

Byzantine Yperpyra And Venetian Ducats: Missing Pieces In The Puzzle Of Monetary Theory

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Summary

The paper stems from a greater project on economic history concerning the monetary system and policies of medieval and renaissance Venice, with a special focus on Venice's colony of Crete. The Venetian monetary system included various currencies, both minted and virtual, and it was intertwined with the currencies that already existed or appeared in the Eastern Mediterranean during the Venetian imperial era. I examine actual historical examples through the lenses of both mainstream and heterodox monetary theories in order to show the complexity of monetary practices under real conditions and how the available monetary theories need further sophistication in order to explain and systemize our understanding of monetary phenomena.

To make the research inquiry clearer, I focus on two examples that seem to run counter to what current assumptions about monetary structures:

One case is that of the Byzantine yperpyron, a golden coin of the Eastern Roman Empire which seems to survive in Crete island, both the Venetian rule (starting in early 13th century) and the end of the Byzantine Empire itself (in 1453) and remained in circulation, mostly as a virtual currency or accounting unit, until 17th

century, together with various other currencies circulating in the island.

The other case is the Venetian ducat itself, a golden coin minted by Venice from late 13th century onwards and well known for its quality of gold and value in international trade in both Mediterranean and Europe. Yet, it seems that the Venetians preferred to use other international currencies in domestic trade. There has been evidence that in some cases the never-debased golden ducat was not accepted in local transactions.

The paper attempts to set the grounds for further investigation and discussion concerning monetary phenomena and the issues those raise for monetary theory.

Keywords: Venice, Crete, monetary history, yperpyron, ducat, monetary theory

JEL Codes: B50, E42, N13, N23, P4, P5.

1. Introduction

This paper emerged out of a larger research project concerning the monetary structures and policies of Medieval and Renaissance Venice. At this stage, the project has as a case study the island of Crete which was a Venetian colony for more than 400 years. However, this paper combines information that goes beyond the coasts of the island and even beyond the time period of the Venetian rule in Crete.

The main aim of the paper is to raise the questions that challenge monetary theory as it is generally known today, based on historical information that refers to the Venetian era.

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Answering those questions exceeds the scope of this paper. What is attempted is to refine those questions through the use of specific examples of monetary phenomena.

The next section describes the features of the monetary system of the Venetian era. Section three presents the case of Crete Island as a colonial economy under the rule of Venice. Section four presents the research framework and the two case studies I use in this paper, i.e. the yperpyron used in Crete under Venetian rule and the non-acceptance of Venetian golden ducats in 15th century Crete and in 18th century Peloponnese (South of Greece), which has been a Venetian territory for some time in the Middle Ages. Section five explores the importance of linking those phenomena to the monetary theories of today and of identifying the limitations the theories have for our understanding of actual economies. The implications for future research are described in the last section six instead of conclusions.

2. The variety of monies in Medieval and Renaissance Mediterranean

The multiplicity of monetary instruments that circulate and are used on the local and international levels of the economy of the region is a typical characteristic of medieval and renaissance monetary systems in the Mediterranean coasts and in the European continent in general. The variety of currencies appearing in transactions is such that impresses any historian or economist. This variety existed without the digital and communication technologies that contemporary economies have at hand.

Moreover, the variety of monetary instruments permitted various distinctions among them and actually each categorization led to different groupings of the currencies that go beyond our contemporary criteria for understanding a monetary system. For example, in the same economy, whether local or regional, foreign and local currencies are

found to have circulated together, even used at the very same time to calculate the value of a transaction or the main payments of a loan. The distinction between legal and non-legal tender meant that authorities could also accept foreign currencies as means of tax or fine payments and they could also, like in the case of Crete, compromise to use in their accounts currencies of the previous empire which ruled the island (Eastern Roman – Byzantine yperpyron currency). The above coincided with the existence of both minted and virtual currencies in the same economy, which means that accounts could be done in a different currency that the one the payment was made at the first place, and that currencies that were literally minted might be used as virtual units of account in a transaction without ever being transferred from one party of the contract to the other (Antoniadi 1967; Bacharach 1994; Stahl XXXX, 1985, 2000, 2007, Travaini 2006, Tucci 2001, Drakakis & Sidiropoulos 2004, Liata 1996: 13-82, 119-169, Mazarakis 2004, Mueller 1980, Papadaki 2000, Ploumidis 1972, 2006, Tsiknakis 2005, Spufford 2014).

As one may anticipate, this variety and multiplicity of monetary instruments coincided with a variety of fake, forged or illegally minted currencies. Apart from coins minted by legal mints beyond the volume of coins set by authorities, various mints that were under the control of local lords were minting currencies following (copying) the matrices of the legal tender currencies. In some cases, currency wars among competitor trade cities meant that each city used the metal or just the physical coins of the other to (re)mint their own or minted coins of the other cities that were debased so that trust in the currency of the competitor city be undermined. Forgery of currency and fake coins of all types were all over the place and even the assigned authorities proceeded with debasement of their own currency adding to the complexity and lack of confidence to the monetary system (Stahl 2000, Liata 1996: 171-

198, Drakakis & Sidiropoulos 2004, Mueller 1980).

