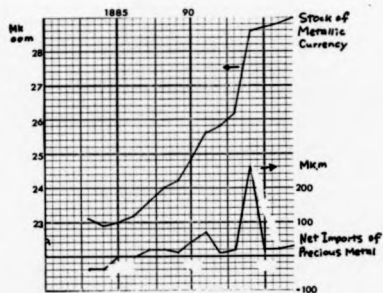
In contrast, the net gold inflows from France varied in opposite directions to the contracyclical movements in the German trade surplus with France. In view of the fact that Germany was a short

million and Mk 920 million, respectively. W. G. Hoffmann(1965), US Dept of Commerce(1961), Statistical Abstract for the UK.

¹² German monetary gold stock is approximated by the amount of metallic currency in and outside German banking system, including the gold bars in banks of issue. B. Spranger(1982) It was shown in Fig III-15 that the annual variations in the stock of metallic currency in and outside the German banking system correspond closely with the fluctuations in net imports of precious metal into Germany.

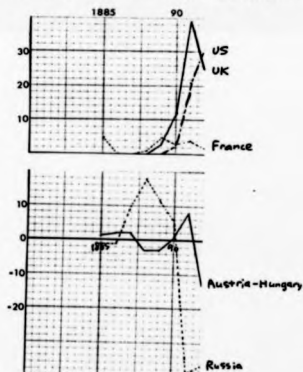
¹³ P. H. Lindert(1962) p.58

Fig V-10 Net Imports of Precious Metal and Stock of Metallic Currency: Germany



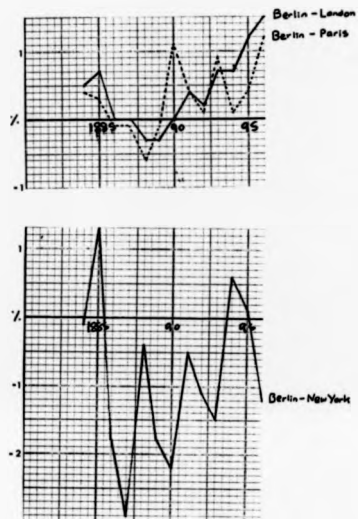
Source: W. G. Hoffmann(1965), B. Sprenger(1982)

Fig V-11 Net Gold Imports into Germany from Major Regions



Source: Statistische Jahrbuch fuer das Deutsche Reich, 1887-1894

Fig V-12 Short Term Interest Rate Differential among Major Financial Centres



Source: F. Capie & A. Webber(1985), M. Friedman & A. J. Schwartz(1982), H. D. White(1933)

term debtor in relation to France¹⁴, the cyclical fluctuations in the gold inflows from France could be attributable to the similar changes in the short term capital flows from France to Germany: the short term interest rate differential between Berlin and Paris moved broadly in parallel with the level of the net gold flow from France into Germany, the notable exception being the lower level of net gold imports in 1890 than in either 1889 or 1891(Fig V-12). The dip in the net gold inflow in 1890 in the face of the peaking of the interest rate differential in the same year could be regarded as consistent with the financial dominance of Paris over Berlin, as suggested by Lindert.

In relation to the US, Germany seemed to export small amounts of gold in net terms in the early years of the upswing(Fig IV-15), whereas during the rest of the Cycle III years gold flowed from the US into Germany. It appeared that such variation in the gold flows between Germany and the US had something to do with short term capital movements¹⁵. Fig V-12 shows that the short term interest rates differential between Berlin and New York declined until 1887 and then fluctuated along a rising trend, whereas the German trade balance with the US was deteriorating throughout the years of Cycle III.

The shifts in the gold flows between Germany and Austria-Hungary up to 1889 seemed to reflect Germany's deteriorating trade balance. Since the trade deficit widened in 1890 and 1891, the net gold inflow from Austria-Hungary into Germany in the two years could be attributed to the greater command of Germany over

¹⁴ A. I. Bloomfield(1963) p.78

¹⁵ According to Bloomfield(1963) p.78, Germany was a short term debtor to the US.

exchange rate and gold flows through short-term capital movements in her relation with peripheral Europe.¹⁶ In relation to Russia, rising German interest rates in the late years of the cycle III upswing did not seem to have significant effects upon gold flows.

In summary, the fluctuations in German exports during Cycle III were determined largely by the US domestic investment and British overseas lending; the level of German imports(volume) hardly showed cyclical fluctuations, probably due to the stability of German consumption expenditure; since long term capital outflow and current balance of payments moved in close agreement, the gold flows during the German Cycle III were on a moderate scale and seemed explicable to a great extent by short term capital movements.

3. Government and Consumption

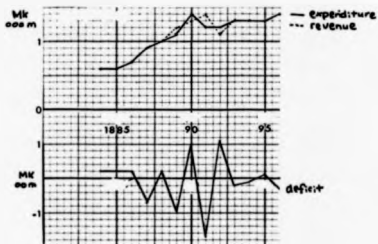
Both the government expenditure and revenue of the German Empire fluctuated in a cyclical way during the Cycle III years, and the German government broadly maintained balance in its budget (Fig V-13). As a result, small surpluses and deficits alternated in the years concerned. The fluctuations in government revenue reflected largely the cyclical variations in customs duties, the most important single source of the German government revenue, which were related to the cyclical changes in the volume and value of overseas trade. The shifts in the expenditure for the 'maintenance of the Army', the largest single expenditure item, explain most of the cyclical variations in German government expenditure.¹ It would therefore appear that the German government adjusted its level of expenditure to the state of revenue, rather than the other way around.

The cyclical movements in the government spending would have given further stimuli to the expansion of the German economy, and have aggravated the subsequent depression, whilst at the same time the contracyclical influences of similar magnitudes were in operation in the form of various taxes during Cycle III. Between 1886-1890 government spending increased by Mk 660 million and in 1890-92 it fell by Mk 110 million. These figures are comparable with the Mk 2780 million increase and Mk 2560 decrease in the gross German domestic investment², and with the Mk 481 million increase and Mk 308 decrease in the German merchandise exports during the up- and downswing of the German Cycle III. Thus, in contrast to the US,

¹ Statistical Abstract for the Principal and Other Foreign Countries.

² These figures are obtained by multiplying the size of the cyclical increase and decrease in net investment in Cycle III by two, for the reasons given in footnote 2 Section 2, Chapter IV.

Fig V-13 Government Expenditure, Revenue and Deficit: Germany



Source: Statistical Abstract for the Principal and Other Foreign Countries

the magnitude of cyclical fluctuations in German government spending could hardly be described as negligible. Indeed, in the late years of the Cycle III boom, the prosperity in German iron and steel industry seemed to depend to a considerable extent upon the government demand, the temporary nature of which appeared to have destabilising effects upon the expectations of German investors in the heavy industries, contributing to the collapse of the investment boom.³

During the Cycle III upswing, consumption expenditure increased by Mk 2706 million, which is comparable to the estimated size of the increase in German gross investment, Mk 2760 million. Consumption, however, accounted for a far greater portion of German national product than either investment or exports during the Cycle III years⁴, which implies that in relative terms consumption displayed far greater stability than domestic capital formation. In fact, during the years of the German Cycle III consumption expenditure grew without falling in absolute terms in any single year, in contrast to the movements in national product, investment and exports. Such a pattern of movements would suggest a passive role of consumption expenditures in the course of the German Cycle III.

³ On 4 May 1889, *The Statist* predicted the termination of the boom in more than half a year in the following way: "Yet after a year, or a year and a half, these wonderful features of prosperity will vanish, for by that time the bulk of the wants of the railways and of the army and navy will have been attended to, and who else could supply a sufficiently large amount of orders to the iron and steel works, large in numbers and in extent?"

⁴ In 1885-86, consumption expenditure amounted to almost 80% of German NNP. W. G. Hoffmann (1965)

4. Money and Banking

It was as early as 1876 that a full gold standard system was adopted and that the Reichsbank assumed the role of a central issuing bank in Germany. The issue of notes by the Reichsbank was regulated by 'two rules independent of each other': on the one hand, the Reichsbank was required to maintain at least one third of its note issue in cash, which was defined as 'current German money, Treasury notes('Reichskassenscheine'), and gold in bars or foreign coins', with the rest of the note issue being covered by discounted bills; on the other hand, the Reichsbank was allocated a certain figure by law, which was increased a few times during pre-1914 years, and the excess of note issue over this amount plus cash reserve was subject to a tax at the rate of 5% per year.¹

Coins and the Reichsbank notes, the amount of which was controlled according to the principles just described, formed the major part of German currency. In addition to gold and subsidiary coins and the Reichsbank notes, Treasury notes, the Reichsbank giro deposits and the 'small and dwindling stock of note issues by other banks' also constituted the German monetary base in pre-WWI period.²

¹ M. Seeger(1968) p.20,21 It would be useful to note that this system of guaranteeing the convertibility of the Reichsbank notes was a loose one relatively to Peel's Act, which underlay the British version of gold standard. While according to Peel's Act the increase of the gold held in the Issue Department of the Bank of England by £1 enables the Bank to increase its notes by the same amount, in Germany the addition of the same size to the Reichsbank gold reserve could bring about the expansion of the Reichsbank note issue by £3.
² P. McGouldrick(1984) p.314

The German banking system comprised under the Reichsbank various sorts of business banks³, among which joint-stock banks(Kreditbanken) were the 'dominant force within German banking' in pre-1914 era.⁴ As is well known, a crucial feature of German joint-stock banks was that in addition to their functions as ordinary commercial banks they played active parts in financing long term investment.⁵

It was shown in the second section of this chapter(Fig V-10) that the uninterrupted net gold flows into Germany during Cycle III resulted in the continuous growth of German monetary gold stock⁶, along with which were observed mild and irregular fluctuations. The German monetary gold stock was divided into the gold held in the Reichsbank and other minor issuing banks and that held by non-issuing banks and the public, which is equal to the gold part of German HPM. Approximating the gold element of German HPM by the metallic part of the HPM, one observes that it tended to vary cyclically, rising from the trough in 1888 to the peak in 1890 and then declining back to the trough in 1891(Fig V-14).⁷ On the other hand, the gold held in the German banks of issue, approximated here by the metallic currency in the banks of issue, moved in most of the

3 They are joint stock banks(Kreditbanken), note-issuing banks(Notenbanken), joint-stock mortgage banks(Hypothekenbanken), association of landowners(Landchaften), banks run by provincial government, such as Landesbanken and Provinzial-Riffkassen, Savings banks(Sparkassen), cooperative credit societies(Creditgenossenschaften), and finally Koenigliche Seehandlung. P. Barrett Whale(1930) p.2-4

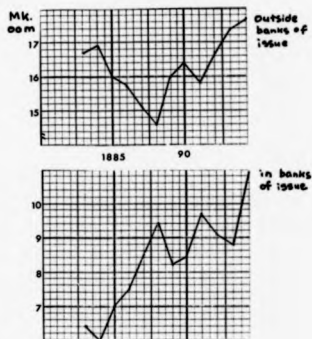
4 H. Neuberger & E. H. Stokes(1974) p.712

5 On the relationship between the Kreditbanken and German industry, see P. Barrett Whale(1930) Chap. II.

6 It should be remembered that the German monetary gold stock was approximated by the German stock of metallic currency in and outside German banking system, whereas the gold flows were represented by the flows of precious metal.

7 In 1885-84, the gold part accounted for almost 60% of the metallic part of the German monetary base, and the annual variations in the two items showed close agreement. B. Sprenger(1982) p.123

Fig V-14 Metallic Currency in and outside Issuing Banks: Germany



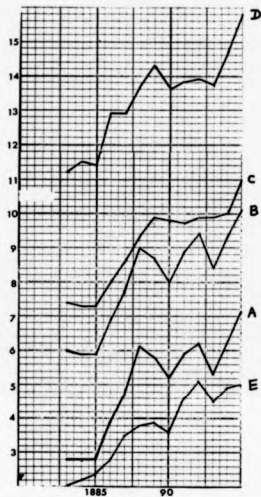
Source: B. Sprenger(1982)

years in opposite directions to the metallic currency held outside the issuing banks (i.e. metallic part of the RPM), displaying therefore a roughly contracyclical pattern.⁸ It appears reasonable to interpret such a cyclical pattern in the distribution of monetary gold stock between banks of issue and the rest of the economy in the course of the German Cycle III in terms of the cyclical shifts in the demand for metallic currency, i.e. as the internal coin drain from and reflux to the banks of issue during the trade cycle; for it is hardly possible to identify cyclical elements in the supply of metallic currency, consisting mainly of gold, to the German economy.

The Reichsbank being by far the most important among the issuing banks, the contracyclical pattern in the fluctuations of the metallic currency held by the German banks of issue reflected largely the movements of the coins or, more narrowly, the gold held in the Reichsbank (Fig V-14 & 15). In Fig V-15 are also presented the movements in the Reichsbank notes in circulation, which did not follow closely the pattern of fluctuations in the coins (or gold) held by the Reichsbank: in particular, it should be noted that in 1888/89 and 1890/91 the two items varied in opposite directions. As a result, in contrast to the coins (or gold) held in the Reichsbank, in the variations of the Reichsbank notes in circulation is observed a cyclical pattern. Thus, the Reichsbank would appear to have changed its notes in circulation largely according to the cyclically moving demand for currency, and without much regard to the level of its gold reserve. The cyclical changes in the economy's demand for currency, as reflected in the fluctuations of the Reichsbank notes in circulation (1885(T)-1889(P)-1891(T)), tended to precede the cyclical

⁸ The coins held in the Reichsbank accounted for more than 90% of the metallic currency held by banks of issue in Germany; over 60% of the coins in the Reichsbank was in gold. B. Sprenger (1982), M. Seeger (1968), National Monetary Commission (1910)

Fig V-15 Gold(A) & Coins(B) held in the Reichsbank, Reichsbank Notes in Circulation(C), Paper Currency in Circulation(D), Reichsbank Demand Liabilities Other than Notes(E): Germany



Source: B. Sprenger(1982), M. Seeger(1968), National Monetary Commission(1910)

pattern in the variations of the metallic currency in circulation (1888(T)-1890(P)-1891(T)). This is probably explicable by the difference in the sphere of circulation between the two types of currency: the Reichsbank notes, the minimum denomination of which was Mk 100 until 1906⁹, were used mainly in commercial transactions, whereas coins were used in settling smaller scale, everyday business. In accommodating the economy's need for currency, the Reichsbank did not need to violate the above described regulations concerning note issue, due to the high level of cash reserve maintained throughout Cycle III.¹⁰

However, it does appear that the lack of close agreement between the movements in the Reichsbank notes in circulation and those in coins (or gold) held in the Reichsbank, especially during the years around the upper turning point, resulted from the violation of the 'rules of the gold standard game' by the Reichsbank, interpreted in the sense of Nurkse: Bloomfield has shown that during the years of the German Cycle III, i.e. 1885-91, international and domestic assets of the Reichsbank shifted in the same direction only in 1886 and 1887.¹¹

Since the Reichsbank notes in circulation amounted to nearly 70% of total paper currency in circulation in 1885-94¹², the cyclical movements in the former resulted in the similar pattern of fluctuations in the latter (Fig V-16). In addition to the metallic and

⁹ K. R. Bopp (1953) p.56, 57

¹⁰ The lowest ratio of cash reserve of the Reichsbank to its note circulation during 1885-95 was 83.5%, the legal minimum being 33.3%; at the same time, the Reichsbank notes in circulation never exceeded during these years the amount specified by law, Mk 250 million, plus cash reserve. M. Seeger (1968)

¹¹ A. I. Bloomfield (1959) p.49

¹² B. Spranger (1962) The paper currency includes besides the Reichsbank notes the notes issued by other issuing banks and Reichskassenscheine.

paper currency in circulation, as aforementioned, German monetary base (HPM) comprised the Reichsbank giro deposits.¹³ As was the case in the currency in circulation, the giro deposits, approximated here by the Reichsbank demand liabilities other than notes, tended to move in a cyclical way, following more closely the pattern shown in the paper rather than in the metallic currency in circulation (Fig V-15); this is in correspondence with the fact that the nationwide Reichsbank giro system of transfer was available 'only for banks and large nonbank enterprises'.¹⁴ It is to be noted here that the violation of the 'rules of the game' was expressed not only in the lack of close agreement between the changes in the Reichsbank cash, mostly metallic currency, reserve and those in the Reichsbank notes in circulation, but also in the cyclical variations in the Reichsbank demand liabilities other than notes in the face of the contracyclical variations in the Reichsbank cash reserve. In short, the Reichsbank accommodated the demand for funds during cycle III, largely irrespective of the state of its reserve, which resulted in the contracyclical movements in the Reichsbank reserve ratio.¹⁵ Such having been the case, the consequence was that the German HPM, approximated here by the sum of the paper and metallic currency in

13 'Like the Bank of England, the Reichsbank had monetary liabilities additional to its notes. But while the Bank of England held bank deposits like those of modern central banks, deposits at the Reichsbank were related to the development and operation of the only nationwide system for "noncash" payments - the giro system of transfer. Functionally, the giro system was a checking system, but one operated by the central bank, instead of by individual private banks.' P. McCouldrick (1984) p.313

14 P. McCouldrick (1984) p.314

15 A. I. Bloomfield (1959) p.31, Chart I. K. R. Bopp (1953) p.21 is of the opinion that in the pre-1914 Germany 'credit was always available on specified terms and that the Reichsbank did not modify its rules or interpretation as a deliberate means of exerting or releasing pressure on the market.' Also, Messrs. Mankiewicz and Blinsig of the Deutsche Bank answered to the National Monetary Commission that 'the great strength of our financial system in Germany is the Reichsbank. Under that system the question of our cash reserve is of secondary importance, as we can at all times convert our holdings of commercial paper into cash at the Reichsbank.' Quoted from K. R. Bopp (1953) p.26, and underlines are mine.

circulation plus the Reichsbank demand liabilities other than notes, moved in a cyclical pattern: 1885(T)-1889(P)-1890(T). (Fig V-16)

If the cyclical changes in the demand for currency played a central part in determining the pattern of fluctuations of the German HPM, they appeared to do so mainly by influencing the currency held by the public, in the movements of which is observable a cyclical pattern more distinct than in HPM (Fig V-16). On the other hand, the other major component of the German HPM, the cash reserve of the non-issuing banks, displayed uninterrupted growth devoid of cyclical elements during Cycle III. Thus, the division of the German HPM¹⁶ into the currency held by the public and non-issuing bank cash reserve would appear more or less equivalent to the separation of short run cyclical fluctuations and trend in the movements of the German monetary base.

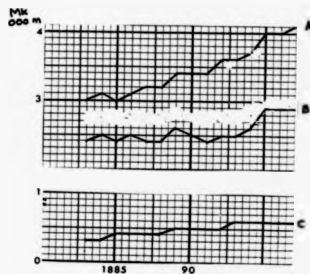
The slowly rising cash reserve of non-issuing banks was associated with the far more rapid increase in non-bank deposits (Fig V-17). Cyclical elements are not any more readily visible along the rising trend of the deposits than in the case of the cash reserve.¹⁷ As a result, the ratio of non-issuing bank cash reserve to non-bank deposits (Fig V-18) showed mild and irregular fluctuations, rather than a distinct contracyclical pattern as in the US (Fig IV-25).¹⁸

16 To be more precise, the division of the German HPM in the form of cash, to the exclusion of the Reichsbank giro deposits.

17 It is only in the movements of the absolute deviations from the 9-year moving averages of the cash reserve and deposits that cyclical patterns can be determined: 1888(T)-1890(P)-1892(T) for the former and 1888(T)-1889(P)-1892(T) for the latter.

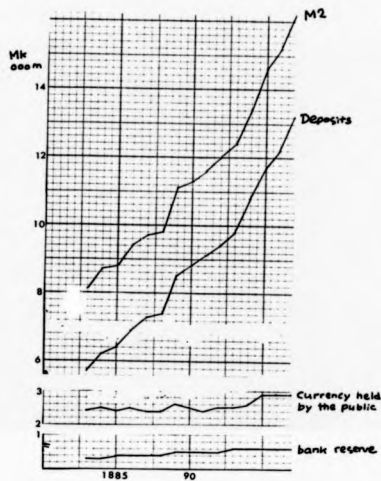
18 It is to be noted in Fig V-18 that the German reserve/deposit ratio was far lower than either in the US or in Britain: the ratio fluctuated around 5% during Cycle III in Germany, which compares with the average level of around 18% in the US and 11% in Britain. See also P. Barrett Whale (1930) p.135.

Fig V-16 High-Powered Money(A), Currency Held by the Public(B), Cash Reserve Held by Non-Issuing Banks(C): Germany



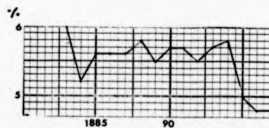
Source: B. Sprenger(1982), National Monetary Commission(1910)

Fig V-17 Money Stock, Deposits, Currency Held by the Public, Cash Reserve of Non-Issuing Banks: Germany



Source: B. Sprenger(1982)

Fig V-18 Ratio of Non-Issuing Bank Cash Reserve to Non-Issuing Bank Deposits: Germany



Source: B. Sprenger(1982)

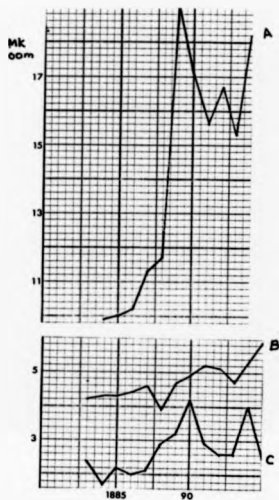
In Fig V-10 are shown the annual amounts of credit provided by the two major types of German business banks - Kreditbanken and Notenbanken - in the form of i) bill discounting, ii) lending against collateral ('Lombarddarlehen'), and finally iii) current account credit ('Kontokorrentkredite')¹⁹. It is interesting to observe in the figure that the volumes of credit given by means of the three different methods fluctuated according to three distinct cyclical patterns: the cyclical movements in Kontokorrentkredite(A) tended to precede those in Lombarding(C), behind which lagged bill discounting(B).

In pre-1914 years, P. Barrett Whale says, 'the average German firm has always depended to a remarkable degree upon obtaining current account advances [i.e. Kontokorrentkredite] ... not merely to provide itself with working funds, but also for the purpose of extending its permanent equipment ... in anticipation of recourse to the investment market'.²⁰ On the other hand, in view of the quantitative inferiority of foreign to domestic trade in Germany during Cycle III, the cyclical pattern found in the credit supplied by means of bill discounting would largely reflect the changes in the amount of inland bills discounted. Now, it appears significant that the pattern of the fluctuations in Kontokorrentkredite resembled the course of the investment in iron, steel and coal industries, while that in the bill discount credit tended to agree with the movements in construction investment, a major influence upon the state of domestic trade. This seems to suggest that the fluctuations in Kontokorrentkredite were related to those in the amount of credit provided for the investment activities in the German heavy industries, whereas the varying levels of bill discount credit

¹⁹ For a detailed description of 'Kontokorrentkredite' as a 'combined demand-deposit account and line of credit' (H. Neuberger & R. E. Stokes (1974)), see P. Barrett Whale (1930) p.37-39.

²⁰ P. Barrett Whale (1930) p.38

Fig V-19 Amount of Credit Given by Means of Current account credit(A), Bill Discounting(B) and Lombarding(C) by German Joint Stock Banks and Issuing Banks



Source: E. Eistert & Ringel (1971)

represented the volume of credit given to various trades, affected, directly or indirectly, by the level of building investment.

Such a variety in the pattern of changes in the credit supplied to different sectors of the German economy would be explicable either by the changes in the demand for credit from different industries or by the response on the part of the banks to the shifting conditions and prospects of each of the industries²¹; rather than by the factors affecting the capability of the banks to supply credits. For in the latter case, it would be more likely that the fluctuations in the volume of credit made available through various channels follow a more or less uniform pattern. If the changes in the amount of credit provided can reasonably be expected to lead to corresponding variations in the volume of deposits, the consistent growth of deposits during the German Cycle III, with cyclical influences observable only in the rate of growth, would appear a product of varied and asynchronous patterns of cyclical fluctuations in the amount of credits provided to different sectors of the economy.

The cyclical fluctuations in the German short term market interest rates (Fig III-24) could be considered as an additional piece of evidence revealing the important part played by the demand for money in the fluctuations of deposit money. For, if the relative stability in the reserve/deposit ratio was the consequence of the German banking system increasing its supply of deposits in response to the rising cash reserve, the short term market rates would have

21 E. Hirst & J. Ringel (1971) pp.122-124. Such a channel of influence from the banking system to the industry would appear very plausible, in view of such a close relationship between the two in Germany as expressed in Kontokorrent connection, the active role of banks in the promotion of enterprises and, finally, the representation of banks on board of supervision of firms. P. Barrett Whale (1930) Chapter II.

displayed consistent decline, instead of fluctuating cyclically. This, however, is not an unequivocal piece of evidence, since German short term rates were influenced by the changes in interest rates in other financial centres: specifically, the rise in London rates in the late years of the Cycle III boom²² seemed to induce a defensive rise in Reichsbank discount rate²³, which in turn contributed to the rise in market rates, and vice versa.²⁴ The rise in London rate alone, however, does not sufficiently account for the increase in the Reichsbank rate in 1889 and 1890: according to Bopp, 'The reserve ratio and market rates were the most important guides' to the discount rate policy of the Reichsbank²⁵. Bloomfield also considers the contracyclical changes in reserve ratio as the more important factor explaining the cyclical pattern in the central bank discount rates in pre-WWI years than the interdependence among financial centres.²⁶ The contracyclical movements in the Reichsbank reserve ratio was the consequence of both the cyclical fluctuations in its demand liabilities, i.e. notes and deposits, and the contracyclical fluctuations in its cash reserve (Fig V-15). It was already shown that the cyclical pattern in the Reichsbank demand liabilities resulted from the accommodating response of the Reichsbank towards the application for funds, while the contracyclical pattern in cash reserve was connected with the cyclically changing demand for coins. Therefore, it could be said that in the contracyclical pattern in the Reichsbank reserve ratio were summarized the cyclical changes in the demand for money. Furthermore, the years between the early 1880s

22 Section 4, Chapter VI.

23 For the cyclical movements in the Reichsbank discount rate, see A. I. Bloomfield (1959) p.37

24 The outflow of short term capital to London, if there was any as a consequence of the rise in London rates, would also have worked in the direction of raising short-term interest rates in Germany by reducing the supply of funds.

