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With or Without Usura? Monetary Policy and Market Creation*

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Abstract. Some selected examples from trade history and even more the rise of superstar firms in the early twenty first century make visible the eminence of monetary delocalization in the process of market creation. Market creation is highly concentrated in space. As a result, inside and outside money have evolved as complements. Extensive market creation today has become a main source of excess reserves in the banking sector. Monetary delocalization forces the process of market completeness to demand more safe assets of good quality, driving up their price. A monetary authority facing network collateral channel effects of superstar firms would have to rely on increased volumes of safe assets, to be deployed in case a lack of complete markets interrupts inside-outside money flows. Higher interest rates would make market completion more costly, slowing it down.

Keywords: usura · monetary policy · excess reserves · money delocalization · market incompleteness · inside-outside money · superstar firms · Ming Dynasty trade · Medici banks · Canton trade · Reichsbank during war · Romania

1 Introduction

If “usura” has built Renaissance, Renaissance has built modern banking instruments - the letter of exchange, discretionary deposit, debt trading - according to [23]. Such instruments created a need for *reputation*. Reputation was valued not only in Florence but also in Antwerp or Augsburg where trade centers emerged in Europe, as highlighted in [10]. Since 2022 a so-called *normalization* of monetary policy (increased interest rates and quantitative tightening) has stated as goal price stability. Positive interest rates would have innervated a Renaissance Church where money with usury is not a metal for means of exchange. Its purpose is in fact to *speed up trade*, see [23]. As a result money could also multiply or hide - a capital sin. The Church had mastered an effective instrument to deter usury: deny burial to usurers. The central banker of today would have had to brave such an ending when using usury while striving for price stability. The same Church in need of funding wars would relent and allow a return of usury at

* The views are those of the author only and do not involve National Bank of Romania

death. As death was a long-run outcome and demands were pressing, in Renaissance Florence the Medici proposed instead to transform all usury into a *bond* to fund Church art in return for a papal bull clearing all banker sins. In the end, “usura” earned and hidden along bank channels across Medieval Europe came to light as money for major cultural demands of the Church, see [23]. Today this would be called a public good. The Church cultural wealth has created modern art and tourism markets in Europe. It is an example of how a public good paid for centuries ago forms prices and increases profits centuries later.

One has to ask if recent positive rates advanced by central bankers could become grounds for a banker sin. The objective of this essay is to provide a positive answer to this question. In the end, one has to accept that a solution cannot be far away from the one proposed by the Medici: in the intense process of market creation ignited by the rise of superstar firms (a term coined by [3]) in the beginning of the twenty first century, the best instrument of monetary policy has become a bond to fund public goods that increase productivity of generations to come (creators of future markets). This bond is valuable because it is of good quality and can be easily monetized for market completeness purposes. Charging “usura” would decrease its price, increasing the costs of market completion.

Market creation generates also market incompleteness. The relationship between market incompleteness and price formation has been modeled theoretically in the work of [4]. Indeterminacy of equilibria generates price indeterminacy. In [11] incompleteness arrives because markets open before agents are born. One can rely on an overlapping generation model to model multiple equilibria (new markets) that increase productivity of later generations as in [14]. These equilibria are unstable, therefore a policy maker can issue a special bond to increase labor productivity (funding health care and education). This bond can be used to stabilize future forming equilibria.

To understand the role of monetary policy with market incompleteness, one should start from some trade history examples of market formation (defined as trade-inducing production process) and the monies developed in this undertaking. While in the beginning market formation was inflationary, later on due to the creation of new types of monies it turned non-inflationary. While in the beginning it relied on precious metals bonds, it evolved to rely on paper bonds and reputation. This short history shows that market creation has always been accompanied by monetary delocalization, extensively described in [19]. The author distinguishes between large currency and credit for distant exchange and small currency and credit for local exchange. Unlike him, when distant space is attached to large currency, this paper makes a case that it is acting in fact as a bond (inside money) once it supports market creation/demise of a different space. This is also a departure from the definition of inside money as given in [5].

This essay concentrates after that on how the recent rise of superstar firms has accentuated the process of monetary delocalization that accompanies international trade. One consequence is increased regional concentration of market formation. On the other hand, their involvement in market completeness allows them to compete with banks in the process of inside money creation. A result is

the current bank excess reserves. Excess reserves make the customary one-asset monetary policy of central banks irrelevant.

Chapter four concentrates on how to conduct monetary policy during intense market creation and completeness (defined as price formation and increased wealth portability) using complementary inside and outside money. Included are also some stylized facts regarding challenges facing a monetary authority at the periphery of the supply-chain of superstar firms (Romania). The inability of a monetary authority at the center to increase reserves and complete markets, would hinder the ability of a monetary authority at the periphery to intervene in case of disequilibria. Chapter five, the last one, concludes.

