Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi
Yıl: 2020 Cilt-Sayı: 13(4) ss: 824-839

Academic Review of Economics and Administrative Sciences
Year: 2020 Vol-Issue: 13(4) pp: 824-839

http://dergipark.org.tr/tr/pub/ohuiibf/

Araştırma Makalesi
Research Article

ISSN: 2564-6931
DOI: 10.25287/ohuiibf.735910
Geliş Tarihi / Received: 12.05.2020
Kabul Tarihi / Accepted: 09.07.2020

THE ORIGIN OF THE MONEY, ENDOGENEITY OF MONEY SUPPLY AND BALANCE OF PAYMENTS: POST KEYNESIAN APPROACH

Yelda Bugay TEKGÜL[1]

Abstract

Discussions about the origin of the money object are represented in two separate streams as orthodox and heterodox. Orthodox flow is expressed as a Metallist approach while looking at money as a means of exchange, heterodox flow is called Cartalist and emphasizes the phenomenon of authority in the object defined as money. Orthodox current sees the money supply as an inventory and external variable that can be increased and decreased by the central bank (CB) according to the money holding preferences of the people and money is demanded only for transaction purposes. The Mundell-Fleming Model (MFM), which is included in this flow and adds the balance of payments to analysis, accepts the money supply only endogenously in the fixed exchange rate system. The aim of this study is to explain the endogenity of money supply in an open economy within the framework of Post Keynesian economics (PKI), which is based on the fact that the investment and production process takes place in a purely monetary economy. In this framework, compensation thesis which provides an alternative explanation for open economies has brought about a new expansion that is completely different from the MFM. In this expansion, two types of financial systems are defined as overdraft and asset-based. The endogeneity of the money supply in both systems in the PK can continue to be valid. These opinions oppose the endogeneity approach of the money supply discussed in MFM, and concurrently, the externality of the money supply which exists in the flexible exchange system is not accepted.

Keywords *: Balance of Payments, Mundell-Fleming Model, Endogeneity of Money Supply, Post Keynesian Economics, Compensation Thesis*

Jel Classification: *F41, F30, E12, E51*

[1]Asst.Prof.Dr., Çukurova University, F.E.A.S. Department of Economics, ttekgul@cu.edu.tr, ORCID: 0000-0002-3800-5427

Atıf/Citiation (APA6): **Tekgül, Y. B. (2020). The origin of the money, endogeneity of money supply and balance of payments: Post Keynesian approach.** ***Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 13*****(4), 824-839.**

Tekgül, Y. B. (2020). The origin of the money, endogeneity of money supply and balance of payments: Post Keynesian approach.
***Ömer Halisdemir Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 13*(4), 824-839.**

PARANIN ORİJİNİ, PARA ARZI İÇSELLİĞİ VE ÖDEMELER BİLANÇOSU İLİŞKİSİ: POST KEYNESYEN YAKLAŞIM

Öz

Para nesnesinin orijini ile ilgili tartışmalar ortodoks ve heterodoks olarak iki ayrı akımda temsil edilmektedir. Ortodoks akım Metalist yaklaşım olarak ifade edilirken paraya mübadele aracı olarak bakmakta, heterodoks akım ise Cartalist olarak adlandırılmakta ve para olarak tanımlanan nesnede otorite olgusunu öne çıkarmaktadır. Ortodoks akım para arzını halkın para tutma tercihlerine göre merkez bankası tarafından artırılıp azaltılabilen stok ve dışsal bir değişken olarak görmekte ve para sadece işlem amaçlı talep edilmektedir. Bu akım içerisinde yer alan ve ödemeler bilançosunu analize katan Mundell-Fleming Modeli (MFM), para arzını sadece sabit döviz kuru sisteminde içsel kabul etmektedir. Çalışmada amacımız açık bir ekonomide para arzının içselliğini, yatırım ve üretim sürecinin tamamen parasal bir ekonomi içerisinde gerçekleştiğine dayandıran ve heteredoks akım içerisinde yer alan Post Keynesyen iktisat (PKİ) çerçevesinde ele almaktır. Bu çerçevede açık ekonomiler için alternatif bir açıklama getiren telafi etme tezi (compensation thesis), Post Keynesyenlerin para arzının içselliği açıklamalarında önemli bir yer tutmaktadır. Telafi etme tezi, para arzının içselliği konusunda MFM'den tamamen farklı yeni bir açılım getirmiştir. Bu açılımda overdraft (açık kredi) ve asset-based (varlığa dayalı) olarak iki tür finansal sistem tanımlanmaktadır. PK'de her iki sistemde de para arzının içselliği geçerliliğini sürdürebilmektedir. Bu görüşler MFM'de ele alınan para arzının içselliği yaklaşımına karşı çıkmakta ve aynı zamanda esnek kur sisteminde varlığını sürdüren para arzının dışsallığı da kabul görmemektedir.

Anahtar Kelimeler *: Ödemeler Bilançosu, Mundell-Fleming Modeli, Para Arzının İçselliği, Post Keynesyen İktisat, Telafi etme tezi*

Jel Sınıflandırması *: F41, F30, E12, E51*

INTRODUCTION

The Balance of Payments indicates the records of all economic transactions of a country with the outside world. The balance of payments is affected by the implemented economic and financial policies. Therefore, institutions that determine and implement these policies such as the CB are closely related to this process. In the standard textbooks, the mainstream economics view regarding money supply assumes that the money supply is created *exogenously* by central banks. This view, known as the *Metallist*, perceives money merely as a medium of *exchange*. This assumption also stipulates that the money supply can be used as a controllable size as a policy instrument to achieve specific macroeconomic targets. For instance, control of money supply is also considered as an important policy instrument for targeted inflation. Another view of the determination of the money supply is called the *Cartalist*. Post Keynesians, who are situated within the Cartalist view, tend to attribute the creation process of the money object to an authority. Such authority is accepted as the state's authority in contemporary economies. The state defines the so-called object named money while determining how and for what purposes it would be used. In this framework, money is accepted and utilized for fulfilling certain obligations (such as tax, penalty) toward the state in economic transactions. The state's authority provides the money with trust that is required in performing its functions.[2]

The metallist view supports the *exogeneity* of the money supply, although it does not relate money to the real elements of the economy. This approach considers money as a *stock* variable to meet individual needs. The association of money supply with the *balance of payments* takes place only by courtesy of a system through which the *fixed exchange rate* is implemented. In this system, the surplus that may occur in the balance of payments would be sold to the central bank through the firms and/or banks, and the central bank would supply national currency in return. Since the central banks that are reluctant about changing the exchange rate end up with purchasing the supplied foreign

[2] See Goodhart, A.E. (1998) for a detailed analysis in this regard.

currency with the money supply, the amount of national currency is handled in a manner dependent on the exchange rate. In the *flexible exchange system*, since the central banks do not have such an obligation, the money supply can sustain its *exogenous* determination. In this view, known as the Mundell-Fleming model, the money supply assumes an exceptional *endogeneity* under certain assumptions such as fixed exchange rates and *non-sterilized* central bank intervention (Snowdon & Vane, 2005). The Post Keynesian approach considers money as a dynamic element created throughout the investment and production process. Thus, Post Keynesians oppose the Mundell-Fleming model's view of the endogeneity of money under certain assumptions by associating money with the balance of payments.

