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The Interest-Free Instruments Used for Public Borrowing in the Ottoman Empire and Medieval Europe: A Comparative Perspective*

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A B S T R A C T

Borrowing is not only a practice of individuals and merchants, but the states also borrow to afford their expenditures. Similar to individuals, the states have borrowed since ancient times. Most of such loans have been at interest. However, the authorities have restricted or prohibited interest-based lending in various societies. Thus, the city-states of Medieval Europe and the Ottoman Empire could not always use ordinary borrowing instruments due to the prohibition of interest. Since, in recent years, the modernized forms of the early interest-free public borrowing methods are being asserted to be used by modern economies as well, the paper evaluates the methods used by the European city-states and the Ottoman Empire. At first, *rentes* and *compera*, the public borrowing methods used by city-states in Medieval Europe, are presented. Then, *iltizam*, *malikane*, and *esham*, the instruments used by the Ottoman Empire, are introduced. Lastly, the similarities and discrepancies among these interest-free methods utilized by the city-states and the Ottoman Empire are scrutinized.

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1. Introduction

Transactions made at interest have been controlled or wholly banned due to various reasons by the authorities since ancient times. In times when receiving interest was not allowed, the lenders used alternative methods. No doubt, there were licit ways as profit-loss sharing models. However, the legitimacy of many of these alternative ways widely used to overcome the interest ban in many societies was controversial. Such controversial instruments were also used in Jewish, Christian, and Muslim populated regions (Calder, 2016).

The borrowers were not individuals and merchants only. The states unable to afford their expenditures with tax revenues and any other income (Munro, 2001) were also the borrowers. The contingencies, specifically the wars, necessitated additional financial resources, and such needs were usually met by borrowing at interest. While some of such borrowings were not secured, the future incomes of the states were used to secure some others (Homer & Sylla, 2005). However, borrowing at interest was not always possible in the city-states of Medieval Europe and the Ottoman Empire. It was so because lending at interest was religiously prohibited. The hardship in the city-states was resolved by the change in the approach to the legitimacy of interest. It was first realized in the sixteenth century with Protestantism (Visser & McIntosh, 1998). Then, two centuries later, the Catholic Church eased the practice of interest (Homer & Sylla, 2005). The effect of prohibition in the Ottoman Empire, more or less, existed throughout its lifetime.

During the periods that the prohibition was influential, the states used interest-free methods in borrowing. The city-states used *rentes,* known as *census* earlier (Munro, 2001), and *compera* (Felloni, 2010) in Medieval Europe. Similarly, the Ottoman Empire utilized *iltizam* (Genç, 2000), *malikane* (Genç, 2003), and *esham* (Genç, 1995) successively for more than five centuries until the nineteenth century for the same purpose. The abovementioned methods used in Medieval Europe and Ottoman Empire were all based on a unique principle called *tax-farming*. Accordingly, the right to receive the state's future revenue was sold to the investors. The mentioned rights were usually future tax income of the states.

In recent years, the old interest-free public borrowing instruments have been brought up by claiming that a modernized version of *esham* would be efficiently utilized in modern economies (Çizakça, 2016), which may be beneficial in preventing crises (Musari, 2021). Therefore, the methods utilized in Medieval Europe and the Ottoman Empire are evaluated. Thus, this paper may contribute to future works on the issue as an introduction to the relevant instruments. The interest-free public borrowing methods of *rentes* and *compera* used by city-states are introduced in section two. In section three, *iltizam, malikane*, and *esham*, the instruments used by the Ottoman Empire, are presented. In section four, the similarities and discrepancies among the introduced interest-free public borrowing methods are evaluated in various aspects such as the nature of the investment, duration of the contracts, inheritability of the rights, essence

of the yield of investment, characteristics of the lenders, and permissibility of selling the rights to third parties. Finally, the findings are concluded in the last section.

