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Introduction

The inception of the euro has been a fundamental change in the international monetary system since the abandonment of the Bretton Woods Agreement in 1973. The European Monetary Union (EMU) represents a regime change both in monetary and exchange rate policy regarding two main aspects. First: national monetary policy is deplaced by a non-national monetary policy guided by the European Central Bank (ECB) and the European System of Central Banks (ESCB). Second: Whereas one central aspect of the previous monetary policy disappeared, i.e. focusing on exchange rate stability within the Exchange Rate Mechanism I (ERM), another important aspect occured: The relation of exchange rates between euro, dollar and yen. Only the second aspect concerns me here in this paper.

A considerable feature of the euro is that this currency is a representation of divergent economies and a heterogenous financial market in Europe. The euro is a non-national and non-political currency. This is a decisive difference compared with the d-mark or the dollar. The different governments in the European Union do not have influence on the monetary policy of the ECB, since it is defined to be independent by their statute. By comparison, the dollar is a representation of national economic size and a homogeneous financial market. The Federal Reserve (Fed) in the USA is committed to price stability and to further macroeconomic goals as outlined in the Humphrey-Hawkins testimony. In contrast to the Fed, the inception of the euro goes back to a central bank without a government, whereas in Japan the political influence on monetary policy seems to be greater than elsewhere. According to the literature, the euro is

interpreted as a challenge to the dollar regarding certain functions of money, whereas the yen will continue to play a less significant role in the international monetary system. For certain reasons the yen shall be seen as part of the tripolar monetary system after the emergence of the euro.

The concern of this paper is to explain the notion of tripolarity focusing on a theoretical outline and to show the differences between the configuration of tripolarity in the eighties and nineties which were represented by the dollar, d-mark and yen compared with the tripolarity of the dollar, euro and yen at the turn of the millennium.[2] A main feature of the old and new tripolar currency regime is that the dollar, d-mark or euro respectively, and yen hardly represent identical scopes of the functions of money. This might lead to further instabilities in international monetary relations. Current debates on monetary coordination seem to be a response to volatility of exchange rates and persistent misrealignments.

The international monetary regime is guided neither by hidden laws nor by the invisible hand, as adherents to a *critical realistic approach* to economics assume (see Fleedwood 1999, Lawson 1997). The structures of the economy are due to decisions of market participants both official and private. Given the interpretation of economics as a social science, it is important to structure experience and the perceived world with categories and concepts. Since money is not neutral, monetary policy and exchange rate policy refer to certain circumstances of economic performance (Hahn 1982, Blinder 1998).

The new literature on monetary coordination left behind the idea of an optimizing approach which dominated the eighties and nineties (Hamada 1998). The aim of the new view is to interpret international monetary coordination as a regime

choice. Therefore economic interdependencies are not to identified as restrictions to domestic macropolicy as it had been previously throughout the past decades. I then would like to propose defining this approach for international coordination as a *challenge to shaping monetary coordination* (Muchlinski 1999b).

This paper is limited to special considerations on the function on international money and exchange rate regimes against certain historical backgrounds. To cover the literature on the history of exchange rate regimes, and particularly on the history of the pound sterling, the dollar, d-mark and the yen would require more space than available in this paper. The paper does not discuss details of the ECB, its statute and implications. I am sure I can be brief at this point.[3]

The paper is structured as follows. Part I reviews the functions of international money in light of an introduced theoretical outline for a configuration of tripolarity. Part II compares the old and new configuration of triplarity in a brief historical reconsideration. Part III surveys some basic features of exchange rate theories referring to proposals for improvements in the international monetary system. The purpose is to show how the literature on macroeconomic policy coordination has moved to a different understanding of this topic. And finally, part IV provides concluding remarks.

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[2] My concern is particularily to explain the foundations of a configuration of tripolarity. A modeling of the macropolicy within that configuration of tripolarity is not intended in this paper due to the lack of space; see Muchlinski (2000).

I. A terminological approach to tripolarity

1. A theoretical outline

> "We all follow something that approximates - philosophically, if not mathematically - the Tinbergen-Theil framework".
> Alan Blinder[4] (1998, 7)

The configuration of tripolarity can be defined by using a theoretical outline which is presented in this paper. A theoretical outline is a composition which encompasses three dimensions: (i) The designation of three dominant currencies regarding the functions of international money. (ii) The non-neutrality of money. (iii) A managed exchange rate system.

This theoretical outline follows an approach to economic theory defined as a *representative realism*. Before I am going to explain this approach, and it will be helpful to distinguish three versions of realisms, say R-I, R-II and R-III. Corresponding to historical lines in the philosophy of science and methodology, one can sketch some historical epochs of the theory of knowledge and its link to realism. Empiricism focused on

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[3] Much greater investigations on this issue has already presented by the ECB (1998), (1998a), (1998b), Gros (1998a), (1998b).

[4] The "old-fashioned Tinbergen-Theil targets-and-instruments approach" is enlarged by include time lags (Blinder 1997). Blinder outlined a fundamental critique of the *tradeoff* between unemployment and unanticipated inflation as maintained by both ad-

the correspondence between truth and reality and identified sense data or intuition as a certain source of knowledge. R-I presupposes a correspondence with the outside world and its perception by the individual. The correspondence of an observation to its ontological consistency provides the truth of it and is seen as the source for the certainty of knowledge.[5] Comparable to empiricism, in which observations are superior to theories, R-I and the theory of correspondence of truth implies the view that all knowledge is constituted from experience.

The theory laden approach to observation and realism, labeled as R-II, sheds light on the unacceptable dualism of observation and its description within a theoretical framework. In the view of theory laden realism, constitutive elements among the scientific community are intersubjectivity, conventions and consensus. This theory laden approach to observation refers to a certain function of language (see Samuels 1996). From a historical point of view, theory laden observation led to a rejection of Popper's attempt to establish a strong criterion of demarcation distinguishing science from non-science. Popper's demanding promise to overcome the logical problems of Hume, empiricism and logical positivism, the latter created by the Vienna Circle in the Twenties, could not be kept.[6] The sophisticated task of logical positivism was the formalization of a deductive proposition (DN model) based on hypotheses in order to achieve a strict logical justification of an explanation. In doing so, it was not of interest questioning where the hypotheses or theories came from and why it should be possible to draw on such a dualism of hypotheses and theories, and singular propositions. For economics the DN-model was quite important during the sixties and seventies, although it has not become

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herents to the Phillips curve and Lucasians who refer to *time inconsistency and inflationary bias* (see Part I.2. and Blinder 1997; 1998, 41).

[5] See Chalmers (1982).

the predominant form of explanation today.[7] There are now different methods, methodologies and theories which are applied to economics.

The Kantian approach to sciences changed the epiphenomenal role of theories; it led to a different understanding of experience that was prevailing in empiricism at the time.[8] Whereas in empiricism theories are inferior to observations, the transcendental philosophy, say Kant's philosophy, emphasizes its superior function. Nevertheless in a Kantian approach all theories and concepts must lead back to experience, otherwise they are called empty concepts. This is an important point according to economic theory and methods of model-building.[9] What follows from this point of view is that scientific methods do incorporate a non-observable systematic order independent of its supposed empiricist "real" order. That is to say, that any observation is to be seen as impregnated by theories. Rorty stated: the distinction of observation and theory-dependency of data-description is from an epistemological point of view either useless or methodologically unneccessary (1991, 65). Given the meaning of theory laden *realism*, R-II, I would then propose to define empirical realism as R-II. It implies uncertainty of knowledge or a fragility of knowledge.

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6 For further investigation on methodology in economics, see for instance Salanti (1994), Vaughn (1994).

7 It is true that earlier methods of empirical research focus on the DN-model or were restricted to the search of regularity conjunctions. But according to current researches in social sciences the faith in so-called constant social events which are expected to be accounted or measured or DN-explanations, which do possess an analogous structure as the prognose, is not prevailing anymore; see also Baert (1996, 519).

8 Empiricists stress on the roots of knowledge as a "bottom-up fashion, from experience" (Viskovatoff 1994, 4).

9 See Muchlinski (1998b), (1998c).

The last version of realism I want to discuss should be termed representative realism, or R-III, which denies a direct approach to reality.[10] Whom or what does the representative realism represent exactly? The acquisition of knowledge remains as interpreted in theory laden realism, R-III. Representative realism, or R-III, only provides a fragility of knowledge. Since knowledge is a construction or a model of perceived reality, the investigation of the question of truth is not meaningful. Because of the meaningless of truth, falsification is also not of relevance. R-III states a non-correspondence between reality and observations since the distinction between theoretical notions and notions which are only observations is useless. R-III is an indirect approach to reality since the intention of a representation of theory, notion or concept is due to the contemporary world. Therefore R-III can be interpreted as a transcendental approach to the reality. It concerns outlining the realm of an possible application of a theory or model. R-III focuses on a comparison of theories and how these continuously relate to the problems in question. R-III is also to be interpreted as a realist position because it holds to the assumption of an ontological given world. The view of R-III, that there is no possibility of catching reality without having any theoretical approach as a basis to describe what we will catch, leads entirely to another criterion than in R-I or in the empiricist position as discussed above.

The differences between R-II and R-III are small. Whereas R-II focuses on the distinction of theory laden observation and theory in order to come to a logical correctness of explanations, R-III is beyond any dualistic analysis. It emphasizes a synthesis covered in the transcendental philosophy. The latter recognizes the importance of hypothesis and how these constructions are applied to an infinite number of tests. From a

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[10] For a methodological approach based on a *representative realism or R-III* to central bank theory and policy, see Blinder (1998), (1997), to whom I am going to refer

transcendental point of view, i.e. R-III, it follows that models are the primary step in analyzing economic problems or problems of the social realm. Furthermore, models must have a link to the contemporary world, i.e. the perceived world.

Let us consider another theoretical approach to economics introduced by Viskovatoff. Viskovatoff refers to the Kantian philosophy emphasizing that "knowledge is constituted in a top-down fashion, by the theoretical activity of the scientists: the basis of scientific empirical knowledge is the slicing up of the world by means of the right theoretical categories" (1994, 4). Contrary to my view, he differentiates between a theoretical map and a model. According to the structure of a theoretical map is to be seen as a construction without referring to any certain application. Whereas a theoretical map provides the framework for developing models, a model explains a particular problem. Viskovatoff, then explains the desirability of models for economic theory: "they must on the one hand allow us to use whatever modelling tools we have at our disposal, while on the other hand - since in general each model will not be able to give a complete explanation of a phenomenon of interest, but only of one aspect of it - it should be possible to link the explanations that they provide into longer, more complete explanation" (1994, 8).

He uses the notion theoretical map to explain the idea of a Kantian view of scientific methods as opposed to Kitcher's picture of science. The latter argues from a naturalist point of view. Viskovatoff refers to Kitcher to discuss the method of a reorientation to certain order of the nature: If "the idea of scientific inquiry is to make any sense, it must incorporate the idea that nature is systematically ordered. This is quite apart from the question of whether in fact nature is so orderered" (Viskovatoff

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later in part I.2. and III.7.

1994, 6). Finally a theoretical map leads to a universal explanation or "global confirmation" whereas a model is due to a "local confirmation" (1994, 4 f.).

This reorientation to a final point of arguing is comparable with the naive version of realism (R-I) as explained above. This is the reason why I follow neither the distinction between a theoretical map and a model as introduced by Viskovatoff, nor the transcendental realism or critical realism as proposed by Lawson and Bhaskar. The theoretical outline as introduced in this paragraph goes beyond such attempts of reorientation on naturalist thinking transforming naturalist order to social sciences.[11] The notion of theoretical outline is to be interpreted as a composition of different models where all of them are linked to the contemporary world.

I now want to explain the first dimension of the theoretical outline referring to Krugman's classification of money as an international medium (1984, 263). As for the functions of money in general, international money is defined as a medium of exchange, a unit of account and a store of value both of private and official preferences. Therefore money as an international medium is termed by its function as a settlement of international payments, as a denomination of prices and as a liquid asset for international transactions.