The approach to money supply exogeneity in the flexible exchange system has no validity. For Post Keynesians, a monetary surplus corresponds to the obligations of those who achieved this surplus and does not result in a change in the money stock. This approach, pioneered by the works of the important representatives of the Post Keynesian view such as Marc Lavoie (1984; 1992; 2006) and Arestis and Eichner (1988), is called the *compensation thesis* and emerges as a variant of the *efflux/reflux* principle. This principle emerges as a result of the relations between households and banks, as well as banks and the CB, and the surplus/deficit in the balance of payments is offset within these relations.

In this framework, our study consists of three parts. In the *first part*, the Cartalist view of money object which is not included in the standard textbooks and the basic approaches of this view are discussed. In the *second part*, the monetary views of Post Keynesians that are akin to those of the Cartalists are discussed. The *third part* focuses on the thesis that the endogeneity approach in the Mundell-Fleming Model, which associates the money supply with the fixed exchange rate and the balance of payments under the assumption of non-sterilized central bank intervention with the money supply, cannot be valid. In this framework, our study discusses the basic Post-Keynesian claim that relations among households, firms, banks, and the central bank offset a surplus or a deficit in the balance of payments without having any effect on the national money supply.

I. THE HETERODOX VIEW ON MONEY

"Money object" has been addressed in a wide range from its definition to creation processes, its effects on the real economy as a macroeconomic size and the differences encountered in implementing it as a policy tool, and it creates a domain of economic dispute and segregation on which many different views are proposed. Moreover, this dispute and segregation domain has dynamic features and the dispute continues with different articulations. It is dynamic; because first of all, money-object and the related structural elements are subject to change. Secondly, changing structural elements can change the Money-object itself.[3] As a matter of fact, there can be many different evaluations in the historical process, from the definition of money object to its use as a policy instrument and its macroeconomic outcomes. There is not much objection from economists about the functions of money such as the *medium of exchange, store of value,* and *purchase and pricing* tool. The implicit consensus on this matter is that money object has not changed much since the date it was a blanket, tobacco, a dried fish, a shell, or a piece of bone. On the other hand, it is possible to find different opinions on the mechanisms of creation of the money object, the power it represents, and the outcomes of this power. These opinions, in general, represent a pair of distinct views, *orthodox* and *heterodox*. While the orthodox view represents a *Metallist* approach perceiving money as a medium of exchange, the heterodox *Chartist* approach emphasizes the legal aspect of money, highlighting the phenomenon of authority on what is defined as money. Economist Anwar Shaikh wrote the following in his voluminous work entitled "Capitalism":

> *Money arises slowly out of the proper exchange, and the historical path from private money to state money is long and torturous. Exchange arises out of social interactions among humans. When and where exchange becomes sufficiently extended, its structure requires codification.*

[3] It covers the production-distribution relations that emerge within the historical process which is meant by the structural elements along with the related institutional-political-social and cultural relations.

> *Money arises as to the physical expression of this need. The state did not invent money, coins, payment obligations, or depts. On the contrary, humans have repeatedly invented and reinvented exchange, money, coins, credit, banks, and even the state itself. The historical path from money-objects to coins, convertible and inconvertible tokens, and eventually fiat money is quite complicated* (Shaikh, 2016:677).

Anwar Shaikh (2016: 152) also quoted "money" from Quiggin (1949):

> *"Everyone, except an economist, knows what "money" means, and even an economist can describe it in the course of a chapter or so, but it is impossible to define with rigid outlines. It emerges dimly from objects of presentation or exchange, and shades imperceptibly into recognizable monetary forms with uncertain boundaries"* (Quiggin, 1949:1).

Shaikh, by stating that gift-giving and exchange should have not been confused with gifts of different times and debt-exchange, considered money as an expression of the quantitative value of an object with another intermediary. Money can be a socially constituted instrument, special merchandise, a symbol, or a record, expressing the price of various goods. The socially generated size of the price of a commodity becomes its price of money. Debt may not be the same as money. Reimbursement of a borrowed amount of salt is not considered a monetary transaction. On the other hand, if money is rooted socially, it can be expressed in monetary terms, even if the exchange is made with the use-value. Once the salt is accepted as money (if all goods can be exchanged at a certain salt value), the salt serves as a medium of exchange, even though the provision for salt debt is made to the third party at the end of the maturity in the banking system (Shaikh, 2016: 152-153).

Shaikh's interpretation of money reflects a historical perspective and puts a role in money within the framework of social exchange relations. Contemporary commentators studying on money generally analyze the final situation in which money evolves, that is, the situation where the state "takes over the special function". Nevertheless, there may be different opinions about money. For example, Innes (1913) did not support the claim that money was preceded by barter, coins were first developed in the private sector, and the state created money after that. He did not take the concept of money being a *medium of exchange* seriously and perceived money as a *means of payment*. Innes lumped money in with coins, private coins in with state coins, payment obligations in with debt obligations, and all transactions in with debit-credit. Innes perceived the payment and circulation functions of money not as common functions but as different definitions of money. However, Marx indicated that a commodity (C) passes through hands in exchange for money (M) and that the purchase with money is different from the credit transactions through which "both ends of the transaction are separated". Money is, in the former, a medium of purchase (exchange), whereas, in the latter, a means of payment, and has a common function (Marx, 1970: 142-143, as cited in Shaikh, 2016: 617). According to Innes, money is just an *accounting record*, and the records are *mutually exclusive*. Fiat money is ideal since there is no other security. He sought the answer to why the money, which is not backed by a security, was accepted in the government's acceptance of such a symbol for tax payments.

L. Randall Wray, a prominent representative of Post Keynesian economics, emphasized that Innes considered money as something *socially created*, differently from the orthodox view. Innes did not view the market as a place where goods are exchanged, but rather as a clearing house for debts and credits. In this context, Innes did not establish a relationship between the market and money but rather believed that money evolved from the penal system based on bail practices in the ancient world (in Babylon), and went even further, suggesting that even *high-powered money* (HPM) is the *credit money* regulating the debt-credit relationship (Wray, 2014). Knapp, on the other hand, developed the *state theory of money* by focusing on the *means of payment* aspect of money. This approach is the exact opposite of the metallist approach which supports the notion that the value of money is derived from the metal standard. According to Knapp, there is no state concept in the metallist approach. However, money arises from the idea of the state and always has the feature of being a payment instrument with the legal ordinance. *Money is everything the state accepts in tax, penalty, and fee payments.* The state, in a sense, creates a means of payment through an icon called *Charta* as a

product of the state's legislative activities.[4] Money created by private banks is only a part of the state's monetary system (Shaikh, 2016; Wray, 2014).

