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Framing world monetary system reform: Fritz Machlup and the Bellagio Group conferences

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In a speech before the American Philosophical Society on November 12, 1964, economist Fritz Machlup explained his decision to members of the society to bring together 32 economists from eleven countries for an "inquiry into the sources of disagreement on international monetary prescriptions" (Machlup, 1965, p.1).

> "The group included representatives of several feuding schools of thought. Indeed, quite deliberately, it included extremists on matters of international monetary reform, advocates of the most irreconcilable plans. For only a direct confrontation of the divergent views could afford a full and fair analysis of the sources of disagreement" (*ibid*, p. 1).

The group of 32 academic, non-governmental economists would come to be known as the Bellagio Group, named after the Rockefeller estate at Bellagio in Lake Como, where the group sometimes convened. Led by Fritz Machlup and fellow economists Robert Triffin and William Fellner, the Bellagio Group met 19 times between 1963 and 1974, often joined by senior government officials of the Group of Ten,[1] as the reputation and value of the Bellagio Group as a think tank started to build.

Contemporaries and insiders have commented on the group's impact. Robert Solomon, a member of the Federal Reserve and American

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[1] The Group of Ten were those countries who agreed to provide standby credits in the event of a monetary crisis under the terms of the "General Arrangements to Borrow." Adhering countries were the United States, the United Kingdom, Canada, France, West Germany, Italy, The Netherlands, Belgium, Sweden, and Japan.

representative on the Ossola Group[2] of the Group of Ten, said of the work of the 32 economists of the Bellagio Group:

> "one can discern [in their work] two areas of divergence from the content of the reports of the Group of Ten and the International Monetary Fund. More stress was placed on the desirability of changing exchange rates as a means of balance of payments adjustment. And more concern was expressed about the instability that could arise from the 'overhang' of foreign exchange reserves […] In general the report of the Bellagio Group holds up well in the light of subsequent developments" (Solomon, 1977, p. 71).

Former historian of the International Monetary Fund Margaret DeVries wrote:

> "in 1963-64 a group of 32 academic economists and public officials identified three basic problems of the Bretton Woods system: liquidity, adjustment and confidence in reserve media. For the next decade, discussions of the system's shortcomings centered around these three problems" (DeVries, 1987, p. 80).

In an essay on the Bellagio Group's impact on world monetary reform, co-leader Robert Triffin wrote that the outcome in favor of flexible rates was the result of Fritz Machlup's influence, through the Bellagio and Burgenstock[3] conferences he convened, on influential policy makers, bankers and academics who had strong policy-making ties (Triffin, 1978).

Recent scholarship on the Bellagio Group has been very limited, but points to an impact that is also worth examining. Eichengreen and Bordo (1998, p. 24) attribute to the Bellagio Group the advocacy of the creation of a special reserve asset before the publication of the 1963 IMF *Annual Report* and the 1964 report of the Group of Ten study group. An amendment to the IMF Articles of Agreement creating the Special Drawing Rights (SDRs) finally came in 1968. In his essay "Le groupe de Bellagio: origins et premiers pas (1960-1964)," for Michel Dumoulin's *Economic Networks and European Integration* (2002), Jerome Wilson

[2] The Ossola Group was a study group on the creation of reserve assets, named after its chairman Rinaldo Ossola, vice chairman of the Bank of Italy.

[3] The Burgenstock conferences were held from 1968-1970 and included bankers and policy makers as well as academics. They aimed at a discussion of exchange rate solutions to balance of payments problems.

also finds that the Bellagio Group anticipated the work of the Ossola Group on SDRs.

If these sources are right in their assessment of the influence and impact of Fritz Machlup and the Bellagio Group, the published papers of Fritz Machlup and his contemporaries as well as Machlup's personal papers housed in the Hoover Institution and the Robert Triffin Papers at Yale University, should provide support – and they do. The research findings that follow demonstrate the Bellagio Group's focus on outcomes, specifically adjustment, liquidity and confidence; its stress on exchange rate regimes for payments adjustment; its exposure of audiences of academics, policy makers and bankers to an exploration of alternative exchange rate scenarios, and its exploration of flexible exchange rates at a time when policy makers as well as bankers were against (or at least very uncomfortable) with a move to exchange rate flexibility.

It should be noted that it was Fritz Machlup's plan to allow Bellagio Group members to speak their minds at the conferences, even to change their minds if they were so disposed; hence, no record of the conversations was kept. While the Machlup papers are mute, the Triffin papers offer more detail on the structure of the conference meetings, the distribution of assignments as well as the surveys that Machlup took to take the group's temperature on important issues. Triffin may well have had a personal motive for keeping the backup documents. The Triffin plan, while no longer associated with Triffin's name, is deeply embedded in the hybrid solution of flexible exchange rates and special reserve assets (special drawing rights) that the Bellagio Group recommended to the deputies of the Group of Ten.