Table 1 **Function of an International Currency**

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[11] The *Transcendental Model of social action* (TMSA) is proposed as a new 'critical realist approach' by Bhaskar (1981) and Lawson (1997), et al. They want to go beyond failures of both inductivism and deductivism relying on a new method they define as 'retroduction'. The very idea of retroduction is to deduce observations and theories from "hidden structures, mechanisms and tendencies" which are elemental to nature. The TMSA is solely verging to a tautology (Baert 1996, 520). Furthermore "the TMSA is well-placed to explain the reproduction of structures, not their transformation" (Baert 1996, 521), since the TMSA relies on a recursions of social action which is old-fashioned in the biology's thinking of autopoiesis. For a further critique see also Muchlinski (1999a).

	Private	Official
Medium of exchange	Vehicle	Intervention
Unit of account	Invoice	Peg
Store of value	Banking	Reserve

Considering Krugman's scheme (see Table 1) the dollar meets the criteria of international money for both private and official agents. As a medium of exchange private agents use the dollar as a vehicle currency. Three criteria in particular can be mentioned to point out the characteristics of a vehicle currency: (a) the economic performance, (b) the degree of integration in the financial market and (c) the expectation of the inflation rate. Given these prerequisites a currency becomes a vehicle since it is used to denominate and execute the currency.

Private agents also use the dollar as a unit of account. They invoice their transactions. Finally the dollar serves as a store of value for banking activities. Official agents, i.e. central banks, intervene with the dollar. They use this currency as a unit of account in order to peg currencies to the dollar. The amount of these currencies which are pegged to the dollar depends generally on the existent exchange rate regimes. For instance a substitution of fixed exchange rates by a flexible system led to a decline of currencies pegged to the dollar. Regarding the third function of international money, the preference by central banks to hold dollar as store of value, i. e. as a reserve currency in their portfolio, has been significant since 1971 (see Part II. 5.).

The configuration of tripolarity implies a hierachy of currencies. Tripolarity does not maintain an equivalence of three distinguished currencies. Tripolarity encompasses a dynamic tripolar unequal structure of three currencies which is itself determined by the international functions of money each currency in question represents

(see Table 1). Moreover it refers to the theoretical evidence on inherent dynamics of the international monetary system. The tripolarity approach goes beyond dualisms. Furthermore the tripolar approach is not be interpreted as a normativ demand. Applied to the international monetary system basically it is acceptable as a method of *ceteris paribus*.

2. The hypothesis of non-neutrality of money

> "The Lucas critique warns us that some parameters may change when policy does. Yet what are we to do about these problems? Be skeptical? Of course. Use several methods and models instead of just one? Certainly." A. Blinder (1998, 8)

The hypothesis of neutrality of money is inherent in some theories of exchange rates although often not explicitly expressed. The non-neutrality of money is a component part of the theoretical outline. The functions of international money as expressed by Krugman are also valid for money in general. Money as a unit of account, medium of exchange, and store of value coordinate economic activities. This function of

coordination can not be delegated to a famous figure the neoclassic theory celebrates: the auctioneer (Spahn 1986). The central functions of money introduced above was also explained by Keynes.[12] A modern approach of neoclassical theory to the functions of money in the economy has been provided by Hahn (1982).

The hypothesis of the neutrality of money was originally advocated by Friedman in 1968.[13] Robert E. Lucas and The New Classical Macroeconomics (NCM) devoted to this proposition with more radicalism and rigor.[14] Lucas stated that only unanticipated monetary policy could have real effects on the economy. The hard core of the 'rational expectations hypothesis' is the avoidance of systematic errors, the exploitation of available information and that all agents refer to this 'true model' which they know. Granted this premisis it follows that economic agents will anticipate every regime change of monetary policy. Lucas and Lucasians critisized the *long termed* trade off between unemployment and inflation as stated by the original version of the Phillips curve. This opened up never ending controversies within the economy of science on the implications of the trade off as is widely known, so I am sure I can be brief on that point.[15]

Hahn (1982) objected in his famous critique to this *paradigm* of the NCM. He emphasized that Friedman caused a deep contradiction. The hypothesis of neutrality of money implies that *money does not matter*. While stressing the non-importance of mo-

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12 See *Treatise on Money* (1930) and *The General Theory of Employment, Interest and Money* (1936); furthermore Kregel (1984).

13 The *presidential address* to the American Economic Association (AEA) in 1968 by Friedman implemented the concept of NAIRU, the nonaccelerating inflation rate of unemployment which implies that inflation will increase if unemployment remain below its natural rate.

14 See Blinder (1998), Hahn (1982), Muchlinski (1999).

15 I am not going into details on the history and implications of the Phillips curve, which can be reconsiderated in critical contributions by Galbraith (1997), Stiglitz (1997).

ney Friedman also demanded certain rules for money supply. Real effects of the so-called unimportant money by the application of suddenly needed rules should be avoided. Lucas and Lucasians are devoted to this view and worked out the idea formally (Snowdon and Vane 1998).

Having discussed a central contradiction in the Friedman/Lucas's view, Hahn pointed out the implication of their monetary policy:"This is the claim that there is no permanent tradeoff between unemployment and inflation. This is often expressed by saying that the long-run Phillips curve is vertical at the natural level of unemployment. More circumspectly and less imprecisely, the proposition might be that the set of rational expectations equilibria is invariant to the inflation rate. Money, so the jargon goes is not only neutral, but 'superneutral'. The inflation rate, at least in the long run, is thus irrelevant to the real state of the economy and is simply governed by the rate of increase in the monetary stock" (1982, 71-2). The hypotheses of rational expectation and neutrality of money are significant features of the paradigm by Lucas & Lucasianism.[16] This paradigm became important for a few years shortly after Lucas and Sargent's publication of *After Keynesian Macroeconomics* (1979).

Hahn stressed that if the economy cannot go beyond the rational expectations equilibrium as maintained by Lucas and the NCM, why should inflation be a problem at all? This answer has not yet been given. Hahn concludes: "In any case, the Lucasians have only succeeded in showing that inflation can have no beneficial employment effects by embracing a model in which there are no beneficial employment effects to have" (1982, 75). From a methodological point of view Hahn criticized this

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[16] Sargent objected to the interpretation of a triade consisting of the hypotheses of 'rational expectations', 'neutrality' and 'policy ineffectiveness' in Lucas's work, since present papers on equilibrium models are concerned with different monetary and fiscal po-

modelbuilding since is not linked to *contemporary world*.[17] Furthermore the premise of neutrality of money is beyond a logical consistency whereas the premise of REH only serves to the logical consistency of the model itself. Schotter concludes "take the theory of rational expectations which claims that people functioning in a macro-economy make their predictions of economic variables using *the same* economic model. While this model of expectations formation is the ultimate from the standpoint of economic theory, one can not truly believe it makes sense. (...) While earlier adaptive expectations models were generally perceived as being sensible but not logical, rational expectations models are perceived as logical but making very little sense" (1996, 205).

Hahn stated "the present neurotic preoccupation with inflation cannot come from agents who live in a Sagent-Wallace world. Recall again that no one is supposed to be permanently fooled. Remember also that there are no distribution effects from inflation in a rational expectations world" (1982, 102). The premise 'rational expectations hypothesis' provides a consistent result of modeling. Since all agents have been acquainted with the model, no differing perceptions of the reality and no deviations from the model are conceivable. He referred to the unacceptability of the paradigm: "Lucas's contribution then is this. He showed how unpredictability or unobservability of monetary policy could interfere with the information-revealing function of prices, and how this could be the source not only of real effects, but of real effects that the macro-literature had noted. (...) Rational expectations equilibria are unique and the economy is always in rational expectations equilibrium. Appearance belie reality" (1982, 45-6).[18]

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licy arrangements (1996, 543). The central argument in the NCM is that only unanticipated money regimes changes do have real effects.

[17] Similarly argues Blinder (1998).

[18] Machlup (1983) critisized the cognitive abuse of the notion rationality by NCM. In a meaning of common sense rationality refers to a coincidence of opinion and action. This understanding is opposed to the suggestion of the NCM who maintained a coinci-

New evidence on the unacceptability of rational expectations has been presented by Ball/Croushore (1998). They concluded that a change in the federal funds rate of the Fed leads to a systematically underestimated effects of policy shift on aggregate demand by economic agents. "Our results concerning output expectations are a new piece of negative evidence on the validity of rational expectations (1998, 10)." This insignificance of rational expectations could be explained by forming expectations on the basis of "rules of thumb" rather than on the basis of a coincidence of a 'true model' and a strong premisis that all agents act on this unique model. Forming expectations on the basis of "rules of thumb" could then be discussed in light of the theory of expectations Keynes had presented.[19]

Macropolicy within a tripolar configuration of currencies leads *ceteris paribus* to monetary policy which supports the view that money is not neutral. From a modern point of view the hypothesis of neutrality of money could not be defended by central bank theory and policy. The question arises which policy instrument should a central bank choose if one bears in mind, that a central bank controls the nominal short rate and not the real long rate. "In other words, the interest rate that the central bank can control doesn't matter (much), and the rates that really matter cannot be controlled" (Blinder 1998, 30).[20] The real long rate is more important for economic investment decisions since its level affects economic activities (see also Spahn 1996, 9).

The modern view of central bank does not deny real effects of monetary policy. Given these preliminary remarks on a topic of modern central bank theory and politics one has to consider that the aim of a 'neutral' monetary policy is basically compatible

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dence of a 'true model' interpreted as the true reality with the action of economic agents; see Hielscher (1999).

[19] Hoover (1997), Tobin (1993).

with constant inflation in the medium term. But this point of reference is not to be confused with neutrality of monetary policy. "Any higher real interest rate constitutes 'tight money' and will eventually imply falling inflation; and any lower real rate is 'easy money' and signals eventually rising inflation" (Blinder 1998, 33). So what does neutrality of monetary policy mean? One could say that the central bank tries to achieve a "neutral real interest rate" (Blinder 1998, 33). To be sure, a neutral real interest rate is not to be interpreted as a fixed rule or number since it derives from changes in fiscal policy and exchange rate (ibid).

More important, the problem concerns the following: How is it possible for a central bank to act as a market participant and avoid being impacted by the real interest rate? A few factors which influence the level on real interest rate should be mentioned: fiscal policy, the exchange rate, the wage-regime and finally the "pervasive uncertainties that surround monetary policy" as Blinder argues (1998, 25). The consequences of monetary policy cannot be estimated with precision and all of this leads to further difficulties in monetary policy. This statement is also true for macropolicy within a tripolar regime of currency. "In case of the modern incarnation of the rules versus discretion debate, based on time inconsistency, I have argued that things are starkly different. In my view, the academic literature has focused on either the wrong problem or a nonproblem and has proposed a variety of solutions (excluding Rogoff's conservative central bankers) that make little sense in the real world" (Blinder 1998, 50).[21] Since Blinder starts his investigation on the basis of a model, his approach to

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[20] Blinder (1998, 70f.) outlines the role of expectations of future short rates as dependent on the real perception and transparency of the central bank policy.

[21] Rogoff's central banker is the central banker *par excellence*, Blinder argues. "Now that really does have the ring of truth! Indeed, in the real world the noun 'central banker' practically cries out for the adjective 'conservative' (Blinder 1998, 46).

economic problems of central banks can be described as a research in light of *representative realism* (see chapter one of his book published in 1998).

The basic assumptions of the NCM are also to be found in theories of exchange rates which refer to the concepts of *time inconsistency* and *credibility* (s. Part III.7.) The REH is misleading for two main reasons: First: it implies a convergence of the 'true model' which is perceivable and acknowledged by the economic agents and determines their expectations. This premise is hardly acceptable since it is due to a consistency of a model and does not contain any link to *contemporary world.* The consistency of a model needed to be reinterpreted within the theoretical understanding of social science. Second: Systematic mistakes by the agents are excluded. This premise provides a stable environment. The followers of the REH form expectations on the basis of a 'true model' which is identical with the model of the NCM itself. Therefore the REH was addressed to a special model of rational expectation building, which is to be distinguished from the model of a rational use of information (Hahn 1982). Considering the market euphemism, one has to ask why the idea of prices as a market clearing function should be eliminated by the implementation of a unique ('true') model. Which function should a price then have? To sum up this consideration: It is hardly acceptable to work with the REH and to reject the premise of neutrality of money or vice versa. Since the premise of neutrality of money leads to the result that an anticipated monetary regime change does not provide real effects in the economy, it is quite clear that both are connected in a certain theoretical way of thinking.