The works of both Innes and Knapp had important effects on the formation of J.M. Keynes' views on money. It is possible to see this effect clearly, especially in Keynes' work entitled *A Treatise on Money* published ten years after Innes' work (Wray, 2014). Keynes described the primary concept of monetary theory as *money of account* by which debts, prices, and general purchasing power are expressed. The money of account occurs along with debts, that are contracts for deferred payments and price lists, that are contract offers for buying or selling (Keynes, [1930] 1976: 3). Keynes argued that, following Knapp, the state determines (describes) what would be used as an accounting unit and what "thing" would be accepted as money (Keynes, [1930] 1976: 4-5):

> *A feature specific to monetary contracts is that in the execution of a contract, which is ultimately expressed in account money, the state or the community decides not only to deliver but also what to deliver. Therefore, the state acts primarily as the legal authority in the contract that obliges the payment of the thing which is appropriate for the "name" or "description". The state bears the right to determine and declare what thing would correspond to the name. What Knapp has pointed out is that for at least four thousand years. Knapp's cartalism, that is, the idea that money belongs to the state, takes place precisely at this step where the evolution of money has reached.* [5]

Keynes stated that the theory of state money can be adapted to all modern economies, even to the gold standard economies. After all, "commodity" money based on gold is also the state money. Keynes stated that state money can take three different forms, namely *commodity money, fiat money,* and *managed money*. *Commodity money* is defined as the warehouse receipt for the actual units of the non-monopolized and freely available commodity, which performs the usual functions of money, depending on its scarcity and cost of production, like other goods. Fiat money is a representative or symbolic money that is created and issued by the State but cannot be converted into anything else. Managed money, on the other hand, in the form of money which is bound to an objective standard and resembles fiat money except that the emission conditions are undertaken by the State. Consequently, Keynes initiated the standard that has historically conformed to the currency with the State. The government determines the nominal value of money in all three forms of commodity, fiat, and managed money. The state both determines what would be accepted in payments to be made and the nominal value of this thing (Keynes, [1930] 1976; Wray, 2014). Other prominent leaders of heterodox views are Hyman Minsky, Abba Lerner, Geoffrey Ingham.

As a supporter of the Cartalist view, Minsky emphasized the *endogeneity* of money. Money is created within the normal processes of capitalist economies, it is not *dropped from a helicopter* as suggested by Milton Friedman. [6] Money is created as long as banks provide credits. According to Minsky, money is created through a bank's financing contract and is withdrawn from the system as long as the contracts on banks' debt instruments are fulfilled. Loans are nothing more than representing payments already made to these units, in return for the promise that firms, households, and the government would make payments in a later period. Creating a credit makes customers appear as creditors in other bank accounts. For banks in the *Fed* system, a debt account is matched to a credit account for other banks. On the other hand, if bank credits are used as money by the public, a deficit occurs and this deficit is offset by the *Fed*'s balance sheet. While banks use the *Fed's* deposits as money, the public uses the banks' deposits as money (Minsky,1986). There is a hierarchical structure and this structure is not different from the one specified by Knapp and Keynes. According to Minsky, anyone can create money. However, the main problem involves the acceptance of this money. There is a pyramid of liabilities: the central bank and the government-issued debt securities issued by the treasury are located at the top of the pyramid. There are banks' debt securities in the middle and households and firms' debt securities at the bottom. The acceptability of debt

[4] Charta means a *token* or *tag* given to us to take back the coat we left on the cloakroom. It is the definition of the State that gives power to Charta about "what is Money."
[5] Here, Keynes emphasized how the State decides on what money is (name) and what is to be used as money (description).
[6] It is possible to find this view in Milton Friedman's work conducted with Anna Schwartz on the Depression of 1929 published in 1963.

securities decreases as we descend from the top of the pyramid to the bottom, except in exceptional cases (Wray, 2014: 39).[7] It can be said that Minsky followed the views of Innes / Knapp and Keynes.

Abba Lerner's views are not much different than of other *Chartalists*. According to him, money was created by the state and he attributed the most important feature of the money to its acceptance by the state. The money that the state accepts for the payment of taxes and other payable obligations to itself is money that would be valid for a modern state. The validity of this money can only become questionable in a chaotic environment and in this case, the use of a foreign currency may be practical. The state does not need tax revenues or borrowings to fulfill its obligations. If the income of the people is very high, taxes can be raised to prevent inflation. On the other hand, if the people are required to have less money and more public bonds, the state can resort to borrowing. Thus, Lerner opposed the necessity of balancing public revenues and public expenditures and adopts a *functional finance* approach toward low inflation and full employment target (Wray, 2014: 41).

Geoffrey Ingham also adopted the Cartalist view mentioned above. Money is produced socially and it yields certain social and cultural outcomes. Money itself also represents a social relationship. Money is regarded as a "receivable" and "credit" created by existing social relations independent of the production and exchange of goods. Like Knapp, Ingham also argued that the state exports money and accepts the payment of taxes.

II. POST KEYNESIAN VIEWS ON THE ENDOGENEITY OF MONEY SUPPLY

The Orthodox view relates the money object to the supply and demand of money just like any good, money plays an individual role as a means of exchange; money enters into the neoclassical general balance system *exogenously* as a given input. In this regard, it has no difference from other goods. The value of money is determined by supply and demand through market conditions depending on the degree of scarcity. Post Keynesians agree with the *Cartalist* view minding its distinction with the *Metallist* view about money coined by Goodhart (1998). As stated above, while cartalists view money within the framework of the social unit of account, metallists prefer to consider money as a unit of measure that facilitates the exchange of goods. Post-Keynesian studies have focused on *credit money* and the *endogeneity of the money supply.* There is a relationship between credit money and the state's money. Post Keynesians offer a serious alternative to the orthodox views of the *exogeneity* of the money supply created by the central bank. They strongly emphasized the *monetary theory of the production process*. On the other hand, the view of the *circuit theory*, proposed by the French school, perceives money in the form of financial expenditure. In the 1970s, the concept of money turned into a disputable issue along with Basil Moore's view of *horizontalism* claiming that the central bank cannot voluntarily control the reserves of the banks. This situation paves the way to the exact opposite of an expression in which the *deposits create credits*, that is, the view that *credits create deposits* (Wray, 2003: 264).

Post Keynesians associate the production process with the use of credit in modern capitalist economies. In this context, if a firm wishes to grow, it has to borrow to finance its investments.[8] Even though money has been seen as an *exogenous* variable since the 1950s to the present day, it has been evaluated as an *endogenous* variable for 200 years before that date. If the medieval Venetian and Genova bankers could have returned to life, it is would be very likely that they would have understood the current phenomenon of money and the modern banking system. Money can be associated with the production process in an economy rather than being a means of exchange. The increase in income (such as the increase of profit with new investments) is realized by the increase in borrowing, which increases money. Money is a social and conventional phenomenon. Therefore, the current should be comprehended as a *flow* variable, not a *stock* variable. The Orthodox and Post Keynesian views on money can be seen in Table 1 below.