Important to an understanding of Machlup's role and specifically his ability to pull together economists and officials with divergent policy prescriptions is his ability to frame the argument in terms of adjusting changes to payments adjustment, liquidity and confidence. David Snow and Robert Benford (1992) define a frame as "an interpretive schemata that signifies and condenses the 'world out there' by selectively punctuating and encoding objects, situations, events, experiences, and sequences of action in one's present or past environment" (p. 137), a

process of deliberate and focused persuasive communication essential for the mobilization of consensus prior to collective action (p. 136). Entman (1993, p. 52) defines framing as the process of selecting aspects of a perceived reality and making them more salient so as to promote a particular problem definition, interpretation, moral evaluation and recommended treatment. Nelson, Oxley and Clawson (1997) find the social, interactive process of framing appears to activate existing beliefs and cognitions (making participants particularly aware of their arguments) rather than changing beliefs, a phenomenon that is important to mobilization and collective action. In public policy, Mintz and Redd (2003, p. 195) identify subtypes and variations of framing as manipulation, including evaluative, wherein the frame operates as an anchor in the assessment of the environment and productive, wherein the frame serves to produce an intended outcome.

After a brief discussion of the historical context within which the Bellagio Group conferences came to be, the paper examines Fritz Machlup's use of framing and its use in the Bellagio Group conferences, his selection of economists to join the Bellagio Group, his close working relationship with the deputies of the Group of Ten, his creation of a broad platform of joint conferences with senior government officials, as well as the publication of papers and books by Bellagio Group members through the Princeton Finance Section, which Machlup directed. The final section summarizes the findings.

1. Historical context

Throughout much of the period covered by this paper, the Bretton Woods system was in full gear. It differed from the prior period's gold-exchange standard in three ways. Instead of pegged exchange rates, Bretton Woods established adjustable exchange rates to eliminate balance-of-payments deficits, subject to the existence of what was known as "fundamental disequilibrium," (although the term was associated with crisis and countries sought to avoid sending a message of crisis to their trading partners). Capital controls were permitted in

order to curb potentially volatile international capital flows. The International Monetary Fund was created with the mandate to monitor national economic policies, extend balance-of-payments financing to countries at risk, sanction governments responsible for policies that destabilized the international system and compensate countries that were adversely affected (Eichengreen, 2008, pp. 91-92). In practice, despite the adjustable peg, parity changes were rare. Exchange controls substituted for the absence of an adjustment mechanism until the restoration of current-account convertibility in 1959. “In the absence of an adjustment mechanism, the collapse of the Bretton Woods international monetary system became inevitable. The marvel is that it survived so long” (Eichengreen, 2008, p. 94). Nevertheless, maintaining the system’s viability for as long as possible was highly desirable given the high rate of growth in international trade (Toniolo, 2005, p. 350). To support such trade required the creation of increasing international liquidity, primarily in the form of central bank reserves. Insufficient means of international payments would obviously reduce trade and therefore output growth and therefore employment. Full employment and growth required trade liberalization. Individual countries would proceed with a program of trade liberalization only if they felt comfortable with a level of reserves believed to be capable of cushioning the domestic economy from international monetary shocks (Toniolo, 2005, pp. 351-352). Hence, the provision of international liquidity largely depended on the US balance of payments deficit, though managing the size of those deficits was critical to confidence in the international currency. This was not a problem given the dollar shortage that prevailed through much of the 1950s, caused by US balance-of-payments surpluses. The problem began to be manifest when “the rapid expansion of Japan and Western Europe, their buoyant export trade and US overseas investments and military expenditures translated into larger US balance of payments deficits” (Toniolo, 2005, p. 353). De Gaulle criticized America’s “exorbitant privilege” and threatened to liquidate the French government’s dollar balance. France was at that time a large creditor of the US Treasury (Eichengreen, 2008, p. 115).

Robert Triffin, Belgian monetary economist, Yale professor and architect of the European Payments Union created to deal with Europe's trade and payments problems, argued that the growth of foreign countries' reserves had taken place in recent years largely as a result of a vast redistribution of net reserves from the United States to the rest of the world and that such a movement could not continue indefinitely without eventually undermining confidence in the dollar itself (Triffin, 1957, pp. 296-297). In his October 1959 statement to the Joint Economic Committee of Congress, Triffin explained that, as the marginal supplier of the world's reserve currency, the United States had no choice but to run persistent current account deficits. As the global economy expanded, demand for reserve assets had increased. These could only be supplied to foreigners by the USA running a current account deficit and issuing dollar-denominated obligations to fund it. If the United States ever stopped running balance of payments deficits and supplying reserves, the resulting shortage of liquidity would pull the global economy into a contractionary spiral. Nevertheless, Triffin warned that, if the deficits continued, excess global liquidity risked fueling inflation. Further, the buildup of dollar-denominated liabilities might cause foreigners to doubt whether the United States could maintain gold convertibility or might be forced to devalue, undermining confidence in both the dollar and the monetary system depending on the dollar. Triffin would offer his own plan for centralizing reserves under an expanded International Monetary Fund.