2. The Interest-Free Instruments Used for State Borrowing in Medieval Europe

The ways used by the city-states to overcome the prohibition of interest were not a type of interest-free borrowing in the beginning. By the twelfth century, the Italian cities of Venice, Florence, and Genoa developed an instrument to borrow from their citizens, who were known as capital owners. The states determined the size of the capital to lend for each citizen by considering their wealth. Making such loans was obligatory, and the maturity was not known in advance. In the beginning, payments were made to the capital owners as gifts. In general, one payment per year was made. Sometimes, there could be payments for two or more times a year. Since the payments were too low, such lending was not made voluntarily (Homer & Sylla, 2005). Many types of forced loans, such as prestiti, prestanze, and luoghi, were used in various Italian city-states for a number of centuries (Munro, 2003). The forced loans evolved in many aspects. The city of Venice, for example, consolidated such loans into one fund in the thirteenth century and began to pay interest at a fixed annual rate of five percent. Then, a secondary market was developed for the trade of interest-based debt. Although the transactions in the secondary market were controversial, the interest received from the loan was justified by most canonists due to the compulsion of the loans (Munro, 2001).

Later, some newly developed interest-free methods were utilized for public borrowing voluntarily and received broader acceptance. The rentes were used by almost all city-states except the Italian ones, and the compera was utilized by Genoa for a few centuries.

2.1. The Rentes

The *census* contract was an old instrument by which a capital owner bought some part of the annual revenue from a fruitful property by paying in advance. For example, when they required finance, the landholders were selling the future income of the agricultural activity held on their land in Western Mediterranean Europe.

In the thirteenth century, German, Flemish, and Northern French towns began to use *census* contracts, called *rentes* afterward, to finance their expenditures. The administrations were borrowing from financiers, specifically merchants, against perpetual or lifetime annual payments funded by specific incomes, such as rents of the properties owned by the towns and sales and consumption taxes (Munro, 2003). These taxes were collected by the local administrators and used to pay the annuities of the investors (Fritschy, 2009).

In some models, the lifetime annuity was not only for the investors but paid throughout the two or three lives, including the heirs of the investors. Thus, there were no determined maturity dates for neither the perpetual nor the lifetime assigned contracts. On the other hand, the investors were not allowed to terminate the contract and request their capital. Only the issuers, namely the towns or states, had the right to redeem the debt. The redemption could be made partly or wholly. However, the investors that required capital were free to sell their rights, the annuities, to third parties in the well-developed secondary markets in various cities such as Antwerp, Amsterdam, and London (Munro, 2013).

Some canonists considered the *rentes* illicit in the thirteenth century. They claimed that the sum of the annuities that exceed the purchasing amount of the right was unacceptable. On the other hand, in the 1250s, Pope Innocent IV decreed that the new *rentes* were wholly licit as the rents received from real estate for not being loans and had not to be paid back. The wide acceptance of the decree by the majority was not before the fifteenth century. By the fifteenth century, the attitude of the Church became prominent as the legitimacy of the *rentes* was contingent upon three conditions: Only the issuer had the right to redeem the debt; the annuities had to be made by the revenue of real estate or other real property; the annual payments could not be more than 10% of the amount that used to purchase the right (Munro, 2013).

The Flemish towns paid most of the perpetual annuities by the use of the returns from real estates. On the other hand, the annual payments for the lifetime contracts were made by the revenue from consumption taxes. However, direct taxes were never used in any such annuity.

The rate of annuities was changing with time and geography. The rates for lifetime contracts were higher than the ones returned from perpetual *rentes*, in general. For example, the rate for perpetual annuities was 10.0% in some Flemish towns in the thirteenth century. It was 12.5% in the fourteenth century and decreased to 6.25% in the fifteenth and sixteenth centuries. On the other hand, the rate of annuities received from lifetime contracts was 12.5% in the thirteenth century. First, it declined to 10.0% and then to 8.0%. In the fourteenth century, the city of Barcelona paid 7.14% annuities for perpetual contracts and 14.29% annuities for two lives contracts. Then in the fifteenth century, modern Spain initially paid annuities at a rate of 10.0%, and afterward 7.0% by funding them with consumption taxes. In towns of France, the rate of annuity payment was 8.33% previously. In the sixteenth century, the rate first reduced to 6.25% and then 5.56% (Munro, 2013).