Kenen stated "although many economists doubt that exchange rate expectations are truly rational, they tend to disparage any other view" (1994, 114). Krugman wrote "during the 1970s, the rational-expectations revolution swept all before it in macroeconomics. It became completely unacceptable in polite circles to make ad hoc assumptions

about expectations or dynamic adjustment processes. Everything, from asset pricing to aggregate supply, was supposed to be grounded in rational behavior, albeit in the presence of incomplete information. At the core of the revolution was what we may call the Lucas project, the effort to build business-cycle theory on maximizing microfoundations. (...) The fact is that the Lucas Project succeeded in destroying the old regime but failed to create a workable new macroeconomics. (...) The theoretical devastation wreaked by the rational-expectations revolution was perhaps most severe in international macroeconomics (...)" (1995, 522/523).

According to some authors the Lucas critique led to theoretical refinements, for instance to models of *time consistency*. Thereby success of macropolicy depends on pre-commitments to a particular policy regime. "Achieving credibility has thus become an important goal for policymakers" (Mishkin 1995, 22). It relies on the distinction *rules versus discretion*. It tries to explain the reputation and the desirability of pre-commitment by central banks. I inclined to conclude that the intention of *time consistency* which tries to avoid the fallacy of composition caused by the Phillips curve and a suggested "menue of choice" did not succeed since *time inconsistency* and *credibility* also are based on the view of a tradeoff.[22] As we will see in the next paragraph this composition of fallacy emerged the literature of open economy.

3. Exchange rate relations

Considering the exchange rate relations is a component part of the theoretical outline to explain the tripolarity of currencies and its exchange rate relations. First of all

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[22] For more criticism on that issue see Blinder (1998, 38-48).

I would like to attract attention on some basic concepts referring to Hamada (1998). I differentiate the notion regime from concepts. The former based on a "mechanism design" of international coordination.

This "mechanism design" goes back to the old-fashioned view of macropolicy which have dictated economic discussions since the *tradeoff* of the Phillips curve (Johnson 1969, 399). Applied to the items dealing with international macroeconomies and macropolicies it seemed plausible to solve aspects of economic interdependencies by focusing on definitions of instruments and goals; i.e. the determination of a certain exchange rate parity and application of a certain monetary policy. The 'Lucas-critique' was addressed to a mechanism that neglect the role of expectations and the effects of a regime change. Lucas and Lucasians then tried to overcome such failures which they identified with Keynesian macropolicy. But in order to become free of old fashioned theoretical constraints, the NCM devoted itself to new constraints which led to greater restrictions: the premise of neutrality of money and the REH failed in explaining exchange rate instability and volatility.[23] The mechanism design is also found in the literature of the *policy optimizing approach.*[24]

The important question is why a nation participates in a monetary arrangement, regime or system. The prerequisite of this question is the perception of features of exchange rate relations. The notion regime includes the application of certain rules and conventions governing the monetary and financial relations between countries (Cooper 1975); it also encompasses the notion system. An exchange rate system contains a smaller degree of adherence to certain rules and conventions. Contrary to that, an exchange

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[23] The *modern asset approach* in theories of exchange rates, see Frenkel (1976), Mussa (1976).

[24] For a description of this approach, see Bryant (1995).

rate arrangement is characterized by a more or less ad-hoc acceptance of urgently needed bargaining on exchange rates.

The approach I am going to introduce in this paper is to be distinguished from monetary integration which in a narrow sense pursues the unification by a common currency issued by a single central bank as its main goal. Both a single currency and fixed exchange rates are central features of a monetary integration since a country steps aside for the autonomy of monetary policy. It is also possible to conceive several degrees of monetary integration as opposed to full monetary integration. Monetary integration refers to a certain status quo or goal.[25] Following this idea, countries are to be integrated into an existing design of a monetary system. However, in my opinion, a prerequisite of monetary integration not only includes standards or criteria but also a certain flexibility for those countries who want to be integrated.

My concern is with exchange rates coordination within a managed floating regime in a broader sense of the meaning. A flexible exchange rate regime also contains different degrees of exchange rate flexibility. This emphasizes a *regime choice* of a particular goal of monetary coordination. The underlying *common sense* of participating nations is to stabilize the exchange rate changes. Monetary authorities of the three main currencies, the configuration of tripolarity, therefore are committed to coordinating exchange rates within a certain zone, or to smooth exchange rate movements, or to define and defend an explicit or implicit target zone. Finally monetary authorities want to support a managed float regime. A further assumption is that the advantages of joint coordination are greater than unilateral coordination. Fixed exchange rates and monetary union are not the core of the configuration of tripolarity.

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[25] See the contribution by Corden (1972) and Hamada/Porteous (1992)

A coordination under flexible exchange rates does not avoid the principles of flexible exchange rates, nevertheless an additional factor of coordination has to be considered: *the challenge to shaping monetary coordination.* In case the dualistic view of fixed and flexible exchange rate regime is an acceptable classification, exchange rate coordination in a managed floating regime lies between the two. Hamada defined it as an "eclectic regime" (1998, 422). From my point of view this definition only makes sense if one refers to such a dualistic classification. Monetary coordination of an exchange rate regime which consists of different degrees of a rate of flexibility is inevitable beyond a pure fixed or flexible exchange rate regime. But it is not to be interpreted as eclecticism. Eclecticism refers implicitly to a paradigm or view of one topic and defines any deviations from this as an eclectic approach. Regarding the debates on fixed versus flexible exchange rates which have prevailed in academics during the past decades, one can hardly find such a *common sense view* or *paradigm* except when one refers to the basic literature given by Friedman (1953). The dichotomy of fixed versus flexible exchange rates makes sense as a hermeneutic approach, since there are many different forms of both fixed and flexible exchange rates.

What does a configuration of tripolarity of exchange rates imply regarding these differentiations? It implies a certain perception of divergent domestic and international interests and transforming these to develop a strategy for balancing interests. A certain goal is the evaluation of a framework to clarify the incentive structure which makes the coordination itself possible. This approach leaves behind the idea of a domestic economy as constrained by economic interdependencies. I have already mentioned this view as a *challenge to shaping monetary coordination* (Muchlinski 1999b). This request to shape monetary coordination represents a shift of paradigm based on a shift of perceptions. It leaves the question unanswered *of how and when* three identified main cur-

rencies should interact within a particular exchange rate arrangement, regime or system since it is beyond the "mechanism design". Therefore the *challenge to shaping monetary coordination* could be interpreted as a preliminary step toward certain forms of international bargaining or creating international institutions (see Table 5 on page 57). To sum up this paragraph, the configuration of tripolarity refers to the functions of money, the non-neutrality of money, and attention to the special relationship between the three dominant currencies.

III. Comparing the old and new configuration of tripolarity

4. A brief reconsideration

In light of the theoretical outline, the history of a tripolar configuration of currencies starts with the formal abandonment of the Bretton Woods Agreement in 1973. But the very roots of an emergence of different key currencies and key countries within the international monetary system actually go back to the time when the pound sterling

was challenged by the dollar in its role as a key currency during the gold standard.[26] The Sterling-centered system of global finance was changed by 1931, but it was not displaced by any other dominant currency during the period of 1931 to 1944. England and the USA shared the *potential* of hegemony. The willingness or capability of France did not emerge (Keynes 1933 in C.W. XXI).

The gold standard was a pound sterling standard. The pound sterling had the reserve function and the Bank of England was dominating the discount rate policy for at least fifty years (Bloomfield 1959, Keynes 1913, Lindert 1969). Its capital inflows and outflows were conducted in sterling. Evidently the Bank of England acted as a world banker. The Bank of England regulated the international capital flow by the variation of discount rates. The "city of London" was the centre of global finance. The official mechanism of the gold standard was defined by an exchange rate of pound sterling to gold. On this basis, other participating countries defined their exchange rates to the pound sterling. The possibility a redemption in gold was after all important.The pound sterling standard was a two-stage system of banking and money supply.[27]

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[26] Further details on the mechanism of the goldstandard presented Eichengreen (1994, chap. 4) and Spahn (1998). Eichengreen outlined that the interwar arrangements in comparison to the Post-World War II was characterized by the omission of certain cooperation for at least two main reasons: (a) the central banks were not independent and (b) the controversies on macropolicies *en general* were dominating since many countries struggled with inflation and high unemployment. Besides these facts the discussions in Europe dealt with how war debts could be repaid, particularly those of German (1994, 48). Only a frail attempt towards coordination had been undertaken: A Tripartite Agreement of the year 1936 "constructing a viable international monetary order. Governments reaffirmed their commitment to cooperate, and exchange rate volatility caused by competitive depreciation was reduced" (1994, 49).

[27] It is necessary to differentiate between a nation's world position serving as international intermediaries or as the function as a world banker. The latter is part of the former. Nations serving as international intermediaries and as a world banker are able to induce short term capital inflows and long term capital outflows. Additional to short term capital inflows and long term capital outflows, only a world banker supplies the world liquidity denominated in its own currency, see Tavlas/Ozeki (1992, 19ff.).

The loss of its role as a hegemon began when England was struggling with inflation after the first World War and made the decision to go back to the goldparity of the pound sterling from 1925.[28] The consequences of this policy was the overvaluation of the pound sterling and the loss of competitiveness in international markets. Bergsten concludes this "propelled the dollar into the dominant position" (1997, 91). More precisely, Spahn explains that the dollar became dominant since the USA focused on domestic macropolicy instead of the external balance (1998). England's policy of focusing on the external balance and high interest rate policy created a contrast to that of America. The USA practiced a policy of neutralization of the gold inflow to avoid easy money policy and inflation. Comparing both the overvaluation of the pound sterling and the tight money policy in the USA, it became obvious that England did not have any chance to reduce the overvaluation of the pound sterling. The USA was preparing for the new hegemonic position which came into force by the implementation of the Bretton Woods Agreement in 1944. The USA served as a world banker from 1945 to 1980. To sum up this brief historical consideration, the roots of tripolarity could be found in the interwar period, where the pound sterling and the dollar shared the potential of hegemony.

5. The old configuration of tripolarity

The anchored dollar standard of the postwar system broke down as a result of three events: Central banks started to reduce the circulation of gold after the gold market was divided into private and governmental sectors in March 1968; the

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[28] See the critique of Keynes (1925).

declaration of the non-convertibility of the dollar in gold by the USA in August 1971 and the rejection of the Bundesbank to intervene to support the exchange rate of the dollar and d-mark in March 1973.[29] Since then volatility and misrealignments have dominated theories, experience and the agenda of newly created institutions like the G-3, G-7, etc. Since that time the markets have created various currencies having the functions of an international currency. Positive assessments by the market are devoted to currencies which are able to meet the criteria with a degree of probability. Those currencies are awarded a prize of the highest liquidity premium (Keynes 1936).

The configuration of tripolarity as I am going to define it, refers to the categories of money as outlined in Table 1 *and* to the fact of how certain currencies are to be interpreted against their historical background. This leads to a particular configuration of the dollar, d-mark, and yen which is important to recognize.

After the transition to flexible exchange rates in 1973 a period of unexpected upheavals in the international monetary system began. It led to disillusions regarding flexible exchange rates and their supposed market clearing function. The alleged metaphor, *the markets knows best*, avoided some misalignments but not fundamental crises in the foreign exchange market (Frankel 1996).