Harold James (2010) disputes the prevailing wisdom that the 1960s collapse of Bretton Woods was inevitable and was only staved off by quite able and sophisticated management of the system through the 1960s, including both the "inconsistent trinity" argument (that a system built on fixed exchange rates, capital mobility and independent monetary policies is self-defeating) and the Triffin paradox, to which, James counters:

> "If the world (that is the world outside the US) needed reserves, why should it worry that they might not be completely converted into gold at an instant's notice? The build-up of reserves looks more analogous to the accumulation of assets in a bank, where individual countries (depositors)

> might suddenly need to call on their assets, and could have a legitimate expectation of being able to do this. But there is also a recognition that all countries (depositors) cannot convert their assets at the same time, without bringing down the bank" (James, 2010, p. 304).

Instead, James considers the demise of the Bretton Woods order (and the move to flexible exchange rates) a

> "reaction in the United States to the surge of exports from the 'emergers' of the time, in particular from Japan [...]. Exchange rates were to be used as a weapon to secure market opening in Japan and Europe at a time when the question of Japanese textile exports to the US was producing major congressional pressure for immediate action, and was likely to be a central issue in the 1972 election. The dollar crisis, and the associated temporary import surcharge, was used by an administration that was not particularly engaged in multilateral international financial diplomacy, in order to deal with a pressing issue in domestic politics" (James, 2010, p. 305).

His argument supports the hypothesis introduced by Eichengreen and James, namely, "that a consensus on the need for monetary and financial reform is likely to develop when such reform is seen as essential for the defense of the global trading system" (2003, p. 515). Eichengreen and James see the collapse of the par value system (and the move to floating rates) as a minimalist approach and the failure of more radical reforms indicative of the fact that there was no overwhelming threat to world trade from the increased variability of exchange rates (*ibid.*, p. 530).

2. Fritz Machlup – framing the disequilibrium of change

Much of the contemporary framing literature surveyed focuses on group action and is particularly relevant to this analysis of Fritz Machlup's influence on the Bellagio Group – and the group's influence on thinking about exchange rate solutions to balance of payments problems in terms of their comparative ability to solve adjustment, liquidity and confidence problems.

From the present research Fritz Machlup emerges as the principal actor, the creator of a process for evaluative and purposeful framing by which sophisticated thinkers with a strategy preference come to a better understanding of their beliefs and, in the course of moderated dialogue, agree to examine all strategies in terms of comparative ability to solve adjustment, liquidity and confidence problems. The purely analytical equilibrium concept in economic theorizing, namely one of disturbance and adjustment (Machlup, 1958, p.3), is a crucial component in Machlup's framing. Looking back on his work on international monetary problems, Machlup (1982) admits:

> "in the discussions of dollar shortage, payments balance, trade balance, exchange rates and so forth, the terms equilibrium and disequilibrium were being bandied about as if these were simple household words. Most economists innocently believed that disequilibrium was 'a bad thing', and equilibrium 'a good thing'; many thought that there could be 'chronic' disequilibrium; and virtually all were convinced that one could 'see' or 'observe' an equilibrium if one looked at some data […]. By imputing a value judgment, a political philosophy or programme or a rejection of a programme or policy into the concept of equilibrium designed for economic analysis, the analyst commits the fallacy of implicit evaluation or disguised politics" (Machlup, 1982, p. 19-21).

In *Equilibrium and disequilibrium: misplaced concreteness and disguised politics* (1958), Machlup argues that the most prevalent use of the equilibrium concept in economics is as a methodological device in abstract theory, a "useful fiction" that is a part of a mental experiment designed to analyze causal connections between "events" or "changes of variables." Equilibrium is not an operational concept, nor an evaluative one, nor a balance of forces, which might easily be confused with goodness or harmony; most importantly, it is not a value judgment by which equilibrium comes to mean conformance with certain objectives that organized society is asked to pursue. "I shall argue that such equilibrium with built-in politics often impairs the usefulness of equilibrium as a value-free analytical device" (Machlup, 1958, p. 2). Machlup's purpose is to focus on the purely analytical concept of equilibrium in economic theorizing, which is one of disturbance and

adjustment (Machlup, 1958, p.3). Machlup then describes the step-by-step working of the model:

Step 1. Initial position: “equilibrium,” i.e. “everything could go on as it is.”

Step 2. Disequilibrating change: “new datum,” i.e. “something happens.”

Step 3. Adjusting changes: “reactions,” i.e. “things must adjust themselves.”

Step 4. Final position: “new equilibrium,” i.e. “the situation calls for no further adjustments.”

