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ΑΡΧΕΙΟΝ ΟΙΚΟΝΟΜΙΚΗΣ ΙΣΤΟΡΙΑΣ

Τόμος XXXVI

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Ιανουάριος – Ιούνιος 2024

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BANKING ELITES AND GEOPOLITICAL RIVALRY: THE CASE OF GREEK BANKERS IN THE 1830-1923 PERIOD

I. - D. SALAVRAKOS*

Abstract

The aim of the current paper is to demonstrate how Greek banking elites in the two sides of the Aegean Sea during the nineteenth and early twentieth centuries were involved in a bitter entrepreneurial and simultaneously geopolitical rivalry, aiming for different policies and goals. The Greek bankers of the newly formed Greek state (after 1830) were involved in the financing of shipping, both commercial and military, aiming to restore the old Greek naval mastery across the Eastern Mediterranean and the Black Sea, and were negotiating with European bankers the restructure of Greek debt.

Contrary to this goal the Greek bankers of Constantinople were reorganizing the finances of the Ottoman Empire, they were also negotiating with European bankers on behalf of the Sultan for the Ottoman debt and they were making immense efforts to penetrate the market of the Greek state in order to control the Greek banking system. This is a story which demonstrates vividly how economic leadership is closely associated with political and military leadership and that economic developments can trigger geopolitical change.

JEL Classification: N14, P10

Keywords: Banking, nationalism, political economy

1. Introduction

At this point we have to clarify certain issues related to history and linguistic terminology which may be regarded sensitive.

The first issue is related to terminology. We use the historical term “Constantinople” instead of “Istanbul”. The use of the Greek word instead of the Turkish word obviously does not imply any nationalistic element here. Throughout the centuries of the Ottoman Empire (1299-1922) the historical texts continue to use the term “Constantinople”. After the birth of modern Turkish state in 1923 the term “Constantinople” is replaced by the word “Istanbul”. In order to be totally accurate here the Turkish state on March 28th 1930 replaced the

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word “Constantinople” with the word “Istanbul” and also renamed the town of “Agkira” to “Ankara”. Before that date all texts used the Greek words. Therefore we use the Greek term and this obviously should not be regarded or interpreted as politically motivated writing. We point out that the writing is purely academic. The second point is associated with the term “Romioi” (coming from Romans). The term for the Greeks is associated with the Greeks who lived in the Ottoman Empire. However for the Turks the word “Romioi” had a broader definition. It included all the Christian subjects of the Empire that is Greeks, Armenians, Lebanese, Egyptian and Arab Christians etc. Finally the term “Porte” was the old term for the central power of Ottoman Empire, that is, the Sultan. We also point out that this work is mainly based on Greek publications and data. We point out that the Greek economic archives and publications are extremely detailed and provided numerous information, not only for the Greek economy but for economies across the region of South-Eastern Europe and the Levantine basin. Rich data can be found on loans, trade, foreign direct investments, portfolio investments etc. However, they are neglected due to the language barrier. The current essay uses both Greek and international bibliography and the translation from Greek and Turkish to English is as accurate as possible since phrases and terms differ. The author of the current paper strongly believes that international audience deserves to learn an important but neglected story of economic and political rivalry.

The second issue is related to research methodology. The current paper is not associated with the typical research agenda on leadership as we currently apply the notion in social sciences. From an economic or managerial perspective leadership inside enterprises is associated with dominant control of the firm, or shared management decision making, or balance between managers and shareholders conflicting interests, or internal opportunistic behavior, or principal-agent analysis, or entrepreneurial leadership practices associated to ethnic cultures. In this case for example British and US entrepreneurial practices have more in common when compared to the French, the German, the Russian or the Japanese entrepreneurial practices. From a political theory perspective leadership is associated with different personalities, forms of government (monarchy, aristocracy, democracy, dictatorship etc.) and also with the type of military leadership across time and states. [Chandler & Daems (1980), Vlachoutsicos (1990), Child & Faulkner (1998), Kantarelis (2010)].

The intellectual aspiration of the current paper is to apply the theoretical tools of political economy and economic history in order to demonstrate how banking elites of the late nineteenth and early twentieth centuries were associated with political elites and how their economic decisions were associated

with geopolitical change. The role of economic elites in political affairs in the past is well documented. [Stern (1979), Ferguson (1998)]. However the role of banking elites in South-Eastern Europe is neglected. Thus the aim of the paper is to demonstrate how conflicting economic and geopolitical interests shaped the strategies of Greek bankers in the two sides of the Aegean during the 1830-1923 period.

The structure of the paper is as follows: The first section, provides an overview of domestic economic developments in the modern Greek state, which emerged after 1830 and highlights the role of banking elites in shaping not only economic policy but also geopolitical aspirations. The second section follows a similar analytical path for the Ottoman Empire. The third section demonstrates how the banking elites from both sides of the Aegean Sea were involved in a bitter rivalry for dominance inside Greece and across the Eastern Mediterranean. Concluding remarks follow.

2. The modern Greek state, its economy and the role of banking elites (1830-1913)

The Greek revolution against the Ottoman Empire started in 1821 and after nine years of struggle the modern Greek state was recognized as independent with the Treaty of London in 1830. This new state was very small and very poor. Its size was just 47,516 square km. and its population was just 750,000 inhabitants. Throughout the period of the nine year revolution the domestic financial resources were not adequate to finance the various activities thus external financing was needed. The "Greek Provisional Government" in 1822 signed two loans the first in Zurich Switzerland for 40,000 Fiorins and the second in Marseille France for 62,000 Fiorins. A third loan was signed with Britain (February 9th 1824) for £800,000 and a second loan followed for £816,000. These two loans did not cover the requested sums which were £2,800,000. Most of these loans were used for military purposes. Thus £65,000 were spent for ammunition, £20,000 were used for artillery guns, and £160,000 were used for financing the purchase of 4 frigates from Britain. During the 1828-1830 period two more loans were granted to the new state. The first was from Russia for 3,500,000 rubles and the second was from France for 6,000,000 French Francs. At that time there were no banking houses to organize the financing of the Provisional Government. The loans were negotiated with foreign bankers from a small group of individuals who were very close friends to the wealthiest Greek ship-owner of the era Admiral George Kountouriotis (1782-1858). Kountouriotis held several important post. To illustrate, during the 1824-1826

period he was the President of the Greek Executive Committee an informal prime minister. He was a Member of Parliament during the 1828-1829, Senator during the period 1844-1858 and President of the Senate during 1844-1847, Minister of Naval Affairs in 1848, Deputy Prime Minister 1837-1841, Prime Minister in 1848.