The instrument of *rentes* was used in many city-states, even in the modern states of Europe, with various changes until the nineteenth century (Ferguson, 2006; Munro, 2007).

2.2. The Compera

Although the Italian city-states were the founders of public debt in Europe as they developed and implemented the forced loans, they did not utilize the *rentes* that the most remaining European cities used. The Church's consideration of interest paid for forced loans not to be usurious might have caused this instrument to be long-lived in Italian cities. In the sixteenth century, the city of Venice issued a form of *rentes* that made a 14.0% annual payment for a lifetime contract. After some time, a perpetual contract was made with an annuity at 8.0%. However, the government did not continue the *rentes* and redeemed all liabilities at the end of the century (Munro, 2013).

Among all Italian city-states, only Genoa practiced a new and distinctive interest-free public borrowing instrument in the twelfth century: *compera* (Felloni, 2010). Although the distinction between the old forced loans and the new *compera* that operated voluntarily was not always clear enough (Miner, 2018), essentially, by a *compera* contract, a group of capital owners was lending to the state against the right to collect a specific tax until the maturity date on their behalf. The tax could be already imposed or newly levied to use for *compera*. The tax revenue received by the investors was the yield of the invested capital. The amount of the loan was determined according to the related expected tax income. Since the tax income was changing from year to year due to the economic conditions, the realized revenue could be more or less than expected. The uncertainty of the annual income was one of the facts used to justify that *compera* was not usurious and legitimate. When the borrower, namely the state, could not pay the loan back on the due date, the lenders continued to receive the tax revenue until the redemption (Felloni, 2010).

In the beginning, the investors in *compera* were usually the heads of property-owner families that were males. Then, some other individuals participated in the system, and half of the investors were composed of females some years later (Miner, 2020).

The *compera* contracts were made usually for five or more years, and each had distinct names to distinguish it from the others. The income of each *compera* was administrated by the directors. The directors, called *patrons*, were elected by the investors from amongst themselves. The capital to be loaned by each *compera* was divided into a nominal value of 100 units. The owners of each unit, including the ones, who bought shares in the secondary market, were registered (Felloni, 2010). The shares of *compera* were actively traded in Genoa, even for speculation (Miner, 2020).

The debt that was based on *compera* contracts increased in time and became a burden. By the beginning of the fifteenth century, for various reasons, most of the contracts were consolidated as the *compera* of *San Giorgio*. The new institution called the *Casa di San Giorgio* simplified the management of tax collection and investor operations. More importantly, with the establishment of the *Casa*, the character of the revenue changed, and a fixed annual payment of 8% began to be made to the investors (Miner, 2018).

3. The Interest-Free Instruments Used by Ottoman Empire

Traditionally, there are two systems used in tax collection. One is employing officers for it, as it is practiced in almost all modern states. The other is conveying the right of tax collection to a private entrepreneur, an individual or a group of individuals, against a specific remuneration. The Ottoman Empire used both systems but mostly the latter, called *iltizam*, until the middle of the nineteenth century, similar to many other Muslim populated countries (Pamuk, 2007). It is not known much about the emergence of *iltizam*. However, the fifteenth-century records show that it had been practiced well before those records (Genç, 2000). Although *iltizam* was not primarily used for public borrowing and was not explicitly defined as such an instrument, the advance payments received from the investors were a type of short-term debt (Pamuk, 2000). The feature of *iltizam* as a borrowing instrument became more apparent with the increment in the advance payments in the seventeenth century (Genç, 2000). Subsequently, the system transformed to pure borrowing models: *malikane* at the end of the seventeenth century and *esham* about one century later.

3.1. The İltizam

While the system of *iltizam* had changed in various aspects in time, it also had persistent essential features. By *iltizam*, the state conveyed the *mukataa* units, namely the right of taxation of a specific activity in a bounded region, to private investors, called *mültezim*, against an annual remuneration. The determination of the *mültezim*s, namely investors, was made competitively by public auctions. The conveyance of the rights was for limited periods, and part of the future payment was received in advance by the state. The advance payments changed from 5% to 50% of the annual liabilities (Genç, 2000). The share of *iltizam* incomes in the tax revenues, which was 23.16% in Rumelian and 19.75% in Anatolian cities in 1527-28, may be informative about the extensity of the system (Barkan, 1953).