2 Some Market Formation Examples: Bonding Takes Off

The following trade history examples serve as basis for describing the formation of new markets (new equilibria) as a first step in understanding monetary policy when facing market formation. History renders justice to economists such as [13] where markets create money and also as [1] where an increase in money supply can create markets. One should start from the definition of inside money. At first this is defined as in [5] (p. 176): “loans are private securities the stock of which we call *inside money or credit*”. When distinguishing between inside and outside money [26] modeled equilibria where inside money and currency (outside money, fiat money) are perfect substitutes. According to him in such cases only a balance sheet consolidation of monetary authority is relevant (similar to quantitative tightening). “What counts is asset creation and destruction, not asset exchanges, or in other words outside money, not inside money.” This equilibrium, called *excess reserve equilibrium*, occurs because there is only one asset. In fact monetary policy becomes irrelevant, as per [5] (p.383). In the following examples instead various forms of inside money (bonds) emerge. Market creation turns deflationary due to *complementarity* between these bonds and between inside and outside money.

2.1 The Ming Dynasty: Trade Replaces Taxation

Early Ming Dynasty of 14th century had restrictions on mobility to coerce self-sufficiency on villages. Inflation, measured in rice prices, remained a main concern in a closed economy. [6] documents how the emperor resorted to *rules and punishments* on sellers to ensure “fair” prices to fight inflation. Against this hidden form of price control, some local officials released rice from the reserve whenever prices increased too “much”. One can think of it as inflation targeting with a rather subjective scale. In fact rice acted as a commodity bond. When its price was high, it was sold to fight inflation. Officials also encouraged the rich to sell rice at prices below market values, as a modern wealth tax would do.

Taxation spread slowly to reduce poverty and inequality, the usual desideratum. Taxes, first al corvee, build river canals to move armies, improve communication, so that in the end one can tax more. Taxation relied on villages acting

as *closed economies*. A lack of mobility generated indeed a surplus and this went into trade. The Confucian model of Chinese society classified the gentry at the top and merchants at the bottom - trade incentives were a result of “greed,” after all. Taxation was heavier on lower classes. With merchants classified as underclass, trade developed as contraband initially (a peculiar inside market).

Trade Fosters Trust and Eases Taxation According to [6] exchange became *faster* with trade. Silver acted as a *market-building bond*, as inside money. Faster exchanges required an *expansion* in silver. Demand for inside money increased. Trade increased also overall mobility. Wealth became more *portable*. That put a strain on the tenant-landlord relationship based on a long-run personal bond where villages offer landlords winter “gifts” (“usura”) while the rich offer help based on their wealth (monetary or not).

The circulation of silver concentrated in some parts of China involved in trade, while many villages still used copper. Money supply was “incomplete.” To control the increased demand for silver, the emperor decided to further ban silver mining - a quantitative tightening. Transaction costs increased. Inflation went up. Europeans stepped in. Europeans had only silver to offer, cheaply produced in their new colonies of South America. This was an increase in money supply - going against the quantitative tightening of the emperor (rendering monetary policy irrelevant). Cheap money increased production of luxury goods in China, expanding markets. Europeans accumulated capital, while local merchants accumulated wealth. Some Confucians worried, while some argued that silver was not wealth (no store of value); its role was to *concentrate* and *direct resources to create markets*. Many late Ming gentry started to donate money for monasteries or schools. In turn they would get the right to spend for their own pleasure - a way of being guilt-free for what today a central bank would define as excess demand: pay for a public good. [6] documents how in the 16th century the scholar Zhang Han concludes that commerce performs a useful function for society. If gathered through honest means, profit and interest on loans were moral, he concedes. Merchants are elevated in status. Taxes on merchants are cut by 20%, increasing government revenues by 50%.

Zhang Han also understood that a commercial economy needs *trust*, as trade brought together strangers for a short period of time. Market creation relied therefore on silver as trust. For the first time silver acted as an *inside bond that bought trust and directed resources to markets*. It also expanded outside money, as increased consumption demanded more copper (seen in many religious copper statues being melted) and silver. Silver acted as bond and cash (perfect substitution). This type of market creation based on scarce silver as bond and currency was costly (therefore inflationary), as 20-30% “usura” on loans was the norm. Therefore even in 16th century much of rural China remained untouched by commerce. While the rich in the cities used silver as currency, the poor in the villages still used copper and rice - a measurement of a high degree of market incompleteness.