A major distinction in this very complex monetary situation has been the one between gold and silver and between precious (gold and silver) and non-precious metals (copper and/or other mixed alloys). In other words, there was a plurimetallic or multimetallic monetary system where on the one hand there existed the two most precious metals, gold and silver, as coin bases, and on the other, the lower-priced metals like copper, mixed alloys and metal alloys which contained low quantity of silver.

In this context, the currencies were distinguished in two major categories: low value currencies and high value currencies. The low value currencies could be virtual or physically minted and they could contain no silver or low percentage of silver, which ended up to their oxidation and their dark color – this is why they were called under the generic term of black money. The high value currencies could also be virtual or physically minted but they contained high percentage of high quality silver or gold – or, in case of the virtual version, they were imagined to contain this precious metal. The latter did not lose or were not perceived to lose their metallic brightness, connected to the value of the metal they consisted of, and this is why they were called white money (Stahl 1985, 2000, Drakakis & Sidiropoulos 2004, Ploumidis 2006, Mueller 1980, Spufford 2014, Cipolla 1956).

The practical aspect or feature of those two broad currency categories has been that white money, as high valued money, was used in big transactions, like trade (especially international trade) and wages of highly skilled labour. Black money on the other hand, given that its value was low, was used in minor transactions and was the currency type preferred for everyday life activities of the majority of the people (Stahl 2000, 2007, Mazarakis 2004, Liata 1996, Mueller 1980, Spufford 2014). Everyone though was after the

high value minted coins with high percentage of precious metal, or so we anticipate. Reality, however, has been much more complex.

3. The case of Venetian Crete

I picked the case of Venetian Crete to study the monetary system(s) of Eastern Mediterranean for various reasons:

One reason has been the advice by an anonymous referee in 2011 to look for black money in the Middle Ages in order to understand how parallel currencies today are functioning or are expected to function. Another reason is the need for a case study that falls within the territory of contemporary Greece. Although medieval economies are quite different from contemporary economic structures, I consider historical sequences of major importance for both the contemporary socio-economic structures and the social/historical experience that a certain community or society acquired through time.

The third reason has been that Crete, given its geographical, climatic and cultural position in the centre of the Mediterranean Sea, was an ideal case to explore the phenomenon of low and high value currencies circulating together. Crete has always been a trade connection point for Europe, Middle East and North Africa and has been even more so during the Middle Ages and Renaissance. Crete being a colony of Venice for more than four hundred years was also one more criterion to identify my case study: I wanted to study the Venetian monetary system not from the point of view of the metropolis but from the point of view of the colony.

The Venetian monetary system is one of the most complex ones historically. One could consider Venetian economy as a system which combines both feudal and capitalist features, having developed during the age of a major economic transition, i.e. from late Middle Ages to the early capitalist era. Concerning Crete Island though, the historical framework is somewhat more limited: Crete became officially a Venetian colony in 1204

during the 4th Crusade and Venice acquired practical control of the island in 1211 after war with the Genoese. Effective Venetian rule of Crete lasted till 1645, when Chania was conquered by the Ottomans, while Venice retained control of Candia/Herakleion and its suburbs till 1669 during the so-called Cretan war (Detorakis 1994: 143-244, Norwich 1989: 542-560). Of course, Venice and its monetary system continued existing in European affairs for about one and half century after Crete passed under the rule of the Ottoman Empire.

Venetians were very good in keeping archives and documentation and this is yet another reason that makes Venetian economic history and Crete as a more-than-400-years Venetian colony a good case study to research the monetary policies of Venice. Part of the required documents is in Crete, but a major part of Venetian archives are kept in Venice and this research project aspires to investigate the original documentation concerning monetary policies.

Finally, I chose Crete because, considering that it is a big island with really good conditions of climate and resources, one could not attribute easily economic or financial problems to lack of resources and limitations of environmental character. Thus, the human or social factor is anticipated to keep its major role in economic prosperity or failure.

The reasons of convenience like knowledge of necessary languages (Greek, Italian, Latin) and access to literature and archives that exist in Crete although they are not yet digitised also played an important role to choose this case study. In that sense, I am grateful for the resources the island provides to researchers and I hope that this study will show the relevance of this unique material for contemporary research.