25 E. R. Bopp (1953) p.30

26 A. I. Bloomfield (1959) p.37

and the mid-1890s were the period of 'easy money', during which the Reichsbank was compelled to apply a preferential rates below the official rate in order not to 'lose contact with the open market'.²⁷ Under such circumstances, it does not seem very likely that the shifts in the Reichsbank rate explain much of the cyclical changes in the German market rate, although in the pre-1914 German money market the Reichsbank occupied an influential position.²⁸

In conclusion, the fluctuations in German money stock during Cycle III, as shown in Fig V-17, therefore could be said to have been determined predominantly by the varying levels of the demand for money. While, as aforementioned, the possibility could not be precluded that the banking system changed the level of credit supply in accordance with its assessment of the conditions in different industries, it did not appear that the absolute level of cash reserve or the legal requirement of minimum ratio of cash reserve against deposits or note issue exercised any significant influences upon the determination of money stock during the German Cycle III. The German banking system could accommodate the changing levels of application for funds in a flexible manner during the years under consideration, both because the Reichsbank maintained an ample reserve relatively to the legal requirement, and because the German business banks were not required to maintain a minimum reserve against their deposits.²⁹ Under such circumstances, it would not be very realistic to suppose the emergence of a monetary ceiling around the upper turning point.

27 E. R. Bopp(1953) pp.36-42

28 'Roughly one third of all bills drawn passed through the Reichsbank; ... the average portfolio of the Reichsbank varied between 10 and 15 % of the average amount of bills outstanding.' E. R. Bopp(1953) p.9

29 E. R. Bopp(1953) p.74 The Reichsbank was not required either to keep minimum reserve against its deposit liabilities.

Finally, it is worth noting that in contrast to the US, around the upper turning point of the German Cycle III no serious financial crisis occurred.³⁰ While the difference in the strength of the investment boom and the extent of speculation may go far in accounting for this, the existence of a central bank capable of acting as a lender of last resort in Germany would also have contributed to the relative stability in the German monetary scene.³¹

The start of the German investment boom in the mid-1880s is attributable to a great extent to the favourable effects of the increase in iron and steel exports to the US, related to the US railway building boom, upon the expectations of the German iron and steel industrialists. The return of prosperity to industrial regions in Germany induced internal migration, which stimulated the building industry. The downturn of German home investment appeared to be due to the reversal in the optimism held by the investors in German iron and steel industry, to which the development of early signs of supply of housing outstripping demand at the end of 1889, as well as the depressed overseas sale of German iron and steel products since 1887, seemed to make crucial contributions. The cyclical fluctuations in exports, explicable mainly by the shifts in the US level of activity

30 M. Bordo(1986) records in Table 6.1A the outbreak of financial, stock market and banking crises in the US in 1893, whereas according to his Table 6.1C only stock market crises were observed in Germany in 1890, 1891 and 1893.

31 In view of the recurrence of banking panics in pre-1870 Britain despite the presence of the Bank of England, then still an immature central bank, the virtual absence of absolute maximum in the Reichsbank note issue, in contrast to Peel's Act, could also be considered as a factor contributing to the financial stability in Germany. When the Vice President and Director of the Reichsbank were asked by the National Monetary Commission what would the Reichsbank do if its cash reserve were to fall below one-third of its note issue, they answered that 'We should have to go on discounting bills. We should simply have to do it. We could not stop it. If we did, it would bring about the greatest panic we ever experienced.' Quoted in K. R. Bopp(1969) p. 27,28

and British overseas lending, thus seemed to have qualitative rather than quantitative importance in the variations of German home investment. The German monetary system appeared to vary its money supply by and large in accordance with the changing level of demand for money.

THE TRADE CYCLE, 1885-1893: BRITAIN

As 'the first industrial nation', Britain is said to have reached the phase of industrial maturity and retardation in the late 19th century, when in the US and Germany industrial development was gathering momentum. The difference between Britain on the one hand and the US and Germany on the other hand in the stage of economic development is observable in investment ratios: during 1885-1894 the ratio of net domestic investment to NNP was 12.7%, 11.6% and 1.6% in the US, Germany and the UK, respectively (Table II-3). In Britain, however, home investment never occupied such an important position as in the US and Germany: the highest ratio of gross domestic fixed investment to GDP ever reached in Britain since the mid-18th century up to the outbreak of WWI was 10.4% during 1781-1800¹, whereas the gross investment ratio of the US in 1885-94 was over 20%. That is, even in the most youthful phase of the British industrialization, domestic capital formation contributed to national income to a much smaller extent in relative terms than in the late 19th century US or Germany, with exports playing a very important part.

The importance of exports and the relatively minor part attributable to home investment in the late 19th century British economy gave it an additional feature of a lending economy: both

¹ C. H. Lee (1986) p.51, Table 3.1

pushed by the relative lack of domestic demand for funds and pulled by more attractive overseas investment opportunities, around two fifths of British savings flowed abroad in pre-1914 years. Besides being related to the low level of domestic investment, the overseas lending on this scale is said to have contributed to the predominance of exports in the British economy.¹

Such peculiarities of the British economy determined its role in the international economic fluctuations during the pre-1914 period. As we have seen in Chapter II, Britain received the effects of the fluctuations of the US and Germany, occurring largely due to factors internal to each of the two, and transmitted them to undeveloped areas; at the same time, she provided an additional source of international trade cycles by supplying funds essential for the development of various regions surrounding her. Thus, the analysis in this chapter begins with the examination of the overseas trade and capital exports of Britain.

1. Overseas Trade and Lending

In the movements of the absolute level of the UK GDP at both current and constant prices is identified a cyclical pattern with the following three turning point years(Fig VI-1, Table VI-1): 1885(T)-1890(P)-1893(T).³ One can find the same pattern in the fluctuations of export volume(Fig VI-2), whilst export value rose from the 1886 trough to the peak in 1890 by £50.8m, and then fell until 1894 by £47.5m.⁴ Gross domestic fixed capital formation(GDFCF) in the UK, at both constant and current prices, on the other hand, followed a pattern lagging behind that in either exports or national product, having 1887, 1892 and 1893(GDFCF at current prices) or 1894(GDFCF at constant prices) as turning point years. Furthermore, the variations in the GDFCF were much milder than those in exports, showing an increase of £29m and decrease of £4m during the Cycle III up- and downswing, respectively.⁵ These observations would suggest that exports played a more important role than domestic investment in the trade cycle under examination.

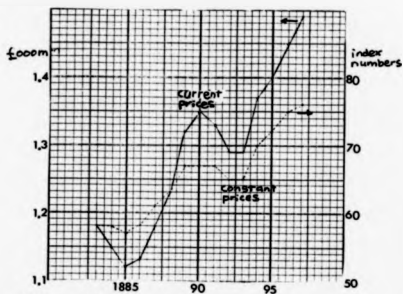
In Fig VI-2 are also shown the variations in the direct estimate of British long term foreign investment(1885(T)-1889(P)-1893(T)), which tended to lead those in both merchandise export volume and value. Moreover, the fluctuations in overseas lending - £87.6m

3 Feinstein's 'compromise estimates' of GDP at factor cost are used here. C. E. Feinstein(1976) T12 & T18. The trade union unemployment record suggests 1886-1890-1893 as the turning points(Fig II-6), whereas according to the NBER the British Cycle III is defined by the following three turning points: June 1886, September 1890 and February 1895. O. Morgenstern(1969)

4 It is possible to find the same three turning point years in the credit items of the balance of payments current account. See Fig VI-2.

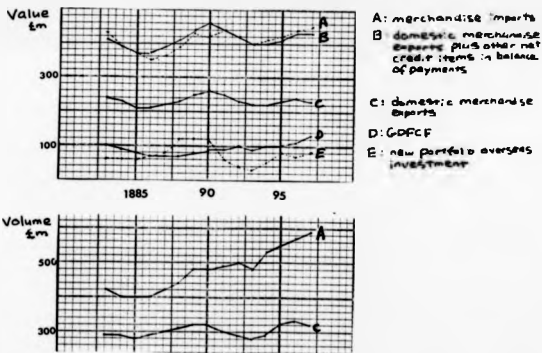
5 Such a difference between the rise and fall of British home investment would imply that much of the £29m increase during the upswing was attributable to trend rather than cyclical element.

Fig VI-1 UK GDP



Source: C. H. Feinstein(1976)

Fig VI-2 Exports, Imports, Home and Foreign Investment: UK



Source: B. R. Mitchell(1962), C. H. Feinstein(1976), M. Simon(1968), W. Schlote(1952)

Table VI-1 Key Macroeconomic Aggregates: UK
(Current Prices, £m)

	Y	OL	X	I	M
1883	1177	61.2	239.8	102	426.9
1884	1152	63.0	233.0	93	390.0
1885	1124	55.3	213.1	80	371.0
1886	1130	69.8	212.7	69	349.9
1887	1183	84.4	221.9	68	362.2
1888	1229	119.1	234.5	74	387.6
1889	1320	122.9	248.9	84	420.7
1890	1345	116.6	263.5	89	420.7
1891	1327	57.6	247.2	94	435.4
1892	1282	39.8	227.2	97	423.8
1893	1290	32.1	218.3	93	404.7
1894	1372	48.3	216.0	99	408.3
1895	1401	77.7	226.1	99	416.7
1896	1451	68.5	240.1	113	441.8
1897	1487	78.4	234.2	132	451.0

Y: GDP, OL: new portfolio foreign investment, X: merchandise exports, I: GDFCF, M: merchandise imports

Source: C. H. Feinstein(1976) T8, T12, M. Simon(1968), B. R. Mitchell & P. Deane(1962)

increase and £90.8m decline - exceeded those in the current value of merchandise exports.⁶ The export fluctuations would, thus, appear to have been influenced by the shifts in the level of overseas lending. In the same figure are finally produced the variations in the value and volume of British merchandise imports; these are seen to lag behind those in the level of activity, which would suggest that changes in the level of activity caused the level of imports to vary.

Therefore, from an examination of the sequence of turning points in the fluctuations of key macroeconomic aggregates, as summarized in Table VI-2, would emerge the following mechanism of the British Cycle III: the shifts in the level of overseas lending significantly affected British exports, which in turn determined the level of domestic investment, the level of activity, and consequently, of imports.⁷

Fig VI-3 shows the variations in merchandise and long term capital exports from Britain to major regions. In the US and Argentine cases (first and second charts in Fig VI-3) - the variations in the lending to which accounted for 90.2% and 68.8% of the cyclical rise and fall of total British new portfolio foreign investment during Cycle III - the revival and contraction of both lending and exports are seen to have occurred in the same year.⁸ The lending to the

⁶ The credit items in the current account of the balance of payments increased by £26.6m, and declined by £60.1m during the up- and downswing of Cycle III.

⁷ This is the broad outline of the structure of the British trade cycles in 1870-1914 era, proposed by Professor A. G. Ford (1945) & (1981).

⁸ Besides M. Simon's estimate of British lending to Argentina, shown in Fig VI-3, the estimate of overall Argentine foreign borrowing by J. E. Williams (1920) and the estimate of the UK issues for Argentina by Professor A. G. Ford (1962) are available. A major discrepancy between Simon's series on the one hand and those by Williams and Ford on the other hand is that the former peaks in 1889, whereas the latter reaches upper turning point as early as in 1888. For our purpose here Williams' series would be less relevant than the other

Table VI-2 Turning Point Years: UK

	Trough	Peak	Trough
Y	1885	1890	1893
X	1885	1890	1893
I	1887	1892	1894
OL	1885	1889	1893
M	1886	1892	1893

Y: GDP at constant factor prices

X: merchandise export volume

M: merchandise import volume

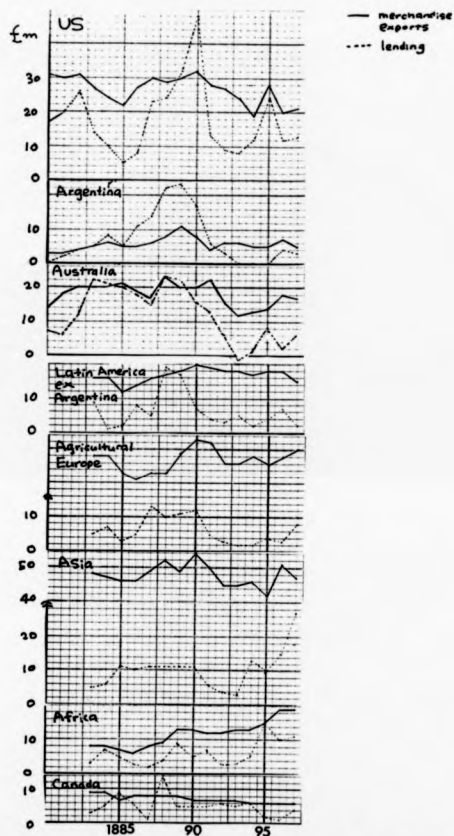
I: GDPCF at constant prices

OL: Simon's direct estimate of new portfolio foreign investment

Source: C. R. Feinstein(1976), W. Schlote(1952), M. Simon(1968)

Fig VI-3 British Lending and Merchandise Exports to Various Regions

285



Source: N. G. Butlin(1962), I. Stone(1972), M. Simon(1968)&(1970), B. R. Mitchell(1962)

third major capital importer during Cycle III, Australia, also moves in close agreement with the merchandise exports from Britain to the same region(third chart). On the other hand, the fourth and fifth charts in Fig VI-3 show that the cyclical pattern found in capital exports leads that in merchandise exports in the two cases of Latin America excluding Argentina and agricultural Europe.⁹ However, it should be noted that the lead is not so regular as between total export value and overseas lending from Britain. Although in both cases a one year gap is found in the upturn in the mid-1880s, the subsequent downturn in the lending to Latin America excluding Argentina leads that in the merchandise exports to the same area by two years, and the corresponding lag is three years in agricultural Europe. Finally, hardly any correspondence is observed between the variations in the capital and merchandise exports from Britain to Asia and Canada(sixth and eighth charts); in Africa, at the first and third turning points the shifts in merchandise exports preceded those in lending(seventh chart). Thus, examining the fluctuations in lending and exports on a regional level, one scarcely finds the neat lead-lag relationship as is observed in aggregate data, which seems to suggest that the interpretation of Table VI-2 as given in the preceding paragraph can be somewhat too simple.

In the first place, it would appear reasonable to regard the revival of exports from Britain to the US from the 1885 trough as directly related to the beginning of the US domestic expansion, led

two; of the two different estimates by Ford and Simon, Simon's figures are used here, because transfer of funds could be considered to occur actually when call is made, rather than when securities are issued.

⁹ To be more precise, in the fifth chart of Fig VI-3 are compared the fluctuations in British lending to Europe with those in British merchandise exports to Europe excluding France and Germany; this may be justified by that the capital flowing into Europe was probably unlikely to be invested in capital exporters, such as Germany and France.

by railway investment, rather than to the start of the increase in the British investment in the US. For, as was already pointed out¹⁰, the British capital invested in the US during the Cycle III years accounted for only an insignificant portion of US domestic capital formation¹¹. On the other hand, it was shown in Section 2, Chapter IV that the beginning of the increase in the lending to the US in the mid-1880s was influenced by the favourable turn in the US situation. Therefore, it could be said that the beginning of the US investment boom brought about more or less simultaneously the rise in both merchandise and capital exports from Britain to the US from the 1885 trough.

If such was the case in the upturn in 1885, it could be expected that both British merchandise and capital exports to the US would have continued to expand until around 1892, the peak year for the US domestic capital formation. In reality, however, the upper turning point was reached in 1890 for both lending and exports from Britain to the US. As we have already seen, it appeared that the Argentine crisis was mainly responsible for the decline of British investment in the US after 1890.¹² The fall in merchandise exports after the same year, however, did not appear to be closely connected with the contraction in the flow of funds into the US. According to W. A. Sinclair, the following factors contributed to the fact that British exports to the US declined earlier than did the level of US activity: firstly, the fact that 'as a result of industrial development,

¹⁰ Section 3, Chapter II.

¹¹ L. E. Jenks(1951) p.388 says that in the US 'British capital was used as a convenience'. It appears possible that the US railway companies raised funds in London to take advantage of lower interest rates, rather than because the US internal savings were insufficient.

¹² Section 2, Chapter IV.

the US was becoming an increasingly competitive market for British manufacturers'; secondly, the passage of the McKinley Tariff Act.¹³

A different state of affairs seemed to prevail in Argentina. Foreign, mostly British, capital appeared to play a much more substantial role in Argentina than in the US¹⁴, which would imply that the fluctuations in the level of British lending could exercise decisive influences upon the level of domestic capital formation in Argentina and therefore upon the level of imports. The funds raised in London were probably used partly in Britain to purchase investment goods; at the same time, the exported capital indirectly stimulated UK merchandise exports to Argentina by being used to finance investment expenditure in Argentina, thereby increasing income and consumption imports via the multiplier mechanism. It is important to note that the lag between the changes in the level of lending to Argentina and the consequent shifts in merchandise exports to Argentina from Britain was shorter than one year.¹⁵

One observes similar things happening in Australia. In 1885-90 British savings financed more than half of Australian GDFCF, and as a result capital flow into Australia on the one hand and Australian home investment and imports on the other hand moved in broad agreement in the years of Cycle III.¹⁶ Furthermore, it is of interest to note that Australian imports from Britain and total Australian imports¹⁷

13 W. A. Sinclair(1967) p.95, 96

14 See Section 1, Chapter VII. If in the US British capital was used as a 'convenience', 'In Argentina it came to dominate a considerable sector of the economy.' L. R. Janks(1961) p.388

15 Even Argentine consumption goods imports, more likely to vary lagging behind capital imports than investment goods imports, revived and contracted during Cycle III in the same years as capital imports into Argentina. See A. G. Ford(1962) p.142, Table XV.

16 N. G. Butlin(1962)&(1964)

17 Australian imports from Britain accounted for more than half of total Australian imports during Cycle III. B. R. Mitchell(1983)

moved in closer parallel with British lending to Australia than with Australian GDFCP, again with lags shorter than a year.

In contrast to the three major capital importing areas, receiving around two thirds of total capital outflow from Britain during Cycle III, a close correspondence was absent between the fluctuations in British lending and merchandise exports to the rest of the world. Although in both Latin America excluding Argentina and agricultural Europe a lead of lending over merchandise exports is observable, the irregularity of the gaps between the fluctuations in the two items makes it difficult to believe that lending was the major determinant of the level of merchandise exports to these areas. It would rather appear that the level of exports from Britain to these areas was affected significantly by the level of activity in these regions, which depended upon their exports to the US (in the case of Latin America excluding Argentina) or to Germany (in the case of agricultural Europe). Interestingly enough, one observes that the cyclical pattern found in British merchandise exports to agricultural Europe (1886-1890-1896) is identical to that in German imports from agricultural Europe. If the cyclical variations in British merchandise exports to Latin America excluding Argentina (1886-1890-1897) agree only broadly with those in the US imports from the same region (1885-1892-1898), this may be due to a considerable extent to diverging price movements in the US and Britain, particularly in the years around the upper turning point.

It would be more difficult to suppose any close linkage between capital and merchandise exports to Asia, Africa and Canada. In the case of Asia, while scarcely any cyclical pattern is identifiable in the flow of funds, merchandise exports moved in a distinctly cyclical way.

While both capital and merchandise exports to Africa fluctuated cyclically, at the two lower turning points revival occurred earlier in the latter than in the former. Therefore, the cyclical variations in merchandise exports from Britain to these regions could more reasonably be explained in terms of changing level of activity in Asia and Africa, which resulted from the shifts in the world demand for the primary products from the two continents.

Canada forms a peculiar case in that neither merchandise nor capital exports from Britain into the region varied cyclically. In the Canadian Cycle III, home investment seemed to play roughly as important a role as exports.¹⁸ Although foreign capital made a significant contribution to Canadian domestic investment during the Cycle III years in terms of average¹⁹, the two items failed to move in close agreement: the cyclical pattern found in Canadian home investment was not observable in the fluctuations of capital flow into Canada. As a result, the pattern of variations identifiable in capital imports was not to be found in Canadian merchandise imports, which moved cyclically, as did exports, home investment and, therefore, the level of activity. Furthermore, the short term variations in Canadian imports reflected mainly those in imports from the US, whereas imports from Britain were slowly declining on a long term basis.

18 The Canadian Cycle III is defined by the following three turning points, obtained by examining the fluctuations of the absolute level of Canadian GNP in current prices: 1885-1891-1895. On the other hand, Canadian export value rose from the 1885 trough to the 1893 peak by \$31m, and then fell to the 1894 trough by \$7m; Canadian GDFCF increased by \$25.3m in the 1886-89 upswing and declined by \$38m in the 1889-96 downswing. M. C. Urquhart(1966), B. R. Mitchell(1963)

19 British new portfolio investment in Canada, estimated by M. Simon(1970), amounted to 30.8% of Canadian GDFCF in 1885-94; the ratio of net long term capital flow into Canada, estimated by P. B. Thunberg and presented in A. I. Bloomfield(1968a), to Canadian GDFCF in the same years was 46.9%. Canadian GDFCF data are from M. C. Urquhart(1966).

To summarize the fluctuations in merchandise exports from Britain to major regions: exports to the US were mainly influenced by the US level of activity, as well as by McKinley Tariff and the competition with the US industries; the state of the US and, to a minor extent, German economies seemed to be an important factor determining the level of UK exports to undeveloped areas other than the two major capital importing primary producers, Argentina and Australia; finally, changes in British lending to Argentina and to Australia appeared to bring about corresponding shifts in merchandise exports from Britain to the two countries, with a lag shorter than a year; therefore, although British foreign lending did have significant effects upon merchandise exports from Britain, the precedence of total overseas lending over total merchandise exports by one year in Cycle III could not be considered as evidence for such a linkage. As to turning points, it would seem that the beginning of the US home investment boom played a central role in the initiation of the British export upswing, both directly - the increase in British merchandise exports to the US during the expansion accounted for 18.8% of total increase - and indirectly, i.e., as we shall see shortly, by stimulating British capital exports to other regions than the US, particularly to Argentina: the consequent rise in British merchandise exports to Argentina was equal to 11.8% of total increase in British exports during the upswing. The collapse of the boom in the investment in Argentina appeared the major initial contractionary shock to British export industries, the consequent decline in British merchandise exports to Argentina amounting to 13.7% of total fall in British merchandise exports during the Cycle III downswing.

Fig VI-4 shows that the impact of the cyclical fluctuations in Britain was most strongly transmitted via trade channels to undeveloped countries and the US: the variations in imports from these areas explain most of those in total British import value during Cycle III, which was also the case in British exports (Fig VI-5). The predominance of primary producers in British overseas trade would be consistent with the fact that more than 80% of British imports and around 80% of British merchandise exports consisted of primary products and manufactures, respectively.²⁰ It is interesting to observe in Fig VI-4 that the fluctuations in the British imports from Europe and those in the imports from outside Europe followed two distinct patterns: in particular the peak in the import value from Europe (1889) preceded that in the imports from outside Europe (1891 or 1892). Since one observes a similar disparity in the pattern of fluctuations between raw material and foodstuff import values²¹, this may be explicable by the difference in the commodity composition between the imports from Europe and outside Europe: Britain appeared to import from the former mainly raw materials, whereas the exports from the latter into Britain probably consisted largely of foodstuffs. According to *The Economist*, the decline in raw material import value during the two years after the 1889 peak was attributable to both the 'unusually large stocks ... carried forward from 1889 to 1890' and the fall in raw material price in 1891²². On the other hand, foodstuff import prices reached a peak in 1891.²³

Considering Fig VI-4 & 5 together, one finds that the British merchandise trade balance with European agricultural regions, and

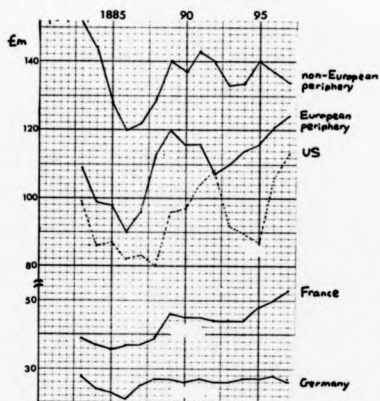
20 W. Schlote (1952) p.63 & 71

21 W. Schlote (1952) p.122, Table 4

22 *The Economist*, 21 Feb 1891, Commercial History and Review of 1890, 20 February 1892, Commercial History and Review of 1891 Raw material import price index peaks in 1890. W. Schlote (1952) p.177

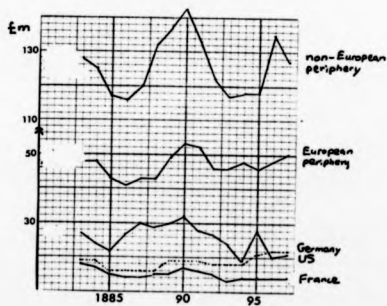
23 W. Schlote (1952) p.177, Table 26

Fig VI-4 UK Imports from Various Regions



Source: B. R. Mitchell(1962)

Fig VI-5 UK Exports to Various Regions



Source: B. R. Mitchell(1962)

with the US and Germany, was in deficit; while in the trade with non-European primary producers Britain roughly maintained balance. Since according to Professor S. B. Saul, Britain recorded surplus in her relation with undeveloped countries outside Europe²⁴, her invisible trade with non-European periphery was probably in surplus. As Table VI-3 shows, Britain's visible trade deficit with the two major deficit areas, the US and European agricultural regions, increased during the upswing, and vice versa, whilst the moderate trade deficit with non-European periphery during the early years of the upswing was transformed into a negligible surplus in the last years of the boom, which again turned into deficit with the downturn of the economy. In other words, during the trade cycle British imports fluctuated more widely than exports in relation with the US and European primary producers, whereas the opposite tended to be the case with non-European undeveloped areas. Such differences may be explicable by the following factors: competition with the US industries in the US market and with German industries in European periphery, in contrast to the relatively strong position of Britain in non-European undeveloped markets; greater dependence of Britain upon established suppliers of primary products, foodstuffs in particular, such as the US and Russia, than upon emergent primary producers.

