Finance Constraints and the Theory of Money

Selected Papers

S.C. TSIANG

Edited by
MEIR KOHN

With contributions by
JOHN HICKS, DAVID LAIDLER, and
ALAN STOCKMAN

ECONOMIC THEORY, ECONOMETRICS, AND MATHEMATICAL ECONOMICS

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Finance Constraints and the Theory of Money

Selected Papers

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Contents

Section II

Section III

Section IV

Section V

Preface

Following the Keynesian Revolution, and largely because of it, the theory of money underwent a long period of confusion and controversy, out of which it is only now beginning to emerge.

The focus of the *General Theory* was on macroeconomic coordination failure and the resulting unemployment; money and interest were of only secondary concern. However, because the existing theory of money and interest (call it the loanable funds theory) proved inconsistent with Keynes' income-expenditure mechanism—the key to his new concept of "unemployment equilibrium"—Keynes was forced to invent a new theory (the liquidity preference theory) that *was* consistent with it. It is increasingly recognized today that whatever the merits of Keynes' macroeconomics (and here, too, of course, opinions differ), his liquidity preference theory of money has proven to be a mistake.

The liquidity preference theory has undergone many incarnations, from the early Keynesian models of Hicks and of others, through Patinkin's Walrasian version and Tobin's portfolio-balance theory, to Wallace's overlapping-generations model. All of these versions have

followed Keynes in viewing money essentially as an asset, as a store of value, and in viewing the theory of money as a branch of the theory of portfolio choice.

This Keynesian theory of money breaks with a centuries-old tradition that has understood money primarily in terms of its function as a medium of exchange. That tradition, to which almost every monetary theorist before Keynes adhered, could be characterized as a "flow" approach to money in contrast with the "stock" approach of Keynes and his followers.

This volume gathers together the work of one of the most cogent critics of the Keynesian stock approach to money in all its forms and one of the foremost champions of the flow approach—S. C. Tsiang.

Tsiang's criticism of the liquidity preference theory began with his "Note on Speculation and Income Stability," published in 1943 and reprinted here as Chapter 2. In it, he challenged the Keynesian account of how the speculative demand for money can transform investment shocks into fluctuations in spending. He showed that any attempt to make the story logically consistent leads back inexorably to the flow approach, and, in particular, to the Wicksellian mechanism of monetary accommodation by the banking system.

The clear implication is that the Keynesian income-expenditure theory should be combined not with a liquidity preference theory of money and interest but with a loanable funds theory à la Robertson. Tsiang attempts this in his "Liquidity Preference and Loanable Funds Theories, Multiplier and Velocity Analysis" (1956; Chapter 3). In "The Role of Money in Trade Balance Stability" (1961; Chapter 4), Tsiang takes the same approach to bringing money into Meade's theory of the balance of payments, in a paper that proven to be an influential precursor of the monetary approach to the balance of payments.

These points of theory are far from academic; they have profound implications for the conduct of policy. In "Fashions and Misconceptions in Monetary Theory and Their Influences on Financial and Banking Practices" (1979; Chapter 5), Tsiang draws on his experience at the IMF and as an economic adviser to the Nationalist government on Taiwan to show how Keynesian policies (low interest rates, inflation, and over-valued currencies) have proved to be a disaster for developing countries and how Taiwan's spectacular economic progress owes much to its Robertsonian monetary policy.

These papers make up Section I of the collection.

Section II takes up another strand in Tsiang's work, his criticism of

the Walrasian version of Keynesian monetary theory that has its roots in the work of Lange and Patinkin. In some respects, Tsiang's "Walras' Law, Say's Law and Liquidity Preference in General Equilibrium Analysis" (1966; Chapter 6) goes beyond the better known critiques of Patinkin by Hahn and Clower. Like Clower, Tsiang develops the idea of a constraint involving the medium of exchange–in addition to the usual budget constraint–as a way of giving money a distinctive role in a general equilibrium model. But unlike Clower's static "cash-in-advance constraint", Tsiang's "finance constraint" is fully dynamic and integrates borrowing and lending (so that money is not the only asset) as well as banks and money creation.

The chief application of Walrasian monetary theory (to be distinguished, of course, from the monetary theory of Walras), and in particular of the reliance on Walras' Law, has been in the monetary approach to the balance of payments. This application is discussed in Chapters 7, 8 and 9.

