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### Serie Research Memoranda

**Dutch Monetarism:** 

A special Concept of Monetary Equilibrium

J. Barendregt

september 1991 Research Memorandum 1991-60



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ry impulses and reactions produced by the different economic sectors. The data thus collected were used to analyse monetary effects on economic development and to formulate monetary measures to counterbalance harmful effects, if necessary. The principles of this method will be elaborated in section 4. Section 5 will evaluate some findings.

### 2. ZUM PROBLEM DES NEUTRALEN GELDES

### 2.1 'Ideology'

The neoclassical concept of general equilibrium and optimal welfare are also the basic assumptions Koopmans has chosen. According to these assumptions economic forces are always directed towards equilibrium when circumstances have led to disequilibrium. To Koopmans opinion the neutrality of money is one of the most effective means to have this disequilibrium restored as soon as possible.<sup>2</sup> He defined the concept of neutrality of money within the ideas of the neoclassical equilibrium theory:<sup>3</sup>

'Neutral ist nach unserer Terminologie das Gelddann, und zwar nur dann wenn sämtliche Vorgänge in den Geldwirtschaft dem Idealtypus einer reinen Tauschwirtschaft nach den Gesetzen den Gleichgewichtstheorien entsprechen.'

Koopmans saw a strong relationship between the concepts of neutral money and laissez-faire. To his opinion planning, therefore, contradicted neutral money; only a quantitative policy of 'managed currency' could make money neutral again:

'es ist somit auch wohl von vornherein einleuchtend, dass die Neutralität des Geldes sich überhaupt nur bei grundsätzlicher Anerkennung des sogenannten 'Laissez-faire' als das Hauptprinzip der

<sup>&</sup>lt;sup>2</sup> J.G. Koopmans, in Neutraal geld, p. 69.

<sup>&</sup>lt;sup>3</sup> J.G. Koopmans, in Neutraal geld, p. 279.

<sup>&</sup>lt;sup>4</sup> J.G. Koopmans, in Neutraal geld, p. 282.

'tarnished' by Knut Wicksell (1851-1926). He was interested in the short term effects of a change of the money supply. In his opinion such a change could set in motion cyclical movements which in the long term would only lead to a change of absolute prices. Thus, in the long term there were no effects on production and employment. In the short term, though, there appeared to work a transmission mechanism between the monetary and real sectors. Other economists, notably F.A. von Hayek (born in 1899) and J.G. Koopmans (1900-1958) wanted to formulate conditions for the neutrality of money. They tried to find policy norms to neutralize the (cyclical) disturbances originating from the money sphere. It was Koopmans who proved that the old theoretical concepts could not be of help anymore in formulating the conditions of neutrality.

In a moneyless economy Say's Law, i.e. supply and demand are equal, is true by definition. As soon as money enters the scene as an intermediary the number of transactions at least doubles: one has to sell a product for money and only then is able to exchange this for new products. That is why Say's Law is not necessarily valid anymore when money is involved, because in the circular flow of money and goods delays occur when one of the two kinds of transactions -supply and demand-does not take place; the direct coherence between supply and demand has been broken and, according to Koopmans, as a consequence there is non-neutrality. This happens when money dissapears out of circulation; then there is supply of goods and services that does not meet demand. This situation Koop-

Wicksell saw two ways of transmission; we will discuss them for a situation of increased money supply. Firstly, he mentioned direct transmission: decreasing marginal returns of money vis-à-vis goods would stimulate spending. And, secondly, he mentioned indirect transmission: decreasing interest would result in a situation where enterprises of especially capital goods expect higher profits, which leads to increasing demand for raw materials and labour (at the cost of producers of consumers goods) and thus to increasing wages, spending and consumer prices. After a while decreasing bank reserves due to increased credits would force the banking system to decrease credits by increasing the interest. This would counterbalance the original upward cyclical movement due to the increased money supply.

He claimed that since by far the greater part of the changes of the money supply work out through the credit market, this market automatically would localize these changes. 12 Then the macro-instruments of discount policy and open market transactions would suffice to compensate for the changes.

Now, there still remained the problem of finding the compass for the course towards neutrality. Neoclassical economists tried to find this touchstone in the Quantity Theory. In 1911 this theory was reshaped by Irving Fisher (1867-1947) into the Equation of Exchange that stated that all payments in a certain period (MXV) and all trade during that same period (PXT) have the same value:  $M \times V = P \times T$ . In the equation M stands for the average size of the national stock of money during a unit of time and V for the transaction velocity of circulation of money, which is the same as the number of times a unit of money changes hand per unit of time. T is the volume of good purchased with money during the period of time and P is the price level. V and T are considered to be constant in the short term and independent from M in the long term. Thus, any increase of the money supply M will have to lead to a proportional change of the price level P.