Such having been the case, the overall visible trade balance(VTB in Fig VI-6) remained in deficit throughout the years of Cycle III. The outcome of the contrasting cyclical variations in regional trade balances was that only irregular fluctuations are observed along the deteriorating trend of VTB. On the other hand, it is seen in the same figure that the invisible trade balance(ITB), including income

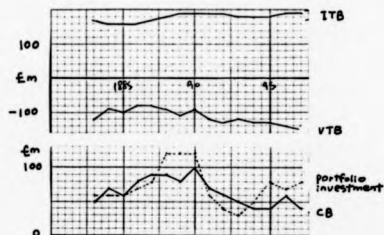
²⁴ S. B. Saul(1960) p.68

Table VI-3 Sizes of British Merchandise Trade Balance at Turning Points with Respect to Various Areas (£m)

	Trough	Peak	Trough
USA	-50.9 (1888)	-81.7 (1892)	-58.6 (1895)
European Periphery	-49.4 (1886)	-70.8 (1889)	-60.7 (1892)
Non-European Periphery	-11.0 (1885)	6.2 (1890)	-21.8 (1885)

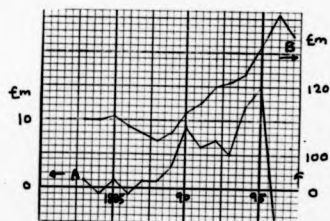
Source: R. R. Mitchell & P. Deane (1962)

Fig VI-6 Visible and Invisible Trade and Current Balance of Payments and New Portfolio Investment: Britain



Source: B. R. Mitchell(1962), M. Simon(1968)

Fig VI-7 Net Gold Imports(A) and National Stock of Gold(B): UK



Source: B. R. Mitchell(1962), F. Capie & A. Webber(1983), Statistical Abstract for the UK

from abroad, was in surplus during the years concerned, and that the surplus varied in a trade cyclical way. The invisible trade surplus exceeding the visible trade deficit, the surplus in current balance of payments (CB, Fig VI-6) resulted, which varied in a cyclical way, reflecting the movements of the invisible trade surplus.

The cyclical changes in the current account surplus were associated with the similar pattern of movements in the long term lending by Britain (Fig VI-6). The revival of foreign investment from the 1885 trough was connected mainly with the increase in the outflow of funds to the US and South America, Argentina in particular, and to a minor extent with the rise in the investment in Europe.²⁶ The beginning of the expansion of British investment in the US in the mid-1880s seemed to be determined by the 'pull' forces on the US side as well as by the 'push' from Britain.²⁷ It appeared that the resumption of the increase in British investment in the US affected the lending to Latin America and Europe favourably.²⁸ In particular, in the fluctuations of the British investment in Argentina in the 1880s the influences coming from the US are clearly observable. On the one hand, the broad pattern of the long swing in the British lending to Argentina extending from around 1880 to the mid-1890s was shaped by both the pull of Argentine investment opportunities and the push of British domestic conditions.²⁹ On the other hand, however, the temporary setback in the middle of the long upsurge, i.e. in 1885, was due to the worldwide depression in the

26 M. Simon (1968) & (1970)

28 Section 2, Chapter IV.

27 'American railway securities went up with a great "boom"; and all other issues sympathized with them to a decided extent'. Commercial History and Review of 1886, *The Economist* 20 Feb 1886. According to Financial and Commercial History of 1886 by *The Statist*, 30 Jan 1886, 'the partial recovery of business in the US ... in the latter part of the year reacted on this side and contributed to the growth of a more hopeful feeling on the Stock Exchange and in financial circles.'

28 See Section 2, Chapter III.

mid-1880s following the collapse of the US railway investment boom in the early 1880s, which made it difficult for Argentina to raise funds in London.²⁹

The downturn in British overseas lending in 1889 represented the collapse of the investment in Argentina, which was related to the overbuilding of railways in Argentina.³⁰ The Argentine débâcle seemed to affect the lending to relatively unfamiliar areas immediately and adversely: lending to Asia and Africa declined after 1889. On the other hand, the effects of the Argentine crisis upon the investment in the relatively well-known and 'safe' regions such as the US and Europe were not felt until after 1890 (Fig VI-3). Finally, British lending to Australia had already reached a peak in 1888, which was due to the exhaustion of investment opportunities in Australia³¹; it is possible that the decline in Australian borrowing after 1888 was accelerated by the Baring crisis.

Both the state of the current balance of payments and the level of long term overseas lending were the major determinants of the gold flows in and out of Britain, which brought about the shifts in the stock of British monetary gold.³² According to Fig VI-7, during the early years of the Cycle III upswing (1885-88) the stock of monetary gold in Britain was reduced, due either to the net gold exports from Britain or to the broad balance in the gold trade coupled with the diversion of gold for non-monetary purposes. In

29 For a more detailed discussion on this subject, see Sections 1 & 2, Chapter VII.

30 Section 1, Chapter VII.

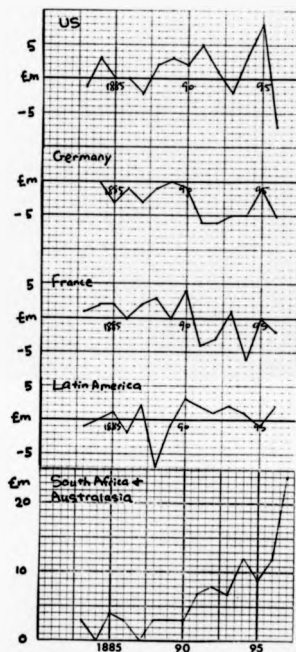
31 Section 2, Chapter III & Section 2, Chapter VIII.

32 The stock of monetary gold in Britain is approximated by the bullion in the Issue Department of the Bank of England plus coins in circulation, which includes the coins in the Banking Department of the Bank. It was seen in Fig III-15 that the first differences of the stock of monetary gold thus defined agree closely with the variations in net gold imports into Britain.

the rest of the Cycle III years, Britain was importing gold in net terms, and consequently the monetary gold stock grew without interruption.

Fig VI-8 shows the fluctuations in the net gold imports from major regions into Britain during Cycle III. It is first of all seen that Britain was exporting gold to Germany and importing gold from gold producers such as South Africa and Australasia in net terms during Cycle III. As was already pointed out in Section 2, Chapter V, the gold outflow to Germany seemed to originate from the growing trade deficit on the British side. The year 1890 was a turning point in the gold imports from gold producing regions into Britain: in pre-1890 years gold inflow from gold producing countries remained at a low level, while after 1890 the amount of net gold imports from Australia, New Zealand and South Africa grew rapidly. Thus, it could be said that the gold exports to Germany during the depression in the early 1890s, on a greater scale than in the preceding boom years, were facilitated by the increased new gold supply. In relation to the two major borrowing regions, US and Latin America, Britain exported gold in the early years of expansion, whilst in the rest of the Cycle III period, the direction of gold flows was reversed. Thus, it would seem that the similar pattern of the fluctuations in total net gold imports into Britain was related to the level of long term capital outflow. As was already pointed out in Section 2, Chapter IV, the net gold exports from Britain into the US during the early years of the Cycle III boom had something to do with the outflow of both long and short term capital from Britain to the US, whilst the net gold imports from the US into Britain in the late years of the expansion were largely related to the renewed inflow of short

Fig V1-8 Net Gold Imports into Britain from Various Regions



Source: Statistical Abstract for the UK

term capital to London, attracted by high short term interest rates.³³ The continued net gold imports from the US during the depression was probably the consequence of the decline in the long term lending to the US. The similar pattern of fluctuations in the net gold imports from Latin America would be explicable in broadly the same terms as in the US. Finally, the following observations seem to suggest that the gold flows between Britain and France were determined largely by short term capital movements: the deficit in the trade with France showed a distinct rising trend without much short term fluctuations during Cycle III; both countries were major long term lenders in pre-1914 years; the fluctuations in the net gold inflow from France to Britain broadly corresponded with those in the short term interest rate differential between London over Paris (Fig VI-9).³⁴

In summary, the level of British overseas lending and of US activity, among others, appeared to be the two major determinants of the level of merchandise exports from Britain, upon which the level of activity in Britain primarily depended; imports into Britain were mainly influenced by the level of domestic activity. Merchandise imports exceeding merchandise exports, and the amplitudes of the cyclical variations in the two items being of similar sizes, the resulting visible trade deficit showed irregular fluctuations. The cyclical pattern in the current account surplus was thus largely due to the cyclical movements in the invisible trade surplus; while the state of current balance of payments and the level of long and short

³³ See Section 4, Chapter VI.

³⁴ It should be noted that most of the net gold inflow from France in 1890 amounting to around £4m was related to the emergency supply of gold reaching £2m from Banque de France, in response to the request of the Governor of the Bank of England in the midst of the Baring crisis. L. S. Preasnell (1968) p.189

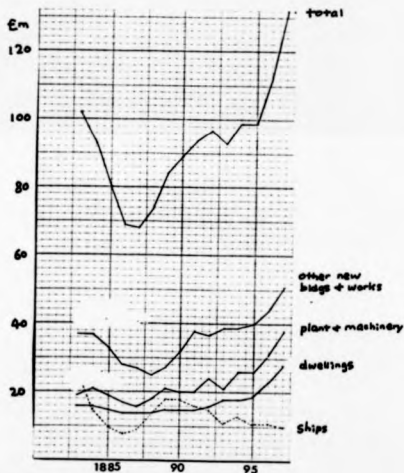
term capital flows were the major factors influencing the gold flows involving Britain.

Fig VI-9 Short Term Market Interest Rate Differential: London over Paris



Source: The Economist, M. Friedman & A. J. Schwartz(1982)

Fig VI-10 Gross Domestic Fixed Capital Formation by Sector: UK



Source: C. H. Feinstein(1976)

2. Home Investment

The dependence of the level of domestic capital formation in Britain upon the state of the world market during Cycle III, as suggested by the sequence of turning point years (Table VI-2), is confirmed by the different patterns of variations followed by home investment in various forms (Fig VI-10)¹

It is in the movements of investment in ships that the most distinct cyclical pattern is found; moreover, it picked up and reached a peak earlier than other forms of investment, synchronizing with the fluctuations in merchandise export value. As is well known, there exists a close agreement between the fluctuations in shipping freights index² and those in shipbuilding, which would suggest the direction of causation running from the former to the latter. If 'freights rates were based on the demand for shipping service relative to the existing pool of tonnage', the increase in the volume of world trade seemed to underlie the upturn in shipping freights in the mid-1880s, whereas the subsequent downturn was related to the increase in shipbuilding output: 'The [shipbuilding] boom in the second half of the 1880s must be attributed in its early stages to the very large Eastern European harvests of 1886-87 and later to a general expansion of trade coinciding with a fairly large North American harvest in 1889'; on the other hand, 'It is impossible to explain the turning point [in shipbuilding] in the first half of 1890 without reference to the increase in the tonnages afloat as a result

¹ Gross domestic fixed capital formation in various industries, as shown in Fig VI-10 is measured in current prices; in GDFCF at constant prices are observable similar patterns of fluctuations. C. E. Feinstein (1976) T88

² A. E. Cairncross (1963) p.176, Table 39

³ S. Pollard & P. Robertson (1979) p.26

of the boom of the late 1880s ... after 1890 the volume of trade probably continued to rise, but the enlargement of shipping capacity was out of proportion to the increased demand.⁴ With Britain occupying a dominant position in both the world shipping and shipbuilding industry in pre-1914 period⁵, the shifts in the volume of world trade affected British shipbuilding via the fluctuations in the exports of ships from Britain, as well as through changing demand from the domestic shipping industry.⁶

In Fig VI-10 is, secondly, observed that investment in plant and machinery followed a cyclical pattern, which is far less distinct than and lags behind that in investment in ships. According to W. A. Sinclair, during Cycle III 'the addition to productive capacity in light industries was not large enough to make much difference to total investment. Within heavy industry itself ... large capital expenditure was confined to two industries other than shipbuilding, namely, open-hearth steel and coal mining.'⁷ Thus, one could safely regard the fluctuations of the capital formation in form of 'plant and machinery' as by and large reflecting the level of investment in these two heavy industries.

The open-hearth steel industry, Sinclair continues, was 'the most important example of induced investment resulting from the

4 W. A. Sinclair(1957) p.323, 330, 334 This is broadly consistent with the mechanism of shipbuilding cycle as suggested in S. Pollard & P. Robertson(1979) p.27

5 D. E. Aldcroft(1968) p.328, S. Pollard & P. Robertson(1979) p.37, S. Pollard(1967) p.432

6 S. Pollard & P. Robertson(1979) p.250, Table B.8 shows that both total merchant tonnage built in the UK and the proportion of overseas sale in the total varied cyclically in the Cycle III years.

⁷In the period 1869-1883 an average of 12% of British output was sold abroad; in 1900-1913, it was 24%, chiefly merchant vessels. (p.37)

7 W. A. Sinclair(1957) p.538

shipbuilding boom'.⁸ Until around 1890 investment in open-hearth steel was determined by the desire to expand productive capacity under the condition of the rising demand coming from the shipbuilding industry, whereas the investment activity in open-hearth steel in the early 1890s was connected with 'competitive cost-reducing improvement in the technique of production'.⁹

Both the shipping boom and the expansion of overseas demand appeared to affect the coal industry favourably. The former influenced the coal industry both directly, i.e. by consuming more coal, and indirectly, by stimulating steel industry¹⁰; while during the Cycle III years overseas market absorbed a significant portion, around 20%, of the total coal output¹¹. Higher profits consequent upon the rise in coal prices meant greater amount of funds available for investment in the coal industry, which was 'the most important single factor determining the amount of new sinking'.¹² The importance of the availability of funds in the investment decisions in the coal industry explains why a high level of investment was maintained until after the early 1890s: 'the funds raised and the profits made during the boom were large enough to maintain the

⁸ W. A. Sinclair(1957) p.540. Also, according to S. Pollard & P. Robertson(1979) p.36-37, 'The relationship between shipbuilding and the steel industry was particularly important. Although it was little understood at the time, nitrogen impurities made Bessemer steel unsuitable for ship plates. The rapid increase in the use of steel in shipbuilding made the open hearth sector of the steel industry in Britain, in contrast to America, far more dynamic from the 1880s than the Bessemer sector, which depended largely on the stagnating export demand for rails. After 1890, roughly half of the open hearth output in Britain was for ship plates and angles. The severe fluctuations in shipbuilding production were rapidly transmitted to this other basic industry and from it to the remainder of the economy.'

⁹ For details, see W. A. Sinclair(1957) Chapter VII.

¹⁰ In the years concerned, iron and steel works seemed to consume around 10% of total coal production, while coasting steamers absorbed less than 1% of the total coal output. A. J. Taylor(1968) p.39

¹¹ A. J. Taylor(1968) p.39

¹² W. A. Sinclair(1957) p.162

impetus of expansion when less prosperous conditions returned'.¹³ Therefore, it could be concluded that the mildly cyclical movements in the level of the investment in 'plant and machinery', as shown in Fig VI-10, were produced to a substantial extent by the preceding cyclical fluctuations in the investment in ships.

In the variations of the investment in non-residential new building and works is also identified a weak cyclical pattern: it rose from the trough in 1888 to the peak in 1891, and then remained stagnant until around 1895. The upturn in this category of investment, lagging even behind the revival of investment in plant and machinery, seemed to have more to do with the relative abundance of funds than with the changes in demand; the virtual absence of a decline in the absolute level of the non-residential construction investment during the depression in the early 1890s may be explicable in the same terms as investment in coal industry. Finally, it is to be noted that residential investment hardly made any contribution to the cyclical movements in British home investment during Cycle III.

Therefore, it may now be reasonable to conclude that the shifts in the volume of world trade, originating mainly from the changes in the US and German domestic capital formation and British overseas lending, triggered the chain reaction of cyclical fluctuations in the investment activity in a series of industries. As a consequence, the cyclical pattern in the total British home investment lagged behind that in exports; in particular, the peak in home investment was reached two years later than that in merchandise export value, i.e. in

¹³ W. A. Sinclair (1957) p.162

1892, thus probably alleviating the pressure of the depression in the early 1890s.

In such a process of investment fluctuations, the influences of interest rates are reported to have been weak.¹⁴ It is also difficult to believe that the Baring crisis had any visible effects on the level of British home investment. 'Ships' and 'plant and machinery' were the two types of investment which peaked in 1889. As we have seen above, the decline of shipbuilding after 1889, however, had more to do with the overcapacity created in the preceding boom and the consequent fall in freights than with the adverse financial effects resulting from the crisis; in view of the close connection between the revival in shipbuilding and that in heavy industry, the slight fall in the investment in plant and machinery in 1890 and 1891 seemed to be related to the depression in shipbuilding industry.

Both the varied pattern of cyclical fluctuations in the investment activity in different sectors and the contracyclical role of home investment in the early years of the slump would suggest that the downturn of the British economy in around 1890 was not very closely connected with a 'full employment ceiling'. For, if there had developed any real ceiling, it would have choked off the expansions in various industries more or less at the same time, rather than killing the prosperity in one sector, say, shipbuilding, in 1889, and then putting an end to the boom in another, say, open hearth steel, three years later.¹⁵

14 J. S. Pemasoglu(1951b), J. Tinbergen(1951), A. G. Ford(1962) pp.44-46

15 It is to be noted in connection with the discussion on the possibility of the development of full employment ceiling at the end of the German Cycle III boom in Section 1, Chapter V that the expansion of the demand, both domestic and foreign, for British pig iron during the Cycle III boom was so mild that the British pig iron producers could meet the rising demand largely by adjusting the level of

Such conclusions of ours on the role of home investment in the course of the British Cycle III appear at variance with the picture of this trade cycle painted by W. A. Sinclair. At the end of his study on the fluctuations of the British economy during 1886-1896, Sinclair concluded that 'the course of the trade cycle in the years 1886-1896 may be regarded as having been mainly determined by periodic addition to capital equipment in Britain and its depreciation. Superimposed upon this dominant pattern was a less important cycle in foreign trade which usually reinforced the impulse to cyclical fluctuations resulting from domestic investment.'¹⁶

Sinclair based his argument upon his own estimate of British home investment, which is a revised version of A. K. Cairncross' series. In Fig VI-11 are compared Sinclair's estimates with those of Cairncross and Feinstein. It is seen in the figure that while Cairncross and more recent Feinstein estimates move in good agreement, Sinclair's figures show greater amplitude than the other two; moreover, the cyclical turning points found in Sinclair's series(1886-1889-1893) tend to precede those in both Cairncross'(1886-1891-1893) and Feinstein's estimates(1887-1892-1893). The estimate of British gross home investment by J. H. Lanfant¹⁷, while exceeding the three estimates shown in Fig VI-11 substantially, follows a cyclical pattern(1887-1891-1893) closer to those found in Cairncross' or in Feinstein's. It would therefore appear that the predominance of home investment in Sinclair's interpretation of the British Cycle III is

stocks, i.e. without being bothered to expand production capacity.

W. A. Sinclair(1957) Chapter VI

16 W. A. Sinclair(1957) p.572 It should be noted that Sinclair at the same time conceded the importance of foreign trade at turning points:

'Foreign trade seems to have been dominant in the revival in the second half of the 1880s and the recession in the early 1890s.'(p. v)
17 J. H. Lanfant(1951) p.181

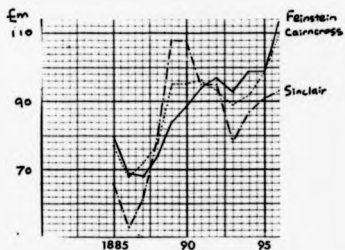
at least partly attributable to possible difficulties in his estimation of the British gross domestic investment.

Secondly, Sinclair compared the fluctuations in his estimate of domestic investment not with those in the level of exports, but with those in 'overseas balance'. i.e. trade balance or balance of payments on current account. However, since the level of imports is in general considered as determined by the level of income, fixed previously by the size of autonomous spending items, such as investment and exports, it would be more appropriate to compare domestic investment with exports, rather than with overseas balance.

Finally, even if we were to accept Sinclair's estimate of domestic capital formation and to observe that domestic investment varied at least as widely as merchandise export value, this need not mean that the fluctuations of the British economy between the mid-1880s and the mid-1890s can be explained independently of external shocks. For, as Sinclair clearly showed, investment in shipbuilding industry was of importance in determining the course of total British domestic investment. While one may only rarely observe during the British Cycle III the operation of the mechanism that 'the export recovery stimulate[s] investment in export industries'¹⁸, the level of domestic investment activity seemed to be closely linked to the state of the world market via the shipping industry.

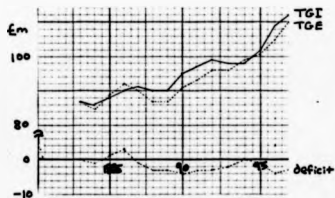
¹⁸ W. A. Sinclair (1967) p.573 As was mentioned above, such, at least partly, seemed to be the case in the British coal industry.

Fig VI-11 Estimates of UK Home Investment



Source: C. H. Feinstein(1976), A. K. Cairncross(1953), W. A. Sinclair(1957)

Fig VI-12 UK Government Income and Expenditure



Source: B. R. Mitchell(1962)

3. Government and Consumption

It is difficult to identify cyclical pattern in the movements of the UK government expenditure and income. Income tended to exceed expenditure, and the resulting government budget surplus moved in a cyclical way (Fig VI-12). The short term fluctuations in the government income were largely explained by variations in excise and death duties.¹ On the other hand, the shifts in military expenditure accounted for much of the movements of government spending. Both the virtual absence of cyclical elements in the fluctuations of government expenditure and the moderate amplitude in the stabilising variations of government surplus, £6.6m increase during the upswing and £4.1m decline in the downswing², would suggest a marginal role of government in the UK Cycle III.

In 1885-95, consumption expenditure amounted to 82.6% of the UK GNP, while 15.2% and 5.7% were the corresponding ratios for merchandise export value and GDFCF, respectively. Not only did consumption exceed exports or home investment in terms of average, but also the size of the increase during the Cycle III upswing, £189m, was far greater than the £51m rise in merchandise exports or the £29m increase in gross home investment. The size of the decline in consumption during the following downswing, £5m, however, was far less than the fall in exports, £47.5m.³ It would thus appear that the increase in consumption expenditure during the upswing had more to do with long term trend than with cyclical fluctuations: in

1 B. R. Mitchell (1962) p.394

2 These magnitudes are to be compared with the £50.8m increase and £47.5m decline in British domestic merchandise exports and with the £29m rise and £4m fall in British domestic fixed capital formation.

3 Gross domestic fixed capital formation contracted by £4m. C. H. Feinstein (1976)

fact, the amplitude of cyclical fluctuations, as represented by the absolute deviations from 9-year moving averages, was greater in exports than in consumption.

Comparing turning point years⁴, one finds that the cyclical pattern of consumption expenditure, 1886(T)-1891(P)-1893(T), tended to lag behind that found in GDP, as well as that in overseas lending. In the mid-1880s the revival in consumption and merchandise exports came in the same year, at the following downturn exports preceded consumption, and finally in the upturn in the early 1890s consumption, synchronizing with domestic investment, led exports. Here it needs to be remembered that, in contrast to the first two turning points, at the beginning of the British Cycle IV investment led exports, and that the British Cycle IV was an investment cycle. Then, consumption expenditure would appear to have responded to the changes in the level of activity, caused by the shifts in either exports (at the first two turning points) or home investment (at the final turning point). The plausible conclusion therefore seems to be that consumption expenditure, in spite of its magnitude, did not exercise significant autonomous influences upon the level of activity during this particular trade cycle.