Tsiang has also been a consistent critic of yet another version of the Keynesian stock approach–Tobin's portfolio balance theory of money. This is the subject of Section III. In "The Rationale of the Mean-Standard Deviation Analysis" (1972; Chapter 10), Tsiang argues for the validity in general, as an approximation, of this type of portfolio theory, but he also argues that it is inappropriate as a basis for the demand for money; money is a "dominated asset" in terms of portfolio theory, so the demand for it must rest on other motives. In "The Diffusion of Reserves and the Money Supply Multiplier" (1978; Chapter 11), he therefore replaces the standard theory of the money supply multiplier, based on the portfolio demand for cash and various types of deposit, with a theory built on money flows and turnover rates. Tsiang's critique of Tobin is summarized in Chapter 12.

Section IV is devoted to Tsiang's critique of Friedman. In Chapter 13, he argues that Friedman's "theoretical framework" is essentially Keynesian. The alternative to Keynes is not Friedman but Robertson. Chapter 14 attacks Friedman's notion of the "optimum supply of money" as being based on a fallacy of composition. What is best for the individual, in terms of the return to money as a store of value, is not best for society as a whole, considering money's social role as a medium of exchange.

The collected papers are preceded by a newly written introduction (Chapter 1) in which Tsiang provides a valuable perspective on the development of his ideas. It also provides a fascinating look at the

tribulations to be endured by anyone critical of the fashion of the day in economic theory.

The volume concludes, in Section V, with three appreciative essays by distinguished monetary theorists. The first, by Sir John Hicks, is a reply to Tsiang's criticism of the liquidity preference theory. Hicks, of course, is one of the principal architects of that theory, as well as being, in recent years, one of its most forceful critics. The second, by David Laidler, puts both Tsiang's criticism and the theory he criticizes into the historical perspective of the development of monetary thought. The third, by Alan Stockman, surveys the application of the sort of monetary theory advocated by Tsiang in recent work in international economics. The work surveyed by Stockman is part of a broader resurgence of interest in the flow approach in its modern guise of the finance-constraint or cash-in-advance approach to money.

Meir Kohn

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S.C. Tsiang

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CHAPTER 1

Introduction

S. C. Tsiang

1. Background to the Development of My Thinking on Monetary Theory

This volume is a collection of a number of my papers on monetary theory written over a period that spans from 1943 to the present. I should perhaps beg indulgence for the inclusion of the earliest one, written when I was still a graduate student at the London School of Economics (then evacuated to Cambridge because of World War II). However, that paper shows quite clearly the origins of the line of thought that I followed almost unswervingly throughout my later work.

At the time that paper was written, Keynesian economics had already achieved a position of predominance, particularly in Cambridge, where even Professor Pigou, the venerable successor to Marshall, was then undergoing a gradual process of conversion and assimilation to Keynesian ideas. The younger LSE faculty (e.g. Lerner, Kaldor, and others) were gradually being won over by the Keynesian revolution and one by one joining the Keynesian camp even before the evacuation to Cambridge. However, the more senior LSE faculty, notably Hayek, Robbins, and Robertson, remained skeptical and critical of Keynes.

It was certainly a very exciting time for us young students. We were

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free while in Cambridge to attend the lectures of teachers of both schools. To hear the traditional Marshallian theory and that of the Austrian School expounded by Robertson and Hayek and then to hear the same theories mercilessly attacked and ridiculed by Mrs. Robinson and others was a very thrilling experience. It could not help but generate on our part a cautious and critical attitude towards the whole controversy.

Traditionally, the interest rate had been thought of as the price that established equilibrium in the market for loans, which in turn had been analyzed in terms of the demand and supply of flows of funds. But Keynes' revolutionary new theory now insisted that the chief components of the demand and supply of loanable funds, investment and savings respectively, were either equal to one another by definition or always automatically brought into equality by a timeless multiplier process. It would therefore be meaningless to treat them as independent and opposite forces on the sides of demand and supply. Keynes suggested instead, as the only sensible alternative, that the interest rate be regarded as the price paid for the advantage of holding money, the most liquid asset, in place of other, less liquid assets (or alternatively the compensation received for foregoing this liquidity). Thus he claimed that the interest rate should be regarded as being determined by the demand schedule for holding money and the stock of money in existence. Although the key Keynesian assertion that savings and investment are automatically equal had been demonstrated by Robertson to be a deceptive fallacy once the proper time sequence of the supply and demand for funds in the money market had been considered, the stock approach to monetary theory seemed to have taken root firmly on both sides of the Atlantic.