[7] For instance, the acceptability of a foreign currency may precede a national currency. Just like the debt securities of a non-financial firm can be accepted prior to debt securities in some cases.

[8] Alfred Eichner based firms' investments on two sources: internal finance and external finance. Internal financing is associated with profit income, whereas external financing is linked to loans (borrowing).

Table 1: Characteristic of Money in the Orthodox and Post-Keynesian Research Programs

Characteristics	Orthodox theory	Post-Keynesian theory
Money enters	in exchange	in production
Money is	an individual requirement	a social convention
Money	is a given endowment (stock)	as efflux/reflux
Money is	exogenous	Endogenous
Interest rates are	endogenous	Exogenous
Interest rates are	the market price of money	a distributive value
Causality	reserves create deposits	credits create deposits
The focus of analysis is	substitution and portfolio effect	on income effects and liabilities
A restrictive monetary policy	has merely adverse impacts in the short-run	has adverse impacts in both the short- and the long-run
Credit rationing is due to	asymmetric information	a lack of confidence

Source: Lavoie, M. 1992: 150 and 2006:56.

Post Keynesians consider the issue of money controversial within a historical and institutional framework (Davidson, 1982). In this framework, the theory of money cannot be considered independently from the development of financial institutions (Moore, 1986). A monetary analysis, which is independent of production and the functioning of the economy as a whole, cannot be performed (Eichner & Kregel, 1975). Therefore, in a capitalist economy, a new production of goods by firms require a new credit flow or the renewal of previously borrowed loans, and a monetary expansion independent of production is not valid for Post Keynesians.

There are three channels through which money enters the economic system (Lavoie, 1984). These three channels are as follows;

i. Since production is a process and takes time, credit is an instrument that can finance this process. Productive credit is inevitably used in the production economy.
ii. Money enters the system as a result of monetary and fiscal policies implemented by the authority.
iii. In the open economic system, the surplus of the balance of payments creates a monetary surplus and, the deficit offsets this surplus.

On the other hand, Rochon argued that:

> *Credit and money are an integral part of Eichner's overall macroeconomic framework. In this sense, while many post-Keynesian were speaking in very general terms about endogenous money, Eichner was, in fact, busy showing why Money was endogenous. The theory of money ought to emphasize two critical relationships; the one, between the entrepreneurial sector of the economy and the banking system (endogeneity of credit); and the second, the relationship between the banking system and the central bank (the endogeneity of the monetary base). Each of these elements, though crucial for understanding the endogeneity of money, addresses two very different arguments. The first of these relationships concerns the demand for short-term bank credit. Firms are freed from the constraints imposed by ex-ante savings. For this reason, firms borrow credit from the banks to finance their investment. The second element is central to post Keynesian theory and indeed is at the heart of the horizontalist and structuralist debates. If assets create liabilities (that is loans create deposits) deposits create the reserves needed to meet banks' obligations. Horizontalists posit that banks simply borrow these reserves from the central banks* (Rochon, 2010:174-175).

In this context, Post Keynesians disagreed with the orthodox (monetarist) approach in four stages (Lavoie, 1984: 776): Firstly, post Keynesians assert that the presence of a credit multiplier, caused by certain exogenous control by the monetary authorities, does not necessarily indicate a causal relationship from high-powered money to the money stock. On the contrary, a unilateral causal relationship exists running from higher credit needs to higher bank deposits, to higher required reserves. Secondly, post Keynesians claim that central banks generally choose to accommodate the needs of commercial banks. Thirdly, even if central banks aim at controlling the money stock, it can be done only through the level of interest.[9] Consequently, the post-Keynesian theory claims that it can only be achieved by incurring the cost of disrupting financial markets.

Milton Friedman and Anna Schwartz have defined monetary multiplier as follows:

$$M = \frac{B}{[(\frac{R}{D})+(\frac{C}{M})-(\frac{RC}{DM})]} \qquad (1)$$

The monetary base (*B*) is described as the sum of the reserves of the commercial banks (*R*) including the currency held by the public *(C*) whereas the money stock (*M*) equals to this same currency including the deposits of the public held by the commercial banks (*D*). According to monetarists, the central bank should not have any inconvenience in controlling the monetary base (*B*) level. They assumed that the reserves /deposits ratio (R/D) is unchanged by the legal reserves coefficient imposed by the central bank, whereas the degree of cash preference of the public (*C/M*) is considered to be adequately stable. Thus, the central bank may impose the preferred money stock through open-market operations. These operations enable the central bank to control *R*, the reserves of the commercial banks, and hence it can control *B*, the amount of high-powered money. Although Monetarists think of the ratios *C/M* and even *R/D* as a variable, they argue that the demand for money is proven to be adequately stable. Therefore, the main reason that underlies the volatility of the money stock should be perceived from the supply-side: the central banks and the variations of the monetary base (*B*) are usually considered as the culprits. As a result of these approaches, it is sufficient to control *B* for controlling *M*. If we assume that *m* is given as follow:

$$m = \frac{1}{[(\frac{R}{D})+(\frac{C}{M})-(\frac{RC}{DM})]} \qquad (2)$$

We can rewrite the above equation as *M=mB*. Here, *m* denotes the monetary multiplier, and where causality runs from right to left, *B* being the predictor variable whereas *M* is the dependent variable. Nonetheless, the post-Keynesian approach can be summarized by Equation (3), where (*1/m*) is the so-called credit divisor:

$$B=(1/m)\ M \qquad (3)$$

In the post-Keynesian analysis, the causality of the orthodox theory referred to Equation (1) and (2) should be reversed in which a unilateral causality exists running from *M* to *B*. Upon expansion of production by entrepreneurs, and until the output is sold, a gap in working capital needs exists to be bridged by bank loans. Commercial banks would meet this demand for loans, which leads to a

[9] In a modern economy, various financial assets exist, each with different rates of return. At least one of them is under the direct control of the CB and this *benchmark rate* determined by the CB has an impact on other short-term interest rates in the money market. The *benchmark rate* is an interest rate applied by the CB for lending to commercial banks. This ratio is important in determining government bonds in open market operations. It is also essential in determining the overnight interest rate applied by banks. This rate occurs with very large deviations under normal conditions. The CB is not able to know the exact amount of reserves in the system. The reserve demand of commercial banks may vary according to the agenda. Here, all actors perform their financial transactions at an interest rate close to the interest rate set by the CB. Therefore, the interest rate is *exogeneous*. However, the central bank would change the *benchmark rate* according to its specific economic goals. According to the Post Keynesian analysis, although it is true that the CB may wish to change the *benchmark rate* depending on both domestic and foreign economic circumstances, this does not mean that the interest rate is an endogeneous variable. Because the decision is at the discretion of the CB (Lavoie, 2006: 66).

rise in bank deposits. Thus, variations in the money stock are caused by the volatility of economic activities, but not the other around.[10]

Credit-money is not created as a result of bank reserves. Banks can get the credit requested by their customers (firms/individuals) directly from the CB. Thus, banks can obtain the funds they need from the CB within the framework of the laws. "*B*" is determined *endogenously* by demand. The volume of *B* is directly dependent on bank credits (by determining *C*). Unlike neoclassicals, 'bank money' here does not affect *B* through the money multiplier. Because *B* already consists of a portion of bank money. (In other words, if *C* increases through credits, *R* would decrease on the other hand).