⁴ Since it is impossible to fix the first lower turning point in the consumption at constant prices series, the comparison of turning points in this paragraph is based upon those found in current prices series.

4. Money and Banking

In the pre-1914 era, Britain maintained a more rigid form of gold standard than either Germany or the US, as far as note issue was concerned: the Bank Charter Act of 1844 underlying the British version of gold standard allowed - assuming no change in the fiduciary circulation - the Bank of England to vary its note issue only by the same amount as the increase or decrease of the gold held by its Issue Department. Besides the Bank of England notes, coins, mostly gold¹, also circulated in the UK; thus, the British currency in the late 19th century consisted largely of the Bank of England notes and coins.² High-powered money in Britain during the years under consideration, on the other hand, is defined as comprising bankers' balances at the Bank of England, in addition to the currency in circulation.³

As was seen in Section 1 of this Chapter, the national stock of gold in Britain⁴ declined during the early years of the Cycle III upswing (mainly as a result of external gold flows), and in the rest of the Cycle III period it increased (Fig VI-7). Fig VI-13 shows how the stock was divided between the Issue Department of the Bank of England and the rest of the economy in the course of the trade

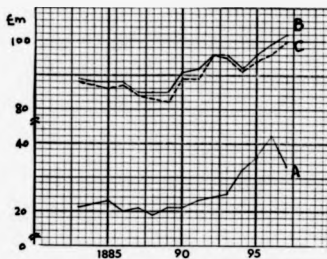
¹ In 1885-94 almost 80% of the coins in the UK were gold coins. F. Caple & A. Webber (1985) p.198

² In this section, we abstract from the small amount of notes issued by banks other than the Bank of England.

³ This is the definition employed by F. Caple & A. Webber (1985) p.12. It is to be noted that they included the cash held in the Banking Department of the Bank of England in the till money of banks, therefore in the currency in circulation and HPM, because they regarded it 'as a part of the commercial activities of the Bank and not part of its role as a central bank'.

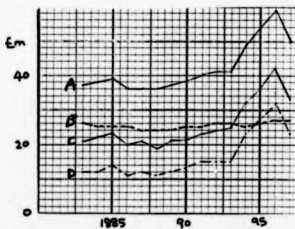
⁴ Approximated by the bullion in the Issue Department of the Bank of England plus coins in circulation, which includes the coins in the Banking Department.

Fig VI-13 Issue Department Bullion(A), Coins in Circulation(B), and Coins Outside the Bank of England(C)



Source: B. R. Mitchell(1962), F. Capie & A. Webber(1985)

Fig VI-14 Bank of England Notes Outstanding(A), Bank of England Notes Outside the Bank of England(B), Issue Department Bullion(C), Bank of England Notes in Banking Department(D)



Source: F. Capie & A. Webber(1985), B. R. Mitchell(1962)

cycle. It is further seen in the same figure that the fluctuations in the metallic currency outside the Issue Department closely followed those in the metallic currency outside the Bank of England, with the Banking Department maintaining more or less constant and insignificant amount of coins; and that the two items revealed a cyclical pattern lagging considerably behind that in the level of activity (1889(T)-1892(P)-1894(T)). Since it is hardly possible to identify any cyclical elements in the supply of gold, i.e. in the national stock of gold, during Cycle III, one could reasonably attribute the cyclical pattern found in coin circulation to the changes in the internal demand for metallic currency.

Peel's Act dictated that the volume of currency outside the Issue Department vary in close agreement with the national stock of gold.⁵ Fig VI-14 shows that the Bank of England indeed faithfully observed the Act: Bank of England notes outstanding(A) fluctuated in close agreement with the amount of bullion held in the Issue Department. The same figure also shows how during Cycle III the Bank of England note supply from the Issue Department was distributed between the Banking Department and the economy outside the Bank of England. While the Bank of England note circulation outside the Bank moved according to the trade cycle (1888(T)-1892(P)-1894(T)), in the variations of the Bank of England notes in the Banking Department is found a pattern similar to that observable in the Bank of England note outstanding (consequently the Issue Department bullion). Again, in the absence of any cyclical elements

⁵ $G = G_t + G_c$, $C = (G_t + F) + G_c = (G_t + G_c) + F = G + F$, where G: national stock of gold, G_t : gold in Issue Department, G_c : gold coin outside the Issue Department, F: fiduciary issue, C: stock of currency outside the Issue Department. In arguing thus, we ignore subsidiary coins, notes issued by banks of issue other than the Bank of England, and the changes in F, consequent upon the decline in the number of private issuing banks.

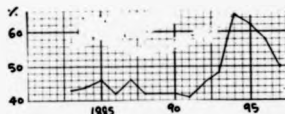
in the supply of Bank of England notes, i.e. Bank of England notes outstanding, the changes in the demand for the Bank of England notes could be held responsible for the cyclical fluctuations in the Bank of England notes in circulation outside the Bank of England. The broad agreement between the fluctuations in the Bank of England notes outstanding and those in the Bank of England notes in the Banking Department was due to the mildness of the cyclical variation in the Bank of England notes outside the Bank.⁶

Since, as was seen in Fig VI-13, the value of coins in the Banking Department was both small and stable, the cash reserve of the Banking Department could be represented by the Bank of England notes held in the Banking Department. On the other hand, the deposits built upon the reserve moved in a distinctly cyclical way: 1886(T)-1891(P)-1893(T). The consequence was the contracyclical fluctuations in the reserve/deposit ratio of the Banking Department, i.e. the 'Proportion'(Fig VI-15). Since the cyclical movements in the Banking Department deposits resulted largely from the changes in the bankers' balances at the Banking Department⁷, we might, following Professor Goodhart, interpret the cyclical variations in the Banking Department deposits and the contracyclical changes in the Proportion

⁶ It should be noted that the upturn in the coins outside the Bank of England lagged behind that in the Bank of England notes outside the Bank of England by one year, which may be explicable, as in the case of Germany, by the difference in the sphere of circulation between the two forms of currency: in pre-1914 years, 'England continued to use gold sovereigns and half-sovereigns for the greater part of her internal circulation until the war, but substantial amounts of silver and bronze coins and Bank of England and country bank notes were also in use. None of the bank notes were less than £5 in denomination, however, and they were but little used in ordinary transactions ... For the most part notes were used ... only in payment of large salaries, for travelling expenses, and as till money for banks.' W. E. Beach(1935) p.60

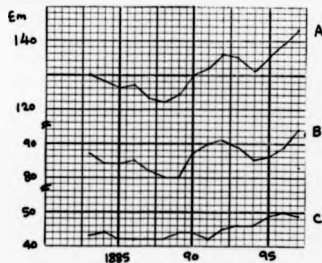
⁷ Around 60% of the increase in the deposits with the Banking Department in 1886-91 was due to the increase in the bankers' balance. F. Capie & A. Webber(1985) p.398

Fig VI-15 Reserve/Deposit Ratio of the Banking Department



Source: F. Capie & A. Webber(1985)

Fig VI-16 Currency in Circulation Outside the Bank of England(A), Currency Held by the Public(B), Banks' Total Cash(C)



Source: F. Capie & A. Webber(1985)

as revealing the accommodating response on the part of the Bank to the application for liquidity from the banking system.⁸

This would imply that there did not need to be any close correspondence between the changes in the Bank's international and domestic assets. Since the Issue Department bullion⁹ tended to decline during the early years of the Cycle III boom, and then increased during the rest of the Cycle III years, with the Banking Department credit supply varying cyclically, one might expect the Bank of England's international and domestic assets to vary in the same direction only in the late years of the boom. This indeed is broadly consistent with Bloomfield's findings: he observed that 1886, 1889, 1890 and 1891 were the years when the two types of assets changed in the same way.¹⁰ Under the mechanical control of Peel's Act over note issue, the Banking Department credit thus constituted the sole medium by which the Bank could violate the 'rules of the gold standard game.'

As was pointed out above, and as we see in Fig VI-16, notes and coins in circulation outside the Bank fluctuated in a cyclical way. Dividing the currency outside the Bank into the currency held by the public and the currency in the banking system, one finds that while the cyclical pattern in the currency outside the Bank was due to the cyclical changes in demand for currency, the changes in demand mainly affected the currency held by the public, rather than bank cash.

⁸ C. A. E. Goodhart(1972) p.210, 211

⁹ To be more precise, the coins in the Banking Department also need to be included in the international assets of the Bank of England, but they are ignored here because of their quantitative insignificance.

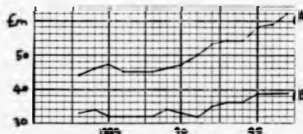
¹⁰ A. I. Bloomfield(1959) p.48

The currency in the banking system (C in Fig VI-16) consists of till money (B in Fig VI-17) and banks' reserve for note issue (= difference between C in Fig VI-16 and B in Fig VI-17). Till money plus bankers' balance at the Bank of England (A in Fig VI-17) forms the reserve for the deposits with the banking system; banks' reserve for note issue was connected with the note issuing business of the remaining private banks of issue other than the Bank of England, from which we abstract. While the reserve against deposits (A in Fig VI-17) varied neither cyclically nor contracyclically, the deposits created upon it displayed cyclical fluctuations (Fig VI-18); as a result the reserve/deposit ratio of the banking system moved in a contracyclical way (Fig VI-19). Thus, as the Bank of England did for the banking system, British commercial banks seemed to satisfy the varying level of demand for funds from the rest of the economy, largely irrespective of the state of their reserve.¹¹

The cyclical movements in short term interest rates in Britain (Fig III-24) would appear to confirm the important role of demand in the determination of the supply of deposit money. If in the absence of any changes in demand the banks had varied the supply of credit for some reasons internal to the banking system, then - since changes in deposits accounting for most of the variations in the UK money stock (Fig VI-18) - short term interest rates would have tended to fall during the upswing, and vice versa. In fact, Tinbergen found the cyclical changes in the ratio of short term claims, discounts and advances, to total liabilities of all banks in the UK to be positively correlated with the shifts in short term interest rates, and negatively with those in long term rates. He

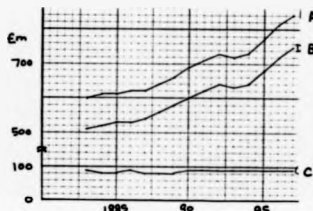
¹¹ Commercial banks, including the Banking Department of the Bank of England, were not legally bound to maintain minimum reserve against their liabilities. C. A. E. Goodhart (1972) p.113

Fig VI-17 Banks' Till Money Plus Balances at the Bank of England(A), Banks' Till Money(B)



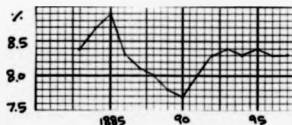
Source: F. Capie & A. Webber(1985)

Fig VI-18 Money Stock(A), Deposits(B), Currency Held by the Public(C): UK



Source: F. Capie & A. Webber(1985)

Fig VI-19 Reserve/Deposit Ratio of the UK Banking System



Source: F. Capie & A. Webber(1985)

interpreted this as the banks' demand for short term claims, i.e. banks' supply of short term credit, responding to the changes in the earnings from holding short term claims.¹² On the other hand, according to Professor Goodhart, the increase in the volume of advances granted by the banks during the upswing worsened the liquidity position of the banking system, to which the banks reacted by calling in loans from the discount market, causing a rise in market interest rate. The rise in interest rate attracted foreign short term funds to the London discount market; the discount market responded to the decline in the supply of funds from the banks by seeking accommodation at the Bank of England, which, as we have already seen, the Bank passively granted. By doing so, the Proportion declined, causing the rise in the Bank rate, which reinforced the rise in the market rate.¹³

In determining the level of Bank rate, the Bank consulted the level of gold in the Bank, as well as the Proportion.¹⁴ The amount of gold held by the Bank of England was affected by both internal and external drains. As can be seen in Fig VI-13, the gold in the Bank of England (most of which was kept in the Issue Department) declined until 1888 due to external outflow; in 1886-1889, coins were returning from domestic circulation to the Bank (Fig VI-13, C). The net gold exports from Britain and the consequent fall in the Issue Department bullion in these years were, as was pointed out in Section 1 of this chapter, due to excessive long term lending relatively to current account surplus. It appeared that it was the decline in the Issue Department bullion, rather than the fall in the Proportion, which led to the moderate rise in Bank rate in 1885-88: while the

12 J. Tinbergen(1961) p.66-68

13 C. A. E. Goodhart(1972) pp.218, 219

14 R. S. Sayers(1976) p.30

bullion in the Issue Department tended to diminish during these years, the Proportion in 1888, 41.8%, was above that in 1886, 41.7% (Fig VI-15). In contrast, in 1889 and 1890, with short term capital and gold being drawn from the rest of the world to London by the rising market rate, the Issue Department bullion increased¹⁵, while the Proportion fell; thus, the rise in the Bank rate in the two years could be attributed more to the deterioration in the Banking Department reserve ratio than to the volume of gold in the Bank of England.¹⁶

During the downswing in the early 1890s, the demand for money weakened, which was probably reflected in the fall of the ratio of advances in the assets held by commercial banks. With the consequent improvement in the liquidity position of the banking system, the banks increased their supply of funds to the discount market in relative terms, which exerted downward pressure upon short term market rates. Both the decline in the demand for short term credit and relative improvement in the availability of funds from the banks resulted in the decline in the application for funds to the Banking Department from the money market. As a result, the Proportion improved. On the other hand, the Issue Department bullion continued to increase during the depression, mainly due to the uninterrupted net gold inflows¹⁷, which may be explicable largely by the sharper decline in long term lending relatively to that in current account surplus. With the improvement in both the Proportion and the gold held by the Bank, the Bank rate was

15 It should be noted that the Issue Department bullion increased in these years in the face of the internal drain of gold after 1889.

16 In 1890 the Baring crisis also made a significant contribution to the rise in the Bank rate. L. S. Pressnell (1968)

17 It should be noted that the drain of gold coins out of the Bank of England into domestic circulation was in progress in 1890, 1891 and 1892. Fig VI-13

lowered, which strengthened the downward trend in the market rates during the depression.

Therefore, it would appear that the cyclical pattern in the short term market interest rates was related not only to the changes in the demand for funds, influencing the reserve position of both the commercial banks and the Banking Department, but also to the international gold flows, which affected the level of gold in the Bank of England. It is, however, relevant to recognize that the 1880s was a period when the Bank of England had difficulties in making the Bank rate 'effective', i.e. in influencing the market rates, due both to the relative decline in its position in the money market and to the survival of the competitive feeling between the Bank of England and the rest of the banking system.¹⁸ This would imply that the influence of international gold flows through the Bank rate upon the short term market rates was of limited significance during Cycle III.

To summarize the discussion so far: under Peel's Act the stock of currency outside the Issue Department of the Bank of England was determined closely by the stock of gold in Britain, which showed acyclical pattern of variation; the stock of currency was divided between the currency in the Banking Department and in the economy outside the Bank of England; while the currency outside the Bank of England followed a cyclical pattern, the cash in the Banking Department fluctuated neither cyclically nor contracyclically; the cyclical variations in the currency outside the Bank reflected by and

¹⁸ W. T. C. King(1936) pp.296-301. The beginning of the use of gold devices as an alternative method of protecting the gold reserve of the Bank in the late 1880s also appears to indicate the difficulties the Bank was experiencing in making its discount rate effective. R. S. Sayers(1936) Chapter IV. According to King(1936), it was only after the Baring crisis that the Bank of England regained the control over the money market through moral suasion.

large the similar pattern of fluctuations in the currency held by the public, in which were expressed the cyclical changes in the demand for cash during the trade cycle; the cash reserve in the banking system varied acyclically; the deposits built upon the cash reserve showed cyclical variations, and as a result the reserve/deposit ratio of the banking system varied contracyclically; this appears to suggest that the banking system supplied the economy with the amount of funds it needed regardless of the state of its reserve; in doing so, it was helped by the Bank of England, which relieved the liquidity pressure upon the banking system during the upswing; therefore, the fluctuations in money stock during the British Cycle III were determined predominantly by the state of demand for money; the cyclical fluctuations in short term interest rates also reflected the changing demand for funds during the trade cycle.¹⁹

Under such conditions it would not appear very realistic to suppose a monetary ceiling choking off the boom of the late 1880s: as a major international financial centre London could attract short term capital and gold by raising its interest rate and thus broaden the cash base of the British economy; as was already pointed out, the British commercial banks, including the Banking Department of the Bank of England, were not legally required to hold a minimum cash reserve against their liabilities, which implies that, at least theoretically, the banking system could expand its credit supply without limit on the basis of a limited reserve.

¹⁹ W. A. Sinclair (1967) chapter XI considers the role of monetary factor as 'neutral' during the British Cycle III upswing and as 'intensifying' the subsequent downswing.

Finally, the Baring crisis, originating from the underwriting of unmarketable Argentine stock by the Baring Brothers²⁰, appeared to have only limited effects upon the course of the trade cycle. According to W. A. Sinclair, 'the "crisis" does not appear to have occurred at the peak of the boom ... the level of activity appears to have been declining gradually from early in 1890, probably some months before the "crisis"; 'more important is the fact that there is no sign of a sudden plunge in economic activity immediately after the "crisis" such as is usually assumed to be associated with a major financial disturbance'; 'although foreign investment ... was more likely to be affected by the Baring crisis, there are indications that it had begun to fall off before November 1890'.²¹

The beginning of the expansion of the British economy in the mid-1880s was due to the increase in exports consequent upon both the start of the US investment boom and the rise in foreign lending from Britain. The start of the foreign investment boom was at least partly influenced by the improvement in the US economic conditions. The downturn in 1890 resulted from the decline in exports, for which the collapse in overseas lending, particularly the investment in Argentina, as well as McKinley Tariff and the German depression were mainly responsible. Although the export variations did not seem to have great effects upon the level of home investment via the acceleration principle, the state of the world market exerted significant influences upon the investment activity in Britain as a whole through the shipbuilding industry. The monetary sector by

²⁰ As for the process of the crisis, see L. S. Pressnell(1968), R. A. Batchelor(1988).

²¹ W. A. Sinclair(1957) p.492, 493 For a detailed discussion on the effects of the Baring crisis upon the investment in various regions, see Section 1, this Chapter.

and large played the part of passively supplying the real sector with the funds it demanded.

VII

THE TRADE CYCLE, 1885-1894: ARGENTINA

In the period between the beginning of modern economic growth in Argentina in around 1860 and the outbreak of WWI, Argentine real GDP is estimated to have grown at the annual average rate of 'at least 5%'.¹ This can be compared with the following growth rates in the comparable era: 4.6% for the US, 2.3% for Germany, and 1.9% for the UK.² It is well known that the inflow of capital and labour on an extensive scale made a crucial contribution to the rapid development of the Argentine economy in pre-1914 years. Dynamic growth and consequent high per capita income³ led some contemporary observers to regard Argentina as 'the second America', and thus to predict her future from the recent experiences of the US.

While Argentina truly resembled the US in some important aspects, essential differences were observable between the two countries. Despite some progress in industrialisation, Argentina basically remained a primary producing economy in pre-1914 years, when the US was undergoing the 'second industrial revolution'. Internal savings were insufficient to such an extent that the

1 C. F. Díaz Alejandro(1970) p.3

2 These annual average growth rates are calculated from peak to peak for the US real GNP, the German real NNP and the UK real GNP. T. S. Berry(1968), W. G. Hoffmann(1965), C. E. Feinstein(1976)

3 According to M. G. Mulhall(1886), the Argentine per capita income in 1895, £24, was about the same as those of Germany, Holland and Belgium.

variations in the level of capital inflow seemed to affect significantly the level of domestic capital formation and of activity in Argentina, whereas in the US the contribution of foreign capital was marginal. Besides overseas borrowing, the state of the world demand for her primary products was the other principal determinant of Argentine economic conditions, in contrast with the secondary role of exports in the US. Thus, according to Professor Rostow, in pre-WWI years Argentina was still in the pre-take-off stage.⁴

⁴ W. W. Rostow (1971) p.8

1. Home Investment and Capital Imports

The Argentine GDP data at constant prices begin from as late as 1900. Thus we are compelled to rely on less comprehensive indices of the level of activity, among which railway receipts and imports(value) would emerge as two useful series. The former suggests 1886, 1890 and 1892 as the three turning points related to the Cycle III in Argentina, whereas 1885, 1889 and 1891 define the trade cycle according to the latter.(Fig VII-1)

In a Keynesian framework, level of income is determined by the sizes of autonomous spending items, investment and exports in particular.⁵ While domestic capital formation data are unavailable, we have estimates of foreign capital flow into Argentina. Since 'during 1880-1914 foreign savings financed between one-third and one-half of net physical investment'⁶ in Argentina, it could be expected that the fluctuations in foreign, mostly British, investment in Argentina serve as a rough guide to those in Argentina home investment. There are three different direct estimates of the foreign investment in Argentina during pre-1914 years: one is the estimate of gross foreign capital inflow by J. R. Williams⁷; another the estimate of the UK issues for Argentina by Professor A. G. Ford⁸; finally, the estimate of the UK new issues(call) for Argentina by M. Simon⁹. These are produced as Fig VII-2.

⁵ In saying so, we abstract from government sector. For the relative unimportance of government sector in the Argentine economy, see Section 3, this chapter.

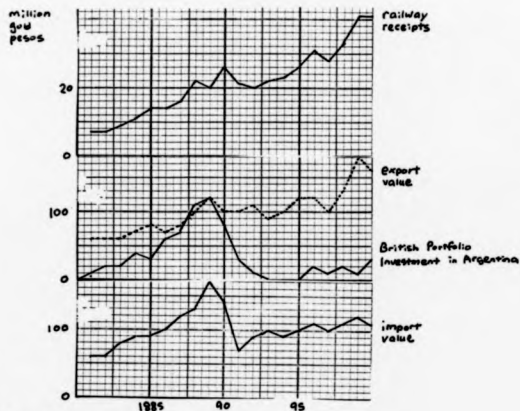
⁶ C. F. Díaz Alejandro(1970) p.31

⁷ J. R. Williams(1920) pp. 46, 101, 152

⁸ A. G. Ford(1962) p.195

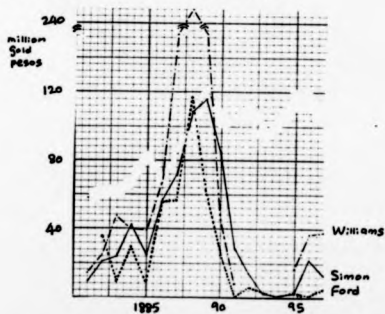
⁹ I. Stone(1972) p.546

Fig VII-1 Argentine Railway Receipts, Overseas Merchandise Trade Value and British New Portfolio Investment in Argentina



Source: A. G. Ford(1962), I. Stone(1972)

Fig VII-2 Estimates of Argentine Capital Imports



Source: J. H. Williams(1920), A. G. Ford(1962), I. Stone(1972)

In the first place, Williams' estimate considerably exceeds those by Professor Ford and Simon, which is readily accounted for by the fact that Williams' figure includes not only British portfolio investment in Argentina, but also British direct investment and lending by other countries.¹⁰ On the other hand, it is observed that, while the estimates by Williams and Ford peak in 1888, Simon's series reaches an upper turning point in 1889. Such a discrepancy appears to be related to the fact that Simon's figure measures the amount of actual 'call', whereas the other two series record 'creation' in the process of foreign issue.¹¹ According to H. S. Ferns, in Argentina 'the acts of investment and the growth of capital claims ... preceded by something like two years the physical growth of the railways themselves'¹²; the 1891 peak in railway building, the leading field of investment in the Argentine Cycle III, lags behind the peak in Simon's and that in the other two estimates by two and three years, respectively.

Thus Simon's series would appear a better indicator of the fluctuations in the Argentine domestic capital formation, and it is this that is compared with other aggregates in Fig VII-1. If Simon's estimate suggests that Argentine home investment fluctuated following a cyclical pattern defined as 1885-1889-1894, Argentine merchandise export values rose from the trough in 1886 to the 1889 peak and then fell to the 1893 trough. Therefore, it would appear probable that the Argentine economy began to expand at the latest after 1886 to reach a peak in 1889, and that the subsequent downswing did not

10 The comparison of the three estimates suggests that the British portfolio investment accounted for around 60% of total capital flow into Argentina in 1886-1890.

11 Sinclair's estimate of the calls made in London by the Argentine companies and public in 1885-90 also indicates 1889 as the peak year. W. A. Sinclair (1967) p.520

12 H. S. Ferns (1960) p.443

come to an end at the earliest before 1893. If the first and second turning points, 1885/6 and 1889, are given by railway receipts or imports data, the final turning point suggested by either of the two indicators of level of activity, 1891 or 1892, appears too early to be justified by the movements of the two key autonomous spending items. Such inconsistencies in the early 1890s may be attributable to the following problems in using railway receipts and import value as indices of economic fluctuations: under the railway-led frontier situation, such as the US and Argentina in the second half of the 19th century, railway receipts are influenced not only by level of activity, but also by both the progress of agricultural development around completed railway lines, and by harvest conditions¹³; the level of imports into an economy, where foreign capital occupies an essential position, is to a great extent determined by the level of foreign borrowing.¹⁴ Therefore, it would be reasonable to define the Argentine Cycle III with the following turning point years: 1885/6-1889-1893/4.