Steps 2 and 3 may correspond to observable changes; sometimes only one of these is actually “observed” and the other merely expected to occur as consequent or antecedent. If both are observed in conjunction or succession, the theorist will take this as a “verification” of the theory, and she will have increased confidence in it. However, steps 2 and 3 may not be based on observation, but on an inferred connection between the two: an *interpretation*, not verification. To be plausible this interpretation requires two other steps. In order to ascertain that the changes under step 3 are the effects of those under step 2 and of nothing else, we must make sure that there is nothing else in the picture that may be responsible for bringing about the changes under step 3. There is only one way of doing this: *we must proceed with the sequence of adjusting changes until we reach a situation in which, barring another disturbance from the outside, everything could go on as it is.* In other words, we must proceed until we reach a “new equilibrium,” a position regarded as final because no further changes appear to be required under the circumstances. The postulate of the final equilibrium serves to guarantee that the list of “adjusting changes” under step 3 is complete. In summary, “we have here a mental experiment in which the first and last steps, the assumption of initial and final equilibria, are methodological devices to secure that Step 2 is the sole cause and Step 3 contains the complete sequence of effects” (Machlup, 1958, p. 115).

Machlup intended his model to be used in trade and balance of payments issues. He admits:

> "in view of the layman's idea that a trade deficit is always a 'disequilibrium' of the balance of payments, it is important to comprehend that explaining the deficit means to show it as an adjustment, or an equilibrating change, following an antecedent disequilibrating change, for example increased government spending, expansionary monetary policy, devaluation of trading partner's currency, receipt of foreign investment, etc." (Machlup, 1982, p. 22).

Machlup would use his partial equilibrium adjustment model as a framework for the Bellagio Group discussions, where a specific exchange rate regime would be proposed as a disequilibrating change and the equilibrating impacts inferred in terms of fundamental postulates, operations and institutions needed to implement the regime.

3. Establishing the frame at the Bellagio Group conferences

At the annual meeting of the International Monetary Fund in Washington (DC) on October 2, 1963, then Secretary of the Treasury and Governor of the International Monetary Fund Douglas Dillon announced at a press conference the launching of two studies on "the outlook for the functioning of the international monetary system," one to be undertaken by government economists of the Group of Ten; the other study was to be made by International Monetary Fund economists. The *New York Times* reporter at the press conference asked Secretary Dillon whether the Group of Ten intended to hold hearings, particularly whether individual economists outside the governments would be heard (Triffin, 1978, p. 147). The answer was no, accompanied by a remark about academic economists having had their say to no result. Three economists in attendance – Fritz Machlup, William Fellner and Robert Triffin – felt challenged to embark on a study themselves, involving economists of widely divergent views with no problem or proposal considered "out of bounds" (Machlup, 1964, p. 8). Hence the idea for a series of conferences was born.

With support from the Ford Foundation and the Rockefeller Foundation, as well as Princeton University, Machlup planned four initial conferences. The first conference was conceived as an experiment

designed to isolate the assumptions underlying the major policy recommendations, to determine where the policies diverged. As Machlup wrote to invitees in December 1963: *"I am writing to enlist your active participation in an experiment which may have significant results."* Machlup called it a "test" to find out whether this group could identify the differences in factual and normative assumptions that might have explained the differences in prescriptions for solving the problems of the international monetary system. As Machlup argued:

> "Presumably, we all use the same logic. Hence, if we arrive at different recommendations we evidently differ in the assumptions of facts or in the hierarchy of values. To identify and formulate these assumptions would, I believe be a major step toward a better understanding of the present conflicts of ideas" (Machlup, 1964, p. 7).

Notes prepared by economist Burton Malkiel, a former student of Fritz Machlup who played a significant organizational role for the conferences explain:

> "In elaboration of these aims it was hoped that the reasons for disagreement could be isolated and classified according to a variety of separate categories. Nevertheless, the question of what the final result from such a conference would be was not to be prejudged. It was expected that this and future conferences would devote themselves to definition of the problem, examination of 'ideal' solutions and an analysis of which negotiating compromises would be relatively harmless and which would detour us from a path toward an 'ideal' solution" ("Review of the Princeton University Conference on Reform of the International Monetary System," Robert Triffin Papers, MS 874, Box 12, folder 1).

About the selection of a final group of 32 economists, Machlup wrote in *International monetary arrangements: the problem of choice* (1964, pp. 8-9) that group members should include several of the economists whose plans on international monetary reform had been widely discussed, especially those with notoriously divergent views; several prominent economists in the field of international finance, especially those with an international reputation as writers or teachers; at least one economist, preferably in the field of international finance, from each of the eleven countries represented in the Group of Ten; no economists in full time positions with national or international

government departments or agencies; less than 50% of economists should reside in the US; not so many members that fruitful discussion and effective composition of a report would be impossible, and finally no economist whose command of English was not adequate for oral discussion without translation services.[4] Very importantly, nearly all of the economists who accepted the invitation to participate were former members of the Federal Reserve, the International Monetary Fund, the Bank of International Settlements, or had been or were still advisors to the heads of their national governments. Several had been and continued to be active in European integration.

