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**The financial system,
endogenous money and
financing climate protection
with newly created SDRs**

**Explaining the
WFC Proposal
“Breaking the
Funding Deadlock”**

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1

Preface

At first glance, the idea of saving the world from climate change with newly created (SDR) money seems almost too simple. And most textbook economists and journalists would cry out: Help, inflation! But is inflation the necessary consequence of new money? In fact, there are strong arguments identifiable in the real behaviour demonstrated between the central banks and the banking system and also as demonstrated in modern economic theory that lead to the conclusion that this must not be the case. Moreover, there is a large output gap in most developed countries, and thus a new demand, financed by new money, will have its outcome in higher levels of production and not in higher prices. Accordingly, this paper argues that it is possible to finance new climate protection investments with newly created SDRs without a rise in inflation.

2

Financing climate protection with newly created SDRs

Ever since IMF members in August and September 2009 agreed upon the creation of additional SDRs with a total value of 283 billion US dollars (IMF fact sheet), the idea has presented itself that this new resource could be used to finance climate protection measures. Proposals of such a nature were subsequently voiced at the World Climate Conference in December in Copenhagen (inter alia, from George Soros and Action Aid). This present paper draws as its background the World Future Council's Copenhagen proposal "Breaking the Funding Deadlock" (WFC, 2009) and will in the following discussion more closely consider the proposal's merits.

The WFC Proposal

The core idea of the WFC Proposal lies in the financing of climate protection investments in developing nations by means of an institutionally constructed mechanism allowing for the recurring creation of new SDRs.

The centrepiece of the proposal is the establishment of a Supervisory Body that is composed of international organizations (e.g. UNEP, UNDP, UNFCCC and IRENA) as well as national development finance institutions. This Supervisory Body would approve those climate protection projects which can most logically and efficiently be implemented and, subsequently, apply for the necessary financial means from the IMF. The IMF (or its responsible Governors as the case may be) then agrees upon the issuance of new SDRs to the 187 member states (proportionate to their quota shares). Pursuant to the agreement on the formation of the Supervisory Body, the member states will have committed themselves in advance to forward the majority of the new SDRs to the Supervisory Body. A small portion (e.g. 10%–20%) may be retained by the member states when they are to be used for the financing of a specifically identified climate protection project, an intention which is to be noticed in advance to the Supervisory Body.

Consistent with the Copenhagen Accord, the yearly monetary total at the disposal of the Supervisory Body could initially be \$ 100 billion. In the face of established need, greater sums (\$ 200–\$ 300 billion) are also conceivable.¹ An ideal mechanism would entail the IMF member states deciding annually upon the total amount of new SDRs to be created, with this figure then put at the disposal of the Supervisory Body as something of a (interest-free) line of credit. This mechanism would ensure transparency and would avoid a process whereby each proposed expenditure – to be funded by new SDRs – would have to be voted upon individually by all IMF members. Similarly, by fixing a disbursement ceiling in advance, the Supervisory Body has an incentive to implement newly granted resources as efficiently as possible. Furthermore, the Supervisory Body would only receive the new SDRs subsequent to their agreement that a particular measure warrants funding and when it is clear exactly who is to receive the disbursement and under what contemplated time frame. In order to prevent that the funds drain into other channels, the Supervisory Body must also be given the power to supervise the scheduled utilization of disbursed funds over time and, as necessary, interrupt the release of funds.

As SDRs – the currency of the IMF – are not a usable currency, they will need to be converted by the Supervisory Body at the respective central banks whose currency will form the basis of payment for the to-be-undertaken climate protection projects (presumably dollars, Euros and yen will predominate). This means that the central bank in question receives the new SDRs into their account as new reserve funds and issues national currency in exchange. The newly issued money will correspond to the value of the deposited SDRs and the central bank's balance sheet (in the form of outstanding currency) will increase.

At this point, the process resembles the refinancing process of a normal commercial bank securing new liquid assets from its central bank. The difference, however, is that commercial banks pay interest on the borrowed funds (the federal funds rate of the central bank) and the funds must be repaid at the conclusion of the lending period. In contrast, the new national currency received by the Supervisory Body in exchange for the new SDRs is an interest-free loan which carries no obligation of repayment. In terms of counter-performance, the central bank receives instead the new SDRs, which it may use as a fully convertible reserve currency.