The Fisherian Equation of Exchange was used by other neoclassical economists to define monetary equilibrium. Wicksell among other things explained that P would be constant in a situation of monetary equilibrium. Von Hayek stated that the condition of constant prices would not suffice. 13 He considered a constant money supply as the determi-

<sup>&</sup>lt;sup>12</sup> J.G. Koopmans, in Neutraal geld, pp. 425-426. Changes of the supply of money due to changes of the supply of coins or gold, and the effects of counterfeiting are left aside.

<sup>&</sup>lt;sup>13</sup> He agreed with D. Davidson in this. Davidson (1854-1942) stated that technical progress would stimulate businessmen to borrow. This would have to be compensated either by price decreases of finished goods or by increasing the market interest. See H. Visser, p. 190.

remained constant, M. However, as soon as V does not increase enough -i.e the reaction of sector A is delayed which in the terminology of Koopmans means that this sector is hoarding- M has to be increased as well to prevent 'reiner Nachfrage-Ausfall. This implies that only in exceptional circumstances one of the Fisherian variables will be constant. The variables of the Equation of Exchange therefore can not serve as a touchstone for monetary equilibrium. 15

Thus, Koopmans showed which economic variables could not be used as criterium; however, he could not think of a new one, much to his regret. The matter of a policy compass for the course towards monetary equilibrium, therefore, still was not solved. Despite this fact, the ideas of Koopmans laid the foundation of Dutch post-war monetary policy and monetary analysis.

### 2.3 Some comments by Dutch economists

Essential for a monetary equilibrium is the adaptation of the effective quantity of money -i.e. money actually used as purchasing power- to the value of the flow of goods. This leads to the equation of prices and costs or savings and investments. However, there are so many changes in the flow of goods that a complete adaptation is virtually impossible, as Posthuma has stated. 16 Because there is a time lag, unadapted prices will exert influence on the course of the economic process, which implies that when prices have been adapted they have to change again. The influences of prices on the course of the economic process of course differ per economic sector so that an overall monetary equilibrium does not mean that prices do not exert any influence in separate sectors. This comment is an essential critique on the neoclassical concept of general equilibrium Koopmans adhered to.

Hennipman has made objections against the identification of

<sup>&</sup>lt;sup>15</sup> J.G. Koopmans, in Neutraal geld, pp. 349-380.

<sup>&</sup>lt;sup>16</sup> S. Posthuma, in Analyses en beschouwingen in retrospect, pp. 553-555.

of money and goods. Thereby he aimed at a money supply that should not exert any influence on price changes itself, which in fact is neutrality or monetary equilibrium.

Table 1 - Dutch money supply during World War Two (mln Dfl)

	paper money	giro accounts (a)	money supply
end of August 1939	1.133	1.507	2.640
end of April 1940	1.167	1.480	2.647
end of April 1941	1.715	2.300	4.015
end of April 1942	2.371	2.789	5.160
end of April 1943	2.680	2.937	5.617
end of April 1944	4.299	4.185	8.484
end of April 1945	5.894	5.014	10.908

Source: P. Lieftinck, Witbook, p. 11.

Lieftinck did not expect to reach this 'ideal situation', though, but he considered it to be a useful target. Therefore, the quantity of money had to be decreased so that demand for money and supply of money would be equal again: first of all, the money overhang had to be bound. When translated into a policy target, Lieftinck aimed at a nominal supply of money that was 50% of the nominal net national income at market prices. The nominal supply of money represented the demand for goods and services and national income represented the supply of money needed to produce national production. The difference between the two variables is explained by the transaction velocity V: money circulates and can be spent several times during one year, and in this case

a) This contains an estimate concerning the bank accounts at the smaller banks: they were given a pre-war ratio of 1.23 vis-à-vis the four largest banks.

<sup>&</sup>lt;sup>19</sup> P. Lieftinck, Witboek, p. 74. In his 'Inleiding tot de geldtheorie' published in 1946 Lieftinck stated on page 11 that the condition of monetary neutrality, if taken strictly, could not be fulfilled. Still, he decided to use the concept as a policy norm. In 'Pieter Lieftinck 1902-1989' (A.A. Bakker and M.M.P. van Lent) he explained that first of all he had wanted to reinforce the economic structure and the productive capacity. In the Keynesian way he had accepted budgetary deficits as long as there was no full employment, and under the restriction of monetary equilibrium.

been completed in May 1945. Lieftinck, therefore, decided only to block the use of bank and treasury notes of f 100,-, which was about 25% of all paper money. The cut in the money supply was also meant to tackle black marketeers and collaborators who were expected to have accumulated many denominations of f 100,-, because this denomination was the most important high-valued bank note in circulation.