The first conference was held in December 18 and 19, 1963 in Princeton. In the morning of the first day, Robert Triffin provided a brief review of recent international monetary history. The first day's afternoon session and much of the second day's conference was devoted to a discussion of the objections to freely floating and fixed exchange rates. The purpose of the discussion was to identify and, if possible, to analyze the sources of agreement and disagreement. Some members of the conference felt that, in addition, it might be possible to evolve from the discussion a set of objectives to be satisfied by proposals for reform of the present international monetary system. In accordance with the aims of the conference, a preliminary set of objections to freely fluctuating and fixed exchange rates was devised and an attempt made to indicate, where possible, how the arguments rest on specific factual assumptions or value judgments. In addition, the members attempted a partial reconciliation of opposing positions. Note that discussion of gold-based systems and centralized reserves was not part of the first conference (largely because of the absence of Europeans, more closely associated with gold-based systems and centralized reserves).

[4] A number of economists who had accepted initiations to join the group were prevented from attending any of the conferences and from participating through written communications. Among them were: Shigeo Horie of Tokyo, Japan; prof. Eric Lundberg, University of Stockholm, Sweden; prof. James E. Meade, University of Cambridge, UK; dr. Edward M. Bernstein, Washington, D.C.; prof. Richard E. Caves, Harvard University; prof. Milton Friedman, University of Chicago; prof. Paul Samuelson, MIT, and prof. James Tobin, Yale.

Table 1 – *Attending Bellagio Group members, their institutional affiliations and public policy experience*

Member	Institution (University)	Former Public Policy Role	Country of Citizenship (birth)
Prof. Arthur L. Bloomfield.	Pennsylvania	Federal Reserve	US (Canada)
Prof. Lester Chandler	Princeton	Federal Reserve	US
Prof. Alan C. L. Day	London	Radcliffe Committee	UK
Prof. Pierre Dieterlen	National Center of Scientific Research	European League for Economic Cooperation	France
Prof. Leon Dupriez	Louvain	National Bank of Belgium	Belgium
Prof. William J. Fellner	Yale	Council of Economic Advisors	US (Hungary)
Prof. Alberto Ferrari	Rome	Bank for International Settlements	Italy
Prof. Gottfried Haberler	Harvard	Federal Reserve, National Bureau of Economic Research	US (Austria)
Prof. Albert Hahn	Frankfurt	Banker, Bankhaus L. Albert Hahn	Switzerland (Germany)
Prof. George Halm	Fletcher School of Law and Diplomacy		US (Germany)
Sir Roy Harrod	Oxford	Advisor to Harold Macmillan; International Monetary Fund	UK
Prof. Michael Heilperin	Institut Universitaire de Hautes Etudes Internationales		US (Poland)
Mr. Fred Hirsch	The Economist	International Monetary Fund	UK (Austria)
Prof. Harry G. Johnson	Chicago		Canada
Prof. Fritz de Jong	Groningen	Labor Party of Groningen	Netherlands
Prof. Peter B. Kenen	Columbia	Federal Reserve	US
Prof. Charles Kindleberger	MIT	Federal Reserve, Bank for International Settlements	US
Prof. Kioshi Kojima	Hitotsubashi	Pacific Free Trade Agreement	Japan
Dr. Alexandre Lamfalussy	Banque de Bruxelles	Banker, Banque de Bruxelles; Bank for International Settlements	Belgium (Hungary)

Table 1 continues

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Member	Institution (University)	Former Public Policy Role	Country of Citizenship (birth)
Prof. Friedrich Lutz	Zurich	International Monetary Fund	Germany
Prof. Fritz Machlup	Princeton	Consultant, US Treasury	US (Austria)
Prof. Burton Malkiel	Princeton	Council of Economic Advisors	US
Prof. Hans Moller	Munich	Banker, Bank Deuscher lander;	Germany
Prof. Robert Mundell	McGill	United Nations, International Monetary Fund, World Bank, Federal Reserve US Treasury, Government of Canada	Canada
Prof. Jürg Niehans	Zurich	Swiss Diplomatic Corps	Switzerland
Prof. Bertil Ohlin	Handelshogskolan	Swedish Minister of commerce (1944-45); member, Riksdag from 1938 to 1970	Sweden
Prof Jacques Rueff	Consul for Economic and Social Affairs	Advisor to French President Charles de Gaulle	France
Dr. Walter Salant	Brookings	Treasury Department, Securities and Exchange Commission, Commerce Department, NATO	US
Prof. Tibor Scitovsky	California	Organization for Economic Cooperation and Development	US (Hungary)
Prof. Egon Sohmen	Saar	German Council of Economic Experts	Austria
Prof. Robert Triffin	Yale	Federal Reserve, International Monetary Fund	US (Belgium) France
Dr. Pierre Uri	Atlantic Institute	Economic and Financial Adviser to Jean Monnet at the French National Planning Board in Paris, subsequently Director at the High Authority of the European Coal and Steel Community (ECSC)	

Note: the table identifies the members of the Bellagio Group, their university or organizational affiliation, former public policy role, and country of citizenship and birth. Note that country of birth is in parentheses. Source: Machlup (1964) and author's research into former public policy roles.