It is seen in Fig VII-1 that export values displayed far milder fluctuations than British portfolio investment. It should be remembered that British portfolio investment amounted to only around 60% of total capital flows into Argentina in the late 1890s, and that foreign savings accounted for 'between one-third and one-half of net physical investment' in 1880-1914. J. H. Williams' estimate suggests that capital flow from countries other than Britain followed a cyclical pattern similar to that found in British new portfolio investment in

¹³ In addition, railway receipts data may suffer from the distortion related to the application of gold premium.

¹⁴ The failure of the imports series to reflect the changes in the level of activity in Argentina may also be related both to the problems in their reliability, as discussed in A. G. Ford (1962) p.194, and to the effects of the fluctuations in exchange rate, falling sharply in 1889-91, as we see below (Fig VII-15).

Argentina; furthermore, it would be reasonable to assume that home financed investment, such as housing and land improvement, also moved cyclically. Therefore, the amplitude of the fluctuations in total Argentine domestic capital formation would have exceeded that in Argentine merchandise exports to a great extent. At the same time, according to Fig VII-1, the upturn in British new portfolio investment in Argentina preceded that in Argentine exports in the mid-1880s, while both peaked in 1889. Such circumstances would suggest a predominant role of home investment in the Argentine Cycle III.¹⁵

As far as the composition of foreign investment in the latter half of the 1880s correctly reflects the nature of the Argentine investment boom, railway building and land improvement provided two major investment outlets. According to Williams' estimate of foreign investment, presented as Table VII-1, during 1886-90 railway building and land improvement ('cedulas', land mortgage bonds) absorbed 48% and 38% of total private borrowing abroad, respectively.¹⁶ Railway investment was the more important in the Argentine Cycle III not only in quantitative terms, but also in the sense that, as in the US, railway building created conditions for land boom by both affecting economic possibilities of already settled areas and opening vast areas for cultivation.¹⁷ The one-year precedence of the cyclical

15 On the other hand, the earlier revival in exports than in capital inflow in the early 1880s would suggest the predominance of exports in the Argentine Cycle IV, when foreign investment remained on a relatively low level.

16 According to H. S. Ferns (1960) p.409 & 422, 'Something like 65-70% of all British capital invested in Argentina during the four boom years 1886-9 was employed to finance railways directly through the joint stock companies or indirectly through the medium of government borrowing' ... 'the investment [in land mortgage bonds] was many times larger than the investment in meat-packing plants, and considerably smaller than the investment in railways.' See also A. G. Ford (1966) p.128

17 H. S. Ferns (1960) 'The acts of investment and the growth of the capital claims ... preceded by something like two years the physical growth of the railways themselves and by something like four years the effective use of the railways'. (p. 409) 'Argentina "grew into"

Table VII-1 Argentine Borrowing, million gold pesos

	private			public	
	cédulas	railway	other	national	provincial
1885	/	12	2	/	/
1886	/	16	10	16	25
1887	54	38	15	34	13
1888	47	89	20	32	60
1889	56	52	15	13	18
1890	14	20	0	0	0

Source: J. H. Williams(1920)

fluctuations in the foreign investment in Argentine railways over those in the Argentine borrowing in the form of cédulas appears to confirm the presence of such a relationship between the two main types of investment. Therefore, railway construction could be considered as the 'leading sector' in the Argentine Cycle III.

The pattern of fluctuations in foreign investment in Argentina in the 1880s and 1890s (Fig VII-1) suggests the need to view the variations in Argentine home investment during the Cycle III years in the context of a longer wave: in fact, the 1885 trough was no more than a minor relapse in the long upswing of the 1880s, and the contraction of the capital flows into Argentina after the peak in 1889 did not come to an end until the beginning of the new century. The start of the railway expansion from around 1880 is said to be mainly due to the following various factors: pacification of vast areas of Pampa through military expeditions; emergence of a strong national government by means of the settlement of the conflict between province and nation; monetary reform; the emergence of a new possibility for Argentina as a major wheat supplier with the beginning of wheat export from 1878; and, above all, the plausibility of profitable railway building displayed by previous construction.¹⁸ The long upswing thus set in motion came to a temporary halt in 1885, when capital inflow declined in the wake of world wide depression originating from the collapse of the US railway boom.¹⁹

the railway mileage projected in the late 1880s and completed by 1892.' (p.443)

18 H. S. Ferns (1980) pp.398, 400, A. G. Ford (1962) p.87, C. M.

Lewis (1983) pp.43,44, A. G. Ford (1986)

19 According to J. H. Williams (1920) p.38, the difficulty in raising funds abroad increased in 1884, because 'European lenders, disturbed by the unprecedented frequency with which Argentina was appearing in the loan market, were becoming wary.' The contraction of the world market, due primarily to the US slump, however, would also have affected the Argentine borrowing by exerting adverse influences upon the ability and willingness of major capital exporters to lend.

The contraction of overseas borrowing, occurring while imports and service payments were on the increase as a result of the rise in foreign borrowing in the early years of the 1880s, brought about a balance of payments crisis. Although the decline in export values seemed to occur only after the crisis²⁰, and thus may not be held positively responsible for the balance of payments crisis, the international depression could be considered to have contributed to the crisis by preventing Argentine exports from showing a 'marked increase'.²¹ The crisis led to the suspension of the convertibility of the peso in the early 1885, which had been maintained for less than two years, and the peso remained inconvertible thereafter until 1900.

The hitch in the middle of the long upswing of the 1880s could thus be considered as mainly due to adverse external conditions, with the investment opportunities in Argentina remaining as yet by no means exhausted.²² Therefore, the improvement of the international economic climate, with the start of the US railway boom in 1885, revived the flow of funds into Argentina²³, and thus, probably, the

20 Whereas the merchandise import value, service payments and capital imports declined in 1885, the brief setback in merchandise export value occurred in the following year. According to *The Economist* on 17 January 1885, 'we must not be led away to conclude that the present difficulty [in Argentina] is due ... to the depressed condition of the produce markets. For in this respect the Republic has not suffered as other countries have suffered - its chief exports, wool, hides and tallow, having fairly maintained their values.' See also A. M. Quintiero-Ramos (1965) p. 81.

21 A. G. Ford (1962) p. 134. Thus, the following statement by C. M. Lewis (1983) pp. 55, 56 would seem somewhat at variance with what actually happened in 1884 and 1885: 'Argentina's export earnings were falling at precisely the time that her import bill was increasing.'

22 On 17 January 1885, *The Economist* reported that 'The disaster ... is unconnected with the question of the prosperity of the country [i.e. Argentina], and is likely, therefore, to be only of a temporary nature.'

23 This seemed to be observed earliest in the late 1886 in Argentine borrowing from Germany: 'The heavy borrowings of the Argentine Republic have latterly met with some adverse criticism in this country, and that is probably the reason why the last Buenos Ayres loan has just been issued in Berlin, where it has met with unqualified success.' 30 October 1886, *The Economist*.

Argentine home investment activity, particularly in the form of railway construction. According to Lewis, railway building in the latter half of the 1880s, in comparison with that prior to the balance of payments crisis, assumed more of a maniacal character and often was duplication of existing lines, being undertaken to a far greater extent by new, rather than established and usually bigger, companies in a highly competitive atmosphere.²⁴ More importantly, these companies often attracted funds from London with the rate of return guaranteed by the Argentine government.²⁵

Due to its revolutionary effects upon both cultivable acreage and economic possibilities of already settled areas, railway building gave rise to a land improvement boom. From 1887 this found its expression both in the increase of borrowing abroad by the medium of cedulas (Table VII-1) and in the rapid rise in land values.²⁶ The expansion of the Argentine economy, led by the increase in these two types of investment, was reinforced by the export boom, which reflected a widening world market, originating mainly from the investment booms in the US and Germany and the increase in British overseas lending.

Railway building on an ever increasing scale could not be continued indefinitely under the frontier conditions of late 19th century Argentina and the US, primarily because as railway construction progressed railways tended to be built in more and more sparsely populated regions. Although railway building had the ability to create traffic, development around newly built railways was

²⁴ C. M. Lewis(1963) pp.67-72

²⁵ E. S. Ferns(1960) p.439

²⁶ There is much evidence to suggest that land values appreciated by something like 1000% between 1883 and 1887 in Buenos Aires province, 420% in Santa Fe, 750% in Cordoba and 370% in Entre Rio.' E. S. Ferns(1960) p.444

a slow process. Thus, in the course of 1888, a situation of 'overbuilding in relation to immediate use'²⁷ appeared to develop, which was expressed in both the sharp decline of the profitability of Argentine railways after the peak in 1888 (Table VII-2)²⁸ and the fall in Argentine stock prices in June and July of the same year (Fig VII-3).²⁹

The slowness of the agricultural development around the newly built railways was reflected, as we shall see in the following section, in the failure of exports to increase rapidly enough to match the upsurge of imports, which underlay gold outflow and the rise in gold premium in 1888. On the other hand, since, as aforementioned, the new lines were more dependent upon government guarantee of fixed return in raising funds than established lines, the decline in profitability led to the rapid increase in railway guarantee payments as a component of Argentine government spending (Table VII-3). As we see in Section 3 of this chapter, this was one of the major factors responsible for the rise in the government deficit during 1886-89, which raised the question on the part of foreign creators as to the ability of the Argentine government to honour the commitment it was assuming. At the same time, the widening gap between government revenue and expenditure, being unable to be financed by the

27 H. S. Ferns (1960) p.444

28 It, however, did not seem to be the case that the decline in net earnings was observed in every railway lines, but that in the main new companies established after 1885 suffered from worsening profitability. Thus, C. M. Lewis (1983) p.74 says, 'Argentine railway affairs during the late 1880s present a dual image: increasing difficulties were experienced by new lines, while operating concerns were apparently untroubled until overtaken by the crash', i.e. the Baring crisis.

29 The Economist 30 Nov 1888. Also On 24 Nov 1888, The Economist reported that British 'investors are now fighting shy of Argentine issues'. It may also be remembered that according to J. H. Williams' estimate of foreign capital inflow, based upon 'creation', rather than upon 'call', 1888 was peak year.

Table VII-2 Argentine Railway Profit Rate,%

1883	5.75
1884	7.34
1885	4.63
1886	4.68
1887	4.83
1888	5.05
1889	2.36
1890	2.63
1891	1.74
1892	1.77

Source: A. G. Ford(1886)

Fig VII-3 Price of Argentine Government Bonds and Gold Premium



Source: The Statist, 12 Apr. 1990

Table VII-3 Argentine Railways: Guaranteed Payments, Total Annual
Liabilities, £000

1883	60
1886	170
1888	440
1889	542
1890	620
1891	921
1892	1369

Source: C. M. Lewis(1983) p.82

increase in taxation, led the government to resort to the printing press; this probably accelerated the rise in the gold premium.³⁰

The rise in the gold premium implied the decline in the earnings from cédulas, land mortgage bonds, the interest on which was payable in paper pesos. Fig VII-3 appears to suggest that the rise in the gold premium, affecting returns on the investment in Argentina adversely, was a decisive factor in the collapse of capital flow into Argentina: as was already seen, the decline of railway profitability caused the fall in stock prices, represented here by the prices of 5% Argentine government bonds, in the second half of 1888 (Fig VII-3) and led to the fall in foreign investment in Argentine railways after the 1888 peak (Table VII-1); the recovery in stock prices from the end of 1888 was probably connected with the continued increase in the borrowing in the form of cédulas (Table VII-1); it is then important to note that the start of the rapid rise in the gold premium coincided with the fall of stock prices from mid-1889 (Fig VII-3), which was associated with the decline in the investment in cédulas (Table VII-1).

Finally, the downturn of the Argentine domestic investment activity in 1889 did not appear to be attributable to the development of a full employment ceiling. As to labour supply, variations in Argentine wages followed neither a cyclical nor a contracyclical pattern: in paper pesos, wages rose consistently, while in terms of gold pesos, they tended to fall during Cycle III.³¹ This should not be greatly surprising, when it is remembered that the number of immigrants into Argentina varied in a cyclical way.³² As to the

30 See footnote 11, Section 3, this chapter.

31 J. H. Williams (1920) p.162

32 A. G. Ford (1962) p.139

supply of materials for railway building, which were mostly imported, it may be relevant to note that one hardly finds any evidence of difficulties in meeting export demand in Britain, the main supplier for Argentina.³³

2. Overseas Trade

In the fluctuations of Argentine foreign trade in the late nineteenth century, as in Argentine domestic capital formation, long swings are a prominent feature; the trade cycles, superimposed upon the long waves, appear as a phenomenon of secondary importance. (Fig VII-1) Nevertheless, it is possible to identify the following trade cyclical turning points in the variations of Argentine merchandise export and import values: 1886-1889-1893 for exports and 1885-1889-1891 for imports.

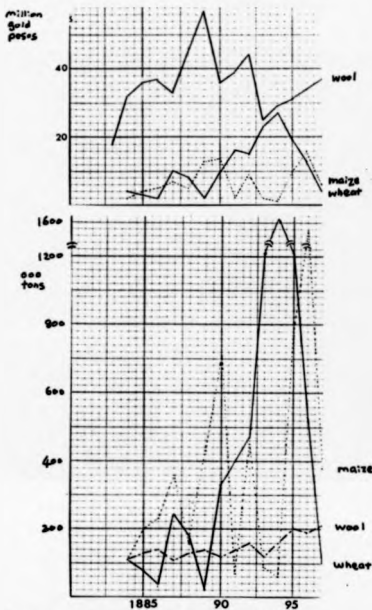
The trade cyclical fluctuations in Argentine export values during the Cycle III years, reinforcing the investment cycle, largely reflected the changes in the level of world demand for her grains and animal products¹. The cyclical changes in demand seemed to induce similar changes in Argentine export prices and volume: according to Fig VII-4, the cyclical fluctuations in export values were attributable to those in the exports of wool and maize, rather than to the shifts in wheat exports²; on the other hand, a comparison of the variations in export volume (Fig VII-4) and those in export prices (Fig VII-5)³ shows that the fluctuations in the export value of grains

1 Grains and animal products accounted for most of Argentine exports, although their relative importance was changing throughout pre-WWI years: during 1880-4 grains and animal products exports amounted to 5.1% and 90% of total merchandise exports, respectively; in 1889 these figures were changed to 13.2% and 66.7%; in 1900-14 the corresponding weights were 47.6% and 23.6%. B. Albert (1963) p. 61

2 During 1885-95, the exports of these three main items accounted for 56.4% of total Argentine exports; the cyclical changes in the export value of these commodities accounted for 53.6% of the cyclical increase and 75.5% of the cyclical decrease in total Argentine export value. B. R. Mitchell (1963)

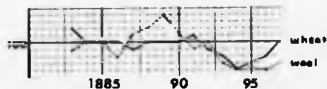
3 Wheat price used here is world price index, which is justified by the minor position of Argentina as a wheat producer. A. G. Ford (1956) p. 31

Fig VII-4 Argentine Exports of Major Primary Products



Source: A. G. Ford(1962), B. R. Mitchell(1983)

Fig VII-5 Price Fluctuations, Index Numbers



Source: A. G. Ford(1956), W. A. Lewis(1978)

reflected those in volume, whereas the variations in the value of wool exported resulted largely from price movements. Therefore, the cyclical pattern in total Argentine export values could be explained largely by the cyclical variations in wool price and maize export volume; the continued increase in wheat exports during the slump of the early 1890s prevented such a sharp decline in Argentine exports after 1889 as occurred in imports. The greater volatility of wool prices and stability of wool export volume, relatively to wheat, may reflect both the greater variability of demand for raw material than foodstuffs in the course of the trade cycle and the difficulty in varying wool production according to the shifts in demand. On the other hand, bearing in mind that in pre-WWI years both home and foreign consumption of maize varied directly with the size of harvest⁴, the cyclical pattern in maize export volumes may be regarded largely as a matter of accident. With home consumption remaining relatively stable, the pattern of fluctuations in wheat export volume reflected mainly those in wheat production⁵, which was to a great extent determined by railway building.

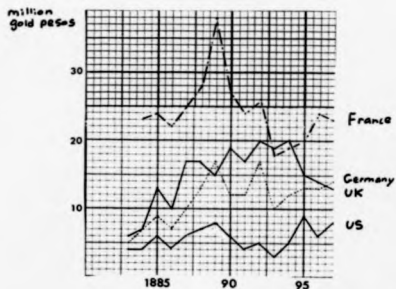
Fig VII-6 shows the fluctuations in the current value of exports from Argentina to four major industrial countries.⁶ Whilst the exports to France, Germany and the US varied following a uniform cyclical pattern of 1886-1889-1893, it is difficult to say that exports from Argentina to Britain varied in a trade cyclical way. If the cyclical pattern found in the Argentine exports to the former three countries does not conform precisely to those identifiable in the

⁴ A. G. Ford(1956) p.34

⁵ A. G. Ford(1956) p.34

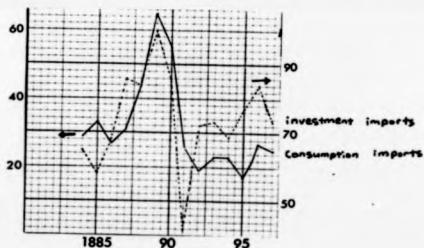
⁶ In 1886-94 the exports to the four countries accounted for 60.7% of total merchandise exports. Belgium also was a key market for Argentine products, absorbing around 14% of total exports in the ten years. Statistical Abstract for the Principal and Other Foreign Countries.

Fig VII-6 Argentine Exports to Various Regions



Source: Statistical Abstract for the Principal and Other Foreign Countries

Fig VII-7 Investment and Consumption Imports into Argentina, million gold pesos



Source: A. G. Ford(1962)

variations of the level of activity in each of the three economies⁷, this may be due to a great extent to the influences of Argentine export price movements⁸ and to the imperfections in Argentine export data⁹. On the other hand, the similarity in the pattern of changes between Argentine wheat exports and Argentine exports to Britain suggests that the level of British imports from Argentina was determined broadly by Argentine capacity to produce wheat. Total British imports of grain and flour, however, followed the pattern of the British Cycle III reasonably closely, passing through 1886-1891-1894 as turning points. Therefore it would appear reasonable to suppose that Britain was probably shifting her source of wheat supply in favour of Argentina in the years concerned, as a consequence of both the progress of industrialization in traditional wheat growers in Europe and the emergence of the possibility of cheap supply of wheat from Argentina, as a result of railway building and falling freight rates.¹⁰

While the level of Argentine export values was determined in the short run by the state of the world economy, the variations in Argentine merchandise imports(value)¹¹ seemed to be closely related to those in the flow of funds into Argentina, as the fairly close

7 For instance, the US Cycle III is defined as 1885-1892-1894, and the German Cycle III as 1885-1890-1891.

8 For instance, according to German data, German imports from Argentina rose from the trough in 1887 to the peak in 1891 and then fell to the 1892 trough, which is at considerable variance with the aforementioned cyclical pattern in Argentine exports to Germany, but more consistent with the pattern of the German Cycle III.

9 A. G. Ford(1966) Appendix B to Chapter II.

10 Freight rates began to decline on a long term basis from around 1880. S. B. Saul(1969) p.22, 23

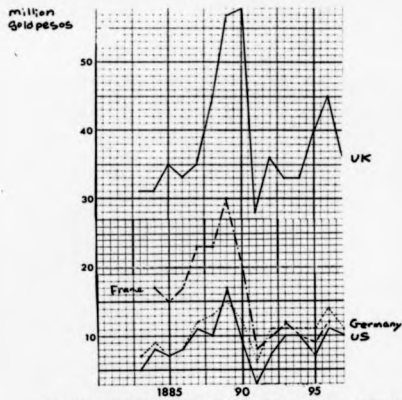
11 Although Argentine import volume data appear to be unavailable, the following comparison of volatility between import value and price seems to suggest that the cyclical fluctuations in import value were the joint product of similar changes in import volume and price: import value increased between 1885 and 1889 by 79.3% and declined between 1889 and 1891 by 59.4%, whereas import prices rose by 10.3% in 1886-1889 and fell by 17.7% in 1889-1895. A. G. Ford(1962) p.139, 144

parallelism between the two (Fig VII-1) suggests. Since, as we have seen in the preceding section, in Cycle III the changes in foreign borrowing had a decisive impact upon Argentine level of activity, the dependence of the level of merchandise imports upon capital imports would mean that the size of imports was also related to the level of activity.¹² Fig VII-7 gives the impression of consumption imports accounting for greater part of the short term fluctuations in total Argentine imports. Consumption imports fluctuated more widely than investment imports, and as a result the pattern of variations in total imports largely reflects that in consumption imports; moreover the fluctuations in consumption imports tended to precede those in investment imports during the Cycle III years. Calculating the ratio of investment to consumption imports, however, one observes this ratio varying according to a cyclical pattern, 1887(T)-1889(P)-1895(T). Fig VII-8 shows the fluctuations in Argentine imports from the four major industrial countries, accounting for nearly 70% of total imports into Argentina in 1885-94. Not only did the imports from the UK exceed those from the other three countries by far, but also fluctuated more widely, which may be related to the close linkage between the capital and merchandise exports from Britain. It is also seen in the figure that the impact of the Argentine Cycle III via trade flows upon the investment economies, Germany and the US, was far weaker than upon the older industrial countries.

The Argentine trade and current balance of payments moved in a contracyclical way (Fig VII-9), which is consistent with the leading role of home investment in the Argentine Cycle III. As is shown in the figure, the rise and fall of the current account deficit during the

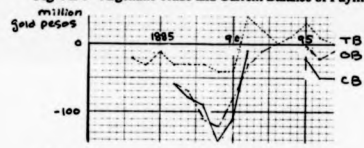
¹² On the other hand, as Professor A. G. Ford (1962) p.151, 152 has shown, the effect of exchange rate, i.e. gold premium, did not appear significant.

Fig VII-8 Argentine Imports from Major Regions



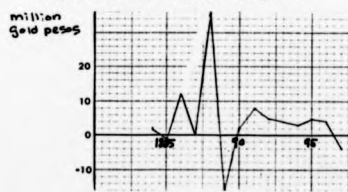
Source: Statistical Abstract for the Principal and Other Foreign Countries

Fig VII-9 Argentine Trade and Current Balance of Payments



Source: J. H. Williams(1920), I. Stone(1972)

Fig VII-10 Net Gold Imports into Argentina



Source: A. G. Ford(1962)

up- and downswing were matched by the cyclical pattern in the flow of funds into Argentina. The two items, however, did not seem to balance precisely, resulting in the gold flows as shown in Fig VII-10. It appears that in 1886-88 Argentine overseas borrowing exceeded the current account deficit, whereas in 1889 the opposite occurred, largely as a result of a rapid rise in imports. As was already mentioned in the preceding section, the consequent gold outflow in 1889 seemed to be the main reason behind the rapid rise in the gold premium in that year. During the following downswing, the current account improved, while capital inflow declined. The net gold imports into Argentina in the early 1890s would suggest that the reduction in the current account deficit outweighed the fall in the flow of funds into Argentina. The swift improvement of the current account was mainly attributable both to the sharp decline in imports reflecting the downturn of the Argentine economy and, to a smaller extent, to the failure of exports to collapse drastically, perhaps as a result of the continued rise in wheat exports. On the other hand, the Funding Loan Agreement of January 24, 1891, granting a moratorium and a funding loan amounting to £15m to Argentina¹³, would have prevented the net capital flow into Argentina from declining rapidly during the downswing.

3. Government¹

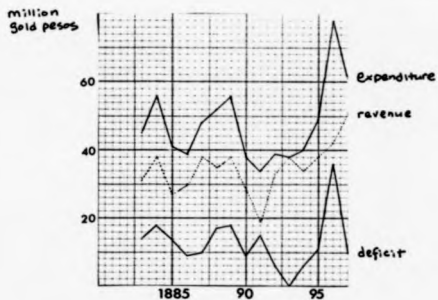
During 1885-86, the Argentine national administration spent 43 million gold pesos on annual average. In the same period Argentine annual average exports and overseas borrowing reached 99 million and 67 million gold pesos², respectively; it may be usefully recalled here that the 67 million gold pesos is estimated to have constituted between one third and one half of Argentine net physical investment. Argentine government expenditure varied cyclically, rising from the trough in 1886 until 1889, and falling back to the 1891 trough (Fig VII-11). The sizes of the cyclical changes in government expenditure were the increase of 17 million gold pesos and the decrease amounting to 22 million gold pesos; these magnitudes compare with the 54 million gold pesos increase and 29 million gold pesos decrease in Argentine merchandise exports and also with 209 million gold pesos rise and 248 million gold pesos fall in Argentine foreign borrowing. These comparisons would suggest that the cyclical contributions made by Argentine government expenditure were of minor importance relative to home investment or merchandise exports.³

1 We are unable to examine the role of consumption expenditure in the Argentine Cycle III, largely due to the unavailability of adequate data: consumption imports series is not considered as suitable indicator of consumption spending in that it is heavily influenced by the fluctuations in overseas borrowing; data on the production of major consumption goods, such as wheat, are not available until after 1890.

2 The annual average inflow of foreign capital figure is based upon J. H. Williams' estimate and also upon the assumption that during 1892-4, for which Williams did not provide figures, Argentina did not borrow from abroad.