Post Keynesians divide financial systems into two subsystems, namely; overdraft and asset-based economies.[11] In both of these subsystems, despite method differences, the money supply maintains its endogeneity. It is important to discuss the theory of money for the Anglo-Saxon financial system and other systems. The institutional structure is of great importance here. Along with globalization, this distinction has gone down in history. This classification, highlighted by many Horizontalist authors, refers to the distinction between auto-economies and overdraft economies first coined by John Hicks (1974: 51). In the auto-economies, agencies sell their liquid assets or issue new bonds/stocks to finance their new assets. Therefore, such economies are also known as financial market economies. According to Lavoie, firms in such economies have the necessary financial resources to make investment spending, and to underline the fact that they sell their liquid assets (especially Treasury bills) to give banks new credits, these types of economies can also be called asset-based economies (Lavoie, 2000: 2). In the definition of Hicks (1974), Continental Europe and Asian economies are defined as "overdraft economies" and the world of Anglo-Saxon is defined as "asset-based economies".

II.I. Overdraft and Asset-Based Economies

In overdraft economies, money is *endogenous* and commercial banks are independent of the CB. In Asset-Based economies, money is *exogeneous*, and under the control of the CB. Such a dichotomy reflects the institutional differences of the CBs in different countries rather than being theoretical (Lavoie, 2006: 58).

According to PKs, the above-mentioned reverse causalities are more prevalent in overdraft economies, but can also be seen in asset-based economies. In overdraft economies, the inherent nature of the monetary base (*B*) is obvious. In such an economy, there is no restriction for commercial banks to meet all bank notes or reserve demands from the CB (This still applies to France and the current Euro system).

Figure 1. depicts the balance sheet of the CB and the banking system as a whole. As required by the basic rule, the balance sheet must absolutely and always be in balance. Meaning that, if reserves increase in the banking system, this change is offset by the decrease in other assets or an increase in liabilities in the banking system.

In a similar manner, if commercial banks boost their reserves in the CB, liabilities of the CB would also increase. In this case, the CB should decrease its other liabilities by the same amount or raise its assets.

In Overdraft economies, commercial banks do not hold government bonds. Commercial banks obtain their reserves by borrowing from the CB. Subsequently, in these economies, a reserve increase arising from the rise in bank loans and deposits is made with a necessary and voluntary payment from the CB to commercial banks.

[10] Marc Lavoie claim that the choice between the divisior and the multiplier is a function of the opinions one has about general equilibrium. If one believes that money is created as the byproduct of production processes, that is, as an outcome of the flow of credit generated by commercial banks for entrepreneurs, then the multiplier is not acceptable since money is rendered a sort of residue, that is incompatible with general equilibrium theorizing (Lavoie, 1984: 779).

[11] A similar distinction can be found in Nurkse's study on the international monetary system (see. Nurkse, 1944: 70).

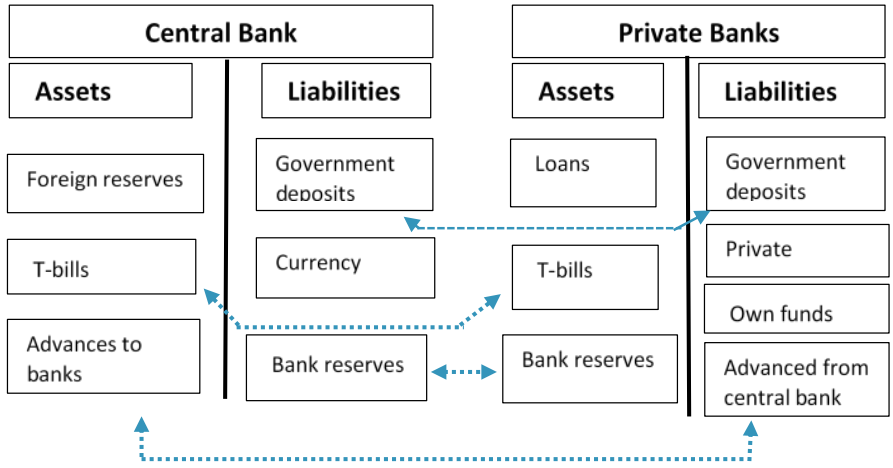

Figure 1: Simplified Balance Sheets: The Central Bank and the Banking System

Source: Lavoie, 2006: 62

In Asset-based Economies, commercial banks either do not borrow from the CB at all or borrow very little. So is the explanation about the endogeneity of the money supply described above valid in this system? The answer can be given in Figure 1. Let us first assume that commercial banks directly sell treasury bills to the CB to obtain reserves. This situation is called "open-market operations". As of today, these transactions are in the form of either repo or reverse repo. Otherwise, the CB does not buy government bonds directly.The second answer is that the CB may decide to shift the state's bank deposits between the CB and commercial banks. Once the CB decides to transfer state deposits to commercial banks, this is like opening a line of credit to the banks. In fact, the CB creates reserves.

The CB increasingly uses this practice. For example, when the state spends, it withdraws money from its account at the CB and transfers *B* to the recipients' accounts at commercial banks. (transfers *B* to the banks). Reserves are created in this process. The exact opposite happens whenever households use bank cheques to pay their taxes. In this case, the money balances are transferred from the bank accounts of the households to the state's deposit account at the CB. Thus, bank reserves are reduced. In both cases, the CB neutralizes the change in reserves with these opposite deposit movements. *B* consists of money supplied by the CB, including deposits held by commercial banks at the CB. PKs such as Kaldor (1982), Moore (1988), and Rochon (1999) are referred to as "horizontalists", and according to them, the CB is ready to supply the *B* that the commercial banking system demands. *B* is entirely endogenous. The money withdrawn from consumers' ATMs or bank accounts cannot be fully foreseen. However, sudden demand is an exception to the rule. Therefore, focusing on the endogeneity of *B* means focusing on reserves.

III. ENDOGENEITY OF MONEY SUPPLY, BALANCE OF PAYMENTS AND COMPENSATION THESIS IN OPEN ECONOMIES

Upon including the foreign currency asset, which is one of the assets of the CB in open economies, the distinction between the orthodox view and the Post Keynesian view regarding the endogeneity of money persists. As is known, the orthodox theory suggests that the money supply is endogenous only under certain conditions, even in an open economy. When firms make a sale abroad, they convert the foreign currency they charge for this sale into national currency through domestic banks. Foreign currency reserves increase in banks, this increase takes place in the CB account. In this case, countries have the balance of payments surplus (via net capital inflow or trade surplus),

increasing the national money supply that can lead to excessive inflation. Countries with trade deficits would encounter a reduction in the money supply.

