Understanding the Evolution of Macroeconomic Thinking since 1717:

An International Monetary System Perspective*

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Abstract:

This paper proposes a way to understand the evolution of macroeconomic thinking. The macroeconomic thinking, not necessarily synonymous with macroeconomics, has been dealing with the questions of money and business cycles. Money and business cycles, in turn, have been closely connected with the international monetary arrangements such as the Gold Standard, the Bimetallic Standard, the Bretton Woods system, and the Flexible Exchange Rate. I shall argue that the evolution of macroeconomic thinking is best understood as the responses of economists to, and their interaction with, the changing monetary and exchange rate regimes. The theoretical foundation of the paper is rather simple: the so-called trilemma, or "irreconcilable or impossible trinity." A policymaker cannot simultaneously choose a fixed exchange rate, free mobility of capital, and domestic price stability via independent monetary policy. Facing this constraint, the policymaker can, at most, choose two from among these three goals. Therefore, further questions emerge: which goal or goals should be given priority from among these three, and what is the exact tool or mechanism that can ensure the achievement of preset policy goals. The answer to the first question determines the nature of international monetary arrangements, which, in turn, are shaped by political and economic factors. With respect to the second issue, institutions, or what we might call the institutional or social governance technology, play a crucial role. Throughout history, concerns over "unrestrained inflation" have been widespread, since there have always been strong incentives for a government to raise seigniorage by over-issuing money. The choice of international monetary arrangements depends on the availability, credibility, and effectiveness of a specific social governance technology that acts as a constraint upon policymakers, which, in turn, depend on the specific political and economic structure.

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I Introduction

The history of macroeconomics can be narrated in a wide variety of ways: one could describe the history as the ongoing attempts of economists to develop ever more rigorous analytical tools to understand macroeconomic phenomena, or one could emphasize the several theoretical and methodological turns in the evolution of macroeconomic thinking. In this paper, I focus on the relationship between events and ideas in the development of macroeconomic thinking and pay particular attention to the evolution of international monetary arrangements.

There has been a long debate about the exact relationship between events and ideas in the history of economic thought, but the significance of events in the development of macroeconomic ideas has rarely been doubted. As Dennis O'Brien asserts, "[M]ajor developments in macroeconomic theory have never been independent of the background against which they have emerged; this is particularly true of monetary theory" (O'Brien 2004, 164). As is emphasized in the literature, institutions are usually defined as the "rule of games" (North 1990) and they entail beliefs; monetary institutions are also anchored by beliefs and expectations. David Laidler has raised another interesting point: the behavior of economic agents depends on the specific models, beliefs, or ideas that they hold, and hence, a systematic investigation of them—the history of economic thought—should be an integral part of practicing economics (Laidler 2004; 2007). In this connection, policy issues should necessarily be emphasized as channels through which events and ideas interact with each other.

This paper proposes a method of understanding the evolution of macroeconomic thinking. Macroeconomic thinking, which is not necessarily synonymous with macroeconomics, has been dealing with questions of money and business cycles, the fluctuations of price level, output, and employment. Money and business cycles have been closely connected with international monetary arrangements such as the Gold Standard, the Bimetallic Standard, the Bretton Woods system, or the Flexible Exchange Rate, which we now have. I shall argue that the evolution of macroeconomic thinking is best understood as the responses of economists to, and their interaction with, the changing monetary and exchange rate regimes. The theoretical foundation of the paper is rather simple: the so-called trilemma, or "irreconcilable or impossible trinity." A policymaker cannot simultaneously choose a fixed exchange rate, free mobility of capital, and domestic price stability via independent monetary policy.[1] Facing this constraint, the policymaker can choose at most two from among these three goals. Therefore, further questions emerge: which goal or goals should be given priority from among the three, and what is the exact tool or mechanism to ensure the achievement of preset policy goals. The answer to the first question determines the nature of international monetary arrangements, which are shaped by political and economic factors. With respect to the second issue, institutions, or what we might call the institutional or social governance technology, play a crucial role. Throughout history, concerns over "unrestrained inflation" have been widespread, since there have always been strong incentives for a government to raise seigniorage

by over-issuing money. The choice of international monetary arrangement depends on the availability, credibility, and effectiveness of a specific social governance technology that acts as a constraint upon policymakers, which, in turn, depends on the specific political and economic structure.[2)]