2.2 The Medici Family: A Need for an Inside Unit of Account

While in Ming Dynasty China trade brought to life markets based on silver and trust, at the same time in Europe all money went to Rome, as tribute payment of Christians to the Church. The Church acted as a modern federal government whose policy enforcing mechanism was *excommunication*. Sending cash by horseback was dangerous. To avoid such risk the Medici Family set up branches in Europe, see [23]. One could buy a *letter of credit* in Cologne and cash it then in Rome. According to this author, for the system to work, Rome branches had to find increased cash sources. The flows went the other way, too. As a new pope could confiscate land, rich Church clergy secretly deposited savings with the bank, to be withdrawn in a foreign city against a *letter of credit*. With no usury allowed, the bank offered a “gift” at the end of the year; its payment and amount often remaining uncertain. Church *wealth became also more portable*.

Letters of Credit Force Banks to Create Supply Chains Italy was exporting more than importing and trade imbalance with Northern States increased. More cash had to be sent back to Italy. To go around this issue and pressed by needs of *timely cashing letters of credit*, the Medici went into buying local raw materials with money from papal taxes, adding value locally, and selling final goods in Rome in return for cash. Banks became heavily involved in developing foreign markets to make *wealth portable*. *Market completeness required an ability to monetize the letter of credit*, similar to a quantitative easing today expanding money supply in a different space than in the original one. The Church demanded also big and erratic loans from the bank to finance her wars. As the bank could not use usury, the alternative was to sell goods at higher prices to the Church, to the level of interest it considered necessary. This practice of *hidden “usura” and timely cashing letters of credit was in fact inflationary*. War demands of the Church destabilized the already thin and rather one-sided money flows. The Medici did not have an instrument to allow for a temporary expansion or contraction of outside money supply. The letter of credit was an inside bond across space. Unlike Ming China that relied on silver as bond and for trust, this was a bond on *paper* build on *reputation*.

International Trade Creates a Finite Gold Bond and an Expandable Unit of Account Another result of international trade in the Medici times according to [23] was the difference between monies in local markets and those used for international trade. This was not unlike China where villages used copper and were cut off from the flows of trade in silver-based cities. In Italy local markets used small silver currencies, a sign of increased market completeness. They would not add up to make a golden florin used only for international trade. The law separated these currencies and only a bank could exchange them. When profits in foreign markets were down, the silver content of money in which wages were paid would be reduced. One would use fewer florins to issue silver coins, reducing costs by deflating wages - another example of quantitative tightening with a *decrease in money supply measured in florins and silver*. Sometimes

money supply decreased further and wages were paid in kind. As a result, additional exchange markets developed in copper - needed as unit of account and at the same time an expression of increased market incompleteness.

To keep track of production costs, to measure “usura,” and because the florin was worth a lot and could not be broken into smaller coins, bankers invented a new unit of account: lira a fiorino, which was 20/29 of a florin. This was an *imaginary inside currency*. This revealed the need for different monies during market creation: a limited golden florin as *scarce portable bond for wealth creation and portability* and an *expandable unit of account* to assess the quantity of *outside money needed to complete a future market*.

Market creation was vulnerable to imbalances between monies and local profits from manufacturing. The Florin was an *inside bond* against which *outside money* (silver coins) would be issued. When inside markets expanded they demanded more outside money. Imbalances between *inside money* (letter of credit) and *outside money* (cash) were building up due to uncertainty in international markets. “Usura” had to be accounted for and transferred into prices. Market creation was inflationary, demanding even more silver.

The main imbalance was due to the Church. It provided 50% of bank profits. The bank collected pope’s taxes, held his cash, paid his expenditures. In exchange for this capital, the bank was forced to provide liquidity to pope’s wars and even more if wars were lost. A *an expandable supply of outside cash* was essential as long as wealth on the move. In the end the Florence branch of Medici Bank was set to lend capital for political purposes, with no hope of recovering capital. That in turn *expanded debt (inside money)*, stimulating *debt trading* based on *reputation* to secure cash. When debt rose to levels above liquidity levels that the bank could secure (outside money limited by silver as portable device), a lack of trust emerged. That brought down the bank.

2.3 Canton Trade: The Rise of Multiple Complementary Bonds

Triggered by European demand, China expanded its supply of tea and porcelain every ten years from 1700 to 1842. One important instrument in this market formation was opium contraband. To support its expansion this *inside market* relied on innovations in monies as documented in [9].

Silver as Money Supply from a Distance Silver was key currency and China relied heavily on European silver shipments. Silver acted as an inside bond because Europeans also lacked silver; it was scarce, therefore a good instrument of portable wealth. There was no way to know how many ships with silver would come every year and wars in Europe would often deprive China of silver, see [9]. Europe acted as restrictive monetary authority from a distance, just like international trade in supplying florins in Renaissance Florence.