4. The research framework and the two phenomena – case studies

As mentioned above, I chose this research topic because my intention has been to

examine how parallel currencies have functioned in a real, historical example of an economy about which we have at least adequate documentation, peripheral literature and archives to do research with. We know that Venice for several centuries had no “white money” as such and adopted the silver grosso in about 1194, i.e. about 10 years before Venice became a Mediterranean Empire having colonies from the Italian mainland to Istanbul, Crete and Cyprus and various trade points all over the Mediterranean Sea. About 90 years after the adoption of the silver or first white currency of Venice, the Venetian authorities issued the golden ducato or ducat, a coin with high quality golden metal which was never debased and was issued/minted until the end of Venice as an individual state.

Apart from the silver grosso and the golden ducat and their various issuance series, the Venetian monetary system had also other currencies, physically minted or virtually circulating. They were all of lower value as they contained no or very small quantities of precious metal (such as silver). Most currencies were regularly debased or abandoned by the Venetian authorities. Their instability in terms of value and public trust was in contrast with the stability of fineness and value of the precious-metal-based currencies, particularly the ducat (Papadopoli 1871, 1893, Stahl XXXX, 1985, 2000, 2007, Drakakis & Sidiropoulos 2004, Mazarakis 2004, Mueller 1980, Spufford 2014).

Within this historical framework, my query takes the position that just like any other institution, the institution of money affects the economy as such. In other words, if money is not a veil of economic activity but one among many factors that interact with the activity and conditions that individuals and social groups face, then how would this complex monetary system work in reality?

I examine such a complicated monetary system through a historical materialist lens, using post/de-colonial theory, feminist,

ecological and other critical studies approaches, with the aim to see the monetary instruments in their articulation but also with their coeval modes of production. Of major interest are phenomena or problems that seem to defy the already known monetary theories, particularly the mainstream ones. The intention, therefore, of this paper is to set additional frameworks for research in monetary economics.

To guarantee that my exploration is not lost within vast historical studies and archives, I chose two phenomena, used here as my specific case studies, to start my investigation with. The two case studies are two different currencies both used within the colonial Crete and greater Venetian colonial Greece in general.

The first case is the currency of yperpyron. The yperpyron was first introduced in 1092 within the framework of the monetary reforms undertaken by the by Alexios I Komnenos, Emperor of the Eastern Roman Empire. It was a golden coin widely used in the Eastern Mediterranean until the first demise of the Eastern Roman Empire in 1204 by the Crusaders. The 4th Crusade took place under the backstage leadership of Venice, which became an Empire by acquiring lands of the Eastern Roman Empire, plus one third of the city of Istanbul.

In Crete, yperpyron seems to exist when the Venetians take the rule over the island and it continues appearing in contracts and documents until the end of the Venetian rule, i.e. in the second half of 17th century. It also exists in at least two versions as money of account or virtual currency, which means that when we talk of yperpyron as virtual currency, we generalise the use of various virtual currencies with the same name encountered in contracts and other documents (Lane & Mueller 1985: 268-275, Xanthoudides, 1912). In other words, despite of the Venetian administration and the involvement of Crete in the Venetian trade routes and policies, a

currency of the pre-Venetian era continues to circulate. "Circulation" here of course has various aspects, one of which is that yperpyron in Crete seems to have become virtual, i.e. an accounting unit that is used in the contracts to denominate value, although in some of them it is stated explicitly that the amount is paid in another currency of lower value. The persistence of yperpyra in the Cretan economy of the Middle Ages and the Renaissance is even more striking if one takes into account the fact that the Eastern Roman Empire (Byzantium) ceases to exist in 1453. Yperpyron outlives the Empire for more than 200 years (Antoniadi 1967, Pallastri 2005, Papadopoli 1871, Stahl 1985, Kalitsounakis 1928, Xanthoudidis 1912, Tsiknakis 2005).

At the same time, one should also take into account the existence of the Venetian currencies, as well as other currencies issued by other medieval authorities, that circulated in Crete just like in the rest of Eastern Mediterranean. That is, the yperpyron persists despite the fact that there are other currencies that are tangible and made of precious metal, not only to use in their physical appearance but also to account with. Why do the people in Crete insist on using yperpyron as a currency and/or unit of account? Why do even Venetian authorities compromise to use this currency in their documents?

We should note here the position of the golden ducat, which is the other case study of this paper. Venetian ducat has been one of the finest golden coins in terms of gold purity and non-debasing minting. In other words, the Venetian ducat has never been debased and the Venetian authorities took every possible measure to keep this currency intact from both internal debasement and external falsifications. One would anticipate that the currency would be very much sought in international trade – which happened in reality after several decades only after its introduction.

In general terms, what happened with the ducat could fit the already known monetary theories: first, its popularity in areas where Venetian trades bought goods from led to the concentration of Venetian gold outside Venice. Liquidity problems emerged exactly because people tried to acquire and then keep the golden Venetian coins. To that extent, what we call today as Gresham's law has been fulfilled, and other currencies of lower value flooded the Venetian market although the currency that everyone wanted was the ducat (Bacharach 1994, Stahl 2000, Papadopoli 1893, Liata 1996: 119-169, Day 2002, Drakakis & Sidiropoulos 2004, Mueller 1980).