Despite the presence of many different models trying to explicate the international financial interactions and exchange rates in traditional open economies, the Mundell-Fleming model is still one of the most basic models explaining the "international monetary economy" all over the world. Studies developed by Robert Mundell (1963) and Marcus Fleming (1962) addressing the IS/LM analyses in an open economy keep the LM curve the same as it is in the closed economy model, with one major exception[12]. This major exception is pertinent to the effect of the surplus or deficit in the balance of payments of the central banks on the national currency under the *fixed exchange rate regimes*. Unless central banks choose to sterilize this effect, the amount of domestic money supply would change due to the balance of payments deficit or surplus. For example, in case of a surplus, households would sell foreign currency to the authorities at a fixed exchange rate in exchange for the national currency. This view tells us that foreign currency obtained through the balance of payments would enter commercial bank accounts and result in an increase in *B*. Because banks would convert this foreign currency into national currency. This would ensure that banks give foreign currency to the CB and receive national currency in return. Bank reserves will increase, this increase will increase credits and money supply will rise with the money multiplier effect. Consequently, the money supply will rise endogenously, as the foreign currency inflow causes a rise in the national money supply under the fixed exchange rate regime. In the *Mundell-Fleming model*, the endogeneity of the money supply is dependent on these special conditions[13].

Upon arguing on the probability of economic policy under two basic exchange rate systems, the model is known for its compatibility with each system. Under the assumption of perfect capital mobility and perfect asset substitution, fiscal policy is effective only in the fixed exchange rate system, whereas monetary policy is effective only in the flexible exchange rate system. As is known, in the fixed exchange rate system, the balance of payments surplus causes an increase in the foreign reserves of the CB. Subsequently, those who utilize Mundell's model assert that any surplus position is associated with an endogenous rise in the monetary base and thus, the money supply. This would cause prices to rise and real interest rates to fall, eliminating the external surplus[14] (Lavoie & Rodríguez, 2006: 2). Although more sophisticated open economy models such as portfolio approach are discussed in the literature, the positive connection between surpluses and rise in the money base and money supply is considered sufficient for explaining this situation in the MFM. The endogeneity approach of the money supply in the model differs from the endogeneity of money in PKs. Because there is no "credit demand" coming from the economic actors. This monetary increase is independent of demand.

Post-Keynesian view does not accept the notion that money supply is a function of the surplus of the balance of payments throughout the creation of money in an open economy (Le Bourva, 1962: 48, as cited in Lavoie, 1992: 190). This situation is explained by the French authors with the "compensation thesis" [15]. The compensation approach is the open-economy version of the "reflux principle", first coined by Thomas Tooke and the Banking School, as it applies to the CB. The modern version of the Banking School is mentioned in the studies of Post Keynesians under the

[12] The Mundell-Fleming model, also known as the "IS-LM-BP" model, is an open economic model first coined by Robert Mundell and Marcus Fleming. Unlike the closed economy IS-LM model, which concentrastes merely on the association between interest rate and output, the Mundell-Fleming model describes the short-term association of an economy under nominal exchange rate, interest rate and output under certain assumptions. In addition to the equilibrium in the goods and financial markets, the model includes a balance of payments analysis (Mundell, 1963; Fleming, 1962).

[13] Nurkse (1944: 88) examined the various inflows or outflows of gold and foreign exchange reserves and adopted the compensation principle as a phenomenon that manages the central banks in an open economy. Nurkse interpreted the description of the "*rules of the game*" as described in Mundell's modern IS-LM-BP models - used to define the accepted rules of the international gold standard before the 1914s - as an erroneous depiction of reality.

[14] This process is an indirect version of the specie-flow mechanism (For detailed information, see. Tekgül, Y. 2019: 52-58).

[15] The compensation thesis is sometimes referred to as the "Banque de France view". Statistics indicate that this increase in the gold reserves of Banque de France is accompanied by domestic credits to the economy, when France has external surpluses and thus accumulates gold reserves. As a result, despite wide fluctuations in gold reserves, changes in the money base and money supply remained rather limited. Here is an example: When France had to transfer one billion francs to Germany in 1870 in form of war compensation, the opposite was the case when everyone expected France to fall into stagnation due to reduced liquidity. As France entered a period of prosperity, Banque de France compensated its gold outflow to banks with a significant advance (Denizet,1969 as cited in Lavoie & Rodríguez, 2006: 5).

endogenous money theory. This view suggests that fluctuations in the foreign exchange reserves of the CB would be compensated by the opposite movements in other items of the CB's balance sheet. In the monetary production economy, banks are ready to extend credit to all who request as long as they are reliable. Banks do not need to have much reserve in advance to meet this credit demand.

Foreign currencies are to be used in an 'overdraft system' to pay the bank's existing debt to the CB. Foreign assets in the CB's balance sheet would increase, this would affect lending to actors abroad, and there would be an offsetting decrease in cash to commercial banks. Consequently, there would be no change in either *reserves* or *money stock*.

A similar mechanism would apply to 'assed-based economies'. The CB would initiate the compensation effect which can be called the endogenous "sterilization" effect. Here, sterilization is to be activated automatically. Banks would be very pleased with this, whereas the CB absorbs these excess reserves. The CB would offer banks a treasury bill or repo to the banks (those with high returns will be selected) in exchange for the reserves. The CB may also decide to decrease the state's deposits at the banks. In either method, all reserves would be absorbed in the end of the day (Lavoie, 2006: 63-64).

According to the Post-Keynesian view, this effect of excess balance in the balance of payments on money supply causes the CB to lose control over the money supply in an open economy. This approach, called *the compensation thesis*, is a variant of the efflux/reflux principle. The reflux principle applies, above all, to companies that are systematically indebted to banks or other financial institutions, but it can also be used for households and banking institutions, and surplus or deficit in the balance of payments are offset within these relationships[16] (Lavoie, 2000: 1). When firms receive payments or earn revenues in foreign capital, they convert it into the national currency and keep it as a deposit in the bank. These deposits are often used to finance previous debts of firms. Thus, the monetary expansion resulting from the surplus of the balance of payments is eliminated by a counter-action caused by the firms paying their debts. These *efflux/reflux* principles persist at a later stage. When firms deposit their foreign currency in the bank, an additional foreign exchange reserve is created in banks, and this time, these foreign exchange reserves are transferred from banks to the CB and converted into the national currency.

This additional money can be used to reduce banks' previous debts to the CB or to finance new credit needs. Therefore, the increase in the monetary base resulting from the surplus in the balance of payments would be compensated by the decrease in the domestic monetary base. If a monetary flow commences a process in the opposite direction of this flow, there is a "partial compensation" process (Goodhart, 1984: 192).