The closest associates of Kountouriotis were Ioannis Kolletis (1773-1847) and Alexander Mavrokordatos (1791-1865), the former with close contacts in France and the latter with contacts in Britain. Kolletis was a member of Parliament in 1828-1829, Secretary of Naval Affairs in 1833, Ambassador to France during the 1835-1844 period, Prime Minister in 1844-1847 period and at the same time Commissioner of the Royal House and of External Affairs. Mavrokordatos was President of the First National Assembly in 1822-1823, President of Western Greece in 1821-1823, Minister of Finances and Arms in 1833, Commissioner of the Royal House and of External Affairs 1833-1834, Greek ambassador in Britain 1841, Vice President of the Constitutional Committee in 1843, Prime-Minister in 1844, ambassador to France in 1850-1854 period, Prime minister for the second time 1854-1855.

In February 2 1828 the first bank was established in modern Greece entitled “National Credit Bank (Ethniki Xrimatistiki Trapeza)” with George Stavrou (1788-1869) as first governor. The aim of the bank was to replace the Turkish currency which was still in circulation in liberated Greece with a new currency the Phoenix. The capital of the bank was provided by Stavrou, the Swiss banker Jean-Gabriel Eynard (1775-1861), by King Ludwig of Bavaria and the Governor of Greece Count Kapodistrias (1776-1831). In 1832 Greece became a kingdom and the throne was offered to Otho Prince of Bavaria (son of the King Ludwig who was one of the major stake holders of the National Credit Bank). However the bank was practically dissolved in 1834, due to the chaotic monetary circumstances in the economy associated with inflation and devaluation of the Phoenix currency. The drachma became the new currency with a royal decree of January 25th 1833. King Otho reigned until 1862. During this period (1832-1862) inside the Greek state the policy of the Great Idea (or Megali Idea in Greek) emerged. The policy was officially formulated in January 1844 by the Prime Minister Kolletis who spoke in parliament (National Assembly) and said the following:

“The Kingdom of Greece is not Greece; it is merely a part; the smallest, poorest part of Greece. The Greek is not only he who inhabits the Kingdom, but also he who inhabits Ioannina or Salonika, or Serres or Andrianoupolis or...any other region belonging to Greek history or the Greek race... There are two great centers of Hellenism. Athens is the capital of the Kingdom.

Constantinople is the great capital, the City, the dream and hope of all Greeks". [Llewellyn-Smith (2002, p. 3)].

As Llewellyn-Smith (2022:4) points out:

"The Great Idea... came to contain at least three different strands. Strictly interpreted it was the romantic dream of a revival of the Byzantine-Greek Empire centered on Constantinople. Less strictly it was the aspiration for Greek cultural and economic dominance within the Ottoman Empire, leading to its gradual subversion from within by a natural process which need not entail a violent clash between the rival Greek and Turkish nations. Thirdly the Idea could be interpreted in terms of the modern nation state, as the progressive redemption of the Greek irredenta by their incorporation in the Greek kingdom, which entailed a head-on clash with the Ottoman Empire..."

Whatever the exact planning, or aspiration, or motive one thing was immediately obvious. That the poor Greek state, needed to finance the creation of a navy, in order to achieve simultaneously, commercial and military dominance in the Aegean and the Mediterranean.

The second banking institution of the new state was "The National Bank of Greece" (ETE) established in 1841. The vice-president of the bank was Markos Renieris (1815-1897) who was the spiritual father of the Great Idea, since in 1841 three years before the official proclamation of the policy in the parliament he wrote a book entitled "Philosophical Essay of History (=Dokimio Philosophias tis Istorias)". In there he pointed out his vision of liberating Greeks with the assistance of Britain and pointing out that Greece was a western state without any connections with the Russian Empire. Renieris was a Law Professor in the University of Athens (1855-1864), vice president of the National Bank of Greece (1861-1869), and then President during the period 1869-1890. The President of the National Bank of Greece during the time that Renieris was vice-president was George Stavrou (1788-1869) who started his carrier in the Vienna Music Company and he became the first major Greek banker as we already pointed out.

Renieris immediately realized that the new banking institution had to finance shipping activities. However the problem of shipping finances was double. There was a pecuniary issue, associated with the high cost of shipbuilding and there was a technical issue associated with modern technological developments; that is replacing mast ships with steam ships. By 1848, just seven years after its establishment, Renieris managed to impose a new entrepreneurial / financial strategy to the "The National Bank of Greece". According to this, the bank could finance up to 50% of all naval projects in various shipyards and could also finance the establishment of various shipping companies.

With the funding of the bank four new shipping companies were established. These were: 1) “The Company of Commercial Steamships”, (in 1849) 2) “The Greek Company” (also in 1849), 3) “The Evripidis Company” (in 1851), 4) “The Hellenic Steam Company” (in 1857). Thanks to banking funding, the Greek commercial fleet which in 1835 had 188 vessels of 40,305 tons, in 1840 had 442 vessels of 83,208 tons, and in 1855 had 1,240 vessels of 249,210 tons. By 1865 the number was increased to 1,289 vessels of 269,724 tons and by 1875, there were 2,441 vessels of 470,871 tons. The huge increase in terms of both numbers of vessels and ship tonnage was a triumph for the bank but it was also a huge geopolitical asset since the Greek fleet dominated the ports of Asia Minor (Ottoman port of Smyrna), the port of Alexandria in Egypt, the ports of Levantine East (today Lebanon and Israel) and the ports of the Black Sea. [Loucas (1998: 95-106), Panayiotopoulos (2019: 107)]. Its worth mentioning, that in 1890 the 34% of Ottoman commercial fleet was owned by Greek shipowners, thus with the additional fleet under the flag of the Greek state, the Greek shipping presence in the region was extensive. (Harlaftis & Kardasis 2000). The involvement of “The National Bank of Greece” alarmed the “Greek bankers of Galata” that is the Greek bankers of the Ottoman Empire.