The old configuration of tripolarity took shape with some clarity from 1985 to 1987 where the Plaza Agreement and the Louvre Accord established an agenda for the international monetary bargaining process (Funabashi 1988, 173). The Plaza Communiqué focused on new items:"The Minister and Governors agreed that exchange rates should play a role in adjusting external imbalances. In order to do this, exchange rate should better reflect fundamental economic conditions than has been the case. They be-

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[29] For the consequences these events had for the creation of SDR and the dollar, see Mundell (1995); see also Spahn (1990), (1988).

lieved that agreed policy actions must be implemented and reinforced to improve the fundamentals further, and that in view of the present and prospective changes in fundamentals, some further orderly appreciation of the main non-dollar currencies against the dollar is desirable. They stand ready to cooperate more closely to encourage this when to do so would be helpful" (Funabashi 1988, 263, Point 18). A tangible result of the Plaza Agreement of September 22, 1985 was the turning away from a policy of 'hands-off' which the USA had practiced before. The immediate goal of the Plaza Agreement was to reduce the overvaluation of the dollar. Based on this *common sense* regarding the dollar, the yen's appreciation was welcomed by the Bank of Japan. It could have been the starting point for the yen's emergence as a *key currency*, nevertheless the period of appreciation came to an end in 1986 (Iwami 1993).[30]

The Louvre Accord of February 22, 1987 expressed a preliminary common view on target zones of the G-7[31]:"In current circumstances, therefore, they agreed to cooperate closely to foster stability of exchange rates around the current levels". Debates among the participants on special definitions and further precisions of this sentence above only led to vague descriptions. The commitment to cooperate closely implied a target of "plus or minus 2,5 % (which) was determined as a first line of defense for mutual intervention on a voluntary basis, while at 5 percent consultation on policy adjustment was to be obligatory; between these limits of 2,5 pervent to 5 percent, intervention efforts were expected to intensify" (Funabashi 1988, 186). Mundell concluded this was

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30 Further researches on the exchange-rate movement of the dollar and yen are presented by Frankel (1984), Schulz (1998), Tavlas/Ozeki (1992).

31 "The ministers and Governors agreed that the substantial exchange rate changes since the Plaza Agreement will increasingly contribute to reducing external imbalances and have now brought their currencies with ranges broadly consistent with underlying economic fundamentals, given the policy commitments summarized in this statements. Further substantial exchange rate shifts among their currencies could damage growth and adjustment prospects in their countries" (in: Funabashi 1988, 279/280).

a remarkable progress compared with the Smithonian agreement in August 1971:"Had the G-7 not recognized the need for a mechanism to determine the burden of adjustment, this would have been just another exercise in establishing an unanchored fixed exchange rate system" (1996, 123).

It is worth mentioning a few words on the bilaterilism between the USA and Japan which began before the Plaza Agreement. A yen-dollar Committee was established in 1983 in order to manage refinements of the deregulation of the financial market in Japan (see Frankel 1984). Finally the "yen/dollar Agreement" of May 1984 was a certain step towards an intended closer cooperation to mitigate economic conflicts between Japan and the USA. Those economic conflicts had arisen from persistent current account imbalances and several misalignments between the yen and the dollar. The official position of the USA reads as follows:"The US side took the line that, now that Japan is the second largest trading nation in the world after the United States, it is time for the Japanese currency to take a role commensurate with that status" (Frankel 1984, 32). This explicit goal of the bilateralism was repeated in the Plaza Communiqué implicitly.

The Plaza Agreement expresses the *common sense* that the U.S. policy of a *benign neglect* was no longer acceptable. This policy of "soaring dollar, high interest rates, a bloated currenct account deficit, raging protectionism in the US Congress, and exasperation on the part of America's trading partners" should be avoided (Funabashi 1988, 9). Indeed the Federal Reserve Board changed its view, particularly that the US monetary policy primarily should primarily serve the needs of the domestic economy. This shift of paradigm in the U.S. monetary policy is well documented in the literature (Greider 1989). Reflections on the relations between exchange rates and the performance of monetary policy were becoming systematic topics. Both the Federal Reserve

Board and the Treasury started to approach monetary policy differently regarding interest rates and in shaping the Plaza Agreement (Kenen 1994).

The Baker-Miyazawa Communiqué of October 31, 1986 was a further agreement between the USA and Japan which I am going to introduce briefly. It contained different negotiation issues of the United States and Japan, but the most important point was to focus on the exchange rate stability. Both nations "shared the view that exchange rate instability can jeopardize stable economic growth". Moreover they "expressed their mutual understanding that with the actions and commitments mentioned above, the exchange rate realignment achieved between the yen and the dollar since the Plaza Agreement is now broadly consistent with the present underyling fundamentals".[32] Given the theoretical and political convictions on exchange rate instability, the finance ministers shared the view of strengthening coordination policy. This communiqué can be interpreted as the foundation of a G-2 meeting (Group of Two), represented by the United States and Japan. The communiqué dealt with the question of which level the dollar exchange-rate should be stabilized. Beyond this it was concerned with questions in general. The Baker-Miyazawa communiqué focused on the newly divided functions between the Treasury and the Federal Reserve in the USA and how the Ministry of Finance and the Bank of Japan were going to negotiate with them. Finally the balance of power between the Treasury and the Fed shifted. Exchange rate policy was interpreted as a task of the Treasury, since sterilized interventions of the Fed did not effect the exchange rates if they were accompanied by consistent monetary policy. Therefore the communiqué strengthened the position of the Treasury in the USA; in Japan the in-

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[32] For the full text of the communiqué, see *Treasure News*, Washington: US Department of the Treasury, 31 October 1986, 1-2, cit. in Funabashi 1988, 160.

stitutional balance was also shifted in favor of the Ministry of Finance (Hamada/Kawai 1997, 125f.).

The Baker-Miyazawa communiqué should have led to a precision of the Plaza Agreement, but indeed other countries felt displaced. According to a contemporary politician, the communiqué created a new reality, a "special relationship between Japan and the US that spells the end of the US-British special relationship. After all, you can only dance with one partner at a time (...) This country is obviously drawn to those countries on the rim - Japan, Korea, Taiwan, Malaysian, and don't forget China...And I think the new special relationship with Japan will be the linchpin of the Pacific relationship. Meanwhile, the Atlantic alliance is somewhat undermined by the unwillingness of the West Germans to carry (a fair share) of the load, and by the economic weakness of Great Britain" (see Rohatyn, cit. in Funabashi 1988, 161).

Finally, this communiqué did not fulfill its intention. The opinion between the United States and Japan regarding the acceptable level of the yen differed fundamentally. This was the turning point for the Bundesbank and the Bank of Japan. Both countries started to cooperate closer on currency interventions during that time. "Despite US aggressive bilateralism, which played of West Germany against Japan, the West Germans and the Japanese did attempt, albeit sporadically, to explore a mutually defensive stance vis-à-vis the US. During the rapid decline of the dollar in April 1986, before the Tokyo Summit, the Bundesbank and the Bank of Japan intervened in the currency market hand in hand" (Funabashi 1988, 172). They were "perhaps intending to stabilize the currencies and send the message to the U.S. that Baker's indicator proposals should not be welcome".[33]

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[33] "Japan and West Germany move to build coalition to stabilize the currencies", see Keizai Shimbum (1986) cit. in Funabashi (1988, 172).

According to the literature there was no doubt that Baker first used bilateralism with Japan in pursuing an exclusion of West Germany. He planned to implement "policy coordination by making bilateral deals first with Japan and then West Germany" (Silk 1986).[34] And Japan which felt deceived by the United States tried to transform bilateral commitments into formal arrangements with the Group of Five (G-5), finally with the Group of Seven (Henning 1994, Kenen 1994).[35]

Whereas the United States claimed that Bonn and Japan should stimulate their domestic economies, Japan and Bonn accused the United States for neglecting the consequences of their dollar policy. All three countries relied on different diagnoses and strategies for their domestic policies.

This briefly considered starting point on cooperation between Japan and Germany became a joint commitment since there have been many instances in which the Bank of Japan sold d-mark against the dollar whereas the Bundesbank sold yen against the dollars. Because Great Britain and France ruled out taking less important actions during that time one could argue that both they and other European countries were marginal players in trilateral relations between the USA, Japan and Germany. Nevertheless most of the marginal players possessed certain background rules, negotiations and proposals (see Funabashi 1988, 173 ff.).

Significant for further investigations is that Japan and West Germany were not willing to allow their currencies to become an international medium "particularly as a currency for private assets and official reserves - during most of the postwar period. In

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[34] Funabashi explained that the notion "aggressive bilateralism" was coined by *New York Times* columnist Leonard Silk (1988, 155).

[35] The reader should bear in mind the following definitions: The Group of One (United States alone); the Group of Two (Japan and the United States); the Group of Three (Japan, United States and Germany); the Group of Five (G-3 plus Great Britain and France); the Group of Seven (G-5 plus Canada and Italy).

particular, the two governments limited borrowing by foreign residents in their domestic capital markets in d-mark or yen" (Henning 1994, 317).

Two main reasons are to be mentioned of why the yen had not become a key currency within this old system of tripolarity: internal and external restrictions. The financial market in Japan was highly segmented and regulated. The international use of the yen was smaller than the use of the dollar since Japan had comparatively more exports to the USA or to developed countries which regularily denominated their imports in dollar. This pattern of trade restricted the use of the yen in its function as a unit of account and medium of exchange. Nevertheless Japan's function as a financial intermediary and the world's largest net creditor emerged. [36] I want to argue that this is a reason why Japan can not be neglegted within international monetary relations, neither for the old nor the new system of tripolarity.[37]

Referring to the eighties and nineties one has to consider that Germany's policy has changed since 1990, while the policy of Japan has not.[38] As is well known within the debate the Bundesbank first rejected the vision that the d-mark could become a *key currency*. Nevertheless a basic feature of the old tripolarity is that the d-mark has become an international currency (Salvadore 1998, McCauley 1997, Issing 1998).[39]

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[36] Greater investigations on the currencies in question presented Tavlas/Ozeki (1992, different tables); Frankel (1992).

[37] See the 68th Annual Report of the BIS (1998).

[38] Krugman wrote "virtually all Japanese exports are invoiced in dollars; it is also true where data are available that the yen is much less used as an invoice currency in exports to Japan than Japan's size would lead one to expect. This may in part reflect a political decision on the part of Japan not to allow the yen to become an international currency" (1984, 270). This view is valid nowadays. The dollar-yen Agreement of 1984 could have been a starting point to establish a global function of the yen, but it was not realized; see also Tavlas/Ozeki (1992).

[39] For the view of the Bundesbank at that time, see several *Monthly Reports*, May (1987, 34ff); May (1988, 22f), January (1990, 33ff and May 91ff.), November (1991, 40ff.)

Why did the d-mark emerge as an international currency during the eighties and nineties?

The Bundesbank itself was highly ambivalent about the d-mark reaching a dominant position. "An important reason for German acquiescence in greater official D-mark holdings was that their disposition was subject to Bundesbank influence through central bank cooperation in the ERM" (Henning 1994, 319). This explanation is not complete. Some further reasons are to be mentioned which explain the role the Bundesbank had incorporated during the period of the European Monetary System (EMS).Considering the official view of the Bundesbank during the second half of the eighties, their objections to having a key currency were due to concern about destabilizing the exchange rates. For it was quite obvious within the old system of tripolarity that the dollar's appreciation or depreciation affected first of all the d-mark exchange rate and the German economy. This caused policy decisions in Germany that negatively impacted other European countries. Therefore all interdependencies in the exchange rate of the dollar and the d-mark should be seen in a broader context of the function of the d-mark as a *key currency* within the EMS.

Another aspect was the phenomenon that the interest rates in Germany were unaffected in the periods before a realignment was carried out. This demonstrated the dominance of the d-mark within the EMS. Furthermore this d-mark centered standard determined the macropolicies of other members in the EMS. In addition to the aspects above is that the EMS based on a special framework focusing on symmetric adjustments of intervention cost. But the formal arrangement of symmetry did not function, since this arrangement was only compatible with the premise of the neutrality of money.

Although the EMS initially was planned as a flexible system, it has become a more or less fixed exchange rate regime since the middle of the eighties. The standard

literature defines this as the n-1 problem, i.e. only n-1 independent exchange rates exists.[40] Within a fixed exchange rate system only one country has a degree of freedom for its autonomy in the monetary policy. Since the central bank of this country has only to pursue the goal of stabilizing the exchange rate, this country is free to concern itself with domestic monetary policy. As is well known and explained in the literature, fixed exchange rates between two or n-countries, requires an agreement of the participating countries concerning the liquidity to be provided. The n-1 problem in the EMS became virulent in the nineties (DeGrauwe 1996[2]).