A second conference was held from January 17 through January 23 at the Villa Serbelloni in Bellagio, on Lake Como in Italy. There, different value judgments and political attitudes were especially important to Machlup who urged participants to frankly state what their recommendations would be if the constraints of "political feasibility" were removed. At the second conference, advocates of each of the four alternative exchange rate regimes considered in the discussions were asked to enumerate the positive assumptions associated with their plan and the reasons they preferred that plan to alternative systems. The inquiry took the form of hearings: one or two protagonists were asked to submit to cross-examination by the rest of the group. While no transcript of the Bellagio Group conference conversations exists, economist Robert Triffin acknowledged in a chapter of Dreyer's *Fritz Machlup: depth and breadth in economics*, "each of us had to defend his proposals against the criticisms of other participants and to explain why he could not agree with their proposals" (Triffin, 1978, p. 149). On the basis of notes taken during these sessions drafting committees worked every night on the formulation of statements of assumptions made in the advocacy of each major policy system which, if accepted as pertinent, correct and realistic, would justify the adoption or adaptation of a particular system and the rejection or modification of the others.

As well as differences, the Bellagio Group discussions threw some likenesses into relief. For example, supporters of centralized reserves and multiple currency reserves policies faulted the current gold-exchange standard and proposed semi-automatic gold standard for the same haphazard approach to gold production and failure to ensure against liquidity problems. They also shared the assumption that payments adjustment would fail to work fast enough to enable countries to finance their shortfalls with available reserves and borrowing. Therefore, gold-based policies could meet neither liquidity nor adjustment tests. Supporters of flexible rates agreed, adding that delayed payments adjustment would lead to tariffs to limit imports or foreign aid tied to military purchases.

Table 2 – *Exchange rate policies and their advocates*

Policy	Fundamental assumptions	Desired impact	Bellagio Group advocates
Semi-automatic gold standard	Raise the price of gold to allow the removal (redemption) of all reserve-currencies from the system. Leave gold as sole reserve asset. Fix exchange rates.	Eliminates payments imbalances. Removal of reserve currencies and increase in gold price raise liquidity and confidence.	Pierre Dieterlen, Albert Hahn, sir Roy Harrod, Michael Heilperin, Jacques Rueff, Walter Salant, Charles Kindleberger
Centralized reserves	Major reserve holders agree to keep fixed proportion of gross reserves as gold–guaranteed deposits, with the IMF authorized to adjust quantity of reserves through open market operations, overdrafts, or bonds.	Addresses liquidity. Confidence in system depends on confidence in IMF.	Robert Triffin, Alan Day, sir Roy Harrod (alternative plan), Alexandre Lamfalussy, Pierre Uri
Multiple currencies	Monetary authorities of reserve currency countries agree to diversify foreign exchange holdings to include mixed currencies (not only USA and UK) and gold as reserves, and ensure no abrupt and destabilizing changes.	Permits growth of reserves for payments adjustment under conditions of full employment, stable prices, and fixed exchange rates.	Friedrich Lutz, Burton Malkiel, sir Roy Harrod (alternative plan)
Flexible exchange rates	Market forces increase export revenues for deficit countries and decrease import expenses for surplus countries. International agreements restrict monetary authorities from intervening in market.	Payments balance achieved through adjustment of the exchange rate to market supply and demand.	Milton Friedman, Fritz Machlup, Gottfried Haeberler, Albert Hahn, George Halm, Harry G. Johnson, Friedrich Lutz (alternative plan), Egon Sohmen

Note: Table 2 summarizes the fundamental assumptions and desired outcomes of the four major policy approaches explored by the Bellagio Group. Many members had preferred policy approaches; see the "advocates" column. Some members, like Harrod and Lutz, had several preferred approaches.
Source: Machlup (1964) and author's own research.

At the end of the second conference, following a survey format, members were asked to define, explain and prioritize three problems: the problem of adjustment, i.e. of correcting imbalances in payments positions (a problem that would become known as the adjustment problem); the problem of the aggregate amounts of international reserves, i.e. of providing such amounts as would avoid inflationary and deflationary swings in the world at large (a problem that would become known as the liquidity problem); and the problem of consolidation of reserves, i.e. of avoiding sudden switches between reserve media (a problem that would become known perhaps not so intuitively as the confidence problem). The Robert Triffin papers preserve several of the full responses. For example, Canadian economist Robert Mundell wrote:

> "The problems of confidence, adjustment and liquidity are the three main problems under consideration. The confidence problem can be correctly easily by funding or guaranteeing exchange balances. It is both the imminent threat to stability and the easiest problem to solve […]. The gold standard system involves both liquidity and adjustment features which are inefficient […]. Flexible exchange rates offer an obvious solution. By speeding adjustment, they reduce the need for liquidity and by the addition of a flexible instrument of policy, they leave governments free to pursue full employment policies without the gimmickry associated with the current system. Closely integrated countries may still opt for intra-currency area pegged rates because common-currency adjustment methods remain efficient when factors are highly mobile, but the major currencies should let their rates float" (Robert Triffin Papers, MS 874, Box 12 folder 1).