The terms of the *iltizam*s were always limited, which changed, in general, from three to twelve years. However, in some cases, it could be shorter or longer, up to fifteen years. On the other hand, it was always possible to make a better bid for any active *mukataa* before its completion. In such a case, the state requested the active investor to increase the annual payment to the amount of the new offer. If the active investor accepted the proposal, the contract was renewed. Otherwise, the state dissolved the active contract and conveyed the *mukataa* to the new bidder (Genç, 2000).

The investors, who consented to the profit or loss on their behalf, had to have credible guarantors. A guarantor was allowed to vouch only for an investor and always received an explicit or implicit share of the investor’s income. The guarantors were local capital-owners in the beginning. Afterward, they became organized lending institutions as *sarraf*s in big cities, especially in İstanbul (Genç, 2000).

Civil or military citizens, even foreigners, could be investors. The members of the military were particularly interested in investing in *iltizam*. Their share in total *iltizam* began to increase by the end of the sixteenth century, and then by the middle of the seventeenth century, almost all investors were members of the military. In the same period, it was observed that the offered price for renewed *iltizam*s began not to increase, presumably due to the decreased level of competition among the investors (Genç, 2000). At the same time, the state increased the share of advance payment in the total price of *iltizam*, by which the system converged to be a public borrowing instrument with the collateral of the state's tax revenues (Pamuk, 2004). Any payback for the increased part of the advance payment was not defined in the system. However, in such a case, investors were expected to determine the amount to bid by considering the expected tax income and the amount of the advance payment. Thus, increasing the advance payment might have caused the bid price to decrease for the same amount of expected tax revenue.

There were problems with the *iltizam* system. Since the term of holding the contract was not guaranteed due to new investors bidding for an active *mukataa*, the *mültezims* were trying to receive their investment back as soon as possible. Thus, they were exploiting the taxpayers by imposing excessive liabilities (Çizakça, 1999).

3.2. The Malikane

Towards the end of the seventeenth century, the need for finance rose in the Ottoman Empire due to the reduced income on one and the increased expenditures, especially the cost of warfare on the other hand. The state shortened the terms of *mukataa*s and requested much higher advance payments. The response of investors was increasing the burden on taxpayers, which negatively affected their production capacity. Thus, the reduced production caused the tax revenue of the investors to decrease. A new system, *malikane*, was developed to break this vicious cycle at the end of the seventeenth century (Genç, 2003). *Malikane*, with an extended term of the contract, was expected to promote the production of taxpayers, especially the peasants, for being taken better care of by the investors (Pamuk, 2004).

As the most significant distinction of the new system, the right of tax collection was conveyed to the investor for a lifetime against payments made to the state annually (Çizakça, 1999). The amount of the annual payment was fixed throughout the contract term, namely the lifetime of the investor. Therefore, any increment or decrease in actual revenue of investors from the *mukataa* did not have any effect on the state's income. Considering that the revenue from the *mukataas* was increasing in general due to the depreciation of money and economic growth, fixed annual payments were not for the benefit of the state (Cezar, 1986). In the old system, the bid was on the annual payment made to the state. Distinctly, the bid was on the prepayment called *muaccele* in *malikane*. The advance payment of the classical *iltizam* was part of the offered annual payment that was deducted from the future liabilities. However, the prepayment in the

new system was much higher, and it was an additional cost for the investors that had to be compensated by the profit received from the collected tax. Thus, the prepayments of the new system, which were not refunded, became a critical source of income for the state (Çizakça, 1999; Genç, 2000). The annual state income received from the prepayments of *malikane* contracts was about 2% of the total state income at the end of the seventeenth century. The share of such income was closed to 5% in the second half of the next century (Genç, 1995). The new structure of the system could be considered a transformation to longer-term borrowing (Pamuk, 2000).