2. Why I Objected to the Stock Approach from the Start

From the very beginning I was greatly puzzled by the Keynesian view that a stock equilibrium approach was needed to understand the circulation of money and to explain why that circulation should sometimes swell up and sometimes ebb down. Indeed, I often wondered why an equilibrium between the voluntary demand to hold money and the total stock of money in existence should not lead to a cessation of the circular flow of money altogether. Since money is constantly flowing, it has always seemed to me, ever since my days as a student, that the

Wicksell-Robertson flow approach is more natural than Keynes' new-fangled stock approach in explaining fluctuations in money flows.

My doubts about the Keynesian stock approach were brought to a head by my reading of Nicholas (later Lord) Kaldor's celebrated 1939 article "Speculation and Income Stability." Kaldor's main thesis was that purchases of securities on the securities market by bull speculators, in the face of a rise in the demand for funds, would prevent the price of securities from falling sufficiently or even make it rise instead. This would create an excess demand for investable funds on the part of investors, above the supply of savings, which would have to be met by the speculators themselves. He claimed that this type of speculative purchase of securities would have an expansionary multiplier effect, and its converse, the speculative sale of securities by bear speculators, would have a contractionary multiplier effect.

In his analysis of the securities market, Kaldor employed the traditional flow approach in which savings and investment are treated as flows of the supply and demand for investable funds. His analysis showed how speculators could impede the proper functioning of this market and create a situation of excess demand or excess supply. He also pointed out quite clearly that speculators do not normally maintain a large supply of idle speculative balances on which they can draw when they buy securities; nor do they normally put the proceeds of their speculative sales of securities into such idle balances. Instead, they usually go to the short-term money market (usually through their agents, the stockbrokers) to raise the funds they need, and put the extra cash they acquire from their sales into short-term assets, or else use it to pay off their outstanding short-term debts (in particular, margin debts to their brokers). This naturally gives rise to the crucial questions of what would happen to the funds so transferred by the speculators to the short-term market and how the funds they transferred from the short-term to the long-term market, would be supplied by the former.

In discussing these crucial questions in relation to the short-term money market, Kaldor abandoned the traditional flow approach in favor of the then fashionable Keynesian approach that envisages the money market as operating in terms of the total stock demand for money and the total stock supply. The short-term rate of interest is thus supposed to be determined by the total stock of money and by the aggregate demand for money, which in turn is supposed to depend only on the level of income and on the interest rate. Since the activities of speculators in the long-term securities market have no immediate impact

on the level of income or on the stock of money, they are regarded as also having no immediate effect on the short-term interest rate. Kaldor concludes, therefore, that speculators, by bringing about an excess of investment over savings (or an excess of savings over investment) in the securities market would directly set off an expansionary (or contractionary) multiplier process. The role of speculators in transferring excess demand or supply from the securities market to the money market is thus completely lost.

Even though Kaldor's article was widely acclaimed at the time and apparently enjoyed the approval of Keynes himself, I made bold to point out in my 1943 critique that there is inherent in the stock approach to analysis of the money market this tendency to overlook flows, and I supported my argument with statistics on the U.S. during the great boom of the 1920s and the stock market crash of 1929.

Those statistics clearly showed that the great speculative fever on the New York Stock Exchange led to very heavy borrowings on the part of speculators buying on margin. These borrowings were reflected in steady increases in the volume of brokers' loans; in the U.S., brokers generally accommodated their customers' demand for funds in the first instance, passing on this demand to the short-term money market in the form of brokers' loans. These borrowings by proxy in the short-term money market on the part of speculators certainly had an impact on that market. The borrowings were closely paralleled by corresponding increases in the supply of bank money as the demand for brokers' loans was largely accommodated by banks. This accommodation was supported by the monetary authorities who were anxious not to let the short-term rate of interest fluctuate too much. From January 1923 to May 1928, the monthly average rate on stock exchange call loans never rose above 5.7%, while total brokers' loans outstanding expanded from $1,860m at the end of 1922 to $4,640m at the end of March 1928 (an increase of $2,780m).[1] This enormous increase in the demand for loans by brokers was clearly accommodated to a very large extent by an expansion in the supply of bank money, since over the same period the demand deposits of all member banks also increased rapidly from $15,728m at the end of 1922 to $18,227m at the end of March 1928 (an increase of $2,499m). Thus, this is a clear case of a Wicksellian cumulative expansion perpetrated in the name of stabilizing the short-term interest rate and of maintaining so-called orderly conditions in the money market.