A further and significant difference is that in the case of a commercial bank, after refinancing itself via the central bank, acquired money will be loaned further in order to earn interest in addition to repayment of the principal sum. For commercial banks, the decision on whom to loan acquired money falls purely along economic criteria. Conversely, in deciding which climate protection measures warrant financing, the Supervisory Body will take reference to the assessments of natural scientists and engineers in order to ascertain how – with a budget of \$ 100 billion per year – the greatest possible volume of climate damaging emissions can be avoided. With that as their sole aim, the question of

¹ The Supervisory Body's scope of activity need not be limited to climate protection. It would be equally logical to finance the accelerated implementation of the UN Millennium Goals.

whether an invested-in project will realize positive returns – thus allowing for repayment of principal and interest – is irrelevant.²

True “returns” will only be realized by our climate experiencing less dramatic changes such that the consequences of unavoidable change may more easily be overcome and at a less extreme cost. A monetary evaluation of future-avoided costs, which would allow their being balanced against figures of accrued interest and repaid principal, faces profound methodological difficulties that are unlikely to be satisfactorily overcome in the near future. Yet precise proof of an economic realization of profits does not need to be demonstrated in this context because climate protection embodies the attainment of a public good. And decisions in respect of public goods, in turn, are of a political nature. Accordingly, it is the legislators – and thus the voters – who are to decide whether preventing global climate change justifies its cost. Here the political process must reassume primacy over short-term calculations of a commercial nature.

Nonetheless, it remains the case that as a result of newly created SDRs, new money and an additional real demand for goods and services will be created. This matter needs to be addressed at two levels: firstly, the real economic level which reveals that additional demand leads to more production rather than increased prices; and, second, at the monetary level in order to clearly portray the movement of new money through our two-level banking system (as found in all developed countries), tracing money from its creation to its destruction.

To assess the monetary aspects and process, one first needs to address the real relationships of our banking systems – here meaning the existence of an endogenously determined money supply.

3

The endogeneity of money in the real financial system

In order to demonstrate how money’s endogenous nature is pertinent for evaluating what, if any, inflationary dangers might exist from the creation of new SDRs, the concept of endogeneity – including its relation to exogeneity – should be briefly outlined.

² In the proposals of Soros and the IMF (IMF Staff Paper of 25 March 2010) allusion is made to the potential of emissions trade. The proposals implicitly assume that the funded climate protection projects will result in a surplus of CO₂ certificates becoming available for sale such that enough returns can subsequently be generated to cover costs. This can, however, only succeed if the total number of certificates is kept sufficiently scarce. In order to finance annual investments of \$100 billion, such a Green Fund as proposed by the IMF would need to realize returns of a corresponding volume from the trade of emission certificates: it would, furthermore, imply that the pertinent industries are prepared to contribute \$100 billion yearly. In this respect one must assume that the impacted industries would perpetually exert pressure on policy makers to sink the costs for emissions. Likewise it can be expected that the effected industrial branches would pass on their additional costs in the form of higher prices, thus in fact generating inflationary pressure. Finally, it should also be expected that national governments will have a considerable interest in retaining the proceeds of emission trade for themselves in order to relieve their own budgetary deficits.

The traditional view in prevailing monetary theory posits that the money supply is created from the interaction of the money multiplier on the monetary base, whose level is, in turn, set by the central bank. Thus, the monetary base and the money supply are determined by the central bank. If the monetary base were to be increased (as would be the case with the creation of new SDRs), commercial banks could increase their loan volume, and the money supply would consequently witness a multiple increase in accord with the level of money multiplier (determined by the reserve ratio and the cash ratio). Under this traditional view, the commercial banking system can only extend new loans when it obtains new central bank money. When, however, banks do receive such new money – so the theory – they will use it in its entirety to extend new loans. Accordingly, the impulse for the extension of credit stems from the central bank’s supplemental creation of money. Hence, the chain of causality begins with new central bank money and ends with the creation of new debt money.