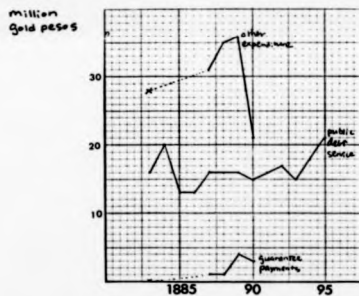
3 Since, as we see below, a considerable part of the cyclical variations in government expenditures was due to foreign debt service and railway guarantee payments, the effect of government spending upon the Argentine economy would have been smaller than the above figures suggest.

Fig VII-11 Argentine National Government Expenditure, Revenue and Deficit



Source: E. Tornquist & Co. Ltd(1919)

Fig VII-12 Argentine National Government Expenditure



Source: E. Tornquist & Co. Ltd(1919), J. H. Williams(1920), L. Randall(1977)

On the other hand, the pattern of variations in Argentine government revenue agrees less closely with the trade cycle than that found in expenditure: the peak in revenue was reached as early as in 1887, and revenue was maintained at approximately the same level until 1889, after which it rapidly declined (Fig VII-11). A result of this was the cyclical variations in Argentine government deficit: in 1886-89 the deficit increased by 2 million gold pesos, and in 1889-93 a 18 million gold pesos decline was observed (Fig VII-11). The government sector as a whole could thus be considered to have reinforced the short term fluctuations of the Argentine economy, although its cyclical influences were overshadowed by those associated with investment or exports.

Fig VII-12 shows that the variations in railway guarantee payments and in expenditures, other than public debt service⁴ and guarantee payments, explain most of the cyclical changes in Argentine government spending during Cycle III; of these two spending items, 'other' expenditure varied more widely than guarantee payments. Although public debt service increased during the upswing, it did not decline during the subsequent depression. On the other hand, according to the data showing the amount of expenditure by major ministries of the Argentine national administration⁵, it was mainly the expenditures by the Interior Ministry and Treasury that account for the cyclical movements in total government spending. Since the

⁴ This item was obtained by multiplying actual total expenditure by the National Administration, listed on E. Tornquist (1919) p.276,277, by the percentage of public debt service in voted budget, presented on L. Rendall (1977) p.211,212. Since actual expenditure differed from voted budget, public debt service calculated in this way could not be expected to be equal to actual amount of public debt service; the figures of public debt service, presented in Fig VII-12, however, correspond roughly with Williams' estimate of the interest charge for national debt. J. H. Williams (1920) p.100

⁵ They were obtained in the same way as in footnote 2.

Treasury was responsible for the payment of railway guarantees⁶ and the service of national debt⁷, and since the remaining expenditure item by the Treasury, administrative expenses⁸, is not likely to have varied cyclically, it follows that the cyclical variations in 'other' expenditure reflected those in the spending by Interior Ministry. Among the Interior Ministry spending items listed by O. Schmitz⁹, it is probably the expenditures for welfare service and public works that changed in a cyclical way. In sum, the cyclical pattern in the Argentine government expenditure during Cycle III appeared to be related mainly to both railway guarantee payments and welfare and public works spending.

In Fig VII-13 are shown the movements of import duty and other taxes. It is interesting to observe that the government revenue from taxes other than import duty remained relatively stable, while import duty showed clear cyclical movements. The possible cyclical elements in government income from other sources than import duty in terms of paper pesos, reflecting the cyclical changes in home trade, may have been wiped out by the cyclical movements of the gold premium (Fig VII-3); on the other hand the cyclical variations in imports seemed to be wide enough for the import duty to retain its cyclical pattern even after the deflation for the gold premium.¹⁰

⁶ See the quote in C. M. Lewis (1963) p.102

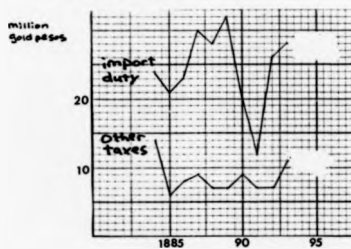
⁷ O. Schmitz (1895) p.222

⁸ O. Schmitz (1895) p.222

⁹ They are expenditure for the presidency, administrative expenditure for Interior Ministry, expenditure for post and telegraph, for capital police, and for welfare facilities, administrative expenditure for state railway, expenditure for the administration of national territory and for public works. O. Schmitz (1895) p.221

¹⁰ The following statement suggests that import duty was payable with paper pesos: 'In 1890 15% surcharge on import duty was imposed, in order to balance the depreciation of paper money.' O. Schmitz (1895) p.214,215

Fig VII-13 Argentine National Government Revenue



Source: E. Tornquist & Co. Ltd(1919), O. Schmitz(1895)

Therefore, it may be concluded that the widening government deficit during the Cycle III boom, which had negative effects upon the expectations of European investors, was explicable by the following factors: rising railway guarantee payment and public debt service; expansion of government activities in the areas of welfare and public works; finally, the soaring gold premium, with the effect of reducing government revenue in gold terms.¹¹

¹¹ In Argentina, where a considerable portion of government spending was made in gold, e.g. public debt service and railway guarantee payments, whilst most of government income is received in paper pesos, not only did the rising gold premium tend to widen the gap between government expenditure and revenue, but also the increase in government spending in gold (itself would have had the effect of raising gold premium, thus reducing income in gold terms; for the rise in government spending in gold would appear in gold market as increased demand for gold.

4. Money and Banking

Argentina's brief membership in the gold standard club came to an end at the beginning of 1885 in the aftermath of the balance of payments crisis, the origin of which could be traced back to the downswing of the world economy from 1882/3 following the termination of the US railway investment boom.¹ It was not until the turn of the century that she rejoined the international gold standard. Thus, throughout the years of Cycle III, the Argentine monetary system, in contrast with those of the three industrial economies discussed in the preceding chapters, lacked a metallic basis: the Argentine currency in the period concerned consisted of inconvertible paper money. While paper pesos were good enough for the purpose of domestic transactions, gold or its equivalent, i.e. sterling, was needed for external trade, and its price, i.e. the gold premium, was determined in the gold market by the demand for and supply of it. Thus, as J. H. Williams has found, the fluctuations in the gold premium were determined largely by the state of external balances, rather than by the amount of paper money in circulation², the latter being only one of various factors influencing the demand for gold. Through the gold market the Argentine economy based upon paper currency was connected with the outside world, where gold was in use; the gold premium could be regarded as the floating exchange rate of paper peso with gold standard currencies.

Only six banks are said to have been in existence in Argentina in 1884, but the number was increased to 52 in October 1889.³ The

¹ See Section I, this chapter.

² J. H. Williams (1920) Chapter X

³ M. G. Mulhall (1892a) p. 37, 38

expansion of the banking system was mainly due to 'the Law of National Guaranteed Banks' or the 'Free Banking Law' put in force from November 1887, under which, with some resemblances to the US National Banking System, any banking organization with a capital of at least 250,000 pesos could issue notes, provided that 'it purchase national gold bonds to the full amount of the notes to be emitted by it'. The structure of the Argentine banking sector appeared oligarchic. In 1884, the Banco de la Provincia de Buenos Aires and the Banco Nacional controlled 71.8% and 82.4% of the total banking capital and deposits of the six banks in Argentina respectively. At the end of 1888, the assets of the two great banks amounted to 57.5% of those of the 24 banks publishing statements⁴. During the financial crisis in 1890 and 1891, many of these banks, including the two giants, collapsed: M. G. Mulhall lists only 12 banks in Buenos Aires as banks of any substance in April 1892, saying that the banks in other provinces counted for nothing.⁵ As a result, a somewhat less concentrated and less domestic market structure emerged: the

4 J. H. Williams(1920) p.56. 'The bonds were to be paid for with gold at not less than 85'; and 'The gold was to be deposited in the Bureau of Inspection of Banks for two years, whereafter it was to be applied to the payment of the national foreign debt'(p.57) The following differences from the US National Banking System is worth mentioning: in the US the national banks were required to deposit with the Treasury, besides specified government bonds equal in face value to 111% of the value of the notes issued, a sum amounting to 5% of their note issue in lawful money, consisting not only of gold coin, but also of silver dollars and legal tender notes etc, and the latter was to serve only the purposes of the redemption of national bank notes. M. Friedman & A. J. Schwartz(1963b) p.21, 781. For the comparison with the US National Banking System, see also A. M. Quintero-Ramos(1965) p.87.

5 The remaining 28 banks not making their statements public seemed to be not of great significance in the Argentine banking system: according to J. H. Williams(1920) p.58, 'Some of the provincial banks were banks only in name. Several "banks" that were declared incorporated into the new system "did not exist on the date of the decree authorising their incorporation, and were only projects that were hatching in the portfolio of some of the provincial governments"'.⁶

6 M. G. Mulhall(1892a) p.40. He also says that 'there has been a loss of 75% in the banking capital of the Republic, or £17,200,000 sterling in the last four years.'

London and River Plate Bank and the Banco de Italia e Rio de la Plata, the two largest banks in the immediate post-crisis years, accounted for 33.0% of the total paid capital of the 12 banks.⁷

As in the US National Banking system, Argentina did not have a central bank in the pre-WWI years, although it is true that the Banco de la Nacion Argentina, established in 1891 'did attempt some measure of leadership' in the early twentieth century.⁸ Whereas in the US, the Treasury controlled the amount of high-powered money by manipulating the balance in the Treasury⁹, there seems to be no evidence that the Argentine counterpart assumed the role of a central bank even to this limited extent.

In Argentina, 'you are not allowed to deposit in any bank a cheque on another; so this precludes the establishment of a clearing house, for which there could be no use'.¹⁰ And according to L. Randall, in the case of the Banco de la Provincia de Buenos Aires, one of the two giant banks, after 1852 'deposits not paying interest' accounted for a 'negligible share' of private deposits.¹¹ Thus, it would appear that in Argentina in the years of Cycle III cheques, i.e. the transfer of deposit money, were not in wide use, and that most transactions were carried out by the medium of cash.

⁷ C. A. Jones describes such a state of affairs as a 'temporary and involuntary dominance in Latin American commercial centres' of foreign banks 'in the aftermath of financial crises'. C. A. Jones (1977) p.27. This would appear an inevitable outcome in view of the fact that the Argentine banks were 'ill-managed' in their operation as 'tools of corrupt government', whereas the foreign banks were in a 'more stable and secure position'. A. G. Ford (1962) p.99. It is interesting in this context that a chairman of the London and River Plate Bank was 'wont to compare the position of the ... [bank] ... with that of the Bank of England, since both must hold heavy gold reserves, not really being able to rely on others in times of need.'

D. Joslin (1963) p.130

⁸ A. G. Ford (1962) p.98

⁹ C. A. E. Goodhart (1969) p.33-37

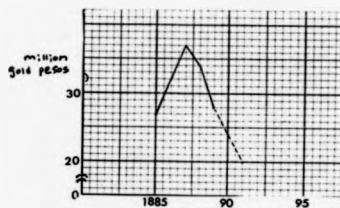
¹⁰ Bankers' Magazine, 1889, p.49

¹¹ L. Randall (1977) p.214

Therefore, whilst in the case of industrial economies, such as Britain, Germany and the US, the money stock could appropriately be defined as the currency held by the public plus deposits, such a concept could be less useful as a measure of the existing amount of money in the Argentine context. In Argentina, bank deposits seemed to be regarded largely as an investment, rather than as a medium of the settlement of transactions, which is revealed by the movements of Argentine deposits during Cycle III. The deposits held in the Banco de la Provincia de Buenos Aires (Fig VII-14), which controlled 12.9% and 42.5% of the total deposits held by the 24 reporting banks in 1888 and 1889, respectively, reached a peak in 1887, and then declined, whereas the expansion of the Argentine economy continued until 1889. Such movements of the deposits held in the Banco de la Provincia de Buenos Aires do not seem to be inconsistent with the variations displayed by the imperfect total Argentine deposits data (Fig VII-15).¹² The contraction in Argentine deposits after as early as 1887 could be explained by the rise of gold premium beginning in the same year (Fig VII-16): the depreciation of paper currency rendered bank deposits less attractive as an investment. Thus it would appear realistic to regard the money stock in Argentina during the years concerned as consisting largely of paper currency.

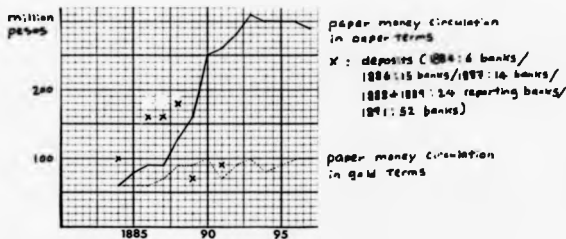
¹² Unfortunately, for the critical year of 1887 we have only the deposit figure for the 14 banks, which had been in existence before 1887, whilst it is known that 12 new banks were started in 1887. *Bankers' Magazine* 1889, p.48. The fourteen banks held deposits amounting to 160 million gold pesos (*Bankers' Magazine*, 1889, p.381), slightly smaller than the deposits held by 24 banks in 1888, 194.8 million gold pesos. Thus, it does not appear unlikely that the deposits held by the same 24 banks were greater in 1887 than in 1888.

Fig VII-14 Private Deposits Paying Interest in the Banco de la Provincia de Buenos Aires



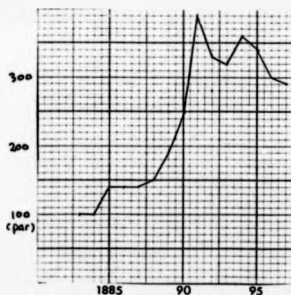
Source: L. Randall(1977)

Fig VII-15 Argentine Deposits and Paper Currency in Circulation



Source: A. G. Ford (1962), M. G. Mulhall (1892a) & (1892b), P. Agost (1887), Bankers' Magazine (1888)

Fig VII-16 Argentine Gold Premium



Source: J. H. Williams (1920)

Fig VII-15 shows that Argentine money stock, approximated by the amount of paper pesos in circulation in gold terms¹³, increased during 1885-90. In expanding their note issue in the late 1880s, banks were required to purchase national gold bonds with gold; since the needed gold could not be procured to the full amount in Argentina, many, particularly provincial, banks had to obtain gold in Europe, at 'extremely high interest rates and by paying high commission charges'¹⁴. Moreover, the law concerning note issue was not observed strictly, with 'less than 40% of the total value of the bonds' having been actually paid for in gold.¹⁵ These circumstances seem to suggest that the cyclical increase in paper currency circulation had more to do with the increase in demand for money than with the favourable turn in the conditions governing the currency supply by the banking system. In other words, the Argentine banking sector seemed to accommodate the rising demand for money during the upswing.

The widening national government deficit during the upswing appeared to be another important factor augmenting the circulation of paper money.¹⁶ It is said that one of the major motives behind the Guaranteed Banks Law, to which, as J. H. Williams points out, much of the increase in paper pesos in circulation during the upswing of Cycle III was attributable, was to place the 'Banco Nacional in a position strong enough to be able to assure the government of ample,

13 To be more precise, Argentine money stock should be defined as the paper currency in the hands of the non-bank public.

14 A. M. Quintero-Ramos(1965) p.88,89 On 29 Sept 1888, *The Statist* reported, 'These large gold remittances from Europe find their direct cause in Minister Pacheco's free Banking Act ... All the local governments are in a hurry to avail themselves of the advantages of the Act ...; and hence the wotley array of loans of Argentine states in the London and Paris markets.'

15 J. H. Williams(1920) p.69

16 See Section 3, this chapter.

short term facilities from the banking system'.¹⁷ If thus the fluctuations in national government deficit affected total paper currency circulation through the changes in the amount of issue of paper pesos by the Banco Nacional, a similar relation seemed to exist between the provincial banks established under the Free Banking Law and provincial governments.¹⁸

Finally, there appeared to be a factor influencing currency circulation which may be unique to Argentina: the malpractices in Argentine banking.¹⁹ The Argentine banks seemed to comply with corrupt politicians' demand for advances at least to some extent, and it is possible that this contributed to the expansion of currency circulation during the upswing for the following reasons: since with the expansion of the economy more exploitable opportunities emerged, the politically powerful would have felt more need for funds; the increase in the profits accruing to the banking sector during the upswing would have enabled it to accommodate political demands more easily.

Although the banking system expanded the supply of currency for three years after 1885 in gold terms in response to the increasing demand for money from various sectors of the economy, paper money in circulation declined slightly in gold terms in 1889 (Fig. VI-15), which was the peak year as far as the real economy was concerned. The currency in circulation continuing to expand from 1884 until 1893 in paper terms, the decline in 1889 was closely related to the sharp increase in gold premium in that year. The soaring

17 C. A. Jones (1886) p.130

18 See the report by *The Statist*, quoted in footnote 14, this section.

19 We find ample evidence of this in contemporary reports. A good example would be the article by W.R. Lawson, titled 'Gaucho Banking', which appeared in the *Bankers' Magazine* in 1891.

gold premium was translated into domestic price increases, under the condition of the prices of staples being fixed in the world market.

Thus at the end of 1889, in spite of the continued increase in issue in paper terms, scarcity of paper money and 'the extreme tightness of the money market' was reported. The banking system, however, seemed unable to counterbalance the rising gold premium and the consequent inflation and the shortage of means of transaction by expanding note issue at a faster rate, because it faced increasing difficulty in borrowing gold in Europe, where the expectations on the investment in Argentina were badly damaged by the rising gold premium. Thus, although, as seen above, the Free Banking Law was grossly violated, it still appeared to function at least to some extent as a brake upon the expansion of note issue.

The money shortage had adverse effects upon the economy.²⁰ It, however, needs to be emphasized that the monetary stringency could not be considered to have initiated the downturn of the Argentine economy: contractionary forces began to be felt in the economy as early as in the course of 1888 with the overconstruction of railways²¹, while the rising gold premium, partly related to the slowness of agricultural development around new railways, brought about both the downturn in land investment and the scarcity of money. The financial tension, superimposed upon the downswing already in progress, culminated in the banking crisis which began in

20 'The extreme tightness of the money market ... was playing havoc amongst the crowd of new companies that have been created during the past few years. Many of them had been forced into liquidation, and the opinion is expressed that if money continued as dear as it had been, "we may prepare to witness a wholesale liquidation, especially in the speculative companies". But the most dangerous feature of all was that all the interior provinces had run short of money.' *The Economist*, Jan 25 1890, quoting *The Buenos Aires Standard* of 21 December 1889.

21 See Section 1, this chapter.

April 1890. The Argentine government tried to stave off the crisis by the suspension of the Guaranteed Banks Law; at the same time, it resorted to the clandestine issue amounting to around 35 million gold pesos, with the result that the notes in circulation reached a peak in 1890. As Sr. Uriburu, the then Finance Minister, argued, drawing a parallel between the suspension of Peel's Act in the Overend Crisis and the Argentine government's action in April, this may have relieved the situation to some extent, but could not stop the crisis, not to mention the contraction of the economy, which had started earlier.

Thus the Banco Nacional suspended the payment of its quarterly dividend in June; in July Pellegrini replaced Celman as the President of Argentina after street fighting in Buenos Aires; in November, the financial crisis was transmitted to London in the form of the Baring crisis in the middle of the negotiation for a new loan in London²²; consequently, Argentina had to default; in April next year, 1891, the two dominant banks, the Banco Nacional and the Banco de la Provincia de Buenos Aires went into liquidation; finally, in October the declaration of a general moratorium came as a peak in the long course of the crisis. Thus, 1890 and 1891 were crisis years in Argentina. As Fig VII-16 shows, despite the reversal in the direction of gold flows from 1890, the gold premium continued to rise in 1890 and 1891, reflecting the crisis situation and the loss of confidence. With the subsidence of panic, reconstruction measures began to be taken: negotiation with creditor nations on the terms of interest payment and the replacement of the Free Banking System with a scheme based upon 'frankly inconvertible' government paper,

²² The Argentine crisis was transmitted to the US via London. The effects of the crisis upon the US economy, however, seemed to be of limited nature. See O. M. W. Sprague (1910) chapter III.

the Caja de Conversión and the new state bank, the Banco de la Nación Argentina. This process of financial reconstruction was accompanied by the further increase, though at a slower rate in comparison with the late 1880s, of paper money in circulation in paper terms until 1893 (Fig VII-15); the increase was due to the fact that new government paper money was pumped into the economy in the course of the establishment of new banking system, while the old bank notes were being cancelled slowly. On the other hand, despite the continued rise in the paper pesos in circulation, the gold premium began to fall after 1891 as the crisis situation calmed down and the net gold inflow continued.²³

To summarize the analysis in this chapter: the revival of the Argentine economy after 1885 could best be seen as the resumption of the long investment upswing starting from around 1880, as a result of the improvement in the international economic climate which was related to the beginning of the US boom and led to the increase in the capital flows into Argentina. The investment upswing was led by railway building, which induced a land improvement boom. In the mid-1888 overbuilding of railways began to be observed, and as a result the investment in railways began to contract. The land boom, however, appeared to continue until the mid-1889, when the rise in gold premium began to accelerate, reducing the return on *cedulas*, due to the gold outflow which reflected the rapid rise in imports and sluggish growth of exports. While the fluctuations in home investment activity played a central role in the Argentine Cycle III, cyclical shifts in exports, reflecting the international trade cycle, reinforced the cyclical variations in the level of domestic activity. The Argentine banking sector, based upon inconvertible pesos, by

²³ The brief description of the process of the crisis from 1890 in this paragraph draws largely upon J. R. Williams (1920) Chapter VIII.

and large accommodated changing demand for money, although severe monetary stringency developed from late 1889, accelerating the downswing already in progress.

VIII

THE INTERNATIONAL TRADE CYCLE, 1885-1896

In this chapter, we draw a sketch of the trade cycle between 1885-1896 from a global point of view. Not only will the analyses of the national trade cycles in the four leading players (Chapters IV-VII) form the basis of the picture, but also we shall briefly discuss the cyclical experiences of the other four byplayers: France, Australia, Canada and India. They were 'byplayers' in the sense that, while France and Australia assumed similar parts to Britain and Argentina, respectively, in the international trade cycle concerned, their cyclical contribution was significantly weaker; Canada and India seemed to remain largely passive in the course of the trade cycle, in that the fluctuations of these economies were produced by the shocks transmitted to them from the rest of the world mainly through trade flows, as the trade cycles in many other primary producers probably were.

1. Upawing

The international upawing in the latter half of the 1880s was initiated and supported by the US home investment boom. Investment activity revived in the US in the course of 1885, as a result of the beginning of railway building boom in Kansas and Nebraska. The start of railway expansion in these areas was largely explicable in terms of the breakdown of the collusive maximising policy of railway companies which occurred due to agricultural development around railway lines built during the preceding upawing (late 1860s - early 1870s) and the consequent improvement in profitability. The increase in railway investment, however, did not last very long: it came to a peak in 1887, when signs of overbuilding, including the decline in net earnings per mile (Fig IV-6), developed, and declined sharply thereafter (Fig III-1).

Thus ended not only the short term railway boom starting from 1885, but also the third and final long railway upawing in the US history, which set in in the mid-1870s.¹ The US investment expansion, however, continued. For due to its effects on settlement, the final long railway upawing (from the mid-1870 to 1887) gave rise to the long boom in construction activities (from the late 1870s to 1892, Fig III-1). Therefore, if in 1885-1887 the leading sector of the US domestic investment was the railway industry, construction replaced railways in 1888-1892. During the seven year investment boom, US gross domestic investment is estimated to have risen by around £262m.²

1 This also marked the virtual end of the US westward movement and the extinction of frontier.

2 The US gross investment series begins from 1889. So, the gross investment at the trough of 1886 was estimated by multiplying the

The US iron and steel industry being unable to satisfy domestic needs, the railway building boom was accompanied by increasing imports of railway material from major industrial countries, including Germany. The revival of German exports of iron and steel from the 1885 trough (Fig V-4), though not highly significant in quantitative terms, appeared to affect the expectations of German iron and steel industrialists and investing public in a favourable way, and consequently investment in German iron and steel industry began to expand in late 1886. The boom in iron and steel production induced expansion in coal industry: its investment also rose after 1885 (Fig III-4). The return of prosperity to Rhineland and Westphalia, where German heavy industries were mainly located, attracted workers from the agricultural eastern part of Germany under the depressive forces of falling primary product prices. The internal migration and the consequent progress in urbanization created profitable investment opportunities for the building industry: as we see in Fig V-3, German construction investment picked up from the 1886 trough, i.e. one year after the increase in investment in iron, steel and coal industries. The upswing in construction investment meant a widening home market for the iron and steel industry: Fig V-4 shows that home consumption of iron and steel also increased after 1886, i.e. one year later than the revival in iron and steel exports. It was indeed the booming home market that underlay the expansion of production and investment in German iron, steel and coal industries after 1887, when overseas sale of iron and steel products peaked, following the pattern of variations in the US railway

GNP in that year by the ratio of gross investment to GNP during the ten years, 1889-1898. J. W. Kendrick (1961), T. S. Barry (1968)
 3 German exports of iron and steel increased by only 0.19 million tons during the upswing, whereas the rise in home iron and steel consumption amounted to 1.15 million tons. T. R. Burnham & G. O. Hoskins (1943) Appendix I, W. Feldenkirchen (1982) Tab: 66 & 67.

building. German gross investment is estimated to have risen by £127m during the 1886-90 upswing.⁴

Britain was probably more strongly affected by the US expansion through the trade channel than any other country: the value of exports from Britain into the US rose by £10.1m in 1885-1891. This compares with the £50.8m increase in total domestic merchandise exports from Britain during the Cycle III boom. Not only did the expansion of the US market account for a substantial part of the growth of British exports in the late 1880s, but also it was the US market that recovered earliest.(Fig VI-5)

At the same time, the start of the US economic upswing improved the atmosphere of London capital market, which led to the revival of British investment not only in the US, but also in undeveloped countries, particularly in Latin America(Fig VI-3).⁵ The capital lent to undeveloped areas seemed to stimulate UK exports. Thus, the US investment boom could be said to have induced the export-led expansion of the British economy both directly, i.e. through the increase in the US imports from Britain, and indirectly, i.e. by influencing favourably the prospects of British foreign investors, which was then translated into increased exports to mainly undeveloped capital importing areas.