Tea merchants had to pay for production in advance, in silver. It would take them more than six months to recover the money; the market remained “incomplete” for six months making *profits low*. Chinese merchants acted as a

bank that providing credit or borrowing from foreigners. Foreigners were like discretionary deposits of the Church clergy in Medici times for which the bank paid “usura” (a “gift”) as taking loans from foreigners was prohibited by law.

Tea trade was *slow*. Markets could not expand because money was created in another space as measured by the amount of silver brought in by foreign merchants. Market creation relied on a type of inside money *unable to complete the market* for most part of the year (scarce silver).

Opium as Inside Bond of Market Creation A war in Europe in 1760s depleted silver, giving an impetus to opium contraband. Opium could be sold within days of its purchase, reducing the need to borrow from foreign merchants. Interest rate on silver *decreased*. Opium was ideal for the formation of a new tea market: very liquid (making exchanges fast), easy to store (portable wealth), and easy to divide into smaller amounts (with an expandable unit of account). It could increase capital reserves (wealth creation). The standardization of smuggling (in terms of routes, bribes - transaction costs) in *cooperation with Chinese officials* allowed for an opium market expansion. Its saturation led to an expansion of warehousing to keep prices constant. Opium acted as a bond that *decreased usury*. There were two caveats. First, this inside bond had to be redeemed for outside money (it was illegal). Second, it induced negative spillover effects on agent productivity in the long run.

Rice as Inside Bond of Market Completeness For opium ships to remain competitive they had to procure a back haul. For that they used rice with no import duties. After rice was secretly loaded instead of opium, vessels would overload tea, silk, and porcelain. Then the excess cargo would be transferred to smaller vessels. Because the imports of rice would not balance exports of goods (taxes were set on exchanged volumes), there were no export taxes. Vessels would go then to Singapore and exchange goods for rice, and those of opium would go to India and exchange goods for opium.

There were in fact three bonds issued in *three different distant spaces* that build Canton trade. India issued opium, acting as inside bond to increase liquidity and reduce tea market costs in China. Singapore issued rice as an inside bond to form a tea price, calculate profits and increase outside money. As a result, the same volume of silver issued in Europe was now freed to become outside money, increasing its velocity and allowing for faster market completeness. Volumes of tea produced and traded expanded, and so did markets of goods made in Europe, increasing profits and reducing costs in all markets. For the first time market formation became *deflationary even though money supply measured as sum of inside and outside money increased*. Greater *standardization of money flows* made *costs easier to assess*. As costs stabilized, profits grew, attracting more investors. Pearl River Delta officials had interest in tolerating the smuggling (inside markets) because if enough silver (outside money) was flowing to Beijing, the central government would make no change to the system (would not intervene in money supply).

Canton trade became an important episode in the rise of global markets based on monetary policy instruments developed in distant spaces adapted for market creation and completeness in another space. In turn *outside money fluidity* increased. In the process wealth expanded and became portable.

2.4 The Third Reich: Market Creation Based on Reputation

War had always posed a cash payment problem for the invading army, considered a monetary solution superior to requisition (barter). Occupation means excess demand, therefore inflation.

A First Binnenwaehrung In 1939 German monetary authority had the difficult task of printing new paper money accepted as legal means of payment on the occupied territories by both the army and the local population. That had to be done without forcing the Reichsbank to print Reichsmark (RM) for the occupied territories, to not generate inflation. The solution was to create a safe asset for the purpose of bringing markets together. [16] documents how German government created Reichskreditkassen in 1939. They started their activity first in Poland. Norway, Denmark, Holland, Belgium, Luxembourg and France followed in 1940. Credit Houses had the monopoly in printing Reichskreditkassenscheine (RKSS) (paper notes) even though they had *no social capital*.

Fiat Foreign Bonds and Fiat Local Currency as Perfect Complements

As shown in [16] when Reich's army entered Poland, it paid cash for all purchases below 500 RM and issued Leistungsbescheinigungen (checks) for anything above that amount, at a fixed exchange rate between RM and Zloty. Initially all additional demand was backed up by Reichsbank. In the meantime Bank Polski had left the country with all staff and cash reserves from banks and firms, demonetizing the economy. Germans transferred Reichsbank staff to Poland, repaired all buildings and within four weeks after the war start, RKKS were fully functional. RM was taken out of circulation. Zloty and RKKS notes were both in use. RKKS acted as a *safe asset* for a region with strong industry. Credits were given to industry and rural population at *interest rates half as low* as those before German occupation. That re-established and even extended production to poorer areas of Poland, even though this time they were working for the German military economy. With a *paper bond issued locally, yet based exclusively on Reichsbank reputation (a distant monetary authority)*, market creation turned *non-inflationary*. Trust was indeed important in accepting RKKS notes as currency. For example, Danzig and Silesia mainly with German population warmly embraced German means of payment. The other parts had to use them by force. This is a case when a *foreign fiat bond* and *domestic currency* act as *complements*.