However it was not only the rapid economic development of the shipping activities, but a huge expansion across service sector industries.

To illustrate in the banking field by 1890 Greece had six more major banks these were: 1) The “Ionian Bank” established in 1839 with a capital of £315,507.10 (the decimal number refers to shillings) outside Greece (at that time), 3) The “General Credit Bank” established in 1874 with a capital of 25,000,000 drachmae, 4) The “Greek Bank of Industrial Credit” established in 1875 with a capital of 10,000,000 drachmae, 5) The Beneficiary Bank of Eupirus-Thessaly” established in January 25th 1882 with a capital of 20,000,000 drachmae, 6) The “Bank of Constantinople”, which was an Ottoman Bank with a branch in Athens.

Turning to road network by 1890-1892 the country had a network of 2,500 miles and another 600 miles were under construction. The cost of the network differed it was around £1,025 / mile in the island of Evoia but it was only £180 in the island of Corfu. In the railways there was a network of 911 km with another 504 km under construction. There were seven rail firms and the five most important were as follows: 1) The “Piraeus-Athens Railway” capitalized at 2,800,000 drachmae, 2) The “Piraeus-Athens-Peloponnese Railway” capitalized at 25,300,000 drachmae, 3) The “Railway of Thessaly” capitalized at 23,000,000 gold francs, 4) “The Attica Railway” capitalized at 5,400,000 drachmae, 5) The “Piraeus-Larissa Railway” capitalized at £3,600,000.

The postal services were also developed. The first Hellenic Post was established on September 24th 1828. By 1834 the first contract between Austria and Greece was signed for the development of the network. By 1883 the Hellenic Post had transported 3,265,079 letters, 32,141 postcards, 3,712,243 newspapers, 191,178 periodicals, 13,690 specimens. For 1890 the figures were as follows: 4,940,440 letters, 194,778 postcards, 4,888,807 newspapers, 1,040,397 periodicals, 44,845 specimens.

The telegraphic network was also developed. By 1891 there were 8,958 km of telegraphic wire with 186 telegraphic stations. The most important company was the "Eastern Telegraphic" based on the island of Syros. The number of telegrams increased from 579,507 in 1882, to 1,185,682 in 1892.

However although services had expanded the secondary sector of the economy remained problematic. To illustrate, in 1867, there were just 22 factories (all in Athens). By 1909, the number of factories had increased to 355 (from those 243 were located in Athens). Although the numerical increase looks healthy in terms of HP (Horse-power) there were just 300 Horse power (HP) in 1867, and these were increased to 9,000 HP by 1900. For comparative reasons one can take into consideration that during the 1876-1880 period the industry of Spain could generate 470,000 HP. Thus by 1900 the Spanish industry was 52 times bigger when compared to the Greek one. [Bickford-Smith (1993: 115-117, 123-145) & Dertilis (2006: 598-600, 676)]

The other problematic aspect of the Greek economy was that of public finances. Throughout the 1843-1878 period, Greece, was totally dependent from foreign state lenders since private bankers hesitated to provide any loans. Thus direct intergovernmental loans were associated with austerity measures in order to keep the public debt under control. Thus public debt had a minor increase from 150,000,000 drachmae in 1843, to 186,000,000 in 1877. Throughout the 1850-1859 period, the annual budget had surpluses, but during the 1860s deficits emerged again. Dertilis (2006: 117-127, 284, 289-352).

After 1878 private banks could again provide loans, thus a huge expansion of capital inflows occurred which financed public utilities such as electricity, gas, public works, canals, state buildings and also defense. Thus the construction of three battleships cost 26,000,000 French francs and these were financed by a bigger loan of 135,000,000 French francs. (Loucas 1998: 139-140).

Throughout, the 1879-1893 period, total Greek lending from abroad was 639,739,000 French francs. However, the actual inflows to the state Treasury, were just 348,049,835 francs. The remaining amount was used to pay past time loans or to cover commissions, current expenses etc. The country defaulted in 1893 when the French decided to impose restrictions on the exports of Greek

agricultural products to France. The default had huge geopolitical ramifications. Until 1893, the biggest source of foreign capital for Greece, was, the German financial market. Thus a year before the default from a total Greek debt of 570,000,000 French francs the 342,000,000 (or the 3/5) were financed by the German banks “National Bank fur Deutschland”, the “Erlanger und Söhne” and the private bank “S. Bleichröder”. Furthermore, on July 9th 1884 Greece and Germany had signed a bilateral commercial and shipping agreement which allowed the entry to the Greek market of German products of iron, wood, textiles, porcelain and chemicals without any tariffs. Thus due to the financing of the Greek debt and due to the free tariff trade agreement the influence of Germany on Greece was rising. This however was not acceptable for the British and French interests. After the default of 1893 and during the next ten years the economic fortunes have changed. Thus by 1903 total Greek external debt had risen to 710,000,000 French Francs but by that time British banks controlled bonds worth 330,000,000, French banks controlled 232,000,000 and German banks controlled just 113,000,000 francs. Thus by 1903 the 79.15% of Greek debt was financed by the British and the French whereas the Germans financed just the 15.9%. [Rousos (1974: 205-233), Vournas (1976), Iliadakis (2011: 61-65)].

The change of credit had ramifications for defence finances. To illustrate the German industry was able to obtain orders for just 8 mountain artillery guns with 12,000 artillery shells and the Navy order four destroyers in German shipyards. During the 1908-1914 period the Greek orders of military equipment to France exceeded the value of 60,000,000 French Francs, whereas the orders in Germany were just 13,500,000 francs. (Loulos 1990: 38-41, 80, 86, 132, 162).