To explain in short the asymmetric adjustment, let us consider two countries, say France and Germany. In the case of a negative output shock in France, the LM-curve will express this as a reduction of money demand in France. The LM-curve shifts to the left, whereas the LM-curve of Germany is expected to invariant. France has to burden the costs of adjusting this non-equilibrium through a higher interest rate which strengthens a recessionary trend in France. Supposed an asymmetric system, Germany will remain in a position of an invariant money supply focusing on the inflation goal as a available domestic goal refusing an alleviation of money decrease in France. This degree of freedom for the d-mark-standard within the EMS implies an increase of the interest rate in France.[41]

The implication of the n-1 negleted some important issues. For example, the degree of freedom in pursuing a suitable domestic monetary policy in the country

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[40] This common sense view is explained by Johnson (1969, 396) who refers to Mundell and Kenen. "The problem arises from the fact that in an *n*-country world only *n*-1 countries have to assign a policy instrument to the maintenance of balance-of-payments equilibrium; this leaves one degree of freedom, and the question is, which country is to be allowed to enjoy it?"

[41] The asymmetric mechanism of adjustment appeared with clarity during the crisis in the EMS 1992/93; see a few contributions on that issue by DeGrauwe (1996[2]) Eichengreen/Wyplosz (1993), and Spahn (1995).

having a key currency does not exist. Germany and France can be characterized by analogous economic data regarding their economic performance, domestic policy and particularly the expected inflation rate. The crisis in the EMS in 1992-93 demonstrated that the Bundesbank was constrained by expectations of an appreciation of the d-mark which could have been suddenly changed into expectations of a depreciation of the d-mark, i.e. an appreciation of the Franc.

The asymmetric adjustments of interventions as had been the case for the dollar during the time of the Bretton Woods Agreements emerged within the EMS because of the d-mark-standard. Germany achieved a dominant position in world trade and finance. Regarding the reputation of the Bundesbank, the d-mark was accepted as an international currency in its function as a unit of account, store of value and medium of exchange.[42]

The role of the dollar during the eighties and nineties can be described as a relative decline in all three functions of international money (McCauley 1997, Salvadore 1998a, b). In the eighties the overvaluation of the dollar created an amazing trade deficit in the U.S. compared with equivalently large trade surpluses of Japan and Germany (Mundell 1995). These reflections of interdependencies which occured in the eighties has already been demonstrated as persistent global imbalances at the end of this century. Salvadore argues: "The global imbalances faced by the leading industrial nations today are rooted in the huge and persistent budget deficit of the United States, lack of more internal stimulus in europe in general and Germany particular, and the unwillingness on the part of Japan to rely more on the expansion of international demand for growth on

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[42] I want to refer to the large literature on the experience within the EMS and the attempts of many members of the EMS which used pegging their exchange rates as in instrument to fight inflation, see f.i. DeGrauwe (1996[2]).

exports to the United States, and cannot be blamed on the operation of the present international financial system itself" (1995, 528).[43]

Dal Bosco (1998) investigated the management of official foreign exchange reserves. He divides the currency composing into two main periods to demonstrate the pattern of the decline of the dollar. Regarding the store of value function, the dollar's share in official foreign exchange rates reserves fell from 78 % to 57 % between 1973 and 1990, from 1990 to 1996 the dollar's share recovered to 64 %. In comparison the d-mark rose from 6 to 19 % and the yen rose from next to nothing to around 9 % between 1973 and 1990, whereas a decline of the d-mark to 14 % and yen to 6 % is observed for the period of 1990 to 1996 (Dal Bosco 1998, pp. 679/680, Tab. A.1.). The dollar's ups and downs during both periods are due to different events, for instance to the development of the dollar's effective exchange rate or to an increase of foreign exchange reserves in d-mark and yen. Bergsten mentions that the dollar's prospective dominance will depend on the external economic position of the USA (Bergsten 1997, 88). Nevertheless many authors stress the undiminished dominance of the dollar, which is undisputed. This is also true for the new configuration of tripolarity as I am going to show in the next paragraph. I do not intend to attract more attention to the empirical side of tripolarity regarding the constraints of this discussion paper.

The BIS confirms this view in its 68th Annual Report of June 1998 that the persistent current account deficit of $ 166 billion of the United States and the growing surpluses in Japan and Europe will not disappear in the short run. Private investors have continuosly financed this current account deficit in 1997. Current data demonstrates the

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[43] "The United States and Japan are less homogeneous than the leading EMS countries, Japan and Europe no longer accept US hegemony as in past years or as German hegemony is accepted today in Europe, and there is of course no talk of political union among the United States, Japan, and Europe" (1996, 140).

continuity regarding the official foreign exchange rates in general and those held in dollar particular. The important question remains of whether these inflows will continue (BIS 1998, chap. VI, pp. 104f.).

Problems are conceivable for two reasons. First, a loss of confidence by the market and also a loss of patience with the US deficit could lead to pressure on the dollar. It would mitigate the expectations of an appreciation of the dollar and therefore cause more reasons for an inflationary process. A consequence of the lower degree of confidence in the dollar could be a greater likelihood for a regime change to a tight money policy by the USA. "Were this to happen, an associated reduction in asset prices might also be expected, with substantial knock-on effects on US consumer spending and confidence given the increased importance of financial assets in household portfolio (BIS 1998, chap. IX). A second problem could emerges out of the tendency to retreat to protectionism of the USA because of the strong dollar. Regarding the growth of international interbank deposits which increased fourfold to over $ 700 billion last year are highly vulnerable to such a monetary regime change. The BIS concludes that any reduction of the current non-inflationary growth in the USA which for instance implies monetary tightening could perpetuate the fragility of current account imbalances into a global crisis (1998, chap. IX, 164).

Let me summarize the old configuration of the tripolarity, which contains the three currencies of their three largest economies and traders; the United States, Germany or Europe respectively, and Japan. The dollar-centered period which was implemented by the Bretton Woods Agreement is still occuring. Neither the informal end of the dollar-standard in August 1971, nor the recognized current account deficit for the last fifteen years has caused a replacement of the dollar. Nevertheless the weight of the dollar in all of the six functions of an international money has changed. The d-mark

emerged as a *key currency* during that time period considered. Whereas the Bundesbank tried to reject the anchor function of the d-mark within the EMS, the market process did not (Spahn 1988). Corresponding to the new role of the d-mark, the asymmetry of adjustments intervention costs within the ERM I took place and displaced the formal arrangement of symmetry. Regarding the third factor of the tripolarity, the yen has not emerged as an international money.

6. The new configuration of tripolarity

The new configuration of tripolarity consists of dollar, euro and yen. This regime change implies basically that the d-mark was displaced by a non-national currency and has been issued by a non-national central bank.[44] The replacement of the d-mark by the euro has great implications to the new configuration and to the *challenge of shaping international coordination*. Furthermore as a historical matter of fact the United States has been pursuing a different dollar strategy than they did in the eighties and nineties.[45] Finally, regarding the euro one can hardly assume that the ECB will adopt the strategy of the Bundesbank (Dornbusch 1998; Rose 1998). The ECB is going to support the euro in becoming an international currency, whereas Japan still resists promoting the yen for this role.

In addition one has to bear in mind some evident changes in macroeconomic theory since the emergence of the old configuration of tripolarity in the eighties. In short:

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[44] Some authors argue that the absence of fiscal coinsurance in the EMU could cause problems in the long run either for the monetary policy of the ECB which could come under political pressure or for EMU as a whole, see Eichengreen (1994, 102f.); Eichengreen/Wyplosz (1998), Muchlinski (1998).

[45] A transatlantic perspective is given by Kenen (1998).

Macroeconomic theory today does not unconditionally accept the assumptions of the NCM and the premises of neutrality of money. Nevertheless the 'rational expectations hypothesis' is widely accepted in theory and policy, but in a different manner than held in the NCM (see part I.2.).[46]

This paragraph also concerns aspects of the replacement of the d-mark by the euro regarding supposed effects on the euro itself and the dollar, *ceteris paribus*. At the current stage the dollar is dominant in finance and trade, nevertheless its superiority has been declined since Bretton Woods. Academic debates focus on the possible change in the superiority of the dollar in case the euro will be a strong currency. The dollar's share of world finance exceeds the economic performance of the USA. The main benefit of the dollar being used as a vehicle currency is indisputably seignorage. It implies an interest-free loan by foreign nations. One main disadvantage of having a vehicle currency is the potential loss of some degree of control over the domestic money supply. For the USA it has been observed that the advantage gained outweighs the disadvantage because of America's huge domestic economy in comparison to its involvement in international trade and finance.

Regarding the data given by the IMF (see Table 2) the dollar's dominance is indisputed[47]: Comparing the world exports of the United States and the EU 15 the picture is quite clear. Both account for around 20 %; regarding the share of GDP both are around 15 %, whereas Japan is far below in these areas. The category, assets holding, both private and official, sheds light on the predominance of the dollar including half of the stock of debt issuing by developing countries (37 % resp. 50 %), followed by EU

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46 See Ball/ Croushore (1998), Blinder (1998), (1997), Mishkin (1995).

47 See the analysis of the IMF (1997). The 68th Annual Report of the BIS (1998) refers to data at the end of 1997 which do not reject the trend as demonstrated in Table

currencies at around 35 % resp. 16 %, whereas the yen's account is at 17 % resp. 18 %. The predominance of the dollar can also be demonstrated for the function as an official reserve: the dollar is at 56 % whereas the EU-currencies account are around 26 %. Regarding the foreign exchange transactions the table shows the use of the dollar at 40 % in comparision with the EU-currencies at 35 % and the yen at 12 %.

Table 2

	United States	**Japan**	**EU 15**
Relative economic size			
- Shares of world GDP, 1996	20.7	8.0	20.4
- Shares of world exports (ex-intra-EU), 1996)	15.2	6.1	14.7
Relative use of currencies[48]			
- World trade, 1992	48.0	5.0	31.0
- World debt securities, September 1996	37.2	17.0	34.5
Developing country debt, end-1996	50.2	18.1.	15.8
Global foreign exchange reserves, end-1995	56.4	7.1	25.8
Foreign exchange transactions, April 1995[49]	41.5	12.0	35.0

This investigation provides some illustrative clarity of the new configuration of tripolarity at the end of this millennium. The effects of the EMU on the world economy will fundamentally depend on the external effect the EMU will have and how successful the euro will achieve these six functions as an international money. A prerequisite is a further integration of the European financial market (Pradi/Schinasi 1997).

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2. The reason is that only new data from 1999, the year of the inception of the euro, will provide more clarity on trends of the new configuration of tripolarity.

[48] Shares denominated in currencies of country (or EU) (IMF 1997, 71).

[49] Shares adjustment for double-counting that arises from the fact that each transaction involves two currencies (IMF 1997, 71).

Let us now consider some results of an investigation made by McCauley who tried to estimate the prospective weight of the major currencies after the introduction of the euro (see Table 3). Will there be a replacement of the dollar by the euro? The answer to this quetion necessarily depends on estimations of prospective values which are based on current data. Therefore this induction contains all problematic epistemological problems every induction has. This table below is only an excerpt of a table presented by McCauley (1997, 45).

McCauley emphasizes a rise of the dollar in all functions as an international money after the introduction of the euro. Which reasons can be mentioned? McCauley explains the rise first with a purely arithmatic effect of the EU as a single currency since the intra-European foreign exchange rate transactions disappeared by January 1999. A reasonable further consideration is that the inception of the euro takes place in a world of persistent global payment imbalances between the USA, Europe, and Japan (see my part II.5.). He concludes "the rise of the dollar's share on these measures points to the limited, regional success of the Mark as a vehicle currency in transactions and trade denomination, as an official reserve currency and as a standard of deferred payment" (1997, 44). Therefore the amount of the euro's decline will be quite dependent on whether it will be accepted as an international currency or not. This picture of tripolarity as given in table 3 can be interpreted as a transition period of the new configuration.

Table 3 **International uses of major currencies before and after the introduction of the euro**

Use	Currency	Before	After
Official reserves[50]	EU currencies/euro	24	16

[50] Components sum to 100% despite the Swiss franc's 1 % share owing to rounding.