2.5 The Role of Monetary Delocalization in Monetary Policy

This short history makes the case for what [19] calls *monetary delocalization*. This is what a monetary authority must take that into account even more when confronted with modern markets. He distinguishes between large currency and credit for distant exchange and small currency and credit for local exchange. Examples have shown how changes in the supply of a large currency for distant exchange fundamentally affects local exchange. Unlike him, when distant space is attached to large currency, my view expressed above is that this large currency acts in fact as a bond (inside money). This is also a departure from the definition of inside money presented above. It therefore important to take *space* into account during market formation. The selected examples above highlight also another idea of [18] - if people exchange locally by currency or debt, there is no need for an exogenous institution (central bank) to intervene in local transaction. With the expansion of gold in the 20th century local circuits were absorbed into a unique market. As a result, central banks monopolized the issuance of currency, making us unaware of the complementary relationship of space-driven inside and outside money that once used to exist across continents.

Issues such as fiat money *inconvertibility* (no promise to convert money into anything else) and *uselessness* (fiat money is never wanted for its own sake) raised in [26] or what [19] calls *dematerialization* overlook in fact that division of labor across space needs various devices to cover different purposes. Central banks replaced these endogenous devices. Today a currency with no denomination cannot work in practice. Still, denomination does not matter in transactions made only through a unit of account (as it is the case of intermediate goods trade in superstar firms) or transactions without a substance such as bookkeeping (as seen in Renaissance Florence or Canton trade). We have seen how in Medici times means of exchange deviated from the unit of account, because a unit of account should be infinite while a mean of exchange can be only finite. Market incompleteness along superstar firms demands such a mean of exchange. This has become a major issue for monetary authorities at the periphery of supply-chains.

Therefore, unlike in the model of [26], debt and currency are not perfect substitutes. Fiat money facilitates not only exchange, it is involved in market creation and market completeness. To stabilize a new equilibrium output (a new market) money and debt are in fact complements. When markets expands, markets need diverse monies, often deferred payments in space. The goal is in fact to create wealth and insure its portability. Wealth relies on devices that do not depreciate in time or space. It is the role of monetary policy to deploy a portfolio of money and credit to support market creation and market completeness.

3 The Rise of Superstar Firms as Market Creators

The rise of superstar firms was a result of the demise of command economies in the 1990s. Their expansion across countries has ignited the fastest and most extensive market creation undertaking in centuries.

3.1 Some Stylized Facts

A consequence of goods production being organized in superstar firms, according to [21], is that while output and trade both continue to grow, a smaller share of *finished goods* trade across borders. Just like goods produced in Medici times, Canton trade or German Binnenwaehrung, goods produced by superstar firms such as automotive, computers, electronics are becoming more *regionally concentrated*. The cited report indicates that less than 20% of these goods take advantage of labor-cost arbitrage. Superstar firms are *knowledge based*. As a result, investment in *intangible assets* has more than doubled. Cross-border services are growing 60% faster than trade in goods while generating more economic wealth than *traditional trade statistics can capture*. Channels are: free digital services available to global users, intangibles sent to foreign affiliates, value added services. National statistics attribute 23% of trade to services, but with these three channels, they would increase their share to more than half, as evaluated in [21]. The failure of statistics to capture market incompleteness became an issue during COVID-19 Crisis, as argued in [15]. The author prefers to regard COVID-19 government intervention as a way of making visible the process of market incompleteness that is quietly accompanying modern economies.

Another consequence is based on UNCTAD data showing that in 2017-2019 80% of sales in global e-commerce have become business-to-business (B2B) sales: superstar firms have been acting as banks. That should not have come as a surprise to [25] where the difference between banks and other financial intermediaries is one of degree rather than kind. Examples above from Medici times and Canton trade support his view. Unexpectedly this goes against the current view stemming from [17] where monetary policy transmits into the economy through frictions due to bank credit based on the traditional “physical collateral channel.” There is a big body of literature on the role of financial frictions in macroeconomics; a review is in [24].

3.2 Superstar Firms Make One-Asset Monetary Policy Irrelevant

Reacting to changes in economic conditions, central banks decide on interest rates for outside money, affecting bank credit through the price of collateral assets (inside money). [8] builds a model where credit friction among firms is *earnings-based*, rather than collateral based. Positive supply shocks induce higher earnings, allowing for more debt, and making supply shocks more important.

Using data on USA and China [7] show that unlike bank credit, superstar firm credit operates via the *network collateral channel*: future profits due to increased matching efficiency between suppliers on the commerce platform. This is another form of advancing *market completeness*. That relaxes *financing constraints* and *increases profits* along the network. One major implication is that frictions in credit and goods markets are close to zero making market formation non-inflationary. Another implication is that monetary policy intervention based on pricing the collateral becomes ineffective. According to authors, the monetary policy must act now via incentive compatibility contracts within ecosystems. An

incentive compatible contract limits the total amount of credit to the sum of *physical and network collateral*.