The *malikane* contracts were for a lifetime and not inheritable. However, the investors were allowed to sell the rights they used. When a *mukataa* was sold to a third party, 10% of the prepayment was paid as tax (Çizakça, 1999). If the seller died within forty days after the sale, the transfer became invalid, and the state went out to tender for the escheated *mukataa*. In case of the observation of low tax income for a few years, the investor could leave the *mukataa* to the state without requesting the prepayment made at the beginning (Genç, 2003).

Although the civil citizens of both women and men invested in *malikane* in the beginning, the middle and high-level military officers (Genç, 2003) and palace women (Pamuk, 2004) became the sole investors in time. The large *mukataa*s were sold to multiple investors by dividing up. The increased *muaccele*, namely advance payment in *malikane*, guided the investors to participate in the auctions with partners (Çizakça, 1999). The number of shareholders was limited to two or three, initially. Afterward, the limit of the number of shareholders increased to twenty (Genç, 2003). When the system enlarged much, some investors did not collect the taxes themselves and subcontracted the operation (Genç, 2000).

The *malikane* was operated efficiently for almost 80 years following its establishment. The system was modified several times depending on various reasons and subsisted with problems until the middle of the nineteenth century (Genç, 2003). The *esham* emerged as a new public borrowing instrument and it was utilized concurrently with *malikane* for a few decades.

3.3. The Esham

In the last quarter of the eighteenth century, when the system of *malikane* became so worn out and inefficient, the Ottoman Empire lost a long war and had to pay a war compensation. The remedy to solve the problem was modifying *malikane* by pushing its limits (Genç, 1995).

The new system was called *esham*, which means *shares* in Arabic, and met the urgent need for finance (Çizakça, 1999). It had a few critical distinctions from *malikane*. First, while the remaining part of the tax income from the annual payment received by the state was the investor's profit, and it was changing from year to year in *malikane*, in *esham*, there was a fixed annuity paid to the investor (Cezar, 1986). The risk of loss in the former system was removed by the latter one. However, there was still uncertainty

due to the unknown length of life (Genç, 1995). Presumably, the uncertain total revenue from *esham* was the reason for legitimating the annual income in the system by Islamic jurisprudence (Çizakça, 1999).

Second, *muaccele*, namely the prepayment made to the state by the investors to participate in *esham*, was determined as the multiples of the annuities separately for each *mukataa*. The country's condition, the level of the need to finance, and some other factors were indicative of the determination of the multiplier. For example, the prepayment (12,500 kurus) of the first *esham* in 1775 was determined as the total of the payments (2,500 kurus) for five years. In other words, the investors that lived recovered their invested capital in 5 years, and the annuities of the ensuing years were their profit. The ratio of the prepayment to the annuity was never determined under five. It increased up to 12 in time, implying that the period of redemption was prolonged (Genç, 1995). The profitability of investing in *esham* depended on the life length of the investor. A contract with an annual payment that was one-fifth of the *muaccele*, for example, could only provide a profit after five years. In case of death before the fifth year, there was a loss for the investor (Cezar, 1986).

Third, the investors were no longer managing tax collections. They just received the annuities. The management of the tax operations was made by others determined by the state officers. This change could be regarded as the nationalization of the financial system (Çizakça, 1999).

Fourth, the *mukataa*s were being sold by dividing into hundreds of shares. Thus, the small investors, including women, children, and non-Muslims, participated in the *esham*, and the potential demand for investment increased. The investors were not determined by auctions. Anybody could buy a share of an *esham* after it was announced (Genç, 1995).

It was also aimed by launching *esham* to attract middle and small-scale investors rather than the big ones to buy shares (Pamuk, 2007). Similar to *malikane*, the investors were allowed to sell their rights to third parties. Although the possibility of selling it in the secondary market was regarded as the first step of conversion to the banknote system by some scholars (Tabakoğlu, 2016), this feature of *esham* caused problems. It may be thought that the buyers of *esham* were younger. When the shares were sold by an investor to his son, for example, the contract was likely prolonged, causing a loss in state revenues (Çizakça, 1999). Therefore, selling *esham* to third parties was taxed to prevent the loss (Cezar, 1986). Besides, the non-declaration of the death of investors was also a critical problem of the *esham* system. The irregularities not caused annual overpayments only but also delayed the prepayment of the renewed sale.