The preparations for the final blocking of the rest of the denominations were slowed down by the simple fact that new bank notes were not available yet. The first post-war government did its best to stimulate the production of new currency at home and abroad in order to advance the moment the next phase of the monetary reform could start. Meanwhile, all Dutchmen were stimulated to deposit their money, because only limited amounts could be accepted in a final week of handing in. During this week (19-25 September 1945) each Dutchman could exchange old money for f 10, - in new paper money and on 26 September all other denominations were declared void and the value of the money was blocked; all forms of monetary possessions and claims were also blocked, such as demand deposits, savings, other deposits and even securities. At that moment each Dutchman had a purchasing power of ten Dutch guilders which meant that the bank note circulation had been reduced to f 90 million.

On 26 September Lieftinck also explained the main line of thought and the contents of the ministerial order in a radio speech. The principal idea behind the deblocking now to be started was to put an end to inflation by only living on current income. After a few weeks of deblocking the circulation of new money would have spread over the entire economy, so that the selling of products and services would provide the production and service sectors with enough financial means to finance their expenses without being dependent on deblocking anymore. For this purpose, the Central Bank was given permission to grant credits and general and special permits in order to give financial leeway to the business

transaction velocity of money V that is determined by the liquidity preference of the economic subjects, i.e the cash reserves they prefer. Secondly, there were the payments that are not really reflecting income. In order to calculate national income this problem can be solved by using the method of value added. Nevertheless, the more intra-business transactions are needed to make a product, the more money is generally needed to produce a certain value added. This is one of the exceptions Von Hayek mentioned that could justify an increase of the money supply. Thirdly, there were the payments that are not the result of current production, such as pensions, dividends, money from insurance policies, and rents). These payments necessitate a higher money volume than needed for a monetary equilibrium, at least at first instance; through demand they will create income at the second instance and thus become part of the circular flow.

The application of the principle of a money flow linked with production also implicated that cash reserves accumulated in the business sector during the war such as write-offs against depreciation and the non-replacement of used up means of production could not be released: funds for new investments would have to be earned again or compensated by new savings.<sup>22</sup> This could implicate that when the desired money supply had been reached no more money would be deblocked for investment purposes, nor for any other purpose, unless the deblocked liquidity resulted in a quick increase of production. To prevent this situation to become reality the State therefore had to refrain from deficit financing other than from money already in circulation, nor could it recirculate blocked money paid to it, such as payments of tax arrears (indirect deblocking).

In the beginning of 1946 the money supply had increased too much, according to the Ministry of Finance. Therefore, de-

<sup>&</sup>lt;sup>22</sup> P. Lieftinck, Witbock, p. 77.

116 million in 1949) which leads to an overall effect of approximately 15% on the ratio of money supply and national income at the end of 1949.

Table 2 shows that the ratio of money supply and national income had decreased to 45% in 1949 which is 5% below the 50%

1	Money supply(a) (12-months average)		Ratio of money supply and national income	
1938	2.480(b)	5.400	46	
1945 (May)	10.232	3.000(c)	300-400(c)	
1945 (Dec	4.572	8,000(c)	51(c)	

9.930

12.070

14.230

15.970

17.740

19.550

20.420

54

54

51

45.0

40.4

35.2

37.0

[Table 2 - Money supply and national income (mln Dfl)

Source: De Nederlandsche Bank, Jaarverslagen (Annual reports, 1946 and 1953-1956.

(a) Coins, notes and demand deposits

5.410

6.470

7.190

7.180

7.160

6.880

7.550

1946

1947

1948

1949

1950

1951 1952

- (b) Average of the beginning and the end of the year.
- (c) Estimated level (source P. Lieftinck, Het Nederlandse financiële herstel 1945-1952, p. 167.