However, apart from this general picture, we have various discrepancies: one is the above mentioned one in Crete, concerning the yperpyron currency. Another has been that traders did not always prefer to carry out transactions in ducats – not even the Venetians always wanted to transact in ducats. At some point in time, this coincided with the choice of hoarding the coins or of having activity in markets where it was more convenient or more profitable (and the question is why this was so) to transact in other currencies, whether those were also golden or of equivalent value to the golden ducat or of lower value (Bacharach 1994, Antoniadi 1967, Stahl 2000, 2007, Mueller 1980, Spufford 2014).

However, we have cases during both the peak of Venetian trading prevalence (1344, 14th century) and of the decades when Venice was in decline (1712, 18th century), where the golden ducat, that fine-gold never-debased currency was not accepted as a payment at all. The first case is mentioned in Stahl 2000 (51-55, 216-223) where a trader in Crete prefers to be paid in soldini (coins with silver but not with the fineness and weight of the old silver grosso, also coins that were heavily forged from time to time) rather than ducats. The explanation given is that the ag(g)io (exchange fee) for turning ducats to silver coins was not profitable at the time.

The other case of refusal to use golden ducats as a currency of payment takes place in 18th century Greece, i.e. some decades before the demise of the Venetian Republic, when there were no longer Venetian colonies in the region. However, the second case takes certainly place in times when the precious metal of a coin was its most important feature, but the golden ducats are not acceptable in some local markets. The information I have found pertains to Nafplion city in Peloponnese in 1712. Venetian ducats, no matter how fine they can be, were no longer acceptable for transactions, despite the fact that the Venetian Republic still existed, albeit in decline. The case is referenced by Liata (1996: 68) based on a traders' letter from the archive of G.Melos.

The contrast is huge and it becomes even greater if one takes into account that at those times it was very easy to make profit out of using the gold of a coin to mint new ones, whether genuine or legal tender (as many states of the era did), or fake and falsified (as many falsifiers or local lords did to enhance their personal finances). Moreover, tax authorities (in this case, Ottoman tax authorities) always welcomed and sometimes imposed taxes in fine gold coins of any issue, which meant that demand for gold coins never ceased to exist.

Therefore, even if we take into consideration the fluctuations in the availability of precious metals that were prominent in the entire Medieval and Renaissance eras, and the other reasons that affected the supply and demand of precious metals, minted or not, like political payments between sovereigns or wars cutting off trading routes (Spufford 1988: 122-264, 339-377, Cipolla 1956, Lane & Mueller 1985: 134-159), the argument that supply and demand are enough to explain the rejection of a gold coin is only partially valid. Even if it holds for the physical coins, this is not so obvious for the virtual currencies of the time. Theoretically, a virtual currency has unlimited supply (unless it is limited by agreement, like

it happened with bitcoin, which is based on the logic of gold standard) or at least it has a supply that can be satisfactory in comparison to the demand. Therefore, in case we like to use supply and demand theory, we need to apply it to the monetary system as it is in those cases, i.e. with a variety of coins, both legal tender and non-legal tender, circulating along with virtual currencies in the same economy.

This does not mean that supply and demand do not hold for currency circulation and traders' preferences during the Middle Ages and the Renaissance, although, as Cipolla (1956: 9) points out, the supply and demand of coins was distinct from the supply and demand for money. The second case of the 18th century Nafplion traders is illustrative of the limitations of relying only on supply-demand arguments for analysis. Even if we accept that there was no demand for ducats nor for gold in 18th century Peloponnese, this lack of demand should be explained somehow with evidence of its causes, given the preference of Ottoman authorities to receive taxes in gold and silver coins that did not need to be legal tender (Liata 1996). Therefore, there was demand in 18th century for gold coins in Peloponnese, but this demand did not involve an almost-pure-gold coin like the ducat. The issue at stake is why this demand superseded the ducat or why the demand was not enough for those specific gold coins to be accepted in the market as a means of payment at the first place.

5. Questioning reality and questioning theory

In this section, I present the preliminary questions that stem from analysing historical phenomena and discuss how the questions bring us at the edge of the present-day monetary theories.

5.A. Questions about the historical monetary phenomena

I have already presented above the question of why and how yperpyron persisted so much in Crete. In reality, we cannot possibly find out the reasons without undertaking research that could investigate the monetary and trade flows of the island. The variety of currencies that exist in the island cannot explain much, considering that the question pertains to the choice of this currency and not of any other among a variety of monetary instruments circulating together. Moreover, the economy of medieval and Renaissance Crete experienced constant or persistent liquidity problems.