Let us begin with several observations. First, for a long time, economists have been concerned with what we call growth and development, and certainly, the history of macroeconomic thinking must explore this aspect. After all, Adam Smith wrote *An Inquiry into the Nature and Causes of the Wealth of Nations*. Economists have engaged in a series of discussions about money and fluctuations of price level, output, and employment; the macroeconomics we know today has emerged from these discussions. Second, the history of economics is full of controversies, but the role of controversies in the history of monetary economics seems to be more significant in that it has furthered development in other fields of economics. Third, these controversies have in one way or the other revolved around the nature and desirability of international monetary arrangements. The works of Henry Thornton and David Ricardo were direct products of the Bullionist controversy; neo-classical monetary economics was closely involved with the "Great Depression" of the 1880s and with the controversy over the Bimetallic Standard. The interwar period leading to the Great Depression was both the hotbed of macroeconomic thinking (that culminated in the publication of John Maynard Keynes' *General Theory of Employment, Interest and Money*) and the emergence of "macroeconomics." The rise and fall of Keynesian macroeconomics corresponded with the Bretton Woods system.

This paper is drawn from previous literature on the history of macroeconomics and macroeconomic history. Scott Sumner focuses on the relationship between the evolution of macroeconomics and that of international monetary arrangements. He has argued that Keynesian economics was essentially a Gold Standard model in which monetary policy was constrained, that there were no sustained inflationary expectations due to the nature of the Gold Standard regime (Sumner 1999), and that the evolution of macroeconomics and the fluctuating popularity of the IS–LM model were explained by its relationship to international monetary regimes (Sumner 2004). According to Sumner, the IS–LM model presupposes the monetary policy conducted through nominal interest rate and does not distinguish between nominal and real interest rates. The model worked quite well and was hence popular in the low-inflation situation during the Bretton Woods system up to 1968. The onset of the Great Inflation in the 1970s and the breakdown of the system led to a decline in the popularity of the model. Since then, the Bretton Woods era economics has become a flourishing research field (Leeson 2003; Endres 2005; Cesarano 2006). Furthermore, macroeconomic historians such as Barry Eichengreen, Peter Temin, and Christina Romer are keenly aware of the importance of ideas in understanding history (Eichengreen 1992; Eichengreen and Temin 2003; Romer and Romer 2002). Though this paper shares a perspective similar to that of Sumner and others, it will argue beyond the periods that Sumner has analyzed. This paper is an attempt to place this literature in a wider context of macroeconomic history.

This paper is organized as follows. Section II focuses on the Gold Standard Era, which spanned more than a century, and on the bank restriction period and the Bimetallic controversy. Section III examines the double emergence of the Bretton Woods system and Keynesian economics in the interwar and post-WWII period. Section IV discusses the post-Bretton Woods era with an emphasis on attempts to find a better nominal anchor. The last section concludes the paper.

II The Long Gold Standard Era

Great Britain instituted the Gold Standard in 1717 by setting the price of gold at £3 17s. 10½d per ounce. The price remained the same until 1925, and the standard itself survived until 1931, with the exception of two notable intervals of suspension: 1797–1821 and 1914–1925. As is well-known, the Gold Standard was not the global monetary order before the 1880s, which was when other European economies formally adopted it: Bimetallism had been more prevalent for a long time (Redish 2000).