Swiss economist Jürg Niehans would make the strongest defense of Machlup's frame:

> "The various monetary projects put forward and debated in recent years do not all address themselves to the same problems. While from a purely academic point of view, it might be interesting to analyze them as if each of them were meant to be a complete and self-contained solution to all our problems, from a practical point of view such an analysis would be in danger of being sterile. The various projects are, in fact, largely complements rather than substitutes. The real task,

> therefore, is to design a monetary strategy incorporating features of different plans at their appropriate place." (Robert Triffin Papers, MS 874, Box 12 folder 1. Underlined in original).

By the third Bellagio Group conference (March 21-22, 1964) conferees had further developed their position on the mechanisms necessary for payments adjustment. Plans included the continued addition to reserves in the hands of the international monetary authorities, and the importance of international reserve assets other than gold ("credit reserves") whose volume, composition and policies regarding balance of payments problems would be coordinated by the monetary authorities of large reserve-holding countries. Conferees also agreed that stability of the international monetary system would be improved by an agreement among the major countries on the long-run rates of change in total reserves held by participating countries and on the "normal" composition of these reserves; on the terms and criteria for extending special credit facilities to participating countries to cope with strains and crises resulting from international capital movements, and on the need to choose an international body to manage reserve use (e.g. International Monetary Fund, Group of Ten, etc.).

At the fourth conference (May 29 to June 6, 1964), Fritz Machlup asked the Bellagio conferees to consider and rank order their preferred adjustment, liquidity and confidence mechanisms. For the adjustment problem, Bellagio Group conferees preferred managed flexibility of exchange rates (including adjustable pegs or wider margins); for liquidity, they preferred credit reserves, and for confidence, they preferred the consolidation of reserves into IMF deposits.

The outcome of the fourth conference was a report, *International monetary arrangements: the problem of choice. A report on the deliberations of an international study group of 32 economists.* Even after all of the drafts prepared during the conferences and the weeks between conferences, handwritten notes in the Machlup archives depict the final report to be another iteration of collaborative decision-making. Tibor Scitovsky and Fred de Jong, Friedrich Lutz and George Halm shared responsibility for the "Objectives" section. Assigned to discuss the

Table 3 – *Summary adjustment, liquidity and confidence mechanisms preferred by the group (total population of economists: 17)*

Goal	Mechanism	Member Votes
Adjustment	Adjustable pegs/wider margins (managed flexibility) outvote unlimited flexibility	14/17
Liquidity	Credit reserves	14/17
Confidence	Consolidate into IMF deposits	14/17

Note: the table shows the Bellagio Group members' preferred solutions to the liquidity, adjustment and confidence problems. The results are based on a survey made by Fritz Machlup at the end of the fourth Bellagio Group conference. Robert Triffin calculated the survey results, based on 17 attendees.
Source: the data are available in Triffin's hand-written notes in Robert Triffin Papers, MS 874, Box 12 folder 2.

adjustment, liquidity and confidence issues were Fred Hirsh, Harry Johnson and the team of Jürg Niehans and Peter Kenen, respectively. The team of Robert Mundell, Hans Moller and Gottfried Haberler was assigned the section on "Relationships among the three problems – objectives and conflicts." Robert Triffin, Michael Heilperin and Alan Day drafted the final section "Towards a consensus on policy" (originally called "Groping for a consensus").

4. Relationship with the Deputies of the Group of Ten

We know from "The final report on international monetary arrangements undertaken by a group of nongovernmental economists from 11 countries; sponsored by Princeton University with the support of grants from the Ford Foundation and the Rockefeller Foundation" that the governmental and nongovernmental reports were discussed and compared at a two-day session of the American Bankers Association conference prior to the Fund's Tokyo Meeting. Further, the annual meeting of the American Economic Association in December 1964 was devoted to a comparative analysis of the reports of the Group of Ten, International Monetary Fund and Group of 32 Economists (Bellagio Group). The

papers presented at the meeting were published in the "Papers and Proceedings" issue of the *American Economic Review*, May 1965 (Robert Triffin Papers, MS 874, box 12, folder 2).