That meant that a virtual currency or unit of account might, supposedly, have facilitated trade and transactions in general, given the lack of physical coins. Yet from the contracts of the era it seems that low value coins exist or are (more) possible to be found, so the contracts are drafted while bearing in mind that the payment will be probably made in low value coins. Why do Cretans account in a currency that does not exist and not in a currency that exists in their hands? Even the hypothesis of stability is not plausible enough: it seems that yperpyron had its own fluctuations and exchange rates, therefore, it might have been stable compared to the very low value coins but its stability was not eternal nor given for a specific economy.

The hypothesis of stability is even more called into question when one takes into account that there was no state authority issuing or supporting this currency (although the Venetian authorities seem to be very positive in using it) as legal tender. There is not even an organised community in the sense we understand it today to administer the currency, as is the case today with various parallel currency schemes. Yperpyron's alternating with the ducat in some documents complicates the situation, given that in many contracts it is not so clear whether ducats are implied under yperpyron and whether those

ducats, if so implied, are minted or virtual. That is, it is possible that payments had taken place in any possible way, with any means of payment. Yet for us today the payments seem to have been accounted in yperpyra, according to the trading records we have from that era. The question is why and how all those people managed to agree on value(s)?

The other major question is why Venetian authorities use this currency or tolerate it, even when the ducat is issued. The explanation that the ducat had the Byzantine yperpyron as a historical model would not explain the persistence of the yperpyron as a virtual currency for so long. This explanation would be quite shaken if we accept the analysis by Lane & Mueller (1985: 280-285) who state that Venice issued the ducat in order to gain some control over the price of gold and to stop being dependent on the otherwise popular golden coins of the era, one of which was the Byzantine yperpyron, which was in high demand in the areas where the Venetians had trade interests. Another relevant question, given that the exchange rates between virtual gold currencies and physical currencies diverge as time goes by, pertains to why the Venetian authorities would accept those divergences and the complexity they might have brought in trading and contracting, instead of trying to simplify the monetary regime of the island by at least imposing accounting units that are used in the rest of the Venetian Empire.

In other words, if lira was the mostly used accounting unit in the Venetian economic realm (in mainly two types, lira di piccolo and lira di grossi), but Venetians have to use yperpyron in their Greek colonies, that means first, that the weight and fineness measures of their empire were not so favoured in the overseas territories. Second, it implies that the local people, both local elites and local merchants, peasants and salaried workers, contest and negotiate the base accounting units and *de facto* force the Venetians to use

local monetary measures instead of what is used in other territories, or to use various monetary systems all at once.

Having systems of account to be used side by side in the same economy was typical in Renaissance northern Italy as well, and it seems that they were chosen by different sectors of the economy or different classes (Cipolla 1956: 38-51, Lane & Mueller 1985: 123-133, 257-285, 333-363, Spufford 1988: 267-377). Therefore, this hypothesis has huge implications both for monetary theory and for our perceptions of who takes decisions about money and how, especially in a colony, or in an economy with various minted and virtual currencies and methods of monetary accounting.

Therefore, the questions about Venetian authorities in Crete remain: Why would they accept transactions being done in an antagonistic currency the power of which had tried initially to compete with? Or why would not they perceive yperpyron as antagonistic to the Venetian currencies? What are the implications for both the yperpyron and ducat for this co-existence? Why was a virtual currency of an empire that did not exist anymore, preferable to a minted currency (even virtual currency) by both the subjects and the officers of an empire that exists and rules?

Einaudi (1936) would comment at this point that the virtual yperpyron and other virtual currencies used in Venetian Crete were useful because they helped to stabilise the prices of goods and services without the turbulences of heavy seigniorage or changes in official exchange rates of the circulating physical currencies or without heavy regulation of the monetary system: a change in the analogies between the virtual currency and the minted ones would suffice to stabilise prices when necessary. And this could be done by either decree or by the market practice.

Another explanation would be that the virtual currency was used in order to facilitate

the transition from one monetary system to another (for example, from the Byzantine system to the Venetian one) or from the existence of some minted currencies in the market to the introduction of a new issue or the disappearance of an issue that was no longer available for any reason¹.

Nevertheless, neither of the two explanations answers fully the question as to why these moneys of account survive too long. If yperpyron survives for so long as a virtual currency, then it facilitates more functions than mediation between an old and a new currency system. Moreover, the question is why one currency survives like this in virtual form, and another currency does not survive within the same economy and the same time, not even as virtual money. Amid a multitude of currencies, the choice of which will be preferred to be used as virtual currency (-ies) is fundamental and cannot be explained from transitions or changes in the money market only.