1. The Bullionist Controversy

The obvious starting point of monetary economics would be John Locke, or David Hume, or even earlier writers on money or the proponents of the quantity theory of money. As is evident from the price–specie–flow mechanism, it presupposed the existence of a commodity money standard; therefore, price level behavior was presumably anchored and stabilized in some intervals. Investigations into the behavior of price level had to wait until the Gold Standard was suspended.

The Bullionist controversy has been well-documented in literature (Viner 1937; Fetter 1965; Laidler 2000). Two economists, Henry Thornton and David Ricardo, who stood out as the Bullionists who had developed classical monetary theory based on the quantity theory of money, had explained the behavior of price level in terms of the amount of money circulated (including credit, if nonconvertible), had pointed out the responsibility of the Bank of England during the suspension, and had advocated the eventual return to the Gold Standard. They were no dogmatic proponents of the Gold Standard, and they recognized the adverse effects of sudden price changes on the real variables and the need for gradualism during the return, devaluation upon the return, and even suspension, if necessary (Laidler 2000; Humphrey 2004; Davis 2005).

Nevertheless, they did not advocate any monetary rule or international monetary order except the Gold Standard. It is true that Thornton believed in the effectiveness of paper credit "[I]n a commercial country, subjected to that moderate degree of occasional alarm and danger which we have experienced, gold is by no means that kind of circulating medium which is the most desirable" (Thornton 1802, 276). It is also true that Thornton was in favor of the discretionary conduct of monetary policy (259). He hardened his position by 1810, when he contributed to the draft of the Report from the Select Committee on the High Price of Bullion, the so-called Bullion report. The key problem with the Bank of England was its incompetence: "the Directors do not act up to the principle which they represent as one perfectly sound and safe, and must be considered, therefore, as possessing no distinct and

certain rule to guide their discretion in controlling the amount of their circulation"（Cannan 1925, 52）. At the core of the debate was the question of how to design a proper institutional structure for monetary management provided that the Bank of England, the only existent institution which could function as what would later be called a central bank, could not be trusted:

> The suspension of Cash payments has had the effect of committing into the hands of the Directors of the Bank of England, to be exercised by their sole discretion, the important charge of supplying the Country with that quantity of circulating medium which is exactly proportioned to the wants and occasions of the Public. In the judgment of the Committee, that is a trust, which it is unreasonable to expect that the Directors of the Bank of England should ever be able to discharge.（52）

Therefore, policy "errors are less to be imputed to the Bank Directors, than to be stated as the effect of a new system."（53）

David Ricardo also objected to an inconvertible currency, "a currency without a specific standard"（Ricardo 1816, 59; Davis 2005, 187）. His first reasons were theoretical and empirical: he believed that "no one has yet been able to offer any test by which we could ascertain the uniformity in the value of a money so constituted"（Ricardo 1816, 59）, and that what we now call the price index was very difficult to construct（60）. To this, he related his second, institutional point: without a proper index, or "test," "it would be exposed to all the fluctuations to which the ignorance or the interests of the issuers might subject to"（59）, with specific reference to the policy of the Bank of England. His distrust of the Bank of England was so great that he later advocated the establishment of a national bank and pursued a further reform of effective monetary policy, to include convertibility.

After the controversy and the resumption of cash payments in 1821, the Gold standard became an "article of faith": "Political economists by the 1830s had practically removed the monetary standard from the area of debate"（Fetter 1965, 140）. Frank Fetter called the unwillingness of political economists to discuss monetary standards a "puzzle"（142）, and offered three possible explanations, which were recent lessons of history, philosophy against intervention, and economics: "economists' distrust of the Bank of England policy in the Bank Restriction, and particularly of the defense of the real bills doctrine by the Bank and the Government; second, the feeling that any monetary arrangement that gave discretion . . . was bad in principle; and third, the assumption that changes in prices affected the distribution of income, but had little if any effect on the total of income and employment"（142）. The last two reasons are not convincing since the best classical writers did not deny discretion within some boundaries, and they did not deny—and in fact were concerned with—the real effects of the changes in prices on the economy, at least in the short-run. The first reason could be more convincing than the other two since classical economists were severely critical of the Bank of England, and that particular "lesson of history" was shared among them.[3)]