On the other hand, a perpetual model of *esham* was practiced to attract investors in 1840. However, the model operated with a reduced rate of return lived only for a few years. The *esham*s issued for two lives, which could be inherited once by the first or second owner, in 1849, did not find favor, and the sale of classical *esham*s ended by the 1860s (Genç, 1995).

4. The Similarities and Differences among the Interest-Free Instruments

The beginning of the practice of *compera* was in the twelfth, and *rentes* were in the thirteenth century. However, the increment in the advance payment by which *iltizam* converged into a public borrowing instrument and the practice of *malikane* and *esham* were long afterward. John Munro (2013) raised the problem regarding this issue by asking:

> "Why did the Islamic world, equally subjected to the constraints of the usury doctrine (riba), fail to resort to rentes or some similar alternative in public finance, before the Ottoman imperial government finally adopted them in the eighteenth century?" (p.245)

Mehmet Genç's (1995) assertion regarding the history of public borrowing may be a clarification, at least for the Ottomans. According to Genç, the Ottoman Empire did not require long-term borrowing until the second half of the seventeenth century. The private treasury of Ottoman sultans was used to meet the budget deficit for a long time. Besides, the need for short-term finance was met by borrowing from merchants, *sarraf*s, and high-level bureaucrats. The advance payments of *iltizam* made by investors were another source of short-term finance. When the need for finance increased much, the systems of *malikane* and *esham* were established subsequently.

A crucial distinction in public borrowing between the European states and the Ottoman Empire was the corporate identity of the borrower, which was significant in the structure of overall public finance (Fritschy, 2009). Regarding the borrowing body, the word "state" in this paper means the central government of the Ottoman Empire. However, it implies the administrations of the cities, towns, and even villages in Europe that separately borrowed along with the highest governing structure.

As summarized in Table 1, among all five instruments introduced, only *compera* was a loan in the modern sense in which the invested capital was repaid at the due date. The other four ones could implicitly be regarded as borrowing systems. The yield of the loan was the floating income of the specified tax. On the other hand, *iltizam* was a tax farming model, and it was not primarily established for public borrowing. However, the advance payment received by the state and deducted from the annual payment was regarded as a sort of interest-free short-term loan, specifically when the advance payment increased in the seventeenth century. Naturally, both *compera* and *iltizam* contracts were made for limited periods. The other three contracts, *rentes*, *malikane*, and *esham*, were either perpetual or for a lifetime.

The payment made by the investors was the price of the conveyed rights for *malikane* contracts and the price of the future annuities for *rentes* and *esham* contracts. For all these three contracts, the prices of the future annuities and conveyed rights were paid in advance. The sum of loaned capital in *compera* and some part of the offered annual payment in *iltizam* were also advance payments. The investors in *iltizam* and *malikane* were determined by auctions. The bid was on the annual payment in the former and the advance payment for the latter one.

Table 1. The Basic Features of the Interest-Free Public Borrowing Instruments

	Rentes	***Compera***	***İltizam***	***Malikane***	***Esham***
Practiced from	13th century	12th century	before 15th century	17th century	18th century
Practiced to	19th century	15th century	19th century	19th century	19th century
Maturity	perpetual or lifetime (sometimes for two or three lives)	5 or more years (sometimes longer as if perpetual)	3 to 12 years in general	lifetime	lifetime (perpetual and 2 lives models for short periods)
Conveyed rights / Source of the yield	rents and taxes from sales and consumption	specific taxes	specific taxes	specific taxes	specific taxes
Loan / Price of conveyed rights / Price of future annuities	price of future annuities	loan	no investment (only annual payment for conveyed rights)	price of conveyed rights	price of future annuities
Investors determined by auction?	*not clear*	no	yes	yes	no
Bid on what?	-	-	annual payment for the conveyed rights	advance payment for the conveyed rights	-
Payment in advance was	lump-sum price of future annuities	Sum of loaned capital	5% to 50% of the offered annual payment	price of the conveyed rights	lump-sum price of future annuities
Repayment of the capital	no	yes	-	no	no
Yield of investment was	fixed (ratio of the invested capital)	floating (tax income)	floating (remainder of tax income from the offered annual payment)	floating (remainder of tax income from a fixed annual payment)	fixed (ratio of the invested capital)
Investors collected tax?	no	yes	yes	yes	no
The investors were	financiers, specifically merchants	at first, property-owner men; then, other men and women	at first, any citizen or foreigner; then, high-level military officers	at first, any citizen; then, middle and high-level military officers	men, women, children, non-Muslims, and other small investors
Negotiable to a third party	yes	yes	-	yes	yes