	US dollar	69	76
	yen	7	8
International assets	EU currencies/euro	34	13
	US dollar	40	53
	yen	12	15
Foreign exchange market transactions[51]	EU currencies/euro	70	56
	US dollar	84	92
	yen	24	26
Denomination of trade	EU currencies/euro	34	22
	US dollar	48	59
	yen	5	6

Although the yen's use increased in external bank loans in the eighties and nineties, its role as an intervention currency by central banks remained on an insignificant level. Because of internal and external restrictions, neither the yen's function as a key currency emerged nor was a yen-bloc established in Asia. Additionally, Japan has still not been acting as a world banker like Great Britain and the USA did. The reason is that Japan's financial market is segmented and the yen's use as an international currency is restricted. Japan's banks do not transform liquid yen-denominated liabilities or deposits into longer-term yen-denominated loans and investment.[52] Schulz points out these financial market developments during the eighties which were due to the requirement of a greater openess and liberalization regarding the conflict between the internal and external goals, i.e. price stability and exchange rate stability (1998, 103-107).

Research by the BIS demonstrates that the yen has defended its third place as an international currency with 24% of all transactions worldwide; it is involved in two of

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[51] These figures represent the turnover in which a given currency appears on one side of a transaction; consequently the percentages sum to 200% (see McCauley 1997, 45).

[52] See Issing (1998, 24f.); Tavlas/Ozeki (1992, 21).

the ten most widely traded currency pairs (BIS 1996, Table F-4, p. 24). The BIS voices confidence that the function of the yen as an international money will continue to rise within certain regions. "The US dollar/Japanese yen trading tends to be concentrated in Asian/Pacific centres as well as in the United States and the United Kingdom. While in these markets major shares of total turnover are reported (between 14 and 29%), US dollar/Japanese yen trading accounts for low single percentages in most other market. The announcement by the Bank of Japan that it will in future trade in the US dollar/Japanes yen markets in Hong Kong and Singapore through the two countries' monetary authorities is consistent with the prominent position of the US dollar/Japanese yen trading there" (BIS 1996, 11).

Regarding the function of the yen, Bergsten supposes "the world is not likely to see a tri-polar monetary system" (1997, 91). He concludes "the euro's rise will convert an international monetary system that has been dominated by the dollar since World War II into a bipolar regime" (1997, 92).[53] Similarly, Issing argues a tripolarity of the dollar, euro and yen is not very probable (1998, 24f.). Although I am not going to discuss this assertion in this paper I would object to this view of *bipolarity* particularly as introduced by Bergsten because of his ambivalence. He also has proposed a target zone between the dollar, euro and yen as an certain goal in the long run to avoid greater trade imbalances and volatility (see Bergsten 1997, 94). The prospective exchange rates between the dollar, yen and the euro depend on decisions of portfolio preferences as a scheme shows in Table 4:

Table 4 Diversifications of the Portfolio

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[53] Fratianni et al (1998) focus on the prospective bipolar system; for a less normative interpretation on that issue, see Riese (1998).

I.	dollar →	euro
II.	dollar →	euro, $, yen, £ and others

This scene goes back to the view of Bergsten (1997) who maintains that the portfolio shift *out* of the dollar is the more interesting aspect of the new global monetary system after the introduction of the euro.[54] This portfolio shift will lead to greater volatility and further conflicts between the main currencies euro and dollar since the USA is not expected to accept a decline of its *key currency*. Persistently driving the euro up and the dollar down could be a long term result of this portfolio diversification, or Europe and the USA can be relapse to a strategy of 'benign neglect'.[55] Bergsten maintains the new transatlantic relationship will be dominated by the euro and the dollar with the yen as a "junior partner". He assumes that a huge portfolio diversification of $ 500 billion to $ 1 trillion into euros, further refinements of the european financial markets, which are now decentralized, will lead to a "quantum leap" in the global monetary system (1997, 84, 89).

Many authors attract attention to the expected volatility of the exchange rate between the euro and the dollar on the basis of a *ceteris paribus* method but not as adherents to the hypothesis of a bipolarity.[56] Given empirical evidence of the volatility between the dollar and the EU currencies, it is anticipated that the volatility of the exchange rate between the euro and the dollar will be somewhat higher than exchange rates between the dollar and EU currencies have been thus far. McCauley presents a

54 McCauley argues against such a portfolio shift (1997).

55 This is also the result of Cohen's investigation (1997).

56 Bénassy-Quéré et al. (1997), Bergsten (1997a), Cohen (1997), McCauley (1997).

"natural experiment" in which a cohesion of the effective dollar volatility and the EU currencies since 1974 is depicted. The result is a negative correlation of the effective dollar rate and the emergence of the d-mark as a *key currency* in the late seventies. This negative correlation emerged quite clearly during the period of non-misalignment within the ERM I (1987-1992), represented by a higher volatility of the dollar (around 9 %) and vice versa: Since the abandonment of the narrow bands of the ERM in 1993 the volatility of the dollar has declined (to around 7 %). This emphasized negative correlation of coherent EU currency exchange rates and the volatility of the dollar lead to the view that the introduction of the euro will cause a perpetual volatility (see McCauley 1997, 43).

The *common knowledge* as articulated in the debate is that the value of the real exchange rate is particularly due to the national management of price and demand shocks. One reasonable thought is that the euro represents a smaller degree of openess in which the monetary policy is not compelled to foster a certain exchange rate policy which was the case for the Bundesbank.[57] This implies that EMU is less vulnerable to exchange rate volatility against the dollar. The category volatility expresses the annualized standard deviation of daily percentage. Therefore the ECB is not compelled to foster a certain exchange rate policy. It is said that a smaller degree of openess will allow the ECB to pursue a strategy of 'benign neglect'. The ECB's disposal over a greater scope then is identified in the literature as a temptation to neglect the prospective values of the dollar.

Cohen models the implications of this view of the 'benign neglect' concluding that "any tightening of monetary policy carries the risk of raising the volatility of the

real exchange rate if price uncertainties are dominant, while it would reduce the volatility if demand volatility is dominant. (...) Economic policy become bolder in their management of the exchange rate when trade disequilibria are feared less" (1997, 414).[58] For McCauley, Bergsten, et al, therefore the claim for a closer cooperation of the *key currencies* seems to be out of the question. One has to recognize the ambiguity of the dollar, euro and yen and also the exchange rate between them because of their inherent relationship as international money.

The literature of the last decade has been concerned with the question of whether the euro be a strong currency. Furthermore: 'Will the euro displace the Dollar as the most important currency?' And the answers which have been given can be classified as optimistic, pessimistic and fundamentalistic. My brief concern is with the latter, since this view refers to theories and experience in a way that indicates a normative impetus.

Without going into much detail in a systematic classification of the present contributions, I would like to refer to Salvadore. He explains that the euro is going to become an international money for three reasons: (1) structural statement in referring to the EU "15" as the largest trading block in the world. The cogent argument then runs that the euro is *compelled* to become an important currency. (2) The euro must be a compensation of the "venerable deutschmark" and (3) the ECB must achieve credibility and support the euro to become an international money without limiting its opportunities for a rise in exports. According to the second question, Salvadore shares the judgements of many other authors that it is not likely the euro will deplace the

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[57] The IMF study demonstrates that euro area will be comparable with the United States and Japan where the macropolicy is focusing domestic macropolicies since the degree of openess is relative small (1997, 53/54).

[58] A distinguished view presents Collignon (1999) who agrees with a likelihood of a higher volatility of *key currencies*, particularly the dollar-euro, but he goes further to

dollar. The demand of dollar will not significantly decline, neither through EU countries nor through non-EU countries (1998, 395-396).

There are good reasons for the likelihood that the euro will displace the dollar in its function as a unit of account throughout Europe as soon as European financial markets have developed.[59] But it has been discussed in the current literature that it is unlikely the euro will immediately displace the dollar in its function as a medium of exchange and store of value throughout the world economy.[60] The reason is that the current statute of the ECB and the absence of a federal government in the EU are drawing restrictions on the European monetary integration process. It is therefore likely that the euro will probably have the same weight as the d-mark had until the end of 1998 but somewhat less than the relative weight that the EU has in international trade and finance in the world economy. The real challenge for the euro is to *become* a medium of exchange, store of value, and unit of account within the coming years, and being compelled to represent these functions from the outset.

The current weakness of the euro is mainly due to uncertainty about the monetary policy of the ECB. The important question is if the ECB will be able to reject certain claims of the European finance ministers lowering the interest rates. This aspect is related to the credibility of the ECB. The ECB is acting between the need of pursuing its goal of price stability, earning credibility and acceptability. The claim of Japan, Germany and France to implement target zones between the euro, dollar and yen is another aspect which seems to weaken the euro. More generally, the market assessment is opposed to the political arrangements. The market accepted a political inception of

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discuss the effects of "bloc-floating". Tietmeyer opposed to the supposition of a 'benign neglect' arguing that no central bank today will lead to that strategy at all (1999).

59 Gros (1998a), (1998b), once again see BIS (1998).

60 Issing (1998).

the euro but one can hardly assume that it will support the weakness of the euro. The less competitive structure of the European Financial Market, the smaller rate of growth in Europe and the higher and persistent rate of unemployment are only some central indicators to sketch the present situation. The countries want to minimize the volatility of their exchange rates regarding the impact on macropolicy. This current debate is part of the Post Cold War global power realignment. With the euro at hand, Europe wants to demand its rightful place at the global economy table. I think Japan worries that the euro's arrival means it will lose it status as a global player. A tripolarity of exchange rate coordination between euro, dollar and yen would restrict national egos all around.[61]

Not only the history of the pound sterling and dollar has told us that formal arrangements are not sufficient to establish a key currency.[62] The competition between the pound sterling and the dollar was decided by economic and political performance, not by legal documents. In the 1920's the overvalued exchange rate of the pound against the dollar was the reason for gold export from Great Britain to the United States and the starting point for building the reputation of the dollar (Spahn 1998).[63] Beyond that, the U.S. market wasn't devastated by the First World War, a circumstance not to be neglected, which provided a successful emergence of the dollar. It has to be noticed that history can teach us what happened but it cannot teach us what will happen. Concepts or categories like *key currencies* are not definable by so called real facts. Therefore it is ne-

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[61] A proposal for a target zone between the dollar and yen was made McKinnon/Ohno (1997). Tietmeyer expressed his opposition against a certain coordination between the "triade of US-dollar, yen and d-mark for two main reasons: (1) A policy of a benign neglect is highly unlikely. (2) Free capital movements is incompatible with a fixed exchange rate system which is identical with a stronger coordination of the triade and the autonomy of monetary policy (1999).

[62] Spahn explains the emergence of the *key currencies* dollar and d-mark considering the process of market evolvement. This is quite distinguished from institutional arrangements (1995).

[63] See Keynes (1925).

cessary to refer the concepts to representations of the empirical world. If the euro should be accepted by market participants, somewhat more is required to be successful. The establisment of the euro as a *key currency* will depend not on the ERM II but on the market response. The important figure therefore is an ECB acting as a market participant and not as a speculator of the market.

I now would like to make a short remark on the current monetary policy in the United States which has changed fundamentally since the eighties. The old strategy of 'benign neglect' the treasury and the Fed in the Reagan era had practiced is not relevant for the new situation at the end of the millennium. Sure, the monetary policy of the Fed is loath to surrender agreements with the new ECB about exchange rate targets, but this is also true for the official position of the ECB. Both agree that they are pursuing stable exchange rates. The main question is *how & when* this could be guaranteed or achieved. Since the Treasury and Greenspan have intervened occasionally in the foreign exchange market in the nineties, they argue that these ad hoc actions should be sufficient market intervention. The official position of the ECB is similar; the new currency euro needed to be assessed by the market and not by a political decision.

To summarize the main points of this paragraph then, the replacement of the d-mark by the introduction of the euro will presumably not lead to a replacement of the dollar. The success of the euro in becoming an international money significantly depends on the policy of the ECB which shall act as a market participant. Since money is non-neutral and monetary policy also lead to its non-neutrality, basic assumptions of the New Classical Macroeconomic theory are out of style.