As for Einaudi's "theory of imaginary money" (1936) and its stabilising role in the economy, first, the evidence from Venetian Crete defies the theory. For example, grain prices moved upwards and have never returned to their medieval levels since the end of 14th century (Tsougarakis 1990). If there is truly some stabilising effect in having virtual currencies in the economy, the conditions for this effect to materialize were not fulfilled. Unfortunately, Einaudi constructs his theory without mentioning specific conditions for the stabilisation to be effective. He also forgets that "imaginary moneys" were numerous in each of the Renaissance or Medieval economies. Therefore, this theory does not answer the question whether all or only some of the virtual currencies which circulate in an economy support stability of prices and what happens if each virtual currency is used within sectors or by social groups who might

be in conflict with other sectors or social groups.

Second, Einaudi explicitly defines stabilisation as a deflation process undertaken through the use of virtual (imaginary) currencies. We now know that deflation is not quite helpful or it can lead to disasters for entire economies, if not for the low-income groups of a country. Einaudi has no problem with the outcries of waged labourers or/and poor people because of deflation through "imaginary money" changes. Nevertheless, in case this is the motive/reason for using a virtual currency, then one should explain why yperpyron persists in Venetian Crete if poor people are put at stake through its use or the economy suffers regular deflations because of this currency (and other virtual ones in the same monetary system).

Similar questions but rather of different focus arise concerning the ducat, if seen from the side of the Venetian authorities and Venetian economic policies in general. The "hard currency" of the Mediterranean trade empire does not seem so strong, in terms of popularity and everyday use. Even for international trade, it is used only in certain circumstances, and many Venetian traders avoid to use it. Why would that happen? If the ducat has been introduced to facilitate trade (this is a hypothesis though) and imperial political economics (that is also a hypothesis), why would not the imperial subjects nor even the Venetian authorities and Venetian trades prefer it for their transactions?

The hoarding hypothesis is not enough to explain this situation. One could accept that hoarding or culling could be a practice that is understandable of the part of the payer, the person who has already the golden coins at hand. However, the denial to accept the golden ducats as payment by the receiver, i.e. the one who does not have golden coins at hand, is something that is not easily explained. Even the explanation that Stahl gives based on his findings, i.e. that the market prices for turning

¹ Based on the comment by an anonymous reviewer.

golden ducats to silver coins for everyday use are not very favourable, raises the question why the ducats cannot be hoarded for some time till the price of gold improves or till a trade opportunity emerges with a region where the gold exchange rates are more favourable.

Similarly, the question arises of why the receiver of payments does not agree to a compromise, for example, to be paid partially in silver coins (so that he does not need to transact in the money market under unfavourable exchange rates) and partially in golden coins, that are definitely not debased and could be used later when the exchange rate becomes more favourable for the golden coin holders. At least, according to what we know today about the golden coins in the economy, the total refusal of traders to be paid in golden ducats is not explainable.

The lack of liquidity or adequate circulation velocity does not explain much about ducat either. Why does not the ducat become a popular virtual currency or accounting unit as yperpyron in Venetian Crete? Why do people prefer to hoard it even in accounting terms? What are the conditions that keep the ducat to be less popular in use but more popular in demand than yperpyron? In reality, the ducat had also become a virtual currency (ducat corrente) but it seems that this did not happen in Crete, or it happened to a very limited extend. The Cretans preferred their yperpyron as a virtual currency, which was not backed or supported not even symbolically by the empire that had issued it at the first place. Because that [Eastern Roman] empire did not exist anymore and had lost power in the region quite earlier than its final demise.

Finally, my last questions concern the case of Nafplion traders. Why should people refuse to be paid in golden ducats while the Venetian Empire, i.e. its issuer still exists and the coin has not been debased? Why should they prefer even to avoid bothering about reminting the golden coins into another currency or into bullion and create the unusual situation where

a good coin is not accepted for payment? What drives this presumably good money out of the market? Is it that Peloponnese has been an old colony of Venice (and the local traders hated the coin just for being a symbol of the old imperial ruler of their place) or else, are there other reasons that research needs to probe into, given that traders in medieval and early modern Greece have not been reported to have any problem to transact with any imperial currency, provided the currency is reliable? And why did they refuse to accept the coin with which they could pay their taxes to Ottoman authorities who craved for gold coins irrespective of the issuing authority?

5.B. Questioning the monetary theories and beyond

The above-listed questions expose the limitations of our knowledge about the function of the monetary instruments and monetary systems. Actually, monetary theories seem on the one hand very partial in their explanatory power, i.e. they can explain a certain phenomenon only if this is taking place under certain conditions. On the other hand, even when monetary theories seem to be robust enough to be used in most cases, their detailed application to a specific case shows that it would be better to refine our theoretical and analytical tools. Otherwise, even a theory that has explanatory power in principle, loses its potential to become a research tool in real life.