Table 2: Compensation Thesis

Assets	***Commercial banks***	***Liabilities***
Consolidated loans to firms Treasury bills Reserves **(R)**		Deposits Borrowing from the central bank **(CBL_b)**
Assets	***Central bank***	***Liabilities***
Credit to foreigners **(CBL_f)** Domestic credit --Treasury bills **(CBL_g)** --Loans to banks **(CBL_b)**		Notes outstanding Deposits of banks ***R***

Source: Lavoie, 1992: 190

Table 2. It helps us understand the compensation thesis. Let us assume that commercial banks sell the foreign currency initially transferred to them to the CB. In a perfect *overdraft system*, this means that some of the commercial banks' debts to the CB are reduced and are shown in the table (loans to banks) as CBL_b[17]. This means a rise in foreign assets in the CB's balance sheet and also

[16] Nurkse (1944), Goodhart (1984: 192), Lavoie (1992: 189-192), Arestis & Eichner (1988), and Lavoie & Wang (2012) elaborated the important role of reflux principle within the framework of an open economy.

[17] It is an automatic credit type that allows bank customers to withdraw more money from their accounts. Firms or households exceed their credit limits in commercial banks when they need new ways to finance. In an "overdraft economy", commercial banks need cash advance

shown in the table as CBL_f. In fact, this increase in foreign assets is offset by the decrease in domestic assets that the CB has provided to commercial banks and stems from the decrease in its outstanding credits. In other words, when the central bank tries to create reserves that commercial banks do not need, these available reserves are utilized to pay previous debts instead of creating new monetary liquidity (Lavoie, 1992: 191).

In an imperfect overdraft system where banks hold government bonds and do not borrow money from money authorities, banks would try to get rid of their excess reserves by buying treasury bills. Assuming that banks are at the limit of lending, one may think that everyone who is in need of borrowing has been borrowed but will not enter a new lending business to their customers who were not satisfied before. If the CB responds to the downward pressure on government bond prices, it would sell the bonds that commercial banks want to buy. As in the perfect overdraft system, the increase in external credits on the asset side of the CB's balance sheet will be compensated by the decrease in domestic credits. Treasury bills denoted by *CBLg* in possession of the CB will decrease. The mechanism described here is similar to the "sterilization" process, but unlike that, the CB does not attempt to sell bonds here. Therefore, sterilization becomes *endogenous* due to the functioning of the compensation system. The endogeneity of the money supply and the compensation thesis can be summarized as follows in the case of foreign currency inflows to the country (Lavoie, 1992: 191):

i. Those who do not make use of foreign currency financially can use it to reduce their debts to commercial banks,

ii. Banks can utilize this additional resource created in the monetary base to reduce their debts to the CB, or;

iii. In a fast-growing economy, they use it to reduce the growth rate of their debts to the CB,

iv. Banks can utilize foreign resources in the monetary base to reduce the number of treasury bills they sell to the CB to obtain compulsory reserves, or;

v. If the economy is expanding more slowly than foreign currency inflows, banks provide a secondary reserve accumulation by selling treasury bills.

In the case of foreign currency output, the compensation thesis and the endogeneous sterilization situation would be reversed. While banks increase the borrowing rate from the CB, the CB must increase the liquidity rate it provides to the banking system. It should also be noted that when currency flows are related to "trade" rather than autonomous capital flows, there is an additional element of the endogeneity of the money supply. The *trade surplus* creates an additional economic activity, which would lead to an additional money requirement - provided by the CB without the need for direct intervention. The *trade deficit,* on the other hand, slows down the economy and reduces the need for money, which would partially result in a reduction in external credits in the assets part of the balance sheet of the CB.

From this discussion of the compensation thesis, two important results emerge for the fixed exchange rate. The *first* is that, as long as it is recognized that money supply is demand-determined and credit-driven as stated by Arestis and Eichner (1988: 1015), the exchange rate regime would certainly have no significance in determining money and credit. Because the flexible exchange rate does not render the monetary policy any more independent of the fixed exchange rate regime causing an international discomfort. *Secondly*, even if it is believed that excessive monetary growth is the source of permissible inflation, countries with a trade surplus or capital inflow would not be prone to inflation pressure in the future since there is no endogenous supply-based money creation as in the monetarist view. Therefore, in case of a trade deficit, there is no need to implement a continuous contractionary monetary policy to encourage capital flows to offset the deficit, or in case of a trade surplus, to avoid caused inflation.

from the CB to meet this credit demand. Therefore, in this system, there is a two-layered borrowing; firms from commercial banks and commercial banks from the CB.

In the PK system, money is not independent of the need of the economy. Therefore, it is not the subjective attitude of the CB that determines the money supply, but the money holding preferences of individuals and their borrowings from banks.

In this framework, the causal relationship between credits and deposits is not from *deposits to credits*, but from *credits to deposits* as suggested by neoclassicals. Banks do not need any previously acquired deposits to increase their credits. Credits are independent of gold or reserve accumulation (hence deposits). Banks extend the requested credit based on suitable collateral and reliability.

As a result, the Post Keynesian approach to monetary theory has certain features that sharply distinguish it from the dominant economic views (Arestis & Eichner, 1988: 1017-1018):

i. The money supply is determined based on credit and demand. Therefore, whatever determines the loan is the ultimate determinant of the money stock as well. The money is created not by the monetary authorities, but by the loans provided in the bank system. Credit money is a requirement of the economic system.

ii. Commercial banks cannot be restricted according to their reserves. The majority of commercial banks are indebted to their CB indefinitely. When commercial banks create credit money, they can get their reserve needs at the discount rate determined by the CB. For banks, the increase in borrowing costs is directly passed over to their customers. Because the customers are insensitive to changes in interest rates. The endogeneity of the money supply means that there would never be an excess money supply, and if there is an excess, it would be used in the payment of bank debt.

iii. By courtesy of financial innovations, commercial banks can meet their demands for loans by applying to the CB less frequently. On the other hand, the expansion of bank credits has been effective in the development of commercial banks.

iv. While the money supply is not under the control of monetary authorities, the interest rates are under the control of the CB. Because the CB can control market interest rates with open market transactions or using discount rates. However, while doing this, it has to take into account variables such as foreign interest rates, foreign reserves, and exchange rates.

v. The final feature involves the fact that the current exchange rate is no longer important after accepting the argument that the money supply is based on credit and demand. This is a sharp contradiction to the dominant economic view that "money supply is fully controlled by money authorities in the flexible exchange rate system". Because this control is somehow ceased to exist under a flexible exchange rate regime.

CONCLUSION

The dominant economic view asserts that the money supply is determined *endogenously* by the central bank. This approach considers the money supply only as a *medium of exchange* being an extension of the *metallist view* and is linked to individual preferences, like any good, as a given variable in the general equilibrium system. Therefore, as a *stock* variable, money is evaluated independently of the institutional structure, investment decisions, and production. Consequently, the determination of the monetary size by the central banks makes it possible to consider it as a policy variable in order to achieve today's inflation target or financial stability. The assumption of *endogeneity* of money supply is also reflected in the *balance of payments* of an economy in relation to the outside world. According to the Mundell-Fleming Model (MFM) in the international economics literature, a *surplus* or *deficit* in the balance of payments does not have any impact on national currency supply in a country implementing a flexible exchange rate system. On the other hand, if the country has adopted the fixed exchange rate system and only in this case, the money supply becomes *endogenous* to keep the exchange rate unchanged. For example, the foreign currency obtained in case of a surplus in the balance of payments can be sold to the central bank through the

banks, and the central bank offers national currency in exchange for the foreign currency through *non-sterilized* intervention.