2. Neo-classical Economists and the Bimetallic Controversy

In the economies that adopted the Gold Standard, the price level first rose during the 1850s and declined from around 1873 to 1896. This was because the demand for gold increased relative to its supply. Although the so-called neo-classical economists were mainly concerned with solving the analytical issues of monetary economics, especially that of reconciling value and distribution theories, rather than with solving real-world issues (Laidler 1991), the link between neo-classical economics and real-world monetary issues could have been stronger than what has been usually assumed. A notable example is the "Great Depression" of the late nineteenth century, and the controversy surrounding Bimetallism and proposals for reforming the Gold Standard. The Great Depression then was associated with a mild deflation, and many contemporary discussions investigated the causes of deflation and possible remedies.[4)]

The list of economists that got involved with the Bimetallic controversy was quite impressive, and it included almost all major economists of the time from William Stanley Jevons, Alfred Marshall, Léon Walras, to Knut Wicksell (Laidler 1991, Chapter 6). As Laidler summarized, "one continuous thread runs through the discussion . . . , namely, the tension existing between, on the one hand, the quantity theory of money and theoretical ideas associated with it, and, on the other hand, the theoretical basis of the then existing, and indeed spreading, monetary system based upon gold" (Laidler 1991, 187). Classical writers adhered to the Gold Standard using the classical theory of natural value, while neo-classical writers questioned the desirability of the Gold Standard in terms of stabilizing the internal value of a currency. The neo-classical writers proposed a wide variety of monetary reform plans such as the "tabular standard" (Jevons, H. S. Foxwell), and "symmetalism" (Marshall). Wicksell went even further by suggesting an international paper standard in which price stability would be maintained by the international cooperation of central banks; this bears a striking resemblance to the current inflation targeting regime.

The most telling aspect of the controversy was, however, the classical defense of gold monometallism as the "natural" international monetary order. On the opposite side of the same coin, Sir Robert Giffen attacked bimetallism as both "a departure from the Free Trade principle" and "the management of a coinage with a view of artificially keeping a standard stable from period to period" (quoted in Laidler 1991, 161). The Gold Standard mentality became dogmatic and rigid, along with the dogmatic interpretation of the free trade principle.

The Gold Standard survived the first Great Depression. This survival was due to several factors. First, the system was rather flexible in dealing with shocks to it. When an economy faced negative shocks such as war or financial crisis, the country could suspend the Gold Standard and return to it later. This "contingent" clause gave the system sufficient flexibility to maintain the rule-based monetary order (Bordo and Rockoff 1996).[5)] Nevertheless, it is true that the controversy revealed the defects and—more importantly—the nature of international monetary order. As the Giffen–Marshall exchang-

es showed, no matter how "sacred" and "natural" the Gold Standard seemed, it was an institution. Another striking fact is the relationship between politics and monetary order. Popular sentiments against the ill effects of deflation caused by the Gold Standard drove this discussion, even though the American Populist movement symbolized by William Jennings Bryan did eventually fail.

III Keynesian Economics as a Bretton Woods Product

The outbreak of World War I led to the suspension of the Gold Standard in major countries. The attempt at reconstruction after the war eventually failed with the onset of the Great Depression. It was during the interwar period that the immediate precursor to macroeconomics emerged with the publication of Keynes' *General Theory* in 1936. This is considered to be a threshold event in the history of economic thought. The interwar instability of the gold standard regime opened up two possibilities: a new monetary order without gold convertibility, and new economic thinking conforming to it. The end products of this turbulent period were the Bretton Woods system and Keynesian economics, both of which were closely related to each other.