Going back to the years after the 1893 default the most important development was the short war of April-May 1897 with the Ottoman Empire. The balance of power was against Greece in the Army but it was in favor in the Navy. The outcome of the Greek defeat was that Greece had to pay to the Ottoman Empire an indemnity as war reparations. This increased the debt further but made obvious that the implementation of the Megali Idea requested not only a strong Navy but a strong Army as well. In order to finance not just the Navy but also the Army new loans were needed. For the economic reconstruction of the 1893-1912 period two Greek bankers played a crucial role. These were Ioannis Valaoritis (1855-1914) and Stephanos Streit (1835 or 1837-1920). Valaoritis was a Senator and vice-Governor of the National Bank of Greece in 1895. He became the Governor of the National Bank of Greece during the 1911-1914 period. Streit was a lawyer with studies in Greece and Germany. He was a judge and a professor of Athens University (1876). From 1896-1910

he was the Director of the National Bank of Greece and he established two banks outside Greece The Bank of Crete (1899-1919) and the Bank of Anatolia or Banque d' Orient (in French) (1904). Streit was a solicitor and from 1872 he was a manager of the National Bank of Greece. He became the chairman of the bank during the 1896-1910 period. The following highlight their role:

“The Greek state which defaulted in 1893...and humiliated in 1897, [it] was forced to accept The International Economic Control of 1898. In the same period the economic and the fiscal crisis created immense barriers to trade and finance and for the National Bank of Greece...The contribution of Ioannis Valaoritis to overcome the crisis was immense...He reorganized the Bank ..he made a settlement of Greek internal debt and restored the exchange rate between the Greek currency and the gold...he managed to secure foreign loans for the financing of national goals...Both Ioannis Valaoritis and Stephanos Streit by the end of the 1890s decade, split their managerial activities inside the National Bank of Greece ...Later Stephanos Streit will become the Minister of Economics and he will be able to make a debt settlement with foreign creditors...whereas Ioannis Valaoritis has to tackle monetary developments... since monetary circulation [is problematic] and causes devaluation...Valaoritis effort for the reshaping of the monetary system stars in 1902...by 1909 the exchange rate between the Greek currency and the gold is achieved... ”. Notaras (2000: 29-32)

In order to finance defence spending the following demonstrates the effort vividly:

“In a long letter.. Ioannis Valaoritis points out the difficulties. ...England ...did not believe in bank credits. From Germany and Austria nothing was expected. Mr. Luzzati, the President of the Italian Cabinet was personally in favour, but his country was not providing any credit. Only France was left. There the money was in excess ...but the fear that this money if provided could trigger another Balkan war froze any initiative. “You will not find not even a million” said one old French Finance Minister...[however] Ioannis Valaoritis ...rapidly convinced the economic cycles...He gained the trust of Aristide Briand, President of the French Cabinet, ...and eventually gained the sum of 40,000,000 French francs as an advanced payment. This sum was more of what Greece needed to finance basic needs. It was the decisive step for the success of a second loan totalled 150,000,000 francs. Without [these pecuniary benefits] neither the First Balkan War, nor the Second could have occurred... ”. Notaras (2000:35).

According to a different source:

“For the supply of the Army ...the “National Defense Fund” was

established in 1904...financed by special state resources...the defense expenditures ...during the 1904-1912 period [were] 214,000,000 drachmae from those the sum of 115,000,000 were granted during the 1910-1912 period [Venizelos government]...[During] the 1912 mobilization...the armament supplies were complete..." HMC (1987: 14) .

The Army of 200,000 men was equipped with 115,000 modern rifles and 90,000,000 rounds of ammunition, 112,000 old rifles with 20,000,000 rounds of ammunition, 114 artillery guns with 136,000 shells. Turning to naval armaments the 3 old battleships which were purchased by the Trikoupis government were modernized and one additional modern ship was added. In addition 4 destroyers were purchased from Britain 6 (4 big, 2 medium) from Germany. The 4 Greek battleships had 26 guns and the remaining 19 vessels had 57 guns. The Turkish Navy had also 4 battleships with 36 guns and the remaining 22 vessels had 54 guns. Thus the two navies had almost equal fire power, 83 guns for the Greek side versus 90 guns of the Turkish side. Xristopoulos (1977: 314-316), Loulos (1990: 104-120), Loucas (1998: 218-219).

The outcome of the two Balkan Wars of 1912-1913 was victorious. Just fifteen years after the military defeat of 1897 Greece managed to achieve complete victory in two wars one against the Ottoman Empire and another one against Bulgaria. This double victory made the Greek state to expand from 63,211 square km. to 120,308 square km. from 1911 to 1913. The population increased as well from 2,631,952 inhabitants to 4,718,221 inhabitants. Xristopoulos (1977: 354). The Greek economy also profited. The arable land increased from 8,646,000 square km. in 1911 to 13,356,000 square km. in 1914. Wheat production increased from 343,000 tons to 357,000 tons. Corn production increased from 151,000 tons to 239,000 tons respectively. Bank deposits increased from 259,200,000 drachmae (or £6,060,620) in 1909 to 466,500,000 drachmae (or £11,770,906) in 1914. The number of commercial vessels increased from 287 in 1909 to 407 in 1914 and the capacity of the fleet increased from 484,000 gross tons to 821,000 gross tons in the same period. Dertilis (2006: 881, 960, 980-983, 1,022-1,030). The cost of the Balkan Wars was as follows: In 1912 The Ministry of the Army had absorbed 45,737,032 drachmae, whereas The Ministry of Navy had used 45,508,724 drachmae. In 1913 the expenditures were: 118,343,940 drachmae and 34,041,789 drachmae respectively. It is obvious that defense spending in 1912 was almost equal since the Navy had to fight in the Aegean Sea, but in 1913 the majority of funding was absorbed by the Army since Greece had mainly to fight a land war. Andreadis (1940: 22-23).

It is obvious that by 1913 the policy of the Great Idea (Megali Idea) was

partially achieved. For the success of this policy the role of Greek bankers was immense. As we have seen the first bankers George Stavrou and Markos Renieris played a pivotal role inside the “National Bank of Greece” to finance the creation of a Navy. After the military defeat of 1897 the Directors of the National Bank of Greece Ioannis Valaoritis (1855-1914) and Stephanos Streit (1835 or 1837-1920) played a crucial role to stabilize the economy and reorganize state finances and defense spending which now had to finance the creation of both strong Army and Navy. This was not an easy task for a small country which in 1893 had defaulted and in 1897 had experienced a military defeat. However both bankers were able to mobilize the French political and economic elite and secure French loans which were completely necessary for financing armaments for both the army and navy. In addition the strong commercial fleet also financed by the “National Bank of Greece” provided an additional geopolitical asset in the Eastern Mediterranean. Having briefly explained the role of Greek bankers in the Greek state we now turn our attention to the ‘Greek Bankers of Galata’, that is the Greek bankers of the Ottoman Empire.