III. Coordination as a regime choice - beyond policy optimization

7. The imperfection of the foreign exchange market

The lessons of the time after abandonment of the Bretton Woods Agreement are characterized by different theories and experiences. They refer to various forms of floating and fixed exchanges rates which all created different phenomena of crises in the international monetary system. It became obvious that within a floating exchange rate system speculation was not stabilizing as maintained in the theory of Friedman (1953).[64] The *modern asset view* was a theoretical refinement in views on exchange rate movements. In this approach exchange rates have been considered as an asset price avoiding the simplifications of the older view.[65] The persistent phenomena of suffering markets in the eighties was expressed by a high volatility of exchange rates, *speculative bubbles* and exchange rate misalingments. All of this cast certain doubt on the metaphor *the market knows best.*

Doubt also could not have been avoided by the emergence of the *rational turn* in theories of exchange rates in the seventies and eighties. The paradigmatical view of the 'rational expectations hypothesis' and the neutrality of money held by neoclassical theory and the NCM became elemental for theories of exchange rate movements and

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64 See also Part I.3.

65 See f. i. the model of *overshooting* by Dornbusch (1980) and the *Chicago-Monetarist-Approach* by Frenkel (1976) and Mussa (1976) who focused on different price rigidities on different markets. Rigidities of goods markets were identified as the factors preventing an equilibrium of the market after an exogeneous monetary shock. A modell on exchange rate dynamics presented by Bilson (1984). A review on exchange rate

balance of payments. Focusing on expectations and *unanticipated* 'news' the theoretical explanation of exchange rates is embedded in the idea of a perfect foreign exchange market.

As I have already mentioned the REH premise implies that market participants act on the basis of a universal 'true' model avoiding systematic errors in forming expectations on prospective events and values. The premise of the 'news' approach to disequilibria in the foreign exchange market maintains the same message: Foreign exchange market exchange rates contain all relevant and available information which are correctly expressed by the price of the currency. Therefore both the 'rational expectations hypothesis' and the market efficiency hypothesis lead to market equilibrium - in the long run. Kenen (1994) stated "*if* goods prices *were* perfectly flexible, there *would be little cause to worry* about exchange rate arrangements" (emphasized by EM).[66] The claim of the 'news'-approach is that a disequilibrium is possible in the short run but only because of the 'non-anticipated' information, that means the 'news'. As Frenkel explained:"Within this framework exchange rates are viewed as the prices of assets that are traded in organized markets and, like the prices of other assets, are strongly influenced by expectations about future events" (1981, 667).

A closer look shall provide clarity on the idea of covered and uncovered interest parity. The interest parity condition discusses whether the market exchange rates incorporate all available information. Interest parity is expressed when the interest difference between deposits denominated in different currencies is equal to the market forecast of

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theories is given by Taylor (1995). For a portfolio balance approach see for instance Branson, W.H./Henderson., D.W. (1985) and Tobin/deMacedo (1980).

[66] Regarding the dollar's ups & downs in the eighties Kenen concluded: "If the inhabitants of the market had been endowed with the marvelous attributes displayed by those who populate many economists' models, they would have known that the U.S.

the percentage by which the exchange rate between those currencies will change. Thereby the interest parity condition, both covered and uncovered, are fulfilled. In case of a divergence of the nominal interest differential and of actual and expected exchange rate changes, one speaks of an uncovered interest parity since the forward markets are not used as a hedge. Therefore uncovered interest parity maintains differences in interest rates which are an estimation of the future exchange rate change.

An important category of foreign exchange trading is forward trading, which expresses a common agreement to exchange currencies on some future date at a pre-negotiated exchange rate. The opposite category is spot trading which is settled immediately. With the forward exchange rate of a currency the market reveals its expected spot exchange rate. Regarding the function of rational expectations, adherents to this view explained, "as the figure clearly illustrates, unanticipated changes constitute nearly all the actual variation in exchange rates" (Dornbusch 1980, 159). The conclusion is that the expected exchange rate changes cause the real exchange rate changes as Frenkel stated: The nominal exchange rates "are more sensitive to expectations concerning future events than national price levels. As a result, in periods, which are dominated by 'news' which alters expectations, exchange rates are likely to be more volatile, and departures from purchasing power parities are likely to be the rule rather than the exception" (Frenkel 1981, 667).

One central problem of this approach is that expectations are related to the fundamental variables of an economy, thereby new information about the fundamentals is supposed to affect expectations of exchange rate changes and will therefore cause unequivocal effects on the exchange rate changes. But this mono-causality of thinking is

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budget and trade deficits could not last indefinitely and that the dollar would have to return eventually to something near its 1980 level" (1994, 124).

not acceptable. The formation of expectations is not due to a uniform model but to different models and perceived situations, d.i. to the contemporary world. The 'news' approach to the foreign exchange rate market follows the vision of logical positivism providing a unique analytic explanation expressed by logical propositions and mathematics which are independent of any evidence of the social sciences. This theoretical approach of the 'news' leaves unexplained how the amount of exchange rate movements is linked to a certain relation of the event which distorted the market equilibrium, i.e. the non-anticipated 'news'.

Theoretical refinements focused on both economic fundamentals which are observable and so-called non-observable fundamentals. *Rational bubbles* are defined as exchange rate movements which are not linked to fundamentals, but to 'rational expectations' of the market particpants. This phenomenon emerged to dominate the debates among academic literature.[67] But this adherence to the 'rational expectations hypothesis' did not provide any explanation of *why* rational speculative bubbles actually had started. Whereas speculative attacks occured under fixed exchange rates, speculative bubbles emerged under floating exchange rates (Frankel 1996). The experiences in the seventies and eighties demonstrated that foreign exchange markets were beyond being guided by the market clearing function of rational expectations and the price mechanism. Persistent disequilibria on foreign exchange markets created different theoretical approaches to explaining these 'anomalies' (Froot/Thaler 1990).

Krugman sums up these efforts in the community of science, stating there was a "huge and dispiriting literature on foreign-exchange-market efficiency; after more than a decade of work, it seems clear that nobody has found any reasonable way to save the

speculative-efficiency hypothesis within the data. This is devastating in its impact on our research. What we know how to model are efficient markets; what we apparently confront are inefficient ones. Nor can we, in international macroeconomics, tacitly put speculative behavior on one side. Under floating rates, the role of market expectations is crucial to every aspect of policy analysis" (1995, 524). In addition to Krugman I would argue that although many refinements in the theories of exchange rates have been made, the failure of explaining exchange rate volatility in light of a theory which conceptualized money and exchange rates as neutral was obvious.

These unsolved problems in theories of foreign exchange markets concern the macropolicy and the process of income generation. The particular questions of *how* and *when* the effects of monetary policy of an independent central bank affect the capital market, i.e. the level of interest rates which regularly attract the attention of investors and are part of their decisions is contained in a huge amount of literature. I only want to add two further considerations given by two authors in emphazising the inherently link between monetary policy and exchange rate policy (see also part I.2.). Blinder discusses the important aspect of determing the short term rate. "The interest-sensitive components of aggregate demand react mainly to the real long rate while the central bank controls only the nominal short rate. In other words, the interest rate the central bank can control doesn't matter (much), and the rates that really matter cannot be controlled. On the surface, this seems a devastating conundrum (1998, 30)."[68] As outlined in the "news"-approach to foreign exchange markets the expectations of a monetary regime change are important for forming expectations on exchange rates changes.

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[67] Blanchard (1979), Blanchard/Watson (1982), Dornbusch (1980). DeGrauwe presents a non-linear model to explain the perplexing dollar movements in recent years (1994).

[68] See also Eichengreen (1998); Salvadore (1998a).

For the changes of exchange rates, this short rate is also of great interest. Keynes described this aspect similarly: "The short term rate of interest is easily controlled by the monetary authority, (...) because it is not difficult to produce a conviction that its policy will not greatly change in the very near future, and also because the possible loss is small compared with the running yield (unless it is approaching vanishing point). But the long-term rate may be more recalcitrant when once it has fallen to a level which, on the basis of past experiences and present expectations of *future* monetary policy, is considered 'unsafe' by representative opinion. For instance, in a country linked to an international gold standard, a rate of interest lower than prevails elsewhere will be viewed with a justifiable lack of confidence (...)" (1936, 203). This emphasis on expectations made by Keynes, and also Blinder, is beyond the 'rational expectations hypothesis'.[69]

Salvadore argues that not the exchange-rate misalignments but the persistent structural disequilibria between the United States which has a huge trade deficit and the trade surplus of Japan and Germany are the reasons for current problems in the international monetary system. "The period of flexible exchange-rate system since 1971 has been characterized by far greater macroeconomic instability in the leading industrial countries than during the previous fixed exchange-rate or Bretton Woods period" (Salvadore 1995, 515).[70] According to debates in the eighties concerning the "J-curve effect" Salvadore doubts that the trade deficit in the USA could be solved by a depreciation. This reflection is also true if one remembers the controversies of the "pass-through" effect which arose in economic debates during the eighties. The

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69 Snowdon/Vane (1998, 124ff.)

70 For current judgement on this topic, see II.6.

metaphor refers to the pattern of behavior by foreign firms responding differently to exchange rate changes than theories assumed.

8. Proposals for improvements

Open questions in theories as well as further disenchantment with fixed exchange rates during a certain period of the EMS in the years 1992/93 led to several modifications in the theoretical explanations of crises in the foreign exchange rate systems and the international monetary system.[71] Against the historical background of a period of disillusion with free floating exchange rates and further failed experiments on exchange rate pegging (*nominal anchor),* the academic discussion has been offering some new and some not so new proposals which are classified in Table 5.[72] For example, the nominal anchor argument demonstrated some doubt of the possibility to import credibility to stabilize domestic inflation.

Table 5

	Persuasion	
	International Bargaining	**International Institution**
Intervention Against Markets	(1) Tobin Tax (Tobin, Dornbusch, Eichengreen/Tobin/Wyplosz)	(2) IMF

[71] See for instance the contributions by Bretton Woods Commission (1994), Eichengreen (1998), Salvadore (1995, 1998).

[72] A synopsis comparing the properties of international monetary arrangement by 1987 is to be found in Williamson/Miller (1987, 43). It demonstrates that the goldstandard is inferior to other proposals regarding the goals like internal balance, exchange rate changes as adjustment tools, control of misalignment and macroeconomic independence. The other proposal which are discussed in this contribution are for instance the McKinnon proposal, dollar standard and the EMS.

Intervention	(3) International coordination	(4) Fixed exchange rates,
On Markets	Target zones & ERM I, II (Bergsten, Bryant, Williamson/ Miller)	gold standard, Currency board (McKinnon[73], Mundell)

Ad (1) The proposal of capital controls made by James Tobin (1978) is still controversial in the literature. The Tobin tax is supposed (a) to affect short term speculators and (b) to stabilize the volatility of exchange rates. Tobin et al describe the tax as a penalty aimed at *throwing sand in the wheels*. Therefore (a) and (b) must definitely work. Recent surveys have shown that short term speculators are presumably restricted by a Tobin tax (UNCTAD 1994). The penalty thereby could mitigate destabilizing speculations. In addition to the effects claimed by (a) and (b) the Tobin tax provides further revenue for the government. Recognizing these considerable effects one has to ask why a Tobin tax has not been implemented until now. One central objection against the introduction is the expected flight of capital. The difficult question arises as to how the government would then react. Therefore the Tobin tax is not *common sense* among economists and politician. The best method imaginable is that all nations implement a Tobin tax, but still here, no *common sense* is in sight.[74]

Ad (2) A strengthening of the International Monetary Fund has been proposed by Fischer (1994); see also the Bretton Woods Commission Report (1994). A modified view of the prospective role of the IMF has been given by Feldstein (1998). I do not discuss this aspect here.

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[73] See McKinnon (1988).

[74] For further discussions see Arestis/Sawyer (1997), Eichengreen/Tobin/Wyplosz (1995), Garber/Taylor (1995) Smith (1997). A study on a penalty like the Tobin Tax effect on foreign exchange market was made by the UNCTAD (1994).