Economists such as Gustav Cassel, Irving Fisher, Ralph G. Hawtrey, and John Maynard Keynes contributed significantly to the co-evolution of institutions and ideas. The common thread of their contributions was the primacy and desirability of stabilization of the domestic price level with a view to the stabilization of employment and production. The proper starting point would be Irving Fisher, the American economist who came late into the Bimetallic controversy. His revival of the quantity theory of money was closely related to his quest for alternative international arrangements to the Gold Standard, such as the compensated dollar plan on the one hand and his quest for alternative rule for monetary policy on the other hand. However, his proposals were too radical to be considered seriously.[6)]

Since the brief flexible exchange rate era was marked with high and hyper-inflation episodes, the most notable example being the German hyper-inflation in 1923–24, the actual course was decidedly oriented toward the reconstruction of the Gold Standard system, with some modifications. Hawtrey, the "enlightened advocate of the restoration of gold," proposed the gold exchange standard system, with which Keynes concurred. Both Hawtrey and Keynes worked closely in drafting the resolutions at the Genoa conference in 1922. Keynes summarized the prevailing atmosphere quite succinctly: "It is natural, after what we have experienced, that prudent people should desiderate a standard of value which is independent of Finance Ministers and State Banks. The present state of affairs has allowed to the ignorance and frivolity of statesmen an ample opportunity of bringing about ruinous consequences in the economic field. It is felt that the general level of economic and financial education amongst statesmen and bankers is hardly such as to render innovations feasible or safe; that, in fact, a chief object of stabilising [*sic*] the exchanges is to strap down Ministers of Finance" (Keynes 1923, 169). However, Keynes countered: "the experience on which they are based is by no means fair to the capacities of statesmen and bankers. The

non-metallic standards, of which we have experience, have been anything rather than scientific experiments coolly carried out . . . . I do not see that the regulation of the standard of value is essentially more difficult than many other objects of less social necessity which we attain successfully" (169–70). Although he thought that "the gold standard [was] already a barbarous relic" (172), his practical proposal was the international cooperation of the two monetary authorities of the United States and Great Britain to "aim at the stability of the commodity value" of the currencies "rather than at stability of the gold-value" of the currencies (203).

The second Great Depression of the 1930s led to the collapse of the Gold Standard system. Deflationary forces were so severe that policymakers could not maintain the Gold Standard. Further, there was an important political change: policymakers could earlier have ignored the people's demand for action, but the democratization after WWI and the increased rigidities in wage and price settings in the economy made it increasingly difficult for them to ignore the voice of the people. As recent literature in economic history emphasizes, the Gold Standard was a propagating, if not the initiating, factor of the Great Depression (Eichengreen 1992), and contemporary economists were keenly aware of the "Golden Fetters," that is, the constraint of the Gold Standard on the conduct of macroeconomic policy. Policymakers and some economists resisted and argued against the abandonment of the Gold Standard. Some even argued against the need for counter-cyclical measures: the Gold Standard mentality was strong. However, in the end, there was no choice.[7)]

In economics, the stabilizationist perspective prevailed, but with an unintended result. The role of economists and the "prevailing atmosphere" was vital. By the end of the 1930s, they came to believe that the all too brief experiences of the flexible exchange rate episodes were a demonstration of the failure of market adjustment. This was later to be summarized in Ragnar Nurkse's classic account (Nurkse 1944; Bordo and James 2002). Moreover, they were not certain of the competence of monetary authorities to conduct proper monetary and fiscal policies. With respect to these factors, Keynes belonged to the "prevailing atmosphere": he led the argument during the 1920s for a managed currency, but after the suspension of the Gold Standard in Great Britain in 1931, he no longer did so.[8)] Price stability remained the most desirable goal, combined with the desirability of the stable exchange rate and the undesirability of free mobility of capital; the road to the Bretton Woods system was well-paved (Cesarano 2006).