On the other hand, the *Cartalist view* adopted by Post Keynesians regards the money supply as an *endogenous* variable. This view attributes an increase in the amount of money to *credit demand* stemming from investment and production decisions. The direction of causality is from the monetary base (*B*) to the monetary magnitude (*M*). However, the Orthodox approach which represents the metallist view claims that the causal relationship is from (*M*) to (*B*). Post Keynesians, who represent the heterodox tradition, follow Innes, Knapp, and Keynes, and evaluate the money object within an institutional structure pioneered by the state (central bank). In this framework, the money object is regarded as a mandatory instrument for fulfilling obligations. Furthermore, money plays the role of a *social unit of account* linked to institutional structures (firm-household-banks-central bank). Therefore, money is neither *exogenous* as the MFM predicts within the flexible exchange rate system, nor is it an *endogenous variable* dependent on the exchange rate as assumed in the fixed exchange rate system. In this context, it evaluates the money supply independently of exchange rate systems and surplus or deficit in the balance of payments.

This approach divides economies into two groups in financial terms as *overdraft* and *asset-based* economies. Overdraft economies represent continental European and Asian economies, whereas asset-based economies apply to Anglo-Saxon economies. In both economies, balance sheets of banks and the central bank are mutually offset by opposite movements in assets and liabilities. The international dimension of this system is explained by the *compensation thesis* including the balance of payments and the *efflux/reflux* principle. This explanation reveals how a surplus or deficit in the balance of payments is absorbed without creating a change in the amount of national currency in the system.

Etik Beyanı : *Bu çalışmanın tüm hazırlanma süreçlerinde etik kurallara uyulduğunu yazar olarak beyan ederim. Aksi bir durumun tespiti halinde ÖHÜİİBF Dergisinin hiçbir sorumluluğu olmadığını ve tüm sorumluluğun çalışmanın yazarına ait olduğunu bildiririm.*

Teşekkür : *Yayın sürecinde makaleme eleştirileri ile katkda bulunan hakemler ve editöre aynı zamanda yazım aşamasında çalışmamı titizlikle okuyarak katkı sağlayan Prof.Dr.M.Fatih Cin'e teşekkürlerimi bir borç bilirim.*

Ethics Statement : *I declare that, as an author, ethical rules are followed in all preparation processes of this study. In the event of a contrary situation, I declare that ÖHÜİİBF journal has no responsibility and all responsibility belongs to the author of the study.*

Acknowledgement: *I would like to thank the referees and editor who contributed to my article with his criticism during the publication process as well as to Prof.Dr.M.Fatih Cin, who meticulously read and contributed to my article during the writing phase.*

REFERENCES

Arestis P. and Eichner A.S. (1988). The Post Keynesian and Institutionalist theory of money and credit. *Journal of Economic Issues*, *22*(4), 1003−1021.

Davidson, P. (1982). *International money and the real world*. Macmillan. London.

Eichner, A. (1976). *The megacorps and oligopoly: micro foundations of macro dynamics.* Cambridge University Press, Cambridge.

Eichner, A. and Kregel, J.A (1975). An essay on Post Keynesian theory: A new paradigm in economics. *Journal of Economic Literature*, *13* (4).

Fleming, M. (1962). Domestic financial policies under fixed and under floating exchange rates. *IMF Staff Papers*, *9* (3), 369−380.

Friedman, M., & Anna, S. (1960). *A monetary history of the United States, 1867-1960.* Princeton, NJ: Princeton University Press.

Goodhart, C.A.E. (1984). *Monetary Theory and practice: The UK experience.* London: Macmillan.

Goodhart, C.A.E (1998). The two concepts of money: implications for the analysis of optimal currency areas. *European Journal of Political Economy, 14*, 407−432.

Hicks, J. (1974). *The crisis in Keynesian Economics*. Oxford: Basil Blackwell.

Innes, A. M. (1913). What is money. *Banking Law Journal*, May: 377−408.

Keynes, J.M. [1930] (1976). *A treatise on money*. vol. I and II, New York: Harcourt, Brace & Company.

Lavoie, M. (1984). The endogenous flow of credit and the Post Keynesian Theory of Money. *Journal of Economic Issues, 18* (September), 771−97.

Lavoie, M. (1992). *Foundations of Post Keynesian economic analysis*. Massachusetts USA: Edward Elgar Publishing.

Lavoie, M. (2000). The reflux mechanism in the open economy. In *Credit, effective demand and the open economy: essays in the horizontalist tradition*, edt. Louis-Philippe Rochon & Matias Vernengo, Massachusetts USA: Edward Elgar.

Lavoie, M. (2006). *Introduction to Post Keynesian Economics*.New York: Palgrave Macmillan.

Lavoie, M., & G. Rodríguez (2006). The 'compensation' thesis, as exemplified by the case of the Chinese central bank. *Miemeo*, Ottawa: University of Ottawa.

Lavoie, M., & Wang, P. (2012). The 'compensation' thesis, as exemplified by the case of the Chinese central bank. *International Review of Applied Economics*, *26* (3), May, 287−302.

Marx, K. (1970). *A contribution to the critique of political economy*. New York: International Publishers.

Minsky, H. (1986). *Stabilizing an unstable economy*. London: Yale University.

Moore, B. (1986). How credit the drives money supply: The significance of institutional developments. *Journal of Economic Issues*, June.

Mundell, R. (1963). Capital mobility and stabilization policy under fixed and flexible exchange rates. *The Canadian Journal of Economics and Political Science*, *29* (4), 475−485.

Nurkse, R. (1944). *International currency experience: lessons of the Inter-War period*. League of nations (Geneva).

Quiggin, A. H. (1949). *A survey of primitive money: The beginnings of currency*. London: Methuen.

Rochon, L.P. (2010). Alfred Eichner, Post Keynesians, and Money's endogeneity: filling in the horizontalist black box. In *Money and macrodynamics, Alfred Eichner and Post Keynesian economics,* (Ed.) M. Lavoie, L.P. Rochon, M. Seccareccia, M.E. Sharpe Inc, Armond, New York.

Shaikh, A. (2016). *Capitalism*. New York, USA: Oxford University Press.

Snowdon, B., & Howard, V. (2005). *Modern macroeconomics*. UK: Edward Elgar Publishing.

Tekgül, Y. (2019). *Hume'un iktisat anlayışı ve çağdaş iktisada yansımaları*. Ankara: Nobel Yayınevi.

Wray L.R. (2003). The Neo-Cartalist approach to money. In Stephanie A.Bell and Edward J.Nell, *The state, the market, and the Euro: Cartalism vs. Metallism in the Theory of Money*, 89−110, Cheltenham, UK: Edward Elgar Publishing.

Wray L.R. (2014). From the state theory of money to modern money theory: an alternative to economic orthodoxy. *Levy Economics of Bard College*, Working Paper.