This is a situation of Chinese villages that developed a local economy based on copper, while the big trade flows were surpassing them in silver. In East Europe superstar firms measure production in local currencies (“copper”) - transformed in merely unit of account - while market completeness occurs at the center of the supply chain through an inside bond (Euro). It could happen that superstar firms would issue their own inside bonds in the future, as their networks become more extensive. As a result of increased space-concentration Euro has developed into an inside bond much in demand for market completeness. Demand for outside money measured in Euro has been increasing along the supply chain. A monetary authority at the periphery cannot intervene at the center of the supply chain to change the price of a market completeness asset - as seen when the 2022 “normalization” forced monetary authorities tied to the Euro to hike interest rates, too. That is rendering its own instrument of monetary policy (interest rate) irrelevant. In that case, from the point of this paper, a monetary policy at the center of the supply-chain cannot act via *interest rates* anymore. It would need a mix of inside bonds.

Figures 1 and 2 based on data from the National Bank of Romania seem to confirm that after the EU ascension of Romania (2007), when the industry sector in this East European country integrated into the superstar firms of Western Europe, overnight deposits of Romanian households in Euro increased in volume and share. During 2020-2021 COVID-19 Crisis when domestic markets became incomplete savings in Euro accelerated, cementing Euro as a safe asset.

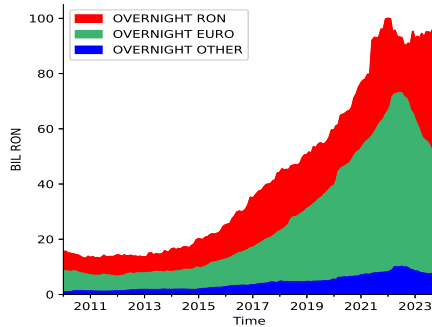


Fig. 1. Household overnight deposits in Euro have magnified their volume, especially since 2019. During COVID-19 such increase became even more pronounced.

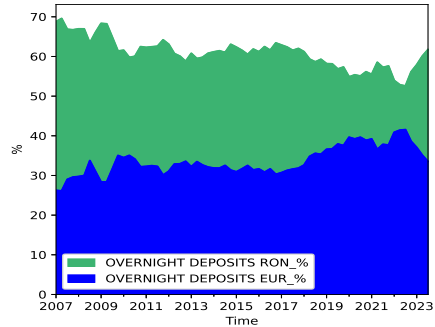


Fig. 2. The share in local currency of household overnight deposits has decreased from 70% in 2007 to 47% in 2023.

Before COVID-19 Crisis, the year-on-year (y/y) growth rates in overnight deposits in Euro have surpassed those in local currency (RON). This is shown in Figure 3. When markets regained completeness in 2021, even more deposits in both local and Euro have been moved to overnight deposits. The post-Pandemic response of monetary policy that increased local interest rates (at levels almost two times as high as those in Euro Area) since 2022 has indeed instilled an obvious change in household behavior. Households have moved savings accumulated during COVID-19 Crisis from overnight into time deposits. This is shown in Figure 4 with data from National Bank of Romania.

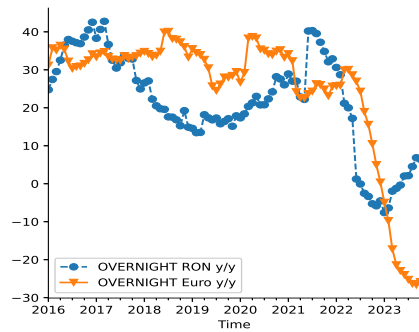


Fig. 3. Growth rates year-on-year (y/y) in household overnight deposits have been higher for Euro deposits from 2017 up to the pre-Pandemic times of 2020.

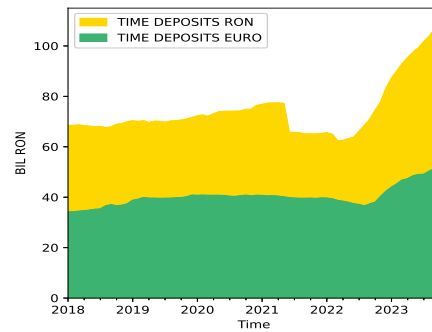


Fig. 4. As a result of higher interest rates of local currency (RON) since late 2022, overnight deposits have been moved to time deposits for both Euro and local currency.