Post-WWII macroeconomics was epitomized in the IS–LM framework, the essence of which is the static equilibrium theory of the aggregate variables. Important insights of pre-WWII macroeconomic thinking, such as dynamics, inter-temporal choice and expectations, and inter-temporal coordination failures "were lost with IS–LM" (Backhouse and Laidler 2004). Also lost was the concept of policy regimes. Post-WWII macroeconomics reflected a consensus among policymakers and economists regarding the international monetary order. This Nurkse–Bretton Woods consensus placed priority on fiscal policy, although the exact mechanism of

the relative effectiveness of fiscal and monetary policies under different exchange rate regimes was clarified later in the early 1960s by the development of the Mundell–Fleming Model and the IS–LM–BP version.[9] The order of developing from a closed-economy model to an open-economy model contrasts starkly with pre-WWII macroeconomic thinking, which had always assumed the international adjustment mechanism.

The significance of Milton Friedman's challenges (Friedman 1953) should be understood against the background of post-Depression Bretton Woods economics. Beneath the Bretton Woods system lay the fear of inflation. Jacob Viner's remark is quite telling: "cult, myth, rigidity, illogicality though it be, . . . is in many countries the sole surviving barrier to almost unrestrained inflation" (quoted in Leeson 2003, 45). Instead, Friedman was free of the so-called Gold Standard mentality that Viner referred to, and approached the question of price stability in terms of a logical calculation of costs and benefits. Friedman was not alone in his criticism of the Bretton Woods system, or in his case for a flexible exchange rate regime.[10] Roy Harrod and Gottfried Haberler also argued along similar lines, to name a few economists (Leeson 2003, Chapter 6). From the 1940s to the 1960s, economists became increasingly aware of the defects of the system such as the lack of adjustment of persistent imbalances, and they proposed reform plans to introduce greater flexibility in exchange rate determination; this was in the spirit of Friedman 1953. By around the late 1960s, a new academic consensus had been forged (Leeson 2003, Chapter 7).

IV　In Search of a Better Nominal Anchor

The breakdown of the Bretton Woods system between 1971 and 1973 marked the beginning of a renewed search for the consensus model. It also marked the beginning of the turbulent period called the Great Inflation. Recent studies on the Great Inflation episode reveal the several conditions under which this inflation became rampant. One of the most plausible explanations turns on the mistaken view of the economy that was held by policymakers and economists alike: they neglected the monetary explanation of inflation, and therefore, the importance of monetary policy (Mayer 1999; Nelson 2005). But this misconception was a by-product of a particular international monetary order, the Bretton Woods system, under which, monetary policy was not taken seriously, and was accorded at best a secondary role. The monetary policy neglect during and leading up to the period of the Great Inflation was strengthened under the Bretton Woods system. There was a bit of irony about the Bretton Woods consensus, however. The stabilization policy worked well in an environment in which expectations about price change were stable. This success encouraged the continuous use of the stabilization policy and eventually led to the destruction of the system. "It was easier before 1971 than after for policymakers to use monetary and fiscal policies to manipulate output and employment because policies with inflationary consequences were not expected to persist and hence their short-run stimulating effects were not neutralized by higher wages and costs. Stabilization policy was more effec-

tive" (Eichengreen 1993, 639).

The so-called Keynesian–Monetarist debate, which had reached a stalemate during the 1960s, was resolved in a varied manner: the IS–LM framework survived, with different interpretations and micro-foundations attached to it; much of monetarist critiques were absorbed into mainstream economics. By 1990, New Keynesian economists could claim that they could as well be called New Monetarists. The newly formed consensus is summarized as follows (Mishkin 2007; Goodfriend 2007):

- The Great Inflation brought the question of money to the fore: economics has rediscovered the importance of money ("money matters"). Milton Friedman's famous dictum, "inflation is always and everywhere a monetary phenomena," is taken now as a truth rather than a claim. In this sense, he prevailed. However, monetary targeting—monetarists' favorite mechanism to ensure price stability—was eventually abandoned or modified so much that it could not be identified as such.[11)]

- The significance of price stability is recognized. Price stability benefits in the long-run; in the short-run, there is a Phillips curve relationship between the unemployment rate and changes in the price level. However, policymakers cannot engineer an ever-decreasing unemployment rate by raising the rate of inflation.