Lieftinck had aimed at. This was mainly due to increased production. Yet, there was no stable monetary equilibrium. There proved to be a large pent-up demand which could turn loose if imports would be liberalized, as the negative balance of payments position of the Netherlands indicated. So far consumption and imports, and thereby production, had been hampered by rationing and import restrictions. Nonetheless, the remaining balance of payments deficit, due to the reconstruction effort, could hardly be covered.<sup>25</sup> Recovery, there-

<sup>&</sup>lt;sup>25</sup> Foreign credits (1946-1948: f 1.8 billion), liquidation of private foreign possessions of Dutchmen (1946-1948: f 1.5 billion) and eating into gold reserves (1947-1948: f 700 million) were needed to finance the import surplus until the Marshall Aid had started in the last months of 1948 (f 600 million). See P. Lieftinck, Het Nederlandse financiële herstel 1945-1952, p. 178.

(year ultimo), while national income increased by f 1750 million (see Table 2). This indicates the dishoarding of money and an increase of the transaction velocity of circulation of money V. In 1951 the cyclical economic development turned around which resulted in a balance of payments surplus for the first time during the post-war period, especially due to increased exports! Now, the unstable monetary equilibrium had changed into a much more stable one: short-term government debt had decreased substantially (blocked money included) and pent-up demand had vanished.

# 4 APPLICATION OF THE PRINCIPLE OF MONETARY EQUILIBRIUM ON A SECTORAL BASIS

### 4.1 Analysis by the Nederlandsche Bank

The 1947 annual report the Dutch central bank analyses the development of the money supply sector by sector for the first time, thereby applying one of Koopmans ideas. The Bank distinguished six different economic sectors: 1) central government, 2) local government, 3) liquidity creating financial institutions, 4) institutional investors and other funds, 5) private individuals and trade and industry, and 6) foreign countries, regarding the balance of payments surplus or deficit as the national liquidity surplus or deficit. The purpose of this analysis was to locate deflationary and inflationary developments and to measure these so as to provide the Nederlandsche Bank with data to base its policy on. The Bank was mainly interested in the way demand for goods and services was financed. It thereby applied the same notions as Koopmans did, making distinction between inflationary financing (liquidity creation and hoarding) and deflationary financing (liquidity extinction and dishoarding).29

<sup>&</sup>lt;sup>29</sup> Since 1951 the Central Bank applied the concept of primary and secondary liquidities instead of only analysing the supply of primary liquidities (cash and demand deposits). This was due to the amount of secondary liquidity that was issued by the State in the 1940s.

impulse.31

In the annual report of 1953 the method of circumstantial evidence is clearly elaborated. 32 We will use this elaboration as an example. Banking statistics showed a liquidity surplus of the government sector, 'institutional investors and other funds', and 'individuals and trade and industry' which implied that there was hoarding and a fall in liquidity. This observation in itself did not explain the character of the deflationary influence: was it an (autonomous) deflationary impulse or an (induced) deflationary reaction? Circumstantial evidence, in this case, indicated a mild inflationary economy. This implied that there could not have been large inflationary impulses. Therefore, the liquidity surplus had to be a deflationary impulse instead of a deflationary reaction on inflationary impulses. The same motivation was used for 'institutional investors and other funds'. With regard to 'private individuals and trade and industry' the interpretation was more complicated, because there was hoarding of primary liquidities (f 500 million), dishoarding of secondary liquidities (f 40 million) and money creation through credits (f 200 million) at the same time. Thus, on the whole inflationary influences exercised by 'individuals and trade and industry' were less than the deflationary influences. Given the fact that the accumulation of primary liquidities parallelled the increase of national income, the Nederlandsche Bank interpreted the deflationary influences as a reaction and not as an impulse. This reaction could only have resulted from inflationary impulses exercised by the foreign countries, because there were no such disturbances originating from the other Dutch economic sectors. This analysis led to the conclusions that the continuing cyclical

<sup>&</sup>lt;sup>31</sup> Circumstantial evidence was also needed for the interpretation of the balance of payments surplus (or deficit). A surplus, for example, could be just as well a reaction to Dutch deflationary impulses as that it could be the measure of inflationary impulses from abroad.

<sup>32</sup> Jaarverslag van de Nederlandsche Bank over 1953, pp. 60-68.

only of theoretical use; it had been helpful in coming to 'a sound and fruitful relationship' with the Treasury, because this was based on the principles of the method of analysis we have just set out (see the Appendix).