The interest rate on the market for money (i. e. the cost of money) is not determined by the central bank, but rather results – for the given amount of money – from the dynamics of supply and demand. As such, the role of the central bank is seen as quantity setter and price taker. Since from this perspective the supply of money is “externally” injected into the economy by the central bank, one speaks of an exogenous theory of money (Arestis, 2003, Moore, 1988).

If one adheres to the models which form the basis of the exogenous perspective, the creation and distribution of new SDRs would necessarily result in a manifold increase (commensurate with the value of the money multiplier) in the money supply. Such an increase, if premised upon substantially large infusions, would indeed entail inflationary potential as soon as the new money was utilized for the purchase of goods and services or was deployed for speculative purposes which drive up the price of property and assets.

The true relations of the real economy, however, are not those assumed under the exogenous model. In the real world the central banks fix the lending rate offered to banks and thus control the interest rate on the money market. In order to achieve the desired market rate, the central banks must consequently satisfy the banking system’s demand for liquidity and provide commercial banks with new money at the lending rate they have set. If they were to behave otherwise, the result would be permanent interest rate fluctuations on the money market and correspondingly negative consequences for the economy.

With the decision to control the market interest rate, the central banks have surrendered their ability to directly control the money supply.³ This outcome results from their role as lender of last resort, according to which they must always be prepared to provide commercial banks with liquidity consistent with a given interest rate. In contrast to the exogenous perspective, the central banks in fact fix the price (setting the short-term interest rate on the money market) and stay attuned in respect of amount (providing the amount of central bank money that is

3 Now, it is only through particularly indirect means that the central bank can impact developments in respect of the supply of money, namely by sharply raising the interest rate with the hope that the demand for money (along with business investments) will also decline.

demanded by the banking system). Since the money supply in this instance is a function of the “internal” financial needs of the various economic institutions, one speaks of an endogenous theory of money (Moore, 1988, p. 108).

Interesting in this regard is the fact that the majority of economists accept the undeniable relationship characterized by the endogenous theory when they discuss real monetary practice and policy; their theoretical studies and textbooks, conversely, act on the assumption of an exogenous money supply (Goodhart, 2002, pp. 252–254). In actuality, the endogeneity of money has long since been accepted as it relates to both the role of central banks and monetary policy in practice.

As formulated by the former senior vice-president of the New York Federal Reserve Bank as early as 1969:

“... in the real world banks extend credit, creating deposits in the process, and look for the reserves later.” (Holmes, 1969, p. 73).

The current president of the Bank of England, Mervyn A. King, has also rather unequivocally commented on the matter:

“In the United Kingdom, money is endogenous – the [central] Bank supplies base money on demand at its prevailing interest rate and broad money is created by the banking system.” (King, 1994, p. 264).

In the post-Keynesian view of economic theory, the real monetary practices and relationships have been reflected upon for some time. Thus, the endogenous perspective is a generally accepted part of academic theory (Moore, 1988; Arestis, 1996; Dalziel, 1996; Howells, 2005; Arestis/Sawyer, 2006, pp. 847–860; Minsky, 2008, p. 271). In new-Keynesian thought as well, the notion has recently been recognized as one of the basic fundamentals in the so-called “new monetary consensus” (Meyer, 2001, pp. 1–15).

The endogeneity of the money supply does not only have an array of effects on one’s theoretical perspective of the economy; rather, it also impacts the processes accompanying policy measures having a financial component. The following section shall, in light of the endogeneity of money, clarify the processes which can be expected to result from the creation of debt money through the issuance of new SDRs.

4

New SDRs in an endogenous money world

The distribution of new SDRs by the IMF to the Supervisory Body would mean the creation of new, internationally convertible central bank money. As soon as the Supervisory Body exchanges the SDRs for national currency, the central bank’s balance sheet (in the form of outstanding currency) increase as does the central bank’s monetary base. Via the expenditure of the money on climate investments, the new money then makes its way into a variety of accounts where it ultimately is subject to disposition by the banking sector. Thereby the commercial banks have obtained central bank money without having needed to directly seek central bank

refinancing. According to traditional exogenous money supply theory, the resulting consequence would be the bank's using this new money as the basis for additional extensions of credit, thereby producing a multiple increase in the money supply.