- The Great Inflation was brought down by a firm "commitment" to price stability by monetary authorities. The importance of expectations was underscored. The advent of rational expectations along with developments of game theory contributed to a renewed understanding of the institutional structure of the conduct of monetary policy. Now it is argued that policymakers needed a commitment device to discipline themselves from deviating from the ideal of price stability. Discussions on the institutional governance structure of policymaking bodies lead to recognition of the role of central bank independence and rule-based conduct of policy. The insights of Simons' 1936 paper, which advocated the importance of rule-based conduct of economic policy, were revived.

- Commitment to a nominal variable, the "nominal anchor," has been greatly emphasized. Money supply growth rate, exchange rate, and inflation rate have been tried as targets for monetary policy. The way to ensure commitment varies, but from the 1990s, inflation targeting has become popular and widespread (Bernanke and Mishkin 1997; Bernanke et al. 1999).

- Interest in the relationship between the financial market and business cycles has revived. Irving Fisher's debt–deflation theory of depressions came back with new analytical tools of financial accelerator model with imperfect information.

The precise impact of current mainstream macroeconomics on economic policy is de-

batable.[12] Yet the current mainstream has rediscovered "lost" elements of pre-WWII macroeconomic thinking, and this rediscovery has a close relationship with the current international monetary regime. The current regime, often dubbed a "non-system," has been transforming into what might be called an Inflation Targeting regime (Rose 2007). It grew out of spontaneous responses to the need for a nominal anchor by governments and central banks, the notable examples being New Zealand and Great Britain. In this sense, the current regime is decentralized, and hence durable. The current regime also shares several characteristics with current mainstream macroeconomics. The basic premise is "constrained discretion," or "framework" (Bernanke and Mishkin 1997). It is supposed to be rigid enough to constrain central banks and stabilize expectations, but also flexible enough for central banks to deal with shocks to the economy. With central banks conducting monetary policy that aims at a certain range of inflation rates, the exchange rate will be determined, on principle, by differentials in targeted inflation rates (Mehrling 2002). As a result, the exchange rate movement will be stabilized as well.[13]

V　Concluding Remarks

Historically, specific institutions such as international monetary arrangements have exerted an enormous influence over the evolution of macroeconomic thinking. Major changes in macroeconomic thinking have coincided with major changes in international monetary orders. The common concern running through history was that of economists over price stability. There was an ebb and flow in their concern, but they have increasingly come to understand the desirability of price stability and the "managed" aspect of money. This desirability in turn depends on features of the economy such as price and wage rigidities and stickiness, and the strength of the voice of those who are affected by price changes. However, the policy goal of price stability conflicts with the stability of the exchange rate, and creates possible tensions between price stability and a particular form of international monetary order. This tension first manifested itself in the Gold Standard era, and culminated in the Great Depression of the 1930s. The tension resurfaced under the Bretton Woods system, and led to its demise. The current Inflation Targeting regime still survives, precisely because it places price stability at the top of policy priority.

The perceptions of events of various groups of people, not necessarily only economists, could play a vital role in the co-evolution of institutions and ideas. One driving force that determined the durability of international monetary arrangements was "lessons from history," which they drew from recent experience. The "prevailing atmosphere" surrounding the discussion exerted a great influence on the choice of international monetary arrangements, as was the case in the transition from the Gold Standard system to the Bretton Woods system. Also, these "lessons from history" should include the economists' assessment of institutional or social governance technology. For a long time, economists did not have a high regard for the competence of governments and central banks, and more often did not trust them. This judgment on the institutional mechanism ensuring price stability has constrained the way in

which economists have developed macroeconomic thinking.