3. The Ottoman Empire, its economy and the role of banking elites (circa 1850-1900)

Before starting the analysis of the role of the Greek bankers of the Ottoman Empire an introductory remark is needed for the monetary status inside the Empire. The Ottoman currency of the 1698-1844 period was the “Grossi”. Each “Grossi” was split in 40 “parades”. Every “paras” had 3 Aspra (whites) which were also called “aktsedes” [in Greek but referred as *akce* by Turkish scholars in international bibliography]. Thus 1 “Grossi”=120 Aspra. The information of the exchange rate of the Ottoman “Grossi” with other foreign currencies is limited. In 1721 1 “Grossi”= 5 French Francs, in 1788 and 1800 there was 1 “Grossi”= 2 French Francs. In 1821 (the year of the start of the Greek Revolution) the exchange rate was 1 “Grossi”= 1 French Franc, in 1826 1 “Grossi”= 0.60 French Francs and 1829 it was 1 “Grossi”= 0.30 French Francs. Turning to inflation the following data provide some idea. In 1822 the price of barley was 8 “parades” in the town of Nafplio, but it was 16 “parades” in the town of Tripolis. In the same year in Thessalonika lamb price was 26 “parades”, when the daily salary of a builder was 80 “parades” (2 “Grossia”). The monthly salary of a Horse caretaker of Hellenic Posts during the era of the Revolution was 50 “Grossia”. The forced pecuniary contribution (taxes) which the Greek churches had to pay to the Ottoman Treasury were more than 12,000 “Grossia” and the total church debt (of all Orthodox churches across the Empire) to

the Treasury on April 8th 1825 was 7,177,612 “Grossia”. Only in 1826 from the parts of the Empire which were under the control of the Greek revolutionary army the Ottoman Empire lost church taxes worth 335,448 “Grossia”. These however had to be collected and the Ottomans charged the Patriarch of Constantinople. Dimitriadou (2014: 117-140, 236-299) & Georgantzis (1985: 87-89, 91-112). After 1844 the Ottoman lira (pound) becomes the official currency of the Empire. Pamuk (2000).

Since we provided a brief picture of the monetary regime of the Ottoman Empire we point out that inside the Empire there were many Greek merchants and bankers. The main banks in the capital of the Empire were “The Imperial Ottoman Bank”, “The Ottoman Credit Bank” and there was a state body called “General Enterprise of the Ottoman State”. These three institutions were the primary actors of financing the Ottoman debt to foreign creditors and issuing new loans. Around these “Big-Three” institutions smaller banks, exchange rate agencies, foreign currency dealers existed, belonging mainly to Greek, Jewish and other Levantine merchants and bankers. Exertzoglou (1989: 15-31). The main Greek bankers of Constantinople around 1850 were: George Zarifis, Theodore Baltazis, Dimitrios Psycharis and Andreas Syggros. The role of the first three is captured by the following:

“In the middle of January [1847] a fire started in the Naum Theatre ...and several close buildings were also destroyed...the people inside became homeless and among them was the Zarifis family. The neighbours supported them... [especially] Count Jean Alleon offered residence for the night in his house... That night .. Zarifis became a close friend of Count Alleon who was a banker with access to the [Ottoman] Palace. Alleon and Theodore Baltazis wii establish ...in the summer of 1849 the ... ‘Banque de Constantinople’ ...an immense achievement which other French or English merchants failed to do. [The Sultan] did not want an Ottoman Bank without the presence of Ottoman bankers... But Baltazis and Alleon were both Ottoman citizens and close friends of the Grand Vesier Reshid Pasha who supported their proposals to the Sultan. The fire made Zarifis and Alleon [close] highly trusted friends... Zarifis started his cooperation [with Alleon] initially as a remisier, (=intermediary) for capitals which the Count borrowed from France in order to re-borrow merchants [inside the Ottoman Empire] ...He [Zarifis offered his services] for buying and selling ...foreign currency, since in Constantinople all currencies of European countries were in circulation...In the market one could find Ottoman lire (of 100 “Grossia”), silver talira (of 20 “Grossia”), but also counterfeit “Grossia” and “parades”. There were also in circulation gold [currencies]... Russian gold Imperiele coins, Venician ducatta .. Spanish coins, Austrian thaler ...

French francs... Then the “kaime-I nakdiye-i mutebere”, (or kaimades) arrived ... [these were the first] banknotes.... George Zarifis was excellent in handling this ... complex system of exchange rates –which Alleon – found out instantly and –above all- he was a decent man which could be trusted in making transactions... The profits which Zarifis made ... where growing ... along with other commercial activities... In January 1852 [Alleon and Baltazis]... were facing an important problem which could trigger default: The inability [of the Ottoman Empire] to repay a debt of around 130 million kurus, to the Banque de Constantinople... at that time the total debt of the Banque de Constantinople to Europe was 156 million kurus... [The solution had to be provided by Reshid Pasha]... an aristocratic man, fifty two years of age, ... former ambassador to Paris and London, Minister of External Affairs, Governor of Andrianople, before becoming Grand Vesier.... He was cooperating with three [economically progressive] classes the Greeks, the Armenians and the Jews... two of his closest friends was Dimitrios Psycharis and George Zarifis ... through the ... diplomat Alexander Karatheodoris, close confidant of Reshid Pasha, and with the agreement of Zarifis and Psycharis, he made a deal with the [British bank] Baring Brothers... Zarifis and Psycharis, were negotiating the liquidation of the problematic Banque de Constantinople, new foreign investors appeared aiming to establish new banks the [Ottoman] government started negotiations... with the former Finance Minister of France ... aiming to establish a new bank entitled “Banque Nationale de Turquie”, (National Bank of Turkey) capitalized at 100 million French francs ... a similar proposal was made by an American entrepreneur but it was rejected. After these developments... Zarifis and Psycharis ... in March 1853, expressed their will to establish a new Ottoman bank... they proposed that the Board of Directors should include twelve distinguished Galata bankers: Dimitrios Psycharis, George Zarifis, David Glavanis, the British Charles Hanson and eight Armenian bankers among them members of the Douzoglou family and members of the Tingiroglou Otza Ohanes family. The capital of new bank was set to 200 million kurus (or 400,000 kese)... however as the negotiations were under way, [unexpectedly] Theodore Baltazis appeared and with the assistance of a Jewish banker (Abraham Camonto) made a second proposal to the Ottoman government ... In April 1853 the Sultan decided in favour of the Zarifis and Psycharis proposal and [gave the permission] for the establishment of the “Imperial Ottoman Bank”. [However the Greek bankers did not have the total capital instantly available] and requested [through the US based firm of E.H. Stanley] additional loans ... presuming that the bank would be operational from December 1853, ... [unfortunately the additional loans never materialized] and ... Zarifis and Psycharis