In the real world, however, the endogeneity of the money supply will have already ensured that the banking system has accomplished all of the – seemingly lucrative – extensions of credit which have presented themselves (inclusive of loans premised upon speculative opportunities) since there never in the first instance existed a shortage of the central bank money needed for such loans. As the newly issued SDRs will not automatically result in commercial banks extending new loans but will rather mean that the banks are now in possession of surplus central bank money, it can be surmised that this additional money will be used to pay off refinancing previously secured from the central bank. With this inflow the balance sheet of the central bank will be reduced – ideally – by the same amount as the increase which resulted from the earlier SDR exchange. Thereby, the new central bank money stemming from the creation of new SDRs is subsequently destroyed. In terms of the central bank's accounting, the effect of the entire process is an exchange of assets; the refinancing component – i. e. the central bank's loan to the banking system – has been reduced in favour of the new SDRs.⁴

It bears emphasis that the limiting factor for the extension of credit is the quantity of potential loans which may be distributed for capital investments or promising speculative ventures rather than the amount of central bank money which is already at hand. Hence an enlargement of central bank money as result of new SDRs would not bring about the allocation of new credit and, correspondingly, a multiplied creation of money. Where possibilities exist to realize additional profits through the extension of credit, banks first issue such loans and only thereafter secure necessary refinancing given that it is not newly available central bank money which stands at the fore of the decision-making process but the prospect of capitalizing upon lucrative loans. The central bank money necessary for refinancing can instead be procured subsequently at the central bank or on the money market.

Within the USA, one finds a current and interesting example of how an increase in the monetary base is not automatically translated into an enlarged money supply by the banking system. Although the Fed has more than doubled the monetary base since Fall 2008, the monetary values of M1 and M2 have increased only slightly. While this might to a certain extent be attributable to the chaotic conditions in the financial markets, it is nonetheless significant evidence for the absence of a process whereby more central bank money inevitably results in a geometrically larger increase in the money supply.

⁴ If the financing of projects through the Supervisory Body by means of newly created SDRs are carried out over a longer period of time and if the SDRs are also entirely converted into national currency, an excessive preponderance of SDRs will accumulate in the balance sheets of the national central banks. To avoid this problem, whereby the commercial banks would not need to turn to central banks for refinancing in the first instance, the central banks could undertake to raise the minimum reserve requirements.

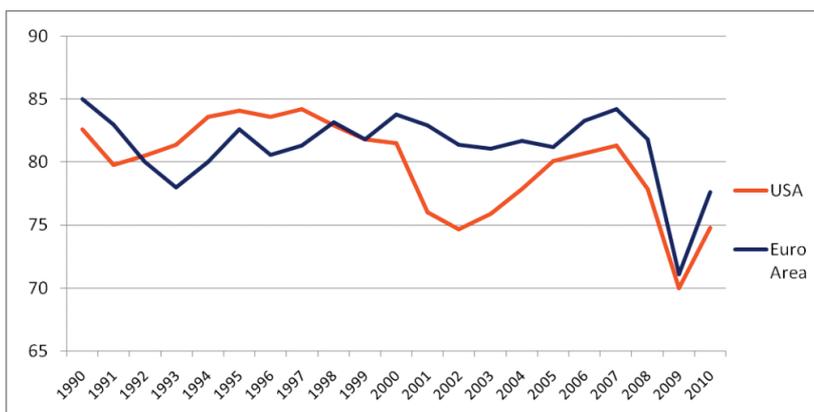
Summary of the monetary processes

According to traditional textbook theory, the creation and distribution of additional SDRs would lead to an even larger and potentially inflationary augmentation of the money supply. Yet this proves not to be the case upon consideration of the actual processes of money creation and bank refinancing. By means of the SDR financing, the Supervisory Body would assume an unproblematic role in the existing (debt money creation) process undertaken by the central bank and the commercial banks. The amount of money, created newly, is equal to the needed money that financed the new production. Each central bank, moreover, would retain the ability at desired instances to take recourse to concrete measures, such as an increase in the minimum reserve requirements, in order to reduce the circulation of central bank currency. In end result the global economy will be made neither more, nor less inflationary by new SDRs.