The sources of the yield of investment were specific tax incomes of the states in all five models and rents of state-owned properties in *rentes*. Except in *iltizam*, the rights conveyed to investors were negotiable to third parties, even sometimes in secondary markets specific to such assets.

The yield was fixed as a ratio of the invested capital in *rentes* and *esham* and floating in the other three contracts. The return was the income from the specified tax in *compera*, the remainder of tax from the offered annual payment in *iltizam*, and the remainder of tax from a fixed annual payment in *malikane*. However, the total revenue received by the investors in all five models was uncertain, which was considered one of the critical features of being religiously licit as an interest-free instrument. The annually fixed return from *rentes* and *esham* were not for definite years but were perpetual or lifetime. Although the *compera* and *iltizam* contracts were made for limited-term, the annual return was floating in both models. Lastly, in *malikane*, a floating income was received for a lifetime.

Although *esham*'s emergence (in the eighteenth century) was much later than *rentes* (in the thirteenth century), the essential principles of these two models may be regarded to be almost the same. In both systems, the investors made a lump-sum payment in advance against a fixed annual return, a ratio of the invested capital. The contracts were perpetual or for a lifetime, and hence the investments were not paid pack. Instead, the investors were allowed to sell the right of income to third parties.

On the other hand, although all these five models were introduced as instruments based on selling the rights of future state revenue, *compera* and *iltizam* by which the investors received floating annual incomes for a limited period and *rentes* with perpetual contracts could be regarded as they were. The lifetime models are similar to some life assurance plans of modern times. Since an investor purchased a fixed or floating annual income for an uncertain term that depended on the time of death, the return of investment was not guaranteed in such contracts. When death came early, the investment ended at a loss. On the contrary, the benefit increased as the investor lived longer.

5. Conclusion

The states that required finance has been borrowed throughout history. Although the loans were interest-based more often, in some periods, some alternative ways to interest-based lending were used by states due to the prohibition of interest, especially in Medieval Europe and the Ottoman Empire. The *rentes* and *compera* of European city-states and the *iltizam*, *malikane*, and *esham* of the Ottomans were operating by grounding on principles of tax-farming. The investors were purchasing the right of receiving a future income from the states, such as taxes and rents.

Among all five instruments introduced, the invested capital was repaid only in *compera*. Except in *iltizam*, the rights sold to investors were negotiable to third parties.

The *compera* and *iltizam* contracts were made for limited periods. The other three contracts, *rentes*, *malikane*, and *esham*, were either perpetual or for a lifetime. The annual yield was fixed in *rentes* and *esham* and floating in the other three contracts. However, the total revenue received in all models was uncertain, which was considered a requirement for legitimacy as an interest-free tool.

Although *esham* emerged much later than *rentes*, the features of these two instruments may be regarded to be almost the same. Lump-sum payments in advance against fixed annual returns were made for perpetual or lifetime contracts in both systems.

Finally, although all five instruments were claimed to be the sale of the rights of future state revenue, *compera*, *iltizam*, and *rentes* with perpetual contracts do better fit the description. The lifetime models are a sort of life assurance plan of modern times. Since the annual payment was made until the investor's death, such contracts did not guarantee the return on investment. The investment could end with either a loss or a high benefit, depending on the time of death.

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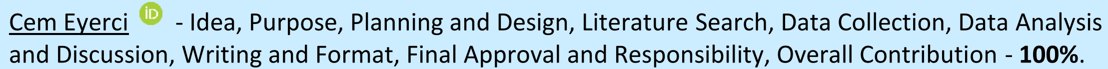
Author Contributions:



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