4 The Role of Money in the Economy

Being subject to reserve restrictions distinguishes banks from other financial intermediates in [25]. Otherwise, as he points out, banks too are subject to agent preferences. They too depend on investment and lending opportunities available to them. Banks would attract deposits only when marginal earnings from loans/investments exceed deposit costs. In the process they *decrease the interest rate* to a point where it is still *profitable to expand deposits*. Reserves in turn are crucial, as they make it *profitable for banks to acquire assets*.

Monetary policy relies on reserves tied to the volume of deposits and loans. It relies also on a negatively sloped liquidity preference curve. Decrease interest rates and agents take the money from the banks to start investing, generating investment opportunities and outside money. That in turn generates higher

consumption and higher demand, leading to higher prices. In this case market creation is being perceived as inflationary.

4.1 Equilibrium Indeterminacy Changes Interest Rates Dynamics

Central banks know how to reduce the interest rate to a level where the economy ends in equilibrium with more money at lower interest rates. The situation of the 1930s in the USA with idle reserves (excess reserves) is still regarded as a transitory anomaly. According to Keynes: not only did the money not enter the banking system, it also “refused to leave”. His explanation for a lack of loans was high unemployment. From the point of view of this paper, this was a case of a complete rupture in the *inside-outside money flow*. Cuts in interest rates to zero would not induce inside money to expand outside money. There is also a situation described by Irvin Fischer when the economy ends up with more money and higher interest rates. That is due to demand overshooting or to a high degree of indebtedness. In that case monetary policy increases interest rates to stop excess demand, as in the case of 1970s stagflation. These three equilibria show why interest rates are in fact a misleading way of looking at monetary policy as *tight or easy*, a view advocated by [12].

Monetary policy can change the equilibrium dynamics of the interest rate as modeled theoretically in [22]. In his paper the intertemporal elasticity of substitution measuring the responsiveness of consumption growth to the real interest rate plays a key role. The higher the elasticity, the more sensitive becomes consumption to a *change in interest rates* and the easier it is for the economic system to *leave the stable dynamics* regime. Cautious central banks normally operate small cuts in interest rates to guide the economy to a new equilibrium. Lower income economies have a higher rate of substitution. Once income increases, the author shows that the elasticity of intertemporal substitution decreases. There are two effects: consumption/investment (demand) *responds less to changes in interest rates*; the central bank can increase money supply more before it moves out of the stable equilibria regime.

4.2 Reserves and Market Creation

It is the central bank that determines the supply of reserves to banks. In such cases [25] remarks that since reserves are available to a bank at a cost, if this is higher than the yield on the assets it could get or if there are no investment opportunities, then the bank could accumulate unborrowed reserves and even keep excess reserves. Therefore, a second question we need to ask is if there are any times when the capital refuses to invest. The answer is: all the time. Negative supply shocks generating absolute liquidity preference happened not only in the 1930s. Command economies collapse in Eastern Europe the 1990s was a process of large-scale market dissolution (the existing so-called markets were dependent on state-command). Poverty traps with underemployment lack in fact markets. Wars remain the highest uncertainty factor in money supply, as the most violent source of market demise. The wide expansion of superstar firms has brought to

light a reality where a highest case of uncertainty for capital results from market completeness materializing in a different space-time from market creation.

Banks benefit of central bank reserves, as the most liquid and risk-free asset. [2] document the response of US banks to the large-scale asset purchases of the Federal Reserve a result of which was increased bank demand for bonds. In a summary of ECB operations presented by [20] the reduction in central bank reserves from the repayment of TLTRO funds and the end of APP reinvestment increased term premia. Household and firms perceived *risk as increasing*. In his opinion the level of central bank reserves should expand with the financial system via bond purchases to reduce term premia.

In fact, with superstar firms competing with banks in market formation, excess reserves could also mean a lack of assets with high enough yields due to a lack of complete markets. This would be in line with [25]. Even if previous episodes of market formation increased wealth, wealth is less sensitive to interest rates and has other preferences than income. As it has become more portable, wealth could resume building markets, or it could prefer a safe haven - expanding bank deposits despite even negative effective lower bounds (ELB). For wealth to move back into market creation, one would need to provide increased inside safe bond supplies. They can be deployed for market completeness in spaces with high market formation concentration. This would be conducive of increased supply of assets with high yields. That should reduce banks excess reserves.

As superstar firms do not have the advantage of holding reserves even though they have been venturing into the role of market completeness through network collateral channel, central banks would have in fact to increase reserves compared to the current level. This is in contrast to [20] who pleads for a lower level in reserves in what he calls *the “new normal” steady state*. This is because reserves should result in additional credit and inflation. This line of thought is similar to Renaissance Florence where a reduction in money supply translated into a reduction in wages (the reverse should be also true, logically). It is also commonly reasoned - a result of excess money supply of the 1970s - that higher wages would increase money supply via inflationary currency expansion. Canton trade and German Binnenwaehrung proved that market creation can be non-inflationary despite increased profits and wages when grounded on monetary delocalization. One should not overlook the monetary delocalization occurring from superstar firms. Market completeness will demand from central banks to act as market maker of last resort in case of network failure, relying therefore even more on reserves than in the current “new normal”. Increased interest rates not only will increase the costs of market completion, it would also slow it down by reducing the supply of high-yields assets as their prices are being depressed.