5 The impact on worldwide demand from climate protection investments

Having considered the monetary aspects of the WFC proposal, it remains to address the real economic implications. The expenditure of the new money resources via the Supervisory Body will lead to a global increase in demand: first, in respect of industrial goods in the renewable energy sector, a demand which will presumably fall upon the developed nations; and, second, in respect of services for the construction and operation of the new installations in the developing nations. Presently, such new global demand will encounter a massive “output gap” in the developed countries. Specifically, the USA is currently operating at only ca. 73 percent of its maximum industrial capacity. In the Euro area, capacity utilization is only at ca. 72 percent.⁵ In both areas the historical average of utilization is close to 81 percent, the highest is generally not more than 85 percent. This leads us to the assumption that firms adjust their capacities even before they reach full utilization.

Figure 1. Capacity Utilization in the Euro Area and the USA (in percent)



(Source: Fed, Statistical Release G. 17, ECB, Monthly Bulletins)

The industry typically holds free capacities. This can be explained with the desire to have the ability to satisfy a sudden demand.

5 Cf for the USA data: Federal Reserve Statistical Release, G. 17, Industrial Production and Capacity Utilization. For the Eurozone: ECB, Monthly Bulletin, Capacity Utilization in manufacturing, May 2010, p. S 5

Even if the primary impetus of the new demand is concentrated on a few branches in the industrial nations, it can be expected that primarily an expansion of production will be observed rather than an increase in prices. Should production shortages nevertheless be experienced in some sub-sectors with corresponding price increases following, this will hardly find an echo in the overall inflation rate. At the same time, such price increases will signal to the branch in question the need to upwardly adjust its production capacity.⁶ By contrast, the equally foreseeable secondary demand effect, resulting from the expenditure of additionally earned wages and profits, will be distributed across the entire production potential of the impacted national economies; thus, here as well excessive demand is only to be expected in few, if any, branches.

Inflationary risks at normal capacity utilization

Nonetheless, the current situation of a significant and wide-spread under-utilization of industrial capacity will not continue indefinitely, and the financing of supplemental climate protection measures has to be ensured for many years to come. Consequently, even when the degree of capacity utilization approaches its normal and traditional levels, continuing environmental efforts (financed with new money) will necessarily create ongoing and additional demand impulses. But this as well need not lead to excessive demand of an inflationary nature. Particularly, it is an identified behavioural pattern of businesses (see Figure 1.) that they expand their capacity when confronted with continuing demand in excess of their average capacity since they wish to ensure that in the future as well they will be able to meet further expanded demand.⁷

By taking reference to typically observed price-setting dynamics, one can better understand the pricing consequences likely to result from the significant output adjustments which will be induced (i. e. demanded) with the implementation of the contemplated climate protection investments. Generally speaking, a “mark up” process has been demonstrated as existing. That is to say, suppliers estimate the costs of production for a given period of time based on an average utilization of capacity, and they then add to this figure the desired profit in order to construct the ultimate price (e. g. Hall/Hitch, 1952; Baßler, 1999, p. 202; Kromphardt, 2006). Accordingly, holding prices constant during a period of shifting demand can also be seen as rational behaviour since firms operate under the premise of uncertainty, i. e. without knowledge as to what revenue will be generated in the face of repeatedly altered prices. The “mark up” price therefore responds very slowly to changes in demand (Bhaduri, 1988, p. 88 ff.). The price determination process works differently, however, as regards homogenous goods that are sold on special markets. Here an increase in demand does in fact generally lead to higher prices. Yet in such an instance one should take heed of the predictive models according to which higher prices lead to an expansion of production capacity or to the utilization of alternative products. Both of which responses would, in turn, have a dampening effect on prices.

⁶ Even neo-liberal economists would be hard-pressed to criticize such an argument. Hayek, in particular, repeatedly explored and developed this connection (e. g. Hayek, 1969).

⁷ The economic rationality of such behaviour can be demonstrated not only with Keynesian principles but also with the theories of Hayek. Here one may refer to the discussion of Hayek’s views by Carl Christian von Weizsäcker (von Weizsäcker, 2005).