Ad (3) Debates on international coordination of macropolicy, particularly exchange rate arrangements started in the early eighties.[75] Sure, the idea of coordination is older than this starting point (Bloomfield 1959, Hamada 1998).[76] For our concern the early eighties are an important period which expresses the shift of a paradigm in monetary policy as outlined in paragraph I and II. The most relevant proposal for a framework of coordination was made by Williamson/Miller (1987) who focused on target zones. To be brief, both the definition of the central parity and the target zone draw many questions on the practicability, feasibility and adequacy of such arrangements. The ERM I is one famous example for investigating the concept of target zones.[77] The ERM II which was implemented in January 1999 is going to be another good example (Muchlinski 1998).

In his basic model of target zones Krugman explained that the impact of target zones on exchange rate stability is due to the credible commitment of the target zones (1992, 89).[78] The implication of this model is that a change in money supply will only emerge at the edges of the band to be implemented infinitesimally. Given the premise of merely one exogenous variable (*v)* which follows a random walk, i.e. *v* has no trend, the expected rate of exchange rate changes is negativ or positiv. This expectations guides and determines the tangent condition of the *curvature* since it ties down the ends

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75 See Bryant (1995), Bergsten (1997a).

76 The history of a consideration of international interdependence leads back to Cooper (1968), Johnson (1954), Meade (1951), Niehans (1968), and Scitovsky (1941).

77 Regarding the volatility of the dollar/yen exchange rate during the time period from the early seventies to 1994 McKinnon/Ohno (1997) argue that the amount of the yen appreciation is at 250 %. This balance trade imbalance between Japan and the United States is mitigated best by a target zone around plus/minus 4,5 % for the dollar, yen and euro. Contrary to the Williamson proposal they propose a stabilization of the nominal exchange rate through a policy of neutralisation by the central banks.

78 No further discussion on this model is intended in this paper (see Muchlinski 2000). Krugman (1992) refers to his very first publication on this issue 1987.

of S (1992, 83). The credibility is fundamentally due to a the central bank's ability to defend it considering a certain amount of reserves (Krugman 1989).

Theoretical refinements and enrichments provided for instance Flood and Garber (1992) emphazising the relevance of shift regimes and the range of interventions for the credibility of target zones. A famous example is the EMS. Furthermore a credibility of a target zone depends on how the market judge on the compatibility of the target zone and the level of the interest rate, i.e. asset prices of the domestic economy. An incompatibility of an exchange rate parity and bands could be interpreted as an invitation to speculation. Another reason for a speculative attack is conceivable even if compatibility exists; the speculation emerge since they expected a regime change as a result of the speculation attack itself (Froot/Obstfeld 1989).[79] A phenomena called *contagion effects* of speculative attacks against fixed exchange rates explained Gerlach/Smets (1992). A contagion effect is perceivable as a result of a depreciation of one currency which also effect other currencies because of a emerging speculative pressure. This phenomena provides some further explanation of the crises both in the EMS 1992/92 and in some countries in Asia.

Let us concluded this brief view on target zones referring to current debates. The U.S. Treasury and the Fed, the finance ministers in the EMU and ECB, also the Ministry and Bank of Japan today are opposed to target zones. In case of the United States, the reminiscence of those events in the early eighties where an overvaluation of the dollar hurt the domestic steel industry and dimished its competitiveness dramatically is still conceivable.

Ad (4) The argument that a gold standard, currency board or fixed exchange rate system will avoid instability and crises in the foreign exchange market has always been

at the core of debates concerning modifications in the international monetary system. Contrary to that view fixed exchange rates have also been interpreted as the cause of illness for which they are cited as a cure. These proposals are regularly submitted to subdue inflation and exchange rate volatility.

The basic understanding of a currency board or fixed exchange rate arrangement is that a commitment of the participating countries to pursue inflation control is sufficient to achieve stability. But as experience has taught, fixed exchange rates do not necessarily provides stability, if for instance, the commitment is not interpreted as credible by the market. Although experience only teaches what happened and not what will happen, the proposals for a fixed exchange rate regime or currency board are only reasonable for some countries. More generally it is possible to argue that a fixed exchange rate regime is suitable for countries where economic performance fulfills certain criteria, for instance a certain size of openess, the capability to achieve breadth and depth of the financial market and a certain level of inflation. Defending one of these proposals depends fundamentally on the amount of international reserves. A peg to the dollar for too long has been the reason for the crises of some Asian economies (Bundesbank 1999, April). As some authors mentioned fixed exchange rates and currency pegs do not eliminate wrong domestic policies. They only signal to foreign creditors and Asian debtors that no exchange rate risk into their lending and borrowing exist. A *wrong* domestic policy hardly cannot compensates a *right* exchange rate regime. Currency peg, currency board and fixed exchange rate are not a sort of panacea for the world. They are *no universal solutions* guided by *universal law*.

Mundell poses the question of whether the present international monetary system is optimal? The answer is no and Mundell refers to the requirement of a stable

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[79] A previous view on the emerge of multiple equilibria presented Obstfeld (1986).

international currency, i.e. an international money as gold has been (1995). Regarding these contributions introduced above much criticism is to be found in the literature. Mussa for instance argues there is no need for improvements. He refers to the volatility of the main currencies yen/dollar, d-mark/dollar and d-mark/yen during the time period of 1973-78, 1979-86 and 1987-94 and states, that the empiricial results do not show significant changes in the short-term volatility of these exchange rates; therefore the Louvre Accord in February 1987 did not have remarkable impacts (1995, 500). He confesses the figures of exchange rate volatility since 1994 have been changed. Nevertheless the 'evolution' of the present international monetary system is part of this short-term volatility. Regarding the problems of medium-term, exchange-rate misalignments (EMS crisis in 1992/93), Mussa optimistically states it is unlikely such failures will be repeated (1995, 511).

Having introduced some basic proposals for a refinement of the international monetary system I now turn to international monetary coordination for more details. The topic has always been a focal point in the debates; either to discriminate any forms of coordinations as illusionary or to support many forms of coordination as desirable. My concern is with the latter.

9. A challenge to shapening the monetary coordination

The previous paragraphs have focused on central aspects of the new configuration of the tripolarity. The economic size of the EMU and the unified market of "Euro-15" will be at the level of the USA and Japan. As the argument goes, given this economic performance, the ECB and ESCB will not be interested in a stabilization of the euro-dollar exchange rate since it is of less importance than it was before. This

induction is not convincing for two main reasons: The conclusion that a larger economy in Europe provides a higher tolerance to movements of exchange rates is based on a non-convincing comparison of the USA with Europe regarding the old and new configuration of tripolarity. Bergsten for instances referred to the costs of prolonged misalignments between Europe and the United States in the past and proposes that in the long run "a structured exchange rate regime should be developed to manage the relationship that will emerge between the dollar and the euro. The EU, Japan, and the United States should negotiate a target zone system with broad currency bands, perhaps 10 percent on both sides of a nominal midpoint, that would avoid large current account imbalances and their attendant problems" (1997, 94). A I have already mentioned a consensus of target zones are presently out of the question as a political goal. Second: The USA changed its exchange rate policy in the last decade.

A positive theory of coordination does not exist, therefore the topic of international monetary coordination has become a field of research for many different theoretical approaches, for instance, game theory, exchange rate theories, political economy, new institutional economics and international economics. One central feature of the development of these approaches to the topic of international monetary coordination is that the idea of the early seventies and eighties for treating international coordination merely as a problem of policy optimizing approach has been changed. Debates on international coordination today are beyond the pure idea of measuring the costs and benefits of maximazing the utility function of the world."International coordination, in my view, is best defined as coordination that goes further than mutual recognitition in focusing on the cross-boarder spillovers and arbitrage pressures that erode the differences among national economices and policies. (...) Coordination involves jointly designed, mutual adjustments of national policies - commitments about the time paths for ultimate-target

variables" (Bryant 1995, 398). He emphasizes the various institutions and their ongoing activities, like G-7, G-8, G-10, IMF - Interim Committee and Executive Board, the BIS, meetings on the level of the OECD, etc.

Whereas Bryant refers to the *regime preserving approach* as the new approach to international coordination, Hamada and Kawai emphasize the *regime choice approach.* "Regime preservation is nothing but a special outcome of regime choosing in each period" (Hamada/Kawai 1997, 136). The inception of new institutions like G-3, G-7, etc. has been led to a different understanding of international coordination. Since the academic discourse attacts attention to the *regime choice approach*, Hamada/Kawai stated "however, there is an interesting area, much less extensively studied, of analyzing regime choice or the process of agreeing on international rules of the game" (1997, 112). They also referred to Keynes and his example of the *fallacy of composition* which will be the result if one tries to make an induction from individual rationality which indeed could be rational to a supposed rationality of the community as a whole.[80] This *fallacy of composition* should be avoided in international coordination. Hamada/Kawai argue this example is an starting point for their approach to international coordination activities (1997, 93f).

Hamada (1998) also stresses the importance of distinguishing between international monetary coordination and monetary integration: For two reasons: (a) The regime choice approach does not attempt to argue that coordination is always the desirable goal. Coordination is to be preferred as a joint commitment if it presumably leads to a better result. Therefore coordination depends on judgements about particular situations. (b) The aim of international coordination is somewhat different than monetary

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[80] Keynes (1936); for a view on Keynes's economic theory, see Muchlinski (1998b).

integration. Whereas monetary integration implies the goal of a monetary union, which can be implemented in a preliminary step by a fixed exchange rate regime, monetary coordination does not aim for that. Monetary integration can have different degrees which represents different amounts of public confidence in the fixed exchange rate system. "However full monetary integration or unification is only realized when a common currency issued by a single central bank circulates in the area of the monetary union" (1998, 423).

Since I am not going to outline the pros & cons of a monetary union, i.e. full monetary integration, I now turn to some basic implications of the *regime choice approach*. A perception of a crisis in a given monetary regime and also its gradual erosion is fundamentally required. This is a strict premise of every regime choice. A realization of the preferred new system required time since efforts and cooperation of the nations are needed. Furthermore, their attention should acknowledge short-term costs, while long-term benefits are more difficult to estimate. The regime choice happens in a world with a minority of powerful nations where the majority of nations are less strong. Therefore this asymmetry leads to distinct categories of nations or players which have different impacts on the international monetary regime. This aspect of economic international leadership can not be neglected (Hamada 998, 433). Hamada/Kawai (1997) then conclude that the regime choice approach is primarily an investigation of divergent domestic and international interests which have to be transformed into a balanced strategy. "The strategic analysis cannot be regarded as a straightforward justification for any and all attempts at international policy coordination. Instead, it gives an analytical framework to clarify the incentive structure

of policy makers who are politically restricted by domestic political processes" (1997, 127).[81]

This shift of paradigm within the theory of international coordination is amazing since it lead to various questions.[82] I would then like to propose defining both approaches to international coordination as a *challenge to shaping monetary coordination*. This request to shape monetary coordination is a significant shift of paradigm which also expresses a shift of perceptions. This refers to a different theoretical understanding of the function of money as discussed in this paper.

V. Conclusions

Wide disenchantment with both the fixed exchange rate system under Bretton Woods and the variety of flexible exchange rates since August 1971 in theories and practice led to the view that current financial instabilities in the international monetary system need to be responded to. This is also true for the old and new configuration of tripolarity. The core of these configurations is a certain perceived and discussed economic interdependency of the three main countries and currencies. It also consists of the non-neutrality of money as embedded in the theoretical outline introduced in this

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[81] Milner claims for a political economy approach to avoid still ongoing restrictions to international coordination. The economies have failed to promote greater coordination because of the missing theory. Economists tend to shorten the topic to a question to be measured. They are oriented to the costs and benefits of coordination (1997, 180f.). I believe that this is not a complete representation of the debates among economists today. Admittedly a consensus among economists are not in sight, but as my paper tries to demonstrate, many contributions in the literature are devoted to greater coordination.

[82] Nevertheless the difference between Bryant's *regime preserving approach* and Hamada/Kawai's *regime choice approach* seems to be in the methods they apply to international coordination.

paper. The proposals for improvements are as wide as the realm of analysis but one certain consideration can be mentioned: Dealing with financial instability requires a form of ex-ante coordination or commitment which is beyond fixed rules. This method of coordination can be described as a *challenge to shaping monetary coordination*.

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