### 4.2 Towards an econometric model

Later in the 1950s Holtrop himself developed an econometric model of analysis in cooperation with his associate G.A. Kessler. This stylized version of the impulse analysis contains only two equations:<sup>35</sup>

$$D = k\Delta Y - B$$

$$B = E - m\Delta Y + E = m\Delta Y + B$$

In the first equation we recognize the ideas set forward in the Equation of Exchange as formulated by the Cambridge School and in the concept of monetary equilibrium. The internal, domestic impulse D is the sum total of newly created and dishoarded liquidity that increases Y (calculated on a yearly basis) until the stimulus has been absorbed. This, in effect, is the difference between 1) the increase of normal liquidity balances (kAY), and 2) the balance of payments surplus (or deficit) B. B represents the difference between the external impulses (foreign demand) and Dutch import demand (m∆Y). m∆Y is the remainder of the created and dishoarded or activated liquidity, under the assumption that normal behaviour requires that surplus cash will be spent or invested. m stands for the normal quota of external expenditure (estimated at 0.5) while k represents the normal cash quota (assessed at 0.4); this is the average supply of money as a fraction of nominal national income Lieftinck wanted to be 0.5 in the 1940s.36

Put to the test statistically the model is 'by no means void of economic relevance', as the main Dutch critic of the

<sup>&</sup>lt;sup>35</sup> M.W. Holtrop, in Money in an Open Economy, p. 163.

<sup>&</sup>lt;sup>36</sup> M.W. Holtrop, Money in an Open Economy, p. 161. The model needs the input of data about national income, balance of payments surplus or deficit, net domestic creation of liquidity by governmental institutions and private sector, and activation of liquidity by the local governments.

the period under consideration. He claimed that the introduction of time lags would 'greatly complicate calculations without affecting results over a longer period'. All This implied that all effects of a changed liquidity supply would be absorbed by AY in the period under consideration. This probably was a consequence of the purpose of the analysis: publication in the annual reports of the Nederlandsche Bank. Selden's alternative model used data of three previous years, which is not interesting for an analysis that is based on year to year circumstances.

We have done a simple research ourselves by comparing data about internal impulses gathered with the original monetary analysis (method 1) and data about these impulses calculated with the help of the model itself (method 2). The imputation of the domestic inflationary impulse D to only two sectors shows that there are big differences, especially with regard to activation of liquidity by the (non-liquidity creating) private sector (see Table 3). In method 2 the impulses caused by the private sector are the remainder of the domestic

th. 1	meth. 2	.1 .		1953	
		meth.	1 meth. 2	meth. 1 meth.	
				[	
190	+ 20	- 810	- 830	- 780 - 87 <sup>-</sup>	
140	+ 160	+ 220	+ 150	+ 290 + 5	
				1	
50	- 40	- 340	- 360	+ 240 + 22	
60	+ 800	- 740	- 530	- 740 + 23	
	50 60	140 + 160 50 - 40 60 + 800	140 + 160 + 220 50 - 40 - 340 60 + 800 - 740	140 + 160 + 220 + 150 50 - 40 - 340 - 360	

<sup>&</sup>lt;sup>41</sup> M.W. Holtrop, Money in an Open Economy, p. 163, footnote.

before the Second World War. 42 In reality the pre-war ratio had never been higher than 46%. Lieftinck later admitted that the 50%-norm had been too high. This did not worry him though, because, as he stated, the transaction velocity of circulation of money V 'might have been slowed down at least until the end of 1948, due to limitations imposed on consumption and investment which hindered the quick spending of income'.43 According to Lieftinck this slowdown 'may have compensated the effects on prices by the high volume of money M'.44 Lieftinck could have been right for one more reason, because there was distrust against the blocked demand deposits as a means of payment. This manifested itself in the hoarding of cash, in accordance with Gresham's Law. Demand deposits (giro money) were the 'bad' money, used for payments as much as possible, thus driving out 'good' money (cash). Some Dutchmen, such as black marketeers and farmers, market gardeners, petty traders and wholesalers were simply only interested in cash and hoarded it. The fact that the bank secrecy had been abandoned and that the tax authorities had been given much liberty will have stimulated the keeping at home of cash for transaction purposes and as (secret) savings, because this could not easily be controlled by the fiscal authorities. The distrust may have lasted until late in the 1940s when most of the war taxes were paid off and the black market disappeared due to an increasing supply of goods. The consequence of this was that much cash did not really circulate in the economy and was hoarded. Thus, some sectors of the economy had to make more requests for deblocking than necessary considering the supply of money. Furthermore, not all branches of industry and trade had started off at the same time and with the same pace. This also necessita-

<sup>&</sup>lt;sup>42</sup> P. Lieftinck, Witboek, p. 75.

<sup>&</sup>lt;sup>43</sup> P. Lieftinck, Het Nederlandse financiële herstel 1945-1952, p. 168.

<sup>44</sup> P. Lieftinck, ibid.

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