It was only after June 1928 that the short-term rate was allowed to rise to 6.32% and then further to 8.86% in December the same year. In

1929, a serious effort seems to have been made to check the expansion of the money supply; while the volume of brokers' loans continued to increase from $6,440m at the end of 1928 to $8,525m on October 4th, 1929, demand deposits of member banks not only did not rise but actually fell somewhat from $21,167m in December 1928 to $19,426m on October 4th 1929.

After October 4th, speculative selling became an avalanche, and brokers' loans, which reflected speculators' purchases on margin, dropped precipitously from $8,525m on October 4th, 1929, to $4,110m at the end of December that year, a drop of $4,415m in less than three months. Apparently, the monetary authorities tried at first to keep the money supply from falling, letting the short-term interest rate bear the brunt. Thus the average short-term rate tumbled from 8.62% during the month of September to 4.88% during December, while the demand deposits of member banks actually rose slightly to $20,543m at the end of December from $19,426m in October, despite a drop in the volume of brokers' loans of $4.4 billion during the same period. After the end of the year, however, the monetary authorities seem to have given up the fight and let member bank demand deposits drop together with the further drop in brokers' loans. Thus, by the end of 1931 member bank demand deposits had dropped $4,790m below their level at the end of 1929 to $15,753m, paralleling the $3,395m drop in brokers' loans from $4,110m at the end of the preceding year to a mere $715m then.

It is obvious, therefore, that the transfer by speculators of the excess demand (or excess supply) of funds from the stock market to the money market in the real world does have a tremendous impact on the latter, and the so-called multiplier effect of speculation in the capital market alleged by Kaldor depends very much on how the excess demand (or excess supply) of funds will be financed (or absorbed) in the money market. However, Kaldor, who adopted a flow analysis with respect to the capital market but switched to a Keynesian stock analysis in dealing with the money market, totally overlooked the effects of these transferred flows, because the stock approach has an inherent difficulty in dealing with flows.

3. My First Attempt to Criticize the Liquidity Preference Theory Making Use of Keynes' Own Post-General Theory Concessions

When I came to the United States in 1949 to work for the International Monetary Fund, I found that the liquidity preference theory of

the rate of interest and the stock approach to the analysis of the money market had already been firmly accepted by the majority of American academic economists. Loanable funds theory and the traditional flow approach had come to be regarded as decisively refuted by Keynes and his followers and consequently had been banished from most textbooks and classrooms in the United States.

My own early analysis of speculation in the U.S. stock market in the 1920s and my later empirical work at the IMF[2] convinced me that the loanable funds approach was the more reliable and accurate method of analysis and that the newly fashionable liquidity preference approach had an inherent tendency to neglect important flow effects, often leading to incorrect conclusions. As a result, I ventured to challenge the prevailing orthodoxy by writing an article pointing out the common mistakes committed by practically all liquidity preference theorists in overlooking the flow elements of the demand and supply of money.

In that article, I pointed out that liquidity preference theory would become identical with loanable funds theory if (1) the flow elements of the transactions demand for money (Keynes' finance demand for liquidity) were fully taken into account and if (2) the adjustments in the stock demand to hold money in response to changes in the interest rate and other parameters could be assumed to be instantaneous. In practice, however, the flow nature of the transactions demand for money was persistently neglected by economists using the liquidity preference theory—Keynes himself, as well as Kaldor and other Keynesians. And although I too, like most Keynesians, assumed that adjustments in the stock demand for money could be regarded as being close enough to instantaneous, in actual fact, lags in response are inevitable, as well as rational in view of the costs of transactions and decisions. Full adjustment of the stock demand for money to the stock supply and to the ruling rate of interest cannot be completed instantaneously. Indeed, in a rapidly changing world, adjustments in stock demand may never be completed before the variables determining that demand, and the stock supply, have changed again.