4.3 How to Conduct Monetary Policy during Market Creation

In the already cited work, Friedman famously writes that “monetary policy should be guided by what it can control and that is a nominal quantity, the quantity of its own liabilities. It cannot peg real values, such as an interest rate

or unemployment. “It cannot peg prices because it takes prices too long to adjust and for expectations even longer to do that”.

Using the example of a country at the periphery of supply-chain of superstar firms, Romania, a country poor in high-yield assets, one can see that interest rate as instrument of monetary policy has become irrelevant. With interest rates two times as high as those in Euro since 2022, one would have expected an increase in local currency deposits. In fact higher interest rates expanded demand deposits in both currencies (indeed in RON more than in Euro). Higher interest rates acted as a negative shock on the overall money supply, with M2 and M3 having visibly a flatter slope, see Figure 5. The Great Recession of 2008 has resulted in a similar outcome, even though at that time there were even fewer assets than in 2020 and the country had just ascended to the EU, see Figure 6. Data for both figures are from the National Bank of Romania.

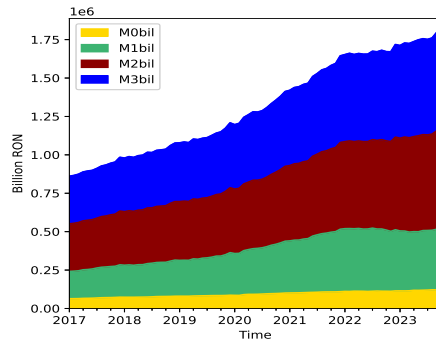


Fig. 5. Higher interest rates made M2 flatter after 2022.

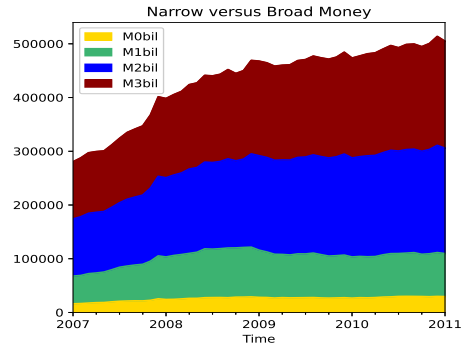


Fig. 6. A shock affecting the overall stability of the economy, such as Great Recession, had a negative impact on M2

This evolution prompts reliance on the same Friedman: “Monetary policy should avoid policy swings because it acts with six- or nine-month lags[...] A monetary total is the best guide for monetary policy”.

5 Conclusion

History and recent developments tell us is that trade is not only about exchanges, it is also about creating markets. It is about space. In the process of market completeness inside and outside money become complements rather than substitutes.

One consequence of market creation is wealth. Not only it wealth increasing, it is also becoming more portable, affecting market completeness. With wealth

less responsive to interest rates, it could refuse further participation in market formation, despite interest rates hikes.

Another repercussion, seen in history, is that banks could get involved in supply-chain production as during Renaissance Florence, while merchants in Canton started to act as banks.

Monetary delocalization is another fundamental ramification. In this case an anonymous large currency from a distant space acts as inside money in another space. In the process it is inducing the formation of multiple local inside bonds. In the end there is increasing outside money in both spaces.

One more effect is the development of network collateral channel effects of superstar firms that complete markets based on future profits of network participants rather the price of collateral assets. This competition with banks for market completion has been increasing the excess reserves in the banking system.

The process of market creation often requires an expandable unit of account because markets could remain incomplete in different spaces for a long time. The rise of superstar firms has accentuated this phenomenon as they have spread globally. Therefore market completeness, occurring most of time in another space than the original money, requires a bond of high quality and a monetary authority able to issue outside money in a quantity as accounted for by the expandable unit of account. Only fiat money (digital tokens) backed up by the reputation of the monetary authority fulfill this requirement. This is called quantitative easing. As a result, monetary authorities at the periphery of superstar firms have seen the demise of their currency to the level of a unit of account. That is reducing their ability to conduct monetary policy through the interest rate, as this would depreciate their currency distorting its unit of account function.

One final note is that reserves of a monetary authority at the center of the operating superstar firms will have to increase in the future as demand for high quality bonds will increase, reducing interest rates and the cost of market completeness. That should be keeping market creation non-inflationary.

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