4 Since only net investment data are available for Germany, the size of the increase in German gross investment was calculated by multiplying the magnitude of the rise in net investment by 1.84, the ratio of gross to net investment in the US during 1885-95. W. G. Hoffmann(1965), S. Kuznets(1961)

5 To understand the importance of the US securities in London capital market, it may be useful to note that not only did they dominate the capital issue in London during the Cycle I & II upswings, but also absorbed the largest share of new British portfolio investment during 1885-90, 24.6%, which is comparable with 16.2% and 16.8% for Argentina and Australasia, respectively. M. Simon(1968)&(1970), I. Stone(1972) The weight of British capital in the US domestic capital formation, however, was only 2.7% in 1885-1894. S. Kuznets(1961), I. Stone(1986)

Argentina probably attracted more attention from British investors than any other primary producer.⁶ In Argentina, in contrast to the US, foreign, mostly British, capital occupied a central position, financing between one third and one half of Argentine net physical investment⁷. Thus, when in 1885 capital inflow declined due to the world wide depression originating from the termination of the US railway boom in 1882/3, the home investment upswing starting from around 1880 came to a halt (Fig VII-1), although the investment opportunities opened in around 1880 remained almost intact. The downturn, however, proved to be minor and temporary: with the aforementioned recovery of optimism in the London capital market following the start of the US railway building boom, capital inflow and Argentine home investment resumed their growth, marking the start of the Argentine Cycle III.

The investment upswing in the late 1880s underlying the Argentine Cycle III boom took the form of railway building and land improvement. Of the two, the former could be regarded as the leading sector, in that it absorbed a greater portion of total capital than the latter, and also because the land boom was induced by railway construction, which opened vast areas for cultivation (Table VII-1). The investment boom, following the 1885 trough, reached a peak in 1889, and during the four years foreign capital inflow rose by £41.6m.⁸

6 Australia was the other major capital importing primary producer in the late 1880s: the direct estimate of British investment in Australia during 1885-90 amounted to £113.9m, which is comparable with £141.5m, the direct estimate of foreign capital flow into Argentina in the same years. N. G. Butlin (1962), J. E. Williams (1920)

7 C. F. Díaz Alejandro (1970) p.31

8 This figure was obtained on the basis of J. E. Williams' estimate lagged by one year, for reasons given in Section 1, Chapter VII. In comparing this figure with the magnitudes of the increases in the US and German home investment, £241m & £127m, respectively, it should

The Argentine home investment boom led to a £6.0m increase in her imports from Britain, which accounted for 34.2% of the total increase in Argentine merchandise imports during the Cycle III upswing. Comparing this amount with both the aforementioned £10.1m increase in British exports to the US and the £50.8m increase in total British merchandise exports, and considering the fact that British exports to Argentina picked up as early as those to the US, one sees the importance of the expansion of the Argentine market in the British export boom. It is worth repeating that, in contrast to the exports to the US, widening of the Argentine market on such a scale was closely related to the increase in the flow of funds from Britain.

The expansion of the US economy was also an important factor responsible for the French boom, which was led by exports. If total merchandise exports from France increased by £25.4m during 1885-90, the expansion of the US market was of the magnitude of £3m (1885-91). While the direct contribution of the US boom to French export growth was moderate, the prosperity in the US had more significant indirect effects: the US investment boom induced an export boom in Britain, as a result of which French exports to Britain rose by £8.2m during the three year boom, 1887-90. The boom in the US had further indirect effects via the revival of British investment in Argentina; French exports to Argentina rose by £3m in 1885-1889.⁹ With thus more than half of the cyclical increase in French merchandise exports is explicable in terms of the expansionary

be born in mind that imported capital financed only a part, though substantial, of total Argentine home investment.
 9 It is also possible that the revival of the US economy stimulated not only British but also French capital exports to Argentina, which contributed to the expansion of French merchandise exports to Argentina.

influences originating from the US¹⁰, the impact of the antecedent rise in French overseas lending between 1863-1888 upon French merchandise exports, if there was any, would appear of relatively minor importance.

It appears probable that the US investment boom gave rise to export-led booms not only in Britain and France, but also in many primary producing countries. While the US investment boom in the late 1880s resulted in the increase in exports from the rest of the world into the US amounting to £59.2m between 1885-93, the US imports from non-European primary producing countries rose by £36.2m.(Table VIII-1): most of the increase was due to the increase in imports from the American continent, Latin America in particular.¹¹ It should be noted that the increase in the value of imports from the non-European periphery reflected higher prices as well as the rise in import volume. On the other hand the expansionary effects of the US boom upon agricultural European countries through trade flows were far weaker: in the late 1880s the US imports from the European periphery grew by £8.4m.(Table VIII-1)

Since the domestic expansion of the US economy eventually brought about the international boom in the late 1880s, the increase in US exports could be expected to follow: the US merchandise exports revived one year after imports, and during the 1886-91 boom rose by £72m.(Fig IV-8, Table IV-1) This magnitude compares with the estimate of the size of the increase in the US gross home investment, £262m.

¹⁰ As we shall see shortly, much of the increase in French exports to other regions than these three countries could be considered as indirectly related to the expansion of the US economy.

¹¹ The largest increase of £18.8m was recorded in the US imports from Brazil.

Table VIII-1 Sizes of Cyclical Increase in Imports, £m

	US	Germany	UK	France
Total	59.2 (1885-93)	87.9 (1886-91)	85.5 (1886-91)	29.7 (1887-91)
from periphery	40.7 (1885-92)	66.0 (1886-91)	48.9 (1886-91)	17.0 (1887-91)
from non- European periphery	36.2 (1885-92)	30.8 (1885-91)	23.2 (1886-91)	
from European periphery	8.4 (1885-93)	38.8 (1886-90)	29.3 (1886-89)	

Source: US Department of Commerce(1961), B. R. Mitchell(1962),
Statistical Abstract for Principal and Other Foreign Countries

The international boom appeared also as the £42.3m increase in British exports to areas of the world other than the US and Argentina in 1886-90, which gave a further stimulus to the export upswing initiated by the revival of exports to the US and Argentina. The booming world economy also induced the expansion in British domestic capital formation: in particular, Britain being the world's freighter, the rise of investment in her shipping and its two related industries, open-hearth steel and coal mining, was prominent. Although the size of the increase in gross home investment, £29m, was far inferior to the magnitude of the rise in British domestic merchandise exports, £50.8m, the rise in investment activity led to the further expansion of the British economy. The upswing in Britain resulted in the £85.5m increase in her imports from the rest of the world in 1886-91.

As we have seen above, the expansion of the British market was important in the French export boom in the late 1880s. A more significant aspect of the prosperity in Britain was that through the increase in British imports the initial expansionary shock from the US was diffused over wider parts of the world, including Asia and Africa: whilst US imports from Asia increased by £4.1m and her imports from Africa hardly expanded in the late 1880s, exports from Asia and Africa into Britain rose by £8.3m & £2.3m, respectively. Most of the increase in British imports from Asia was accounted for by the increase in her imports from India amounting to £5.7m.¹² In addition to this, although in spite of geographical proximity the US upswing hardly affected Canada through trade flows¹³, it was almost

12 This may be compared with the total increase in Indian exports during the upswing, £19m.

13 The increase in the US imports from Canada was only £0.4m.

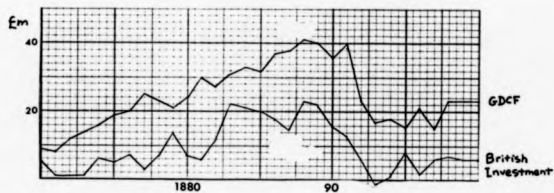
entirely through the rise in Canadian exports to Britain amounting to £6.4m that international expansionary forces were transmitted to Canada via trade flows.¹⁴

Although the revival of the US iron and steel market played a crucial role in the beginning of the German boom in the late 1880s, in quantitative terms the changes in home investment, the £127m increase, overwhelmed those in merchandise exports, which rose by only £24m. The booming German economy constituted another major expansionary shock for the world economy by enlarging its imports by £87.9m in 1886-91. As shown in Table VIII-1, the impact of the German prosperity via trade flows was felt, as in the British expansion, over various parts of the world. It was peripheral Europe that was affected by the German boom most strongly: during the upswing Germany increased her imports from the area by £38.8m. Its impact upon non-European primary producers, however, was scarcely weaker: the size of the rise in German imports from the region was £30.8m, exceeding the British influence upon the same area, £23.3m. Although more than half of the £30.8m increase was due to the rise in imports from Latin America, it was not so geographically concentrated as in the US: for instance, Germany expanded imports from India by £5.4m, from Africa and Australasia by around £2m each.

In Section 2 of Chapter II, it was shown that between the mid-1880s and the mid-1890s home investment made greater impact upon the level of activity in Australia than exports (second chart, Fig II-11), which was related to the fact that these years witnessed the downturn of a long Australian investment upswing (Fig VIII-1). If we

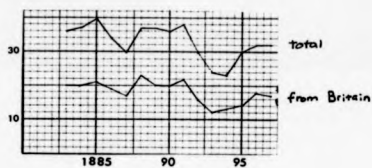
¹⁴ Total increase in Canadian exports during the upswing amounted to £6.4m.

Fig VIII-1 Australian Gross Domestic Capital Formation at Current Prices and British Investment in Australia



Source: N. G. Butlin(1962)

Fig VIII-2 Australian Import Value



Source: B. R. Mitchell(1962)&(1983)

regard, as in Argentina, the dip in 1885 in the course of the smooth long upswing as the starting point of the Australian Cycle III (Fig VIII-1), the post-1885 revival of Australian home investment seemed, in contrast to Argentina, to be to a great extent attributable to domestic factors. The acceleration of pastoral and agricultural investment in New South Wales after 1885, which was responsible for the revival, was due to the improvement in seasons and wool prices¹⁵; Australia being a major wool producer, her supply of wool had a significant influence upon the world wool prices¹⁶. More importantly, as we see in Fig VIII-1, in contrast to the Argentine case, the revival of investment from the dip in 1885 occurred, whilst capital imports from Britain, accounting for 51.1% of Australian gross domestic capital formation in 1885-90, were on the decline.¹⁷

If the upturn of investment from the 1885 trough is by no means explicable in terms of external factors alone, the short upswing between 1885-88, during which Australian home investment increased by £8.5m, hardly had significant expansionary effects upon the rest of the world: as Fig VIII-2 shows Australian imports remained largely stable in the latter half of the 1880s.¹⁸ Therefore, the mild and short Australian upswing in 1885-88 could be said to have occurred largely in isolation from the movements of the world economy in the latter half of the 1880s.

15 N. G. Butlin (1964) p.61

16 A. G. Ford (1956) p.44

17 According to A. R. Hall (1963) p.145, the decline in the flow of British capital into Australia was due to the heavy demand for funds from South America, South Africa and the US.

18 The pattern of variations in Australian imports reflected that in Australian imports from her main supplier, Britain, which in turn moved in close agreement with the capital inflow from Britain. See also W. A. Sinclair (1957) p.523

Fig VIII-3, showing the diffusion of expansionary shocks generated by the US, summarizes the discussion in this section. In Table VIII-1 & 2 are compared the sizes of major expansionary influences. Despite the fact that the largest increase in domestic investment was observed in the US (Table VIII-2), the rise in US imports was considerably smaller than those in German and British imports (Table VIII-1); the table also shows that the same can be said about the increase in the imports from undeveloped world. It appears that the relatively self-sufficient nature of the US economy with a strong agricultural sector goes far in explaining this. In the US, the increase in imports from the undeveloped world was mostly accounted for by the expansion of imports from the non-European primary producers, whereas for the rise in German and British imports from undeveloped areas both the European and non-European periphery were more or less equally responsible.

Fig VIII-3 International Upswing in the Late 1890s: Major Initial Shocks

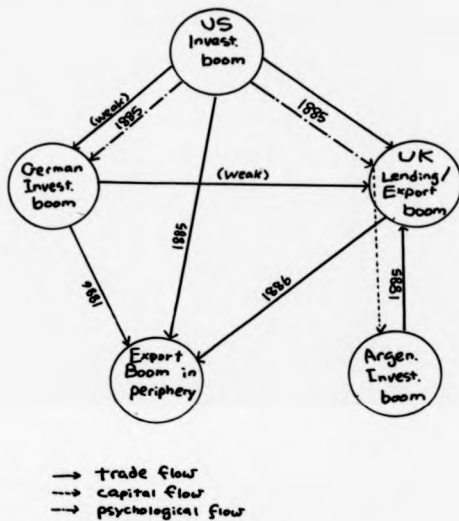


Table VIII-2 Sizes of Cyclical Changes in Gross Investment, £m

	US	Germany	Argentina*
increase	262 (1885-92)	127.0 (1886-90)	41.6 (1885-89)
decrease	189.3 (1892-96)	117.8 (1890-91)	48.0 (1889-92)

Source: J. W. Kendrick(1961), W. G. Hoffmann(1965), J. H. Williams(1920), N. G. Butlin(1964)

* Foreign investment only.

2. Downswing

Overbuilding of railways began to be observed in the course of 1888 in Argentina, as a result of which railway profitability deteriorated (Table VII-2), and which led to the downturn of stock prices in June and July of that year (Fig VII-3). Thus the long railway expansion starting from around 1880 came to an end. This, however, did not mean the end of the largely foreign financed Argentine home investment boom. Due to the effect of new railways on settlement, the land improvement boom continued after the downturn in the railway sector, which was probably behind the revival of stock prices from the end of 1888 (Fig VII-3). The slow progress in agricultural development around newly built railways and the consequent failure of Argentine exports to grow rapidly, which was at the bottom of the fall in railway profitability, led in the context of rapidly rising imports to a gold outflow and upsurge of the gold premium in 1889.¹ The rise in the gold premium appeared a crucial blow to the land improvement boom, as is evident in the coincidence of the acceleration of the gold premium and the downturn of stock prices in mid-1889 (Fig VII-3). For the rise in gold premium implied the reduction in the rate of return on cedulas, the interest on which was payable in paper pesos. Foreign capital inflow thus declined drastically, and the Argentine long investment upswing beginning from around 1880 was brought to an end. The virtual cessation of capital inflow brought about a balance of payment crisis in the presence of the burden of increased fixed interest

¹ Under the Argentine government guarantee of fixed return on railway investment, the worsening rate of profit in the railway sector also contributed to the rise in gold premium by increasing the government spending, which being unable to be financed by the increase in taxation led to the rise in paper currency circulation.

payments, and the crisis seemed to be aggravated by falling primary product prices. The decline of capital inflow in 1889-92 amounted to £48.0m.²

As the US railway building and consequently German iron and steel exports declined after 1887, the expansion of investment in the German iron and steel industry came to be justified by the booming home market, which was supported by the expansion in the building industry. Both the continued contraction of the overseas market for iron and steel after 1887 and the emergence of the state of partial overinvestment in building industry at the end of 1889, however, appeared to reverse the optimism regarding the future of German iron and steel and, consequently, coal industries. With the downturn of investment in the heavy industries (Fig III-4) and the consequent deterioration of employment opportunities in Rhineland and Westphalia, internal migration declined after the 1889 peak, delivering decisive contractionary shocks to, and bringing about the eventual downturn in, construction industry after the peak in 1891. Thus investment activities in iron and coal on the one hand and construction on the other hand shifted in opposite directions during 1889-91, the former declining and the latter expanding. The consequence was the 1890 peak in overall German domestic investment. German gross domestic investment is estimated to have fallen by £117.8m in 1890-91.³

It was as late as in 1892 that the US home investment reached a peak. The downturn of home investment in 1892 largely reflected

2 This figure is derived from J. H. Williams' estimate lagged by one year for the reasons given in Section 1, Chapter VII. We also assume that in 1893-95, for which Williams did not provide figures, no foreign capital was invested in Argentina.
3 For the method of estimation, see footnote 4 of Section 1, this chapter.

the movements of US building activity(Fig III-1). The expansion of the US building industry was dependent upon the progress in railroadization, which created profitable opportunities for building by opening up vast areas. With railway construction in depression since 1887, the expansion of US building activity had to come to an end, when in 1892 the possibilities of profitable construction opened until 1887 were used up and the state of overbuilding developed. During the four year downswing, 1892-96, US gross domestic capital formation declined by £189.3m.

These various deflationary forces, particularly those from Argentina and the US, were delivered to Britain via both trade and capital flows. In the first place, the Argentine downswing was accompanied by the decline in British investment in Argentina, and as a consequence merchandise exports from Britain to Argentina declined by £8.5m in 1889-91. Probably, the Argentine crisis was responsible for the decrease in British investment in the US after 1890(Fig VI-3), in view of the fact that the US investment upswing was maintained until 1892. On the other hand, whilst total merchandise imports into the US reached an upper turning point in 1893(Fig IV-8), British merchandise exports to the US peaked in the same year as British investment in the US, i.e. in 1890.(Fig VI-5) The downturn of merchandise exports to the US, however, did not seem to be closely related to that in capital exports, considering the insignificant position of British capital in the US domestic capital formation. Furthermore, it was not only British but also German and French exports to the US that peaked in 1890, whereas the exports from primary producers to the US mostly recorded peaks in 1892 or 1893, more consistently with the pattern of the US Cycle III. The discrepancy between the pattern of the US Cycle III, 1885(T)-1892(P)-

1894(T), and the cyclical pattern found in exports from the European countries to the US, 1885(T)-1890(P)-1894(T), appears attributable to both the McKinley Tariff Act and the industrial development in the US.⁴ The contraction of British exports to the US continued from 1890 until 1894, and amounted to £13.3m, and the sizes of decrease in British merchandise exports to Argentina and the US added up to £19.8m, which may be compared with the £47.5m fall in total British domestic merchandise exports in 1890-94. Thus, as in the beginning of the preceding upswing, the shifts in the level of activity in the two countries could be said to have been decisive in bringing an end to the British export boom⁵; however it needs to be made clear that, in contrast to the upturn in the mid-1880s, it was Argentina, rather than the US, which led the downturn.

The contractionary shocks generated by Argentina, the US and Britain were transmitted to France via trade flows: between 1889 and 1895 French exports to Argentina contracted by £5.0m; between 1890-94 French exports to the US and Britain fell by £5.7m and £4.5m, respectively. These contractions add up to £15.2m, whilst the total decline in French merchandise exports amounted to £27m in 1890-94. As in the upswing, German influences were marginal in the downswing: French exports to Germany rose by £2.6m in 1886-91, then fell by £1.6m in 1891-94. Thus, with more than half of the decline in French exports accounted for with the contraction of the US, British and Argentine markets, the contribution of the preceding contraction in French overseas investment after the 1888 peak to the decline in merchandise exports would not seem significant.⁶

4 W. A. Sinclair(1957) p.95,96

5 The effect of German depression was relatively weak: merchandise exports from Britain to Germany declined by only £1.7m.

6 As in the upswing, the possibility could not be precluded that the decline in French investment in Argentina accelerated the decline in French merchandise exports to Argentina.

The depression in these major industrial economies were transmitted to undeveloped countries mainly through the decline in the exports from the latter into the former. It is to be noted that the decline in export value was due to the fall in both export volume and prices. The exports from periphery to the US decreased by £27.9m in 1892-98, and most of the fall, £25.9m, occurred in the US import trade with non-European primary producers (Table VIII-3): as in the upswing the contraction in the imports from primary producers outside Europe largely reflected the US import trade with Latin American countries.⁷ In contrast, the decline in German imports from undeveloped countries during the downswing (£12.5m) is more than accounted for by the fall in the imports from European agricultural areas (£16.9m), because the increase in the exports from non-European undeveloped countries into Germany was not interrupted by the downswing (Table VIII-3). The absence of cyclical pattern in German imports from non-European primary producers and the US appears to reflect the emergence of these areas as suppliers of raw material and foodstuffs to Germany, replacing the European periphery, where industrialisation was in progress.

The downturn of the British economy resulted in the £30.7m decline in her total imports from 1881 to 1893; if more than half of this decline (£16.4m) was due to the fall in imports from undeveloped countries, in comparison with the US and Germany the contraction of British demand seemed to be spread in wider parts of the undeveloped world (Table VIII-3), diffusing initial contractionary shocks into remoter parts of the world. Thus, it was mainly the contraction of exports to Britain that was responsible for the start of

⁷ The US imports from Brazil alone declined by £12.5m.

Table VIII-3 Sizes of Cyclical Decrease in Imports, £m

	US	Germany	UK	France
total	51.4 (1883-98)	10.1 (1891-94)	30.7 (1891-93)	41.9 (1891-95)
from periphery	27.9 (1892-98)	12.5 (1891-92)	16.4 (1891-93)	27.8 (1891-95)
from non- European periphery	25.9 (1892-98)	n/a	10.0 (1891-93)	
from European periphery	6.6 (1893-94)	16.9 (1890-93)	13.0 (1889-92)	

Source: same as Table VIII-1

the Indian export downswing⁸, which was also the case for Canada.⁹ According to Table VIII-1 & 3, France, which had contributed to the expansion of primary producing countries to a far lesser extent than the other three industrial countries, recorded almost as large a decrease in her imports from the periphery as did the US, where the largest import contraction was observed.

Now the international depression not only accelerated the export downswing in Britain and France, but also appeared as the contraction of exports from the US and Germany. If in Britain the expansion of shipping capacity during the boom and the consequent fall in freights underlay the £4m decline in home investment, this was far less than the contraction of merchandise exports amounting to £48m. In contrast, in Germany and the US the opposite was the case: in the US the £46m fall in domestic exports compares with £189m decline in home investment, while German exports and home investment recorded decreases of £19m and £118m respectively.

Let us finally examine the Australian case. In fact, contractionary forces emerged earliest in Australia: Australian home investment reached a peak in 1888 and then declined slowly during the subsequent three years, to be followed by a sharper fall until the trough in 1897 (Fig VIII-1).¹⁰ The downturn in Australian home investment was related to the end of the residential investment boom in Victoria, occurring in the context of the decline in the rate of annual population growth after 1888, due mainly to the sharp fall in

⁸ While total Indian merchandise exports declined by £17m, British imports from India recorded a £10m decrease.

⁹ Total Canadian exports contracted during the 1893-94 downswing by £1.4m, which is equal to the size of the decline in Canadian exports to Britain.

¹⁰ Australian gross domestic capital formation recorded a fall of £25.3m between 1888-97, most of which £24.1m, occurred after 1891.

net immigration into Victoria.¹¹ It is, however, not clear to what extent the decline in immigration and the rate of population growth was the cause or the effect of the contraction of Victorian residential investment¹²; and, in so far as the demographic changes caused the downturn, to what extent domestic or external factors were responsible for the shifts in Victorian population.¹³

In whichever way the contraction of Victorian investment may be explained, the effects of the Australian downturn upon the world economy were hardly felt until after 1891: as Fig VIII-2 shows, Australian imports from the rest of the world remained almost constant during 1888-91. This may be related to both the aforementioned mildness of the decline of home investment in the first three years and the continued expansion of exports until 1891: if the former was explicable by the high level of activity maintained until 1891 in the other two major fields of investment, i.e. pastoral and agricultural industry and railway, the latter reflected the course of the British trade cycle.¹⁴ The sharp decline in Australian pastoral investment after 1891 is said to have been connected with the decreasing yield on new investment due to the cost rise resulting from the expansion of pastoral industry into newer and more arid regions; on the other hand, the adverse turn in the attitude of investors in London towards foreign government securities under the

11 E. A. Boshm(1971) p.145, Table 32

12 That is, the following two possibilities are conceivable: first the exogenous decline in immigration, say, due to stronger pull of other countries such as Argentina and the US, worsens profitability of Victorian building industry and brings about the downturn in building activity; secondly, boom in building industry, started for some reason, attracts immigrants, which reinforces the boom, but eventually overbuilding develops, and as a consequence building activity declines, which causes the fall in immigration.

13 That is, available data do not distinguish internal migration into Victoria from other colonies and immigration from abroad.

14 While total Australian merchandise exports declined by £4.7m in 1891-94, the exports from Australia to Britain fell by £3.9m.

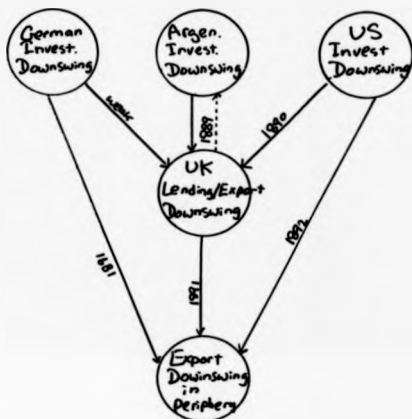
shadow of the Baring crisis appeared responsible for the end of active railway building in 1891.¹⁵

Therefore, it could be concluded that although weak depressive forces appeared in Australia after 1888, perhaps at least partly due to domestic causes, they were hardly felt outside Australia; and that the beginning of a real downswing was postponed until after 1891, largely due to the favourable international economic climate up to 1890, such as the optimism in London capital market and the expansion of the British economy.