We learn from Robert Triffin's notes that dr. Otmar Emminger, chair of the deputies of the Group of Ten, found the Bellagio Group conferences invaluable to policy deliberations. Rinaldo Ossola, chair of the Ossola Committee on creation of reserve assets (Special Drawing Rights) of the Group of Ten, liked the Bellagio Group's connection between liquidity and payments adjustment, and Robert Roosa, deputy secretary of the US treasury and member of the Ossola Group, found the Bellagio Group's contribution important to the "evolution" of emerging public policy. Emminger, Ossola, Roosa and van Lennep, chair of Working Party 3 of the Organization for Economic Cooperation and Development, would become exceptionally close working partners with the academic economists of the Bellagio Group.

In a letter of November 2, 1965, dr. Emminger requested that the Bellagio Group put some focus on devising adjustment policies for countries in payments imbalance and the creation of new reserve assets. Planning began for a joint conference of officials and academic economists to discuss payments adjustment and reserve assets. The first conference on payments adjustment was held in Zurich in January 1966, followed by the preparation and presentation of papers at a conference in Princeton in April 1966. Princeton University Press published the papers under the title *Maintaining and restoring balance in international payments* (1966). Following the first four Bellagio group conferences, there were 15 joint meetings of officials and academic economists, focusing on specific issues or solutions to problems, continued through 1974, including: December 1964 Bellagio; January 1966 Zurich; April 1966 Princeton; March 1967 Bellagio; September 1967 Rio de Janiero; March 1968 Bologna; March 1969 Lugano; September 1969 Princeton; March 1970 Torremolinos; 1971 Taormina; September 1971 Washington D.C. l971; March 1972 Cascais; January 1973 Vienna; and January 1974 Paris.

5. Conclusion

Fritz Machlup's leadership of the Bellagio Group conferences, his framing of the solutions in terms of the adjustment, liquidity and confidence problems and his relationship with the deputies of the Group of Ten gave him incomparable reach and influence. For the Bellagio Group conferences, Machlup chose academic economists who were associated in print with a specific exchange rate policy, most of whom had prior public policy experience. He built close relationships with the chair of the deputies of the Group of Ten, Otmar Emminger; chair of Working Party 3 of the Organization for Economic Co-operation and Development, Emile van Lennep; and chair of the Ossola Committee on the creation of reserve assets, Rinaldo Ossola, leading them to view the Bellagio Group conferences as an opportunity to get valuable feedback on perceived problems and recommended solutions before the publication of their own studies.

Just as Machlup had invited Robert Triffin and William Fellner to be co-leaders of the first four Bellagio Group conferences, he continued to extend invitations to academics and former policy-makers (like C. Fred Bergsten of the National Security Council and Robert Roosa, undersecretary of the Treasury for monetary affairs) including those with very different policy prescriptions from his own, to be co-leaders of following Bellagio and later Burgenstock[5] conferences, extending the policy and intellectual reach of the conferences but, as importantly, ensuring that policy rivals had the opportunity to put their arguments through the same rigorous framing and methodological analysis to determine impact on payments adjustment, liquidity and confidence.

Machlup also had access to conferences organized by others, like the American Economic Association, the American Banking Association, the

[5] In 1968, with funding from the Ford Foundation, Machlup convened two closely-timed conferences – one in Oyster Bay Long Island and one in Burgenstock, Switzerland, inviting academic economists (most of whom had been attendees of the Bellagio Group conferences), government leaders and practitioners, drawn from leading banks and international corporations active in foreign-exchange dealings. There would be three more conferences under the "Burgenstock" umbrella.

American Enterprise Institute and the Claremont-McKenna conferences, that sought to draw the Bellagio and Burgenstock members into discussion before larger and more international audiences. In addition to the conferences themselves, as senior editor of the Princeton Finance Section at Princeton University, Machlup was able to publish many dozens of papers on the international monetary system, including his own papers and those submitted by economists associated with the Bellagio and Burgenstock Group conferences.

Finally, it was in his drive toward clarity and outcomes that Machlup had a distinctive advantage. In addition to his insistence on recognition and elimination of definitional problems, values and judgments, logical fallacies and other issues that made argumentation difficult, Machlup persuaded the Bellagio and Burgenstock conferees that all policies should be examined and ultimately chosen because of their comparative ability to influence three outcomes, namely impact on payments adjustment, liquidity and confidence.

While it was not until March 1973 that the Group of Ten nations announced that they would let their currencies float or peg them to various regional arrangements, Solomon, DeVries, Cooper and Triffin are right that Fritz Machlup did much to build support for flexible exchange rates among academics, bankers, business leaders and policy makers. Nevertheless, the potential shortage of reserves exposed by Triffin had an important influence on the plan to create Special Drawing Rights (the special reserve assets originally recommended by Triffin, later by Ossola and again by the Bellagio Group working at Emminger's behest). The decision to opt for a hybrid solution that puts the primary focus on market mechanisms (flexible rates) with SDRs "as a means of alleviating a shortage of international reserves, or maintaining confidence in the convertibility of U.S. dollar denominated foreign exchange assets into gold" (International Monetary Fund, 1987, p. 12) is the recommendation that the Bellagio Group made to Emminger and the Group of Ten.

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