I referred in the previous sub-section to the Law of Gresham which is an empirical description of the monetary phenomenon whereby in the case of co-existence of various currencies/monies, those that are widely seen as better will be pushed out of circulation while those that are considered to be the worst monies will prevail in the economy. Well, this is only one possible interpretation of this "law" and reality shows that we might have various ways of interpreting Gresham's Law. There are two major questions that define the

application of this “theory”: first, what is really the bad money and whether only low-value currencies are bad money; second, how and with which criteria we judge the “goodness” of a currency. Social inequalities, particularly class divisions, are important to understand that what is “good” currency for a rich Venetian noble trader might not be equally “good” currency for a Cretan peasant.

When Gresham’s Law is understood not with reference to the metal of the coin as such but to the relative values of multiple (at least two) coins circulating in the same economy similar issues arise. For example, when two currencies have an exchange rate that cannot adjust to the change of their value and one currency is overestimated (appreciated) with respect to the other currency which is underestimated (depreciated) in the market, people tend to prefer to hoard the latter and dispose/put into circulation the former².

Both interpretations of Gresham’s Law do not have satisfactory explanatory power with regard to the two case studies of this paper or to the monetary system that existed in Venetian Crete. In reality, Gresham’s Law has not been sufficiently elaborated or refined to apply to virtual currencies. That is quite problematic, given that virtual currencies existed in the times of Lord Gresham. It means that our interpretations of the Law need to include virtual currencies. This is to say that understandings of Gresham’s Law so far lack a basic feature of the monetary system to which Lord Gresham was referring.

Moreover, in Crete, where yperpyron exists along with other virtual moneys of the Venetian empire, the situation is far more complicated, because the exchange rates of the virtual currencies are not stable either. If bad money is a coin which is overestimated, then what is the yperpyron? Is it an overestimated impossibly-bad virtual currency? And if it is, why are contracts signed

with it as a base accounting unit, even though payments are not expected to be effected in yperpyra/perpera but in physical coin of other denomination and metal? If Gresham’s Law is a law indeed, it should hold for virtual currencies. Consequently, one would need to understand or interpret Gresham’s Law in ways that include the entire monetary system in the manner that this system is structured under the historical conditions of the economy in order to make any explanations based on that Law.

Chilosi and Volckart (2010) address this question too, in particular with regard to whether low-value money is the bad money indeed. I do not share many of their arguments and causality constructions to explain who gained benefit from which type of currency. Still, their work shows that any use of Gresham’s law as an analytical tool of monetary phenomena should be done in a very cautious way in terms of both assumptions and data. For instance, when discussing Gresham’s Law, Lane & Mueller (1985: 31) argue that high-value money in Middle Ages and Renaissance was “bad” because it was foreign and unreliable, which renders it a plausible explanation for 18th century Peloponnese but not sufficiently satisfactory to explain the same behaviour in Venetian territories when the Venetian Empire was at its height (14th century).

The quantity theory of money in the case of the Venetian monetary system is perhaps the one that is mostly challenged. First, because the variety of currencies and monetary instruments is such that one would expect that every one of them would lose value or lead to inflation. However, from the few indications one could find at such preliminary stage of research, it seems that if there is inflation, this is not linked to the quantity of monetary instruments in a linear way – maybe not at all then, because quantity theory is defined exactly by linking inflation in a linear manner to the quantity of the monetary instruments in the economy.

² Based on the comment by an anonymous reviewer.

Second, the co-existence of minted and virtual currencies shakes the perception of money quantity in the market. How much quantity of money exists in Cretan economy of 15th century, for example? If there is no central authority neither any other community arrangement that monitors the quantity of the money in an economy (like it happens for example in a grassroots parallel currency system or in a blockchain currency), how many virtual yperpyra exist in the Cretan economy let's say by the end of 16th century? Finally, the fact that especially Crete island faces repeated if not constant liquidity problems, shows that even if the quantity of monetary instruments is extended or could be extended through the use of virtual currencies like yperpyron, this does not mean liquidity in the sense quantity theory of money understands it and links it directly to the circulation of monetary instruments.

The Chartalist theory of money is shaken in both our case studies: if it was the state only that makes sure that money circulates in the economy and used by its economic agents, then the yperpyron should not have survived the colonial rule of Venice, much less the demise of the Eastern Roman Empire (Byzantium) by the Ottomans. Yet, it seems that it did, especially as a virtual currency, i.e. without even the physical existence of a state's currency as one would expect. The same happens with the denial of traders in 14th century Crete and in 18th century Nafplion to accept Venetian ducats: the state is there, it exists and makes sure that the ducats are the best golden coins in the market, yet traders do not want them as means of payment.