Indeed, the first public critic of this article, G. Ackley (September 1957), actually used this noninstantaneous adjustment argument as a valid criticism of my attempt to reconcile the liquidity preference and loanable funds theories. Professor Ackley did not, however, seem to realize that while this argument does not affect the validity of the loanable funds theory, it does invalidate the claim of the liquidity preference theory that equilibrium between the stock demand and supply of money determines the rate of interest at every moment of

time. If equilibrium between the stock demand and supply of money cannot be attained at every moment or even for most of the time in a rapidly changing world, how can it determine the interest rate at every moment as claimed by the liquidity preference theory?

My article was accepted for publication by a conservative managing editor of the *American Economic Review* who perhaps shared my views and so published it as the leading article in that issue. Soon after its publication, I was pleasantly surprised to receive letters of appreciation from some very eminent, though mostly conservative, economists, such as D. H. Robertson himself (then still teaching at Cambridge), Jacob Viner (then at Princeton), Fritz Machlup (then at Johns Hopkins), H. G. Johnson (then at Manchester), Lawrence Seltzer, Lowell Harris, Hla Myint, Murray Kemp, and others. This naturally gave me much needed encouragement.

Professor Robertson's letter was particularly touching. It began, "I have just read your recent article in the *A.E.R.* with great interest and appreciation. So far as I can judge, it really clears these matters up completely. . ." and concluded, "Again many compliments, and—if I may be so egotistical—warm thanks for the rigorous demonstration that I have not been talking utter rot all these years."

I also received a letter of a different sort from Professor A. H. Hansen of Harvard, who rebuked me for treating income (actually disposable income) as a given predetermined variable, as he insisted that it must be determined jointly with the interest rate as in the Keynesian model. I answered that, since we obviously cannot start our analysis from a day that has no yesterday, all that happened yesterday must be taken as given. Thus, income received yesterday and disposable today should always be treated as predetermined, while income to be earned today should indeed be regarded as determined today together with today's interest rate. It was this failure to distinguish sharply between the incomes of different dates that caused many of the confusions in Keynes' theory. I never received a reply from Professor Hansen, so I never learned what kind of reaction he had to my unrepentant attitude, nor what he finally thought of my article.

4. My Encounter with "Walras' Law"

A much more serious criticism came two years later from Professor Patinkin in his article "Liquidity Preference and Loanable Funds: Stock and Flow Analysis" (*Economica*, November 1958). His argument was

based on what O. Lange termed the "Walras Law" in his 1942 article "Say's Law: Restatement and Criticism." Lange in turn probably picked up the idea from Hicks' demonstration of the equivalence between loanable funds and liquidity preference theories in his *Value and Capital*.

I was never really satisfied with this demonstration by Hicks, nor was I happy with the attempt along similar lines by W. Feller and H. M. Somers (which was also based on "Walras' Law"). In my 1956 article, however, I was able only to point out how unconvincing the proof of equivalence on the basis of Walras' axiom was, but not to pinpoint exactly why Walras' Law should not be applied to monetary theory or exactly what went wrong in Hicks' and Patinkin's ostensibly very neat and logical arguments. The reading of the latter's 1958 article, however, further convinced me that something must definitely be wrong with this line of reasoning.

Although Patinkin showed that, by what he called Walras' Law, the loanable funds theory was totally equivalent to the liquidity preference theory, in the very same article he claimed that in a dynamic analysis the loanable funds theory and the liquidity preference theory could, on certain occasions, indicate that the interest rate would move in opposite directions. If, on the basis of Walras' Law, both the loanable funds theory and the liquidity preference theory are logically correct, how could they yield diametrically opposite results on certain occasions? This puzzling question could not help but convince me further that something must have gone wrong somewhere with this line of argument.

5. An Enlightenment or a Confusion?

I decided, therefore, to go back beyond the writings of Hicks and Patinkin to check the original work of Walras and Keynes in search of clues to the solution of this puzzle. First, I checked whether there were any references to Walras in Keynes. I found the only one in the *General Theory* to consist of a claim that Walras was strictly in the classical tradition in asserting that "the rate of interest is fixed at the point where saving, which represents the supply of new capital, is equal to the demand for it". (*General Theory*, p. 177). Obviously, Walras' general equilibrium approach and the "Walras' Law" were quite alien to Keynes.

Futhermore, some of Keynes' elaborations of his theory one year after the publication of the *General Theory* convinced me that the