were forced to revoke the permission in... August 1854. Their failure was associated with the eruption of the Crimean War. The Sultan in order to finance the needs of the war ...was forced to request immense loans from Galata bankers. Zarifis, Psycharis, Rallis, Stefanovik, Zografos, Glavanis, Tumbini, Camonto, all provided immense finances to the Ottoman Empire...for years the Empire rejected foreign loans and insisted mainly in internal loans from the Galata bankers, [but] with the eruption of the Crimean war ...foreign loans arrived from England and France...After intensive negotiations the [Western] governments guaranteed the loans under the term that a Control Committee would be established ... the British embassy requested that the British interests in the Committee would be under Dimitrios Revelakis, and the French embassy asked for David Glavanis as caretaker of the French interests...". Kekropoulou (2022: 152-155, 163-167, 225-232).

It is obvious that the Galata bankers had played an important role in the establishment and development of the main Ottoman banks (the “Banque de Constantinople” and the “Banque Imperiale Ottomane”). It goes without saying that the Greek bankers of Galata assisted the financial developments of the Ottoman Empire without any exchange for the overall Greek community (minority) of the Empire but only for personal wealth. Clay (1990), Birdal (2010). The previous extensive quote highlights their role during the Crimean war of 1853-1856. However the following one highlights their role under more important circumstances the Russian Ottoman war of 1877-1876. Pamuk (2000: 203-204) points out:

“By the 1840s the ranks of the Galata bankers had expanded considerably ... The abilities and connections of the Baltazzi, Camondo, Coronio, Eugenides, Mavrokordato, Misirhoglu, Ralli, Zarifi ...to organize in Europe short term loans for the Ottoman state had also grown substantially...During the crisis of 1875-81 when the Ottoman government declared a moratorium on debt payments and faced a costly war against Russia, in both the Balkans and Eastern Anatolia, the Ottoman Bank and the European financial markets refused to make new loans. The government then turned to the Galata bankers, all of them Ottoman citizens, adopted a variety of patriotic Ottomanist themes to mobilize support for their centuries-old customer during this difficult period.”.

From the above it is obvious that the Galata bankers assisted the Empire in two major wars. This however was not their only political involvement. They attempted with partial success to influence the foreign and defence policy of the Greek kingdom by undermining the policy of the Great Idea. This policy was considered dangerous for their personal interests, thus it had to be replaced by a policy of Greek-Turkish rapprochement if not alliance. They key individual

who attempted to pursue this policy in Greece was another important Greek banker and merchant Andreas Syggros. In 1865 his fortune (excluding building assets) was 30,000 Ottoman lire (pounds) or 800,000 French Francs and the value of his fixed assets (properties) was another 200,000 French Francs. Bazilis (1996: 80, 89).

In 1867 Syggros with his close associate Zorzis Koronios will establish a firm entitled “Syggros-Koronios & Associates”, in Constantinople capitalized at 120,000 Turkish lire. The above capital was divided as follows: Syggros had officially 35,000 liras (but in reality the 10,000 belonged to Vlastos who was the General Director (or chief executive officer) of the General Ottoman Company and he could not officially be named as a shareholder). Koronios participated with 5,000 lire. The remaining 80,000 lire belonged to Stephanos Skoloudis, George Zarifis, Stefanovik, and Camondo. The directors of the company received the 55% of net profits. Ειδικότερα ο Koronios would get the 23% (surprisingly high since his pecuniary contribution was small), Syggros would receive 20% and Skoloudis the 12%.

The company would act as an investment bank financing mainly the Ottoman state. The company was buying short term Ottoman bonds (mainly six or nine month maturity bonds) from the State and would resell them in the London interbank market or in other Galata bankers. By the end of 1869 the personal profit of Syggros was 30,000 Ottoman lire. In July 1870 because of fire, Syggros lost four houses in Constantinople, and the eruption of the 1870 war between France and Germany (Prussia) would create additional problems. Under the circumstances Syggros gives the control of the company to Koronios departed from Constantinople and he returned in the late April 1871. During these months of absence he will be in London and Paris buying Turkish bonds on behalf of his company. He will also meet other Greek merchants in these two capitals and convince them to invest in Ottoman bonds. For these efforts he will be decorated by the Sultan himself receiving the Metzitie Third Order medal.

After his return to Constantinople he will liquidate the “Syggros- Koronios & Associates”, company which also created a small profit of 42,000 Ottoman lire. These amounts and other pecuniary benefits were used for the establishment of the “Banque de Constantinople” (Bank of Constantinople) which had a capital of £1,000,000 (British pounds) divided to 100,000 shares. Other participants in the new bank were Koronios, Skoloudis and Vlastos with 8,000 shares each (we point out that Vlastos had to resign from the Ottoman Bank in order to participate in the new one). Another 20,000 shares were given to relatives of the four participants and the remaining 48,000 shares were absorbed by

investors in Constantinople and London. At that time Syggros provide wealth was increased to 6,000,000 French Francs with investments not only in the new bank but also in French, Egyptian, Italian and Russian bonds with an average annual return of 15%.