Modern Monetary Theory is also challenged, despite of the fact that it is a very refined version of the Chartalist theory of money. For example, Modern Monetary Theory states that taxes create demand for currency – but this cannot explain why a trader in 14th century Crete does not want to be paid in golden ducats, which is the legal

tender par excellence at the time. Neither can it explain the existence and persistence of yperpyron after so many centuries that the empire that issued it ceased to exist. It seems that the premise of Modern Monetary Theory, that all money is credit money (Nersisyan & Wray 2016), does not always hold. If it did, actually, the Zecca of Venice (just like its contemporary minters in the entire European and Mediterranean world, including the Arab and Ottoman minters) would not allow their minters to print as much as they can, provided there is enough bullion for the minters to work with. The minters (and the state authorities who control them) of the medieval and renaissance economies seem not only to defy the quantity theory of money but also to dismiss the idea of the credit theory of money.

In respect of credit theory of money, and its post-Keynesian associate of endogenous theory of money, it could be assumed that the needs of the traders and of everyday life may possibly induce a demand for money supply that needs to be met, but this money does not come by entrepreneurs or commercial banks only (Lavoie 1984). Quite the opposite, it seems that on the one hand, various actors, including the state, have to participate in the production of monetary instruments. On the other, various types of money are used that have not been produced by credit at the first place. Yperpyron, especially the virtual version of it, is a monetary instrument that is used to express credit but it is not created through credit, at least not as the endogenous theory of money would like it be.

Very close to the Chartalist theory is its refined version, as described by Christopher Gregory (1997): the quality theory of money. Gregory holds the view that money is related to power relations and that it circulates as long as its issuer or payer has enough political-economic power so that people seek its means of payment. Gregory's approach has many things to teach in the sense that power relations can exist beyond, without, or despite

of the State and can become monetary guarantors in ways that the Chartalist theory (or Modern Monetary Theory) does not recognise. However, if one were to use the quality theory of money in economics (Gregory writes from an anthropological perspective) in those two cases, one would need a lot of work and sophistication to reach any conclusions or to construct sound arguments concerning the power relations in medieval and Renaissance Crete and in early modern Ottoman southern Greece.

Likewise the historical cases have called into question the approaches that see money either as debt or as a measure of account. I mentioned above that if all money is credit, then the mints of Middle Ages and Renaissance should not work the way they did. I should also add the assumption that money is a social agreement because everything in a human society is a social agreement. How can people in medieval Crete denominate debt in a currency that does not exist physically nor can be assured of its issuance after 1453? What is the content of the social agreement in those specific cases and how do people use currencies that abide by a social agreement that we fail to grasp? Is the denial of the traders to receive ducats even as a measure of account in 14th and 18th centuries a sign of a broken social agreement or signs of other social agreements that are largely ignored in modern times? After all, if money and currency are social agreements, then the circulation of a variety of monetary instruments pre-supposes a variety of social agreements that can be complementary or competitive among each other. What is the position of credit and debit in such a multiplicity of social agreements on currencies? In that sense, the question turns to challenge whether every money is credit and, even if it is or could be in theoretical terms, whether all credit is the same.

Finally, what is definitely destabilised, especially because it happens in times when precious metals were the essence of a

coin (were they really?) and the coins were directly commodified in the market, is the analysis of money as a commodity. Even if money is a commodity or even if it emerges from a commodity, this does not explain, the persistence of yperpyron in Crete island, at least not in the way it seems to work in the local economy. Because, a virtual currency can be a commodity under certain circumstances that do not seem to be fulfilled in the medieval Cretan economy. Nor does commodity theory of money explain the rejection of ducats in Nafplion or in Crete, because if not for other reasons, the fine gold of the ducats which are denied as a means of payment, is already a commodity in those economies. What was more important than the commodity nature of those two currencies in those two contexts in order that people behaved in an unexpected [by the academics] way?

6. Missing pieces in the monetary puzzle: now what?

The paper attempted to present some discrepancies between historical monetary phenomena and theory but also between the historical phenomena among themselves. The main aim has not been to give ready-made answers, but to point out directions for further research and open the discussion on historical precedents in parallel currencies, concerning their real economic function in the economies they existed.

I have shown the complexity of the monetary world of Eastern Mediterranean in later medieval and renaissance times and I gave some examples, which picture in rough manner certain monetary phenomena that need to be researched in the future. I explained in brief the research questions that stem from the encounter with historical incidents of this type. In addition, I showed how the monetary theories we have at hand at the moment need to be revisited and refined (or maybe renewed) if we want to rely on their explanatory potential.

The least thing that this paper could do was to develop a new monetary theory. First because it seems that a lot about monetary phenomena has been ignored and this does not yet allow us to construct a theory that explains their main features. Second, because a monetary theory with some explanatory power requires the joint effort and collective work by various theorists and practitioners working in different disciplines and various sectors of the economy. And third, because what we need at this stage is not one more hasty theory that will be easily refuted by everyday economic activity and/or historical evidence. What is needed is well-grounded research about historical and/or contemporary monetary systems, to understand economic phenomena as they happen and not as we imagine that they happen. Economic history is one of the fields that can provide us with sources and tools for this quest.

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