■ New demand and inflationary risks

It can hardly be denied that in a market economy new demand carries a latent potential for effectuating an increase in prices. But this effect is not an inevitable and automatic process. Rather – especially in an economy operating below industrial capacity – it can be expected that the vast majority of new demand will result in output adjustments rather than price adjustments. Moreover, individuals hoping to see inflation remain close to nil in a market economy will invariably find themselves confronted by the dilemma that such an interest means sharply limiting increased demand and, thus, “green growth” as well. Deference to such a tendency, however, is difficult to reconcile with the pressing urgency of reconfiguring the world into climate-friendly structures of production and consumption.

■ Summary

The advantages of the proposal to finance climate protection investments with SDRs from the IMF can be summarized as follows: Resources totalling at least \$ 100 billion would be immediately available. No country would need to burden its national budget; national budgets would even receive a small portion of the new money for their own expenditure when applied to a climate protection project. The creation of the new money would allow the Supervisory Body to participate in the already existing refinancing process engaged by the central banks and the banking system. In end effect the rise in new money is equal to the rise in new production and so there is no excess money in the monetary system. The key difference would be that investments in climate protection could consequently be undertaken with the new money. Given the current under-utilization of global production capacity, no significant inflationary impulse is to be anticipated from the new demand. Over the long-term, it can be expected that the industrial economy – in deference to its own profit interests – will respond to the increased demand for CO₂ free investment goods with an expansion of their corresponding capacity and that excessive demand will not result.

References

- Arestis, Philip (1996); Post-Keynesian economics: towards coherence, in: Cambridge Journal of Economics, Vol. 20, No. 1
- Arestis, Philip; Malcolm Sawyer, Malcolm (2006); The nature and role of monetary policy when money is endogenous, Cambridge Journal of Economics, Oxford University Press, Vol. 30 (6), November.
- Baßeler, Ulrich; Heinrich, Jürgen; Koch, Walter A. S. (1999); Grundlagen und Probleme der Volkswirtschaft, Köln
- Bhaduri, Amit (1988); Makroökonomie, Marburg
- Dalziel, Paul (1996); The Keynesian multiplier, liquidity preference, and endogenous money, in: Journal of Post Keynesian Economics, Vol. 18, No. 3
- ECB, Monthly Bulletins, Capacity Utilisation in manufacturing
- Federal Reserve Statistical Release, G. 17, Industrial Production and Capacity Utilization
- Goodhart, Charles (2002); The Endogeneity of Money, in: Schefold, Bertram (Editor.), Exogenität und Endogenität, Marburg, also: Goodhart, Charles (2002); The Endogeneity of Money; in: Arestis, P; Desai, M; Dow, S; (Editor); Money, Macroeconomics and Keynes, Routledge, London
- Hall, R. L.; Hitch, C. J. (1952); Price theory and business behaviour, in: Wilson, T.; Andrews, P. W. S. (Eds.); Oxford Studies in the price mechanism, Oxford
- Hayek, Friedrich August von (1969); Wettbewerb als Entdeckungsverfahren, in: Hayek; Freiburger Studien, Tübingen
- Holmes, Alan. (1969) 'Operational Constraints on the Stabilization of Money Supply Growth', in Controlling Monetary Aggregates (Boston MA: Federal Reserve Bank of Boston)
- Howells, Peter (2005); The Endogeneity of Money: Empirical Evidence, Discussion Paper, No. 0513, University of the West of England, Department of Economics
- IMF (2009); "Questions and answers", Special Drawing right (SDR) Allocation, Update: October 2009
- King, Mervyn (1994); The transmission mechanism of monetary policy, Bank of England, Quarterly Bulletin, August
- Kromphardt, Jürgen (2006); Grundlagen der Makroökonomie, München
- Meyer, L. H. (2001); "Does Money Matter?" Federal Reserve Bank of St. Louis Review, 83 (5)
- Minsky, Hyman P. (2008); Stabilizing an Unstable Economy, McGraw Hill (first edition, 1986, Yale University Press)
- Moore, Basil J. (1988); Horizontalists and Verticalists, Cambridge University Press
- Weizsäcker, Carl, Christian (2005); Hayek und Keynes: Eine Synthese, in: ORDO, Freiburger Diskussionspapiere zur Ordnungsökonomik, 05/4
- World Future Council (2009) "Breaking the Funding Deadlock"

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