In December 1871 due to cholera epidemic Syggros abandons Constantinople for the second time, however now he decided to live in Greece. He arrived in the port of Piraeus on December 31st 1871. In Athens he immediately was introduced in the leading political and economic cycles. With this arrival a bitter antagonism will erupt between the Greek bankers of Greece and those of the Ottoman Empire.

4. The bankers competition from the two sides of the Aegean

The Greek Prime-Minister Trikoupis considered Syggros as the ideal investor for Greece, Trikoupis wanted to build railways, ports, canals, factories and the presence of one of the biggest bankers of Eastern Mediterranean in Greece was considered a very good fortune. Bazilis (1996: 92-115).

However the arrival of Syggros to Greece was not accidental due to the cholera epidemic as everyone believed. It is true that he had the desire to live in Greece and he planned his settlement fifteen years ago but the positive economic developments in the Ottoman Empire forced him to stay there. However the main motive that Syggros had to settle in Greece was the plan to fight the “National Bank of Greece”, and we use the term “fight” not the term “compete”. This was not a typical economic struggle between the two banks (i.e The National Bank of Greece versus the Banque de Constantinople). The aim was to deprive the “National Bank of Greece” (and the Ionian Bank) from their right to issue currency. The plan was obvious if the “Banque de Constantinople” could print the Greek drachmae then monetary circulation and money supply inside Greece would be under the indirect control of the Ottoman Empire and then the ability of the Bank of Greece to finance defense spending and naval shipyards would be curtailed.

The Greek bankers of Galata (Syggros, Zarifis, Koronios, Mavrokordatos, Skilitsis) in association with the Jewish banker S. Fernandez, and the British banker Al. Barker, established in Greece the “General Credit Bank” aiming to destabilize the eminent role of the “National Bank of Greece” in the Greek market. Many Greek politicians who objected the Great Idea and were in favor of the Greek-Turkish rapprochement immediately assisted the new bank. From the struggle between the “National Bank of Greece” and the “General Credit Bank” the final outcome was victorious for the “National Bank of Greece”.

This will occur mainly because internal conflicts erupted inside the “General Credit Bank” between the General Director Baltasis, the shareholders and the local Greek managers. However for some time the “National Bank of Greece” was forced to reduce funding for purposes related to the Megali Idea in order to fund the struggle with the “General Credit Bank”. Bazilis (1996: 129) & Loucas (1998: 124-126).

When the Great Powers abolished the Treaty of Saint Stephan of 1878 and allowed Greece in 1881 to annex the region of Thessaly from the Ottoman Empire, Syggros offered to mediate in order to arrange an international loan from a syndicate of banks worth 120,000,000 French Francs. The offer was astronomical. The Greek state needed funds in order to invest in the new regions and by comparison the “National Bank of Greece” could offer only 16,000,000 French Francs from international syndicates. It is obvious that the Syggros offer was almost ten times higher. However the investment plan for the development of Thessaly region which Syggros offered had one pre-condition. The drachmas that would be circulated in the region of Thessaly (which was just liberated from the Ottoman Empire) would not be printed by the “National Bank of Greece” but from the “Banque de Constantinople”, in other words the money which the local population would use in a part of Greek territory, would be printed in the Ottoman Empire! When the initial offer of Syggros was rejected he made a second offer proposing that the “General Credit Bank” could also be used for printing the local currency or alternatively the “Banque de Constantinople”, could establish a local bank in Thessaly region under the name “Preferential Bank of Epirus and Thessaly”. According to Bazilis (1996), the official biographer of Syggros:

“The ...privileges which were granted ...to [the “Banque de Constantinople”] were scandalous ...but kept in secret at the time...These were:

-The 120 million francs (would finance 240,000 bonds worth 500 drachmae each) but the net-real income for the Greek state would be [only the 76.4% of the original amount or 79,600,000]

-The Greek state would receive as a down payment 40,000,000 however in reality only 25,000,000 were paid since the remaining sum was deducted from the banks for previous debts...

-The banks would charge a commission (fee) of 0.50% in order to circulate the bonds

-The interest rate payments for the bonds would be made exclusively from the “Preferential Bank of Epirus and Thessaly” and the bank would charge an additional commission of 0.50%

-In case of default the “Banque de Constantinople” would have access to

Greek state monopoly revenues from cigarettes, and from the Custom revenues in the towns of Athens, Piraeus, Patras and Zakynthos

-The “Preferential Bank of Epirus and Thessaly” was obliged to invest 20,000,000 French Francs in the regions of Epirus and Thessaly but in reality the investments which were made worth only five million...”. Bazilis (1996: 184-185).

The decision to grant the development of Thessaly and Epirus regions to Syggros was the first victory of the “Galata bankers” on the Greek bankers of Greece and on the “National Bank of Greece”. When this was achieved the Galata bankers decided to enter the shipping industry. Syggros aimed to buy “The Hellenic Steam Company” and in order to achieve his goal he established a new company entitled “Pan-Hellenic Steam-shiping”. The shareholders of this new company were the “Banque de Constantinople”, the “Industrial Bank”, the “Ottoman Credit Bank” and private individuals (the Greek merchants and bankers Vouros, Negrepointis, Koronios, Skoloudis of Constantinople). Syggros bought the company and after this development he entered the stage of Greek politics participating in the elections of April 7th 1885 and became a parliamentarian representing the island of Syros. On July 5th 1887 Syggros was elected mayor of Athens. Bazilis (1996: 196-205, 217-219).