Fig VIII-4 summarizes where contractionary shocks originated and how they were transmitted to the rest of the world. Comparing Fig VIII-3 & 4, one could easily note that if the upswing was initiated by an industrial economy, the US, a primary producer, Argentina, led the subsequent downswing. Comparing Table VIII-3 with VIII-1, one observes that while Germany and Britain were the major exporters of prosperity, the greater part of deflationary influences were sent to the rest of the world from the US and France. The US depression affected mainly non-European primary producers, while the contraction in German imports were mainly related to the decline of her imports from agricultural Europe, with her imports from non-European undeveloped regions continuing to increase during the depression in the early 1890s. As aforementioned, the contraction of the British economy affected both European and non-European primary producers to an almost equal extent through trade flows.

It was in Germany that the decline of national income was interrupted earliest, in 1891, which was related to the resumption of

Fig VIII-4 International Downswing in the Early 1890s: Major Initial Shocks



growth of home investment due mainly to the development of the electrical industry. After the trough in 1893 and 1894, home investment booms were inaugurated in Britain and France, respectively, for which was responsible the beginning of Kuznets upswing in the two countries. It was as late as after 1896 that a home investment upswing was started in the US, which reflected the growth of electricity-based industries. Thus, in contrast to the Cycle III upswing, the Cycle IV upswing was to be sustained by the rising level of domestic investment in the four leading industrial countries, while largely passive roles were attributable to primary producers.

3. The International Trade Cycle and the Gold Standard

In the ten-odd years with which we are concerned, India was a silver standard country, in Argentina there circulated inconvertible currency, whilst the monetary systems of the rest of our eight countries were based, entirely or partially, upon gold.¹ Data on the quantity of money and related financial series are available for the five of the eight countries, excluding France², Australia and India. Here, an attempt will be made to assess the role of money in the international trade cycle concerned mainly by clarifying why the money stocks of the five countries fluctuated procyclically. The cases of the four gold standard countries - Britain, Germany, the US and Canada - will first be examined, and then we turn to Argentina.

One could realistically assume that in pre-WWI years the short term shifts in national stocks of gold occurred largely as a result of international gold movements, rather than fluctuations in gold production. Gold flows into and out of a country appeared to be regulated by the state of its overall balance of payments, which was determined by current balance of payments and capital flows. While current balance and capital flows tended to vary, broadly speaking, so as to cancel each other out in major countries, they did not balance precisely, so that gold migrated to account for the residual differences between current and capital accounts. Let us examine the examples of two gold standard countries most actively involved in the international capital movements during Cycle III.

¹ For a summary of monetary histories of these countries, see footnote 1, Section 3, Chapter III and Section 4, Chapter VII.

² On the problems of the French money stock series estimated by M. Saint Marc (1983), see footnote 2, Section 3, Chapter III.

The gold outflow from Britain during the early years of the upswing was connected with the excess of long term foreign investment over current account surpluses, whereas in the later years of the upswing the rise in London short term interest rates attracted short-term capital and thus gold to Britain. The continued net inflow of gold into Britain during the downswing may be explained by the sharper decline in her capital exports than in her current account surplus(Fig VI-6 & 7). As far as the Cycle III years were concerned, when gold was flowing into Britain, the US tended to be losing gold, and vice versa. Thus, in the early years of the Cycle III upswing gold flowed into the US, which was explicable by the inflow of long-term and short-term capital surpassing the current account deficit. Then, the outflow of short term capital to London seemed to be mainly responsible for the outflow of gold from the US in the late years of the expansion. Finally, continued outflow of gold from the US during the subsequent depression resulted from the fall in the long term capital inflow, which overshadowed the improvement in her current account(Fig IV-11 & 12).

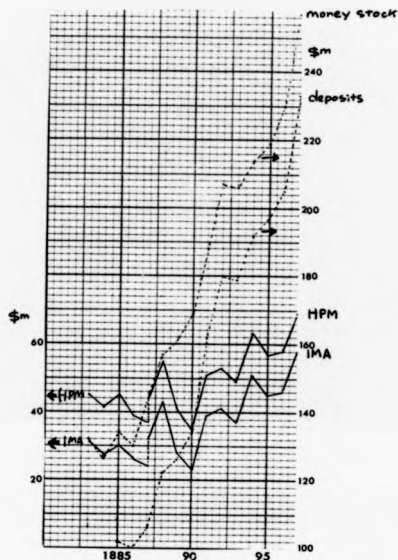
Partly due to government control over capital exports, the German surplus on current account and foreign lending moved in close agreement during the Cycle III years; uninterrupted inflow of gold on a relatively small scale was therefore observed(Fig V-9 & 10). The patterns of resulting variations in the national stocks of gold of these three countries were neither cyclical nor contracyclical: the US gold stock increased during the early years of Cycle III and then declined(Fig IV-12); almost exactly the opposite pattern is observable in the gold stock held in Britain(Fig VI-7); finally, German gold stock displayed continuous growth(Fig V-10). In Canada, commercial

banks are said to have held their reserves not only in the form of cash in Canada, but also in the form of short term foreign assets, which were called secondary reserves. Therefore, any discrepancy between the current balance of payments and capital flows would appear as variation in gold held in Canada plus various short term foreign assets, i.e. Canadian international monetary assets, rather than changes in gold stock alone. Canadian international monetary assets varied in a contracyclical way(Fig VIII-5).

Thus, whilst gold stocks or international monetary assets of the four gold standard fluctuated displaying varied patterns, in none of the four countries is observed a procyclical pattern in gold stock or international monetary assets. Variety in the pattern of fluctuations of national gold stock or international monetary assets led to the difference in the way in which monetary bases(high-powered money) of these countries moved: while the US and German monetary bases(Fig IV-18 and V-16) varied in a cyclical way, contracyclical and acyclical movements were observable in Canadian and British monetary bases, respectively(Fig VIII-5 and 6). It is further seen that the cyclical fluctuations of the US and German HPM do not agree with the pattern of variations in their gold stocks, while the acyclical movements of British HPM and contracyclical changes in Canadian HPM reflected the shifts in their gold stock or international monetary assets.

The precise correspondence between the movements of Canadian international monetary assets and HPM probably resulted from the fact that from 1887 on Dominion notes issued by the Canadian

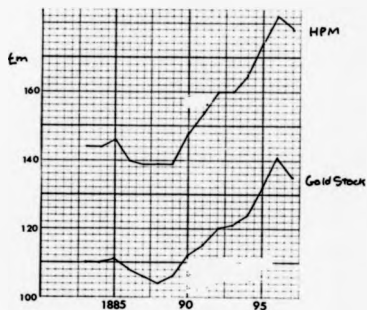
Fig VIII-5 Canadian International Monetary Assets, High-Powered Money and Money Stock



Source: M. C. Urquhart & K. A. Buckley(1965), R. Rich(1987)

* Change in tabulation in 1997.

Fig VIII-6 UK High-Powered Money and National Stock of Gold



Source: B. R. Mitchell(1962), F. Capie & A. Webber(1985)

government, 'were issued almost exclusively against gold'.³ Thus the Canadian government, assuming a part of the responsibilities of a non-existent central bank, could be said to have 'followed closely the so-called gold standard "rules of the game"'.⁴

The British monetary base in the years concerned comprised i) bankers' balances at the Bank of England, as well as ii) the currency in circulation. It was Peel's Act, requiring the volume of currency outside the Issue Department of the Bank of England to vary in close agreement with the national stock of gold⁵, that goes far to explain the agreement between the fluctuations in HPM and gold stock in Britain. On the other hand, if the parallelism was not so close as in Canada, but only broad, this was mainly due to the cyclical elements in the other component of British HPM, i.e. bankers' balances at the Banking Department of the Bank of England. The cyclical pattern in bankers' balances at the Banking Department was mainly responsible for the cyclical variations in the Banking Department deposits and the consequent contracyclical variations in the 'Proportion', i.e. the reserve/deposit ratio of the Banking Department (Fig VI-15). Professor C. A. E. Goodhart (1972) interpreted such movements in the Banking Department deposits and the Proportion as revealing the accommodating response on the part of the Bank to the application for liquidity from the banking system. Therefore, it may be concluded that the rules of the gold standard game in Nurkse's sense were not observed in Britain as rigorously as in Canada.

³ Canadian HPM, estimated by G. Rich (1987), includes i) Dominion notes in circulation, ii) gold reserve of chartered banks, and iii) foreign short term assets of chartered banks.

⁴ G. Rich (1977) p. 4, 11. Dr. Rich is here obviously interpreting the rules of the game in Nurkse's sense, according to whom the rules dictate central banks to change their holdings of domestic assets in the same direction as changes in their holdings of international assets.

⁵ See footnote 5, Section 4, Chapter VI.

The cyclical variations of German HPM, approximated by currency in circulation plus the Reichsbank giro deposits, suggest (in the absence of any cyclical elements in German gold stock) that the rules of the game were violated more frequently in Germany. Fig V-15 shows that the Reichsbank notes in circulation and the gold and coins held in the Reichsbank moved in opposite directions in the years around the upper turning point: the former moved cyclically, whereas the latter tended to vary in a rather contracyclical way. It would appear reasonable to consider this as the consequence of the Reichsbank having varied its note issue according to the changes in demand for currency without much regard to the state of its cash reserve. Since on the other hand the metallic currency outside the Reichsbank also moved cyclically, reflecting the shifts in demand and resulting in the aforementioned contracyclical pattern in the gold and coins in the Reichsbank (Fig V-14), the currency in circulation, consisting roughly of the Reichsbank notes and coins in circulation, also displayed cyclical fluctuations.

The other component of German monetary base, the Reichsbank giro deposits, also seemed to reveal cyclical variations. Since this occurred in the face of contracyclical variations in the Reichsbank cash reserve, one could realistically regard the cyclical pattern in the Reichsbank giro deposits as resulting from the fact that the Reichsbank by and large passively satisfied changing levels of demand for cash from the economy. Therefore, it would follow that the cyclical pattern found in the German monetary base reflected the shifts in demand for currency in the course of the trade cycle.

The US HPM under the National Banking System is defined as the total stock of currency in the US minus the cash held in the Treasury. The volume of total cash in the US showed a distinct rising trend, along which mild and irregular short term variations are observable (Fig IV-18). Such growth and fluctuations in the total US stock of currency were explicable in terms of not only i) international gold flows, but also ii) silver laws and iii) budget balance and the Treasury operations, affecting the profitability of the issue of national bank notes.⁶ On the other hand, the Treasury cash moved roughly in a contracyclical way, which together with the more or less linear rising trend in total stock of cash in the US produced broadly cyclical changes in the US HPM (Fig IV-18). The contracyclical pattern in the variations of cash held in the US Treasury was closely connected with the fact that public debt retirement tended to exceed the budget surplus during the Cycle III upswing, and that government borrowing was greater than the budget deficit in the following depression. It is important to stress that the Treasury's decision on the level of public debt retirement or government borrowing relative to government budget balances was affected by the considerations as to the state of the US economy and demand for money.⁷ In other words, in the US, as in Germany, the cyclical pattern found in monetary base at least partly reflected changing demand for currency.

In all of the four gold standard countries, currency held by the public showed cyclical fluctuations⁸, regardless of the pattern of variations in monetary base. This would suggest that the movements of the currency held in the hands of the public were related to the

⁶ See Section 4, Chapter IV.

⁷ O. M. W. Sprague (1910) Note F, Appendix.

⁸ For Canada, data on currency held by the public are unavailable; Dominion notes held by the public varied cyclically.

procyclically changing level of demand for cash. On the other hand, bank reserves appeared to be determined largely⁹ as residual differences between HPM and currency held by the public, and consequently fluctuated following various patterns: the US bank reserve moved contracyclically, while the reserves of German and British banking system showed acyclical fluctuations (Fig IV-20, Fig V-16, Fig VI-17); although data on Canadian bank reserves are unavailable, contracyclical changes in monetary base and the probable cyclical variations in currency held by the public would imply contracyclical variations in Canadian bank reserves.

Deposits built upon these non-cyclically moving bank reserves varied in a cyclical way along distinct upward trends in all of the four gold standard countries. Since the other component of money stock, currency held by the public, also changed cyclically, the result was the cyclical fluctuations of the volume of money in the four countries along strong rising trends in the Cycle III years (Fig IV-22, V-17, VI-18, VIII-5). The other consequence of cyclical fluctuations of deposits in the face of non-cyclically moving bank reserves was the contracyclical pattern in reserve/deposit ratio of the US and British banking systems (Fig IV-23 & VI-19); the probable contracyclical fluctuations in Canadian bank reserve, coupled with the cyclical variations in Canadian deposits, would have produced contracyclical changes in Canadian reserve/deposit ratio, too. In contrast, reflecting the predominance of rising trends in both deposits and bank reserves, German reserve/deposit ratio remained relatively stable in the Cycle III years (Fig V-18).

⁹ As we see in the cyclical elements in the fluctuations of the Bank of England Banking Department deposits and the Reichsbank giro deposits, to some extent bank reserves were also affected by cyclical changes in demand for cash.

The contracyclical variations in reserve/deposit ratio in the US, Britain and Canada seem to suggest that the cyclical fluctuations in deposits of the three countries resulted mainly from similarly changing demand for money, rather than from the shifts in conditions governing credit creation by banking systems: commercial banks of the three countries increased the supply of deposit money in spite of deteriorating reserve position during the upswing, and vice versa. Cyclical patterns in short term interest rates in Britain, Germany and the US (Fig III-25) are consistent with the direction of causation running from demand to supply: if supply conditions were the main determinant of the cyclical pattern in the fluctuations of deposits, short term interest rates would have moved contracyclically. Further evidence exists indicating the central role of demand in the determination of the supply of deposits: diverging patterns of variations in bank reserves between eastern and western states of the US¹⁰; difference in the pattern of movements of the volume of credit given by means of various methods in Germany, i.e. bill discount, lending against collateral and current account credit¹¹; cyclical pattern in the ratio of advances to discounts made by the British banking system.¹²

Thus we are led to conclude that in the four gold standard countries cyclical variations in money stock reflected largely changing states of demand for money, which would imply that money played an accommodating rather than leading role in the trade cycle of these countries.

¹⁰ See Section 4, Chapter IV.

¹¹ See Section 4, Chapter V.

¹² C. A. E. Goodhart (1972) Chapter 15. On the accommodating behaviour of Canadian banking sector, see R. Rich (1984).

In Argentina, where the use of cheques is said not to have been popularized in the years concerned, money stock could more realistically be defined as the volume of currency held by the public. While the data on the quantity of paper pesos in the hands of the Argentine public are unavailable, the variations in the volume of currency in circulation probably reflected those in the quantity of pesos held by the non-bank public. In gold terms, paper pesos in circulation increased in 1885-1888, fell slightly in 1889, and then reached a peak in 1890 to fall back to the trough in the following year (Fig VII-15). In increasing the supply of currency, Argentine banks were required to purchase national gold bonds with gold, most of which they had to borrow from Europe at 'extremely high interest rates and by paying high commission charges'¹³. Furthermore, the regulations concerning note issue were often violated, with 'less than 40% of the total value of bonds' having been paid for in gold.¹⁴ These circumstances behind the rise in note issue during the upswing would suggest that the expansion of paper peso circulation in gold terms in 1885-88 had more to do with the increasing demand for money than with any favourable turn in currency supply conditions of the banking system. Besides rising demand, both corruption and the widening gap between government income and expenditure also appeared to contribute to the increase in paper currency circulation.

The decline in currency circulation in gold terms in 1889, in spite of continued economic expansion, was explicable by the rise in gold premium. (Fig VII-16) The soaring gold premium was closely connected with the gold outflow in 1889, resulting from excessive imports relatively to exports and foreign borrowing, and brought

¹³ A. M. Quintero-Ramos (1965) p.88, 89

¹⁴ J. E. Williams (1920) p.59

about rapid domestic price rises, under the condition of the prices of important products being fixed in the world market. Thus, at the end of 1888, in spite of the continued increase in issue in paper terms, scarcity of money and financial tension developed. The banking system, however, seemed unable to counterbalance the rising gold premium and the consequent inflation and monetary stringency by expanding note issue at a faster rate, because the rising gold premium, due to its effect upon the return on cédulas, at the same time made it extremely difficult to borrow gold in Europe. The monetary shortage accelerated the downswing already in progress and culminated in the banking crisis beginning in April 1890. The Argentine government tried to stave off the crisis both by the suspension of the Free Banking Law, limiting, if only in theory, the issue of paper pesos, and by resorting to the clandestine issue amounting to around 35 million gold pesos. The consequence was that in gold terms paper peso in circulation reached a peak in 1890. The fall in Argentine currency in circulation in 1891 was probably linked mainly with the collapse of most of major banks including the two giants, Banco Nacional and Banco de la Provincial de Buenos Aires, during the crisis.¹⁵ The rise in paper pesos in circulation in 1892 and 1893 seemed to be connected with the financial reconstruction after the crisis, during which new government paper money was pumped into the economy, with the old bank notes being cancelled slowly. In the variations of paper pesos in circulation, therefore, role of demand for money appeared prominent, along with other factors including the gold premium and financial crisis.

The short-term interest rates in our four industrial countries - Britain, the US, Germany and France - moved broadly in a parallel

¹⁵ While in October 1888 the number of banks was 52, M. G. Mulhall (1892) lists in April 1892 only 12 banks as of any substance.

and cyclical fashion(Fig III-25), while those in Canada appeared to remain more or less stable¹⁶. As far as the developed countries are concerned, it appears first of all that the expansion and contraction in the demand for money during the up- and downswing worked in the direction of producing cyclical changes in short-term interest rates, which induced banks to vary their supply of credit accordingly. At the same time, it also seemed the case that the rise in short-term interest rates in London in the late 1880s had the effect of attracting short-term funds and gold to London from the rest of the world. This contributed to the synchronous rise of short-term rates in other financial centres in the late years of the Cycle III boom, for this meant a reduced supply of short term funds and induced defensive action by central banks against the loss of gold. The rise in London rates during the Cycle III upswing appeared to be attributable both to the money market mechanism and to the conscious action of the Bank of England against the outflow of gold. The latter aspect, however, appeared less important than in later trade cycles. For it is said that in the 1880s the Bank of England had great difficulty in making the Bank rate effective due both to the relative decline in its position in the money market and to the survival of the competitive feeling between the Bank of England and the rest of the banking system; and that it was only after the Baring crisis that the Bank of England regained the control over the money market through moral suasion.¹⁷ According to G. Rich, the relative stability in the movements of the short term rates in Canada is related to the simultaneous changes in the demand for and supply of money in Canada.¹⁸

¹⁶ G. Rich(1977)

¹⁷ W. T. C. King(1936) Chapter IX

¹⁸ G. Rich(1977)

Financial crisis situations developed around the upper turning point of Cycle III in four of the five countries under consideration: in April 1890 in Argentina, in November 1890 in Britain, in April 1893 in Australia and in May 1893 in the US. A feature common to the four crises was that they broke out well after the real economies passed upper turning points: the Australian crisis occurred almost five years after the investment peak in 1888, whereas in the other three cases, a one year gap is observed. It appears that the deterioration in the economic climate after the cyclical peak affected the liquidity position of commercial and financial firms in an adverse way through the unavailability of goods and financial assets, bad debts etc., which culminated in the bankruptcy of one or more of them, triggering widespread crisis through a financial chain. The role of the central bank as lender of last resort appeared important in determining the severity of crises: while in the other three countries lacking central banks the financial crises spread over and affected wider parts of the economies, the Baring crisis in Britain was deprived of much of its destructive momentum, and was allowed to affect the City only to a limited extent by the rescue operation organized by the Bank of England with the assistance from other City institutions.¹⁹

The four financial crises did not appear to be related to one another to any significant extent, except the British and Argentine crises. While it appeared true that the Baring crisis affected the capital flow from Britain to the US adversely after 1890, it hardly

¹⁹ The Baring crisis seemed potentially of no less severity than the other three crises: if left to run its course, it could have threatened the status of the bills on London, and therefore the invisible and visible trade of Britain. L. S. Pressnell (1986). R. A. Batchelor (1986) p.71, however, is of a different opinion: he says that in the case of the Baring crisis 'catastrophe probably did not threaten, since the system was well informed about the relative risks being run by the major banks.'

had anything to do with the 1893 US crisis. As was seen in the preceding section, the Baring crisis also seemed to accelerate contraction of British lending to Australia, which had begun after the 1888 peak. According to E. A. Boehm, however, 'the banking crisis in Australia in 1893 would have occurred largely as it did whether British depositors had intended to withdraw or not.'²⁸ In spite of temporal proximity, the US and Australian crises appeared two isolated events, in view of the weak linkages between the two economies in terms of either capital or trade flows. The same may be said of the Argentine and Australian crises.

In none of the five countries did a monetary ceiling emerge to choke off a boom. A state close to a monetary ceiling did develop, paradoxically, in Argentina, whose currency was not tied directly to any kind of metal; initial and fundamental contractionary forces, however, appeared in the real sector before the dearth of money.

All in all, monetary forces appeared to have remained passive during the trade cycle under either gold or paper standard regimes: money stocks varied following the shifts in demand for money; financial crises appeared to have resulted from real contraction; a monetary ceiling is hardly observed to have initiated a downswing.

20 E. A. Boehm(1971) p.303. He also says on p.271, 'The depression itself was fundamentally caused by the collapse of public investment in communications and of private investment boom in the pastoral industry and building. The end of the investment boom had in turn meant the failure during 1891-2 of a large number of land, building and finance companies which had depended heavily upon the investment boom, have speculated excessively on its continuance, and could survive only so long as the boom lasted. The banking crisis then followed on the final and most critical phase of the major monetary readjustments which resulted from the collapse of the investment boom.' For a detailed account of the Australian crisis, see E. A. Boehm(1971) Chapter 10.

IX

CONCLUSIONS

Railway building on the American continent thus appeared to lie at the bottom of the global expansion in the late 1880s and contraction in the early 1890s, generating major initial cyclical shocks. Railways were by no means new in the years concerned: they came into being in 1825 and were first introduced in the US in the 1830s and in Argentina in the 1850s. In 1885, however, they were still 'new' on the American continent, in the sense that railroadization was not yet completed. The process of the introduction of railways into the US and Argentina was characterized by cyclical fluctuations of various durations, of which the shifts in railway building in 1885-1896 form a part. This was mainly because in these frontier-type economies with vast land mass railways assumed a pioneering role: they were usually built ahead of settlement to induce agricultural development around them, which created conditions for further expansion of railways. With a favourable environment for the start of a railway boom restored in the mid-1880s, i.e. improvement in the US railway profitability and the consequent reflux of foreign capital into Argentina, the upwings in railway investment were begun. Thus, expectations of entrepreneurs did not seem as exogenous as Keynes thought, but, as in Robertson, were affected by both the availability of innovations and the presence of conditions facilitating their application. Building ahead of demand could not continue indefinitely without

seriously worsening the profitability of railway companies, which explains the Argentine downturn. On the other hand, the contraction of the US railway building after 1887 marked the completion of the US railroadization.

Innovations did not appear such a dominant force in the cyclical fluctuations in Germany, Britain and many undeveloped countries in the years concerned. The German Cycle III appeared to be very much influenced by the state of US railway building through psychological channels: although the magnitude of the changes in German iron and steel exports to the US did not amount to very much, they seemed to have significant effects upon the prospects perceived by German iron and steel industrialists. Thus, again, the shifts in expectations would not appear purely autonomous.

In the British trade cycle, shocks from the US and Argentina were of central importance. They were transmitted via both trade flows and expectations of overseas investors; the impact through the latter channel was then translated into trade flow effects, particularly in Britain's relation with Argentina, where British capital financed a substantial part of domestic investment. These external shocks set the accelerator-multiplier mechanism in motion. Thus, the weak accelerator-multiplier model kept alive by erratic shocks would appear realistic approximation to the British cyclical experiences.

In none of the four countries, however, did we find evidence congruent with Hicks' explosive accelerator-multiplier model with a full employment ceiling. Neither was a monetary ceiling observed to develop around upper turning points to initiate downswings. By and large, monetary forces appeared to remain passive under either

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gold or paper standards: money supply varied largely in response to changing demand for money, rather than due to the shifts in gold stock or other conditions related to money supply; external gold flows had the nature of a residual in the context of broadly equilibrating movements between balances on current account and capital flows, and in consequence did not appear to be an effective channel through which cyclical influences could be transmitted from one economy to another; financial crises tending to occur after the downturn of real economy were not closely related with each other except for the connection between the British and Argentine crises, which suggests that international transmission of financial crises could not be considered as responsible for international synchronization of the trade cycles.

Therefore, trade and capital flows and, to a smaller extent, psychology appeared major channels of transmission of cyclical shocks. Finally, innovation and invention seemed to go far to explain how investment booms could start more or less simultaneously in two or more countries without close economic linkages: in a world with well-developed means of communication the emergence of a new set of technology would imply the opening up of investment opportunities in several countries on similar stages of economic development at roughly the same time. Thus, the termination of depression and the beginning of new investment upswings in the mid-1890s in the US and Germany were in the main attributable to the development of industries based upon new technology: electricity.

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