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Notes

1) Empirically speaking, it is possible that the impossible trinity does not hold up in the strict sense, since there is a varying degree of laxness of each component. Obstfeld et al. 2005, however, show that the trilemma has held up empirically throughout the classical Gold Standard period to the present.

2) In this respect, it is no coincidence that Jean Bodin, who presented one of the earliest versions of the quantity theory of money, also advocated constitutionalism in the political sphere. In this connection, see Holmes 1995.

3) As for the Banking School–Currency School controversy, suffice it to say the following. First, the adherents of both schools worked on the same assumption of the convertibility, the Gold Standard being firmly established. A notable exception of the Birmingham economists, such as the Attwood brothers, did question the compatibility of the Gold Standard with other macroeconomic goals, but they were effectively marginalized in economics. Second, the economists were slow to recognize deposits as money, possessing what may be called the "desire to exclude deposits" (O'Brien 2004, 169). This attitude was closely related to the primacy of gold-backed currency.

4) Modern research sheds a different light on the period: Bordo and Redish found that the connection between inflation/deflation and boom/slow growth in the United States and Canada was "more coincidence than causation" (Bordo and Redish 2004, 213). The money supply shocks could explain the large part of the variations in the price lveel, while they did not explain the behavior of output. As they point out at the end of the paper, the possible transmission was considered from the changes in the price level to growth through "expectations and incomplete contracts, as in, for example, Irving Fisher's debt–deflation story."

5) There was also another causational linkage, however. The possibility of, or even a hint of a withdrawal from the Gold Standard would be a cause for financial panic, as happened in the United States in 1893.

6) Irving Fisher further proposed the price level targeting mandated by the Congress during the 1920s. For the evolution of the stabilizationist perspective before and after the Great Depression of the 1930s, see Wakatabe 2008.

7) After this period, what may be called liquidationism went out of fashion. The connection between liquidationism and the Gold Standard was clear: advocates of liquidationism such as Friedrich Hayek, Joseph Schumpeter, and Lionel Robbins also argued for the maintenance and restoration of the Gold Standard. For liquidationism, see De Long 1990. For the counterargument, see White 2008.

8) This apparent change of stance or discontinuity seems to be a mystery: one possible explanation would be that Keynes did not change his mind at all. He might have been thinking in terms of the Gold Standard framework all through his career (Sumner 1999). Nevertheless, the contrast between Keynes of the 1920s and Keynes of the 1930s was stark.

9) For the development of the IS–LM–BP model, see Young and Darity 2004.

10) One referee pointed out the possibility of Friedman being an "inflationist." The word has so many negative connotations that the precise definition becomes unclear, but it is wrong to call Friedman an inflationist. Fried-

man was convinced that all we needed was a stable rule to ensure price stability such as monetary targeting and that we could establish such a rule without any religious faith in a particular commodity. In this sense, he was free of the Gold Standard mentality.

11）Bernanke et al. argue that the Bundesbank's famous "monetary targeting" was in fact inflation targeting by another name, or "hybrid" inflation targeting（Bernanke et al. 1999, 41）. For a standard introduction to inflation targeting, see Bernanke and Mishkin 1997.

12）For contrasting views on the relationship between modern macroeconomic theory and policy, compare Mankiw 2006's skeptical view and Chari and Kehoe 2006's positive view.

13）Mehrling 2002 argues that the inflation targeting regime resembles the Gold Standard system, in particular, Hawtrey's version（Hawtrey 1913, 265）. The resemblance of the end result is similar, but the fundamental ideas of the two regimes are sharply different: the current regime is based on the primacy of price stabilization. Mehrling was correct to point out that even under the Gold Standard system, authorities began to conduct an embryonic price stabilization policy, and that it was precisely that kind of monetary policy that exacerbated the tension in the system.

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