Here we have to point out that a similar strategy of penetration into the Ottoman Empire was followed by the National Bank of Greece. To illustrate when the island of Crete became semiautonomous inside the Ottoman Empire in 1898 the Bank of Crete was established in 1899. The capital of the bank was 10,000,000 drachmae and this was provided by the National Bank of Greece and the Rothschilds of London. The Bank of Crete was issuing and circulating the local currency for the islanders. In 1919 the bank was merged with the National Bank of Greece and re-appeared in 1967 until 1995. In addition in 1904 the National Bank of Greece and the National Bank of Germany established the “Banque d’Orient” inside the Ottoman Empire. (https://www.coins-world.info/greek-banknotes/bank_of_crete.asp)

From 1885 until the war of 1897, Syggros played a crucial role in the Greek default of 1893. In order to understand the role of Syggros in the 1893 default we have to remind to the reader that in order to finance public works the Trikoupis government had signed three major loans. In March 1882 the International Company of the Corinth Canal defaulted and in order to save it the government turned to Syggros who arranged a rescue loan of 30,000,000 gold francs. However the Greek state received only 10,000,000 because the French investors were having problems in Panama. In order to cover the unpaid 20,000,000 it was decided that the Greek side would issue 39,000

bonds (worth the twenty million) which would be bought by the French bank “Comptoir d’Escompte de Paris”. Unfortunately on March 1889 the ‘Comptoir d’Escompte” defaulted and for the second time the Greek company of Corinth Canal was forced to suspend its activities. Then foreign shareholders requested from the governments of Austria, Italy, France and Greece to provide guarantees that the interest of the 39,000 bonds of Comptoir d’Escompte, would be re-paid. The foreign governments agreed but the Greek government opposed stating that national sovereignty would be at stake. Syggros who supported the foreign investors worked behind the scenes with the leader of the opposition Deligiannis and toppled the Trikoupis government in the elections of October 14th 1890. Bazilis (1996: 236-245). What followed is described vividly from the following:

“Deligiannis...accepted the views of the foreign investors [bondholders]. But suddenly events became complex when Syggros asked that he himself should make the negotiations with the foreign lenders ...[then] Deligiannis objected...the King attempted to change Deligiannis mind [but in vain] ...Deligiannis made new proposals to the foreign bondholders ..these safeguard their interests ...the ...terms were heavy for Greece but acceptable....This last minute compromise failed [and the reason why Deligiannis plan failed is understood by the following]:

Stephanos Stephanou a well-known reporter ... and personal friend of Nickolas Thon who was the Cashier of the Palace ...writes:

“Thon was giving to Syggros all the news and information that he learned from the King when he finished his conversations with the prime-minister or the ministers...Thon was secretly gambling in the stock-market and Syggros was publicly investing [for Thon’s behalf] ...Prime minister Deligiannis was certain ...that Syggros, Thon and the Hambros bank have orchestrated a stock market collapse in order to achieve personal profit... He visited the King and told him:

-Your Majesty you have to choose between the Government and Mr Syggros!....after some weeks the King invited Syggros and informed him about the conversation with the Prime-minister; he also requested from Syggros to provide him a Memorandum for the state of the Greek economy, then Syggros [informed the King about Greece’s economic problems]and suggested that the King should fire the Prime Minister. This is what exactly happened ... [on February 17th 1892]...”. Rousos (1974: 203-205, 234).

The king did not necessarily accept the arguments of Syggros but he feared that any conflict with foreign investors could jeopardize the relations of Greece with the Great Powers, thus he could not tolerate a Prime-Minister who could harm Greek foreign policy.

The elections of May 3rd 1892 were a triumph for Trikoupis who was re-elected. This is exactly what Syggros did not want to happen. During the period February-May 1892 Syggros participated actively in financing Dimitrios Rallis, aiming to create a third party between Trikoupis and Deligiannis in order to split the votes and create the path for a coalition government, which he hoped that would be under his control. However the clear win of Trikoupis forced him to set a new plan against him. Syggros requested from two of his closest friends Vlastos and Koronios to create a speculative attack on Greek bonds in the international market. When this attack occurred Trikoupis requested from foreign creditors a re-arrange of Greek debt payments. The request was rejected and Trikoupis resigned for the second time on April 27th 1893. A new government was formed on May 3rd 1893, but again there was no agreement with the foreign creditors. On October 30 Trikoupis became again Prime-minister but failed to deliver any new deal. Under the circumstances on December 1st 1893 Greece defaulted. Rousos (1974: 205-233), Iliadakis (2011: 61-65).

Political developments had ramifications to the economy. The Greeks in the island of Crete revolt in 1895 against the Ottoman rule. The Greek state remained neutral at the beginning but by 1897 a short war erupted between Greece and the Ottoman Empire which ended with a Greek defeat. Greece was humiliated. Athens had to pay war reparations worth 4,000,000 Ottoman lire and because this sum was not available a new loan was requested from international creditors. In order to get the loan Greece was obliged to be under the control of the “International Financial Commission” (IFC) from April 1898 onwards. According to the plan, Greece would receive a loan of 170,000,000 gold francs, with 2.5% interest. The loan would be re-paid in sixty years (starting repayments in 1903) but during this period the IFC would control all state revenues from cigarettes, beverages, salt, casinos and also the revenues from Piraeus, Patras, Volos, Corfu and Lavrio cities. In these developments Syggros attempted to mediate. During the war period he assisted the Greek military effort however it is worth noticing that his factory in the town of Volos was not bombed by the Turkish artillery, when all Thessaly was burned to the last stone since it was the major battlefield of the conflict. Speculation until today insists that he had assisted indirectly the Turkish Army. The Ottomans had German meteorologists who predicted a rainy weather. In the mud the artillery could not move thus special ski equipment was needed. This was secretly provided by Syggros with the exchange of saving the factory from bombardment. Although nothing is proven until today his biographer points out:

“Syggros followed the [war] developments with mixed feelings ...after the armistice ... he is active again...the Minister of Economics is his friend

Simopoulos. He tries to convince him [Simopoulos] to appoint him in charge [of the Committee] for the repayment of war reparations to Turkey. Simopoulos hesitates to take this decision alone. He and Syggros invite the Minister of Internal Affairs George Theotokis hoping to convince him. However Theotokis has reservations and wants the issue to be discussed in the Cabinet. Syggros refuses ...and decides to act unofficially...". Bazilis (1996: 303-307).

Syggros passed away on February 13th 1899, and after his death the activities of the Galata bankers inside Greece were minimized. The National Bank of Greece was free to finance again the Great Idea (Megali Idea) vision. Between 1898-1911 defense spending absorbed 518,700,000 drachmae and as already pointed out earlier they lead to the triumph of the Balkan wars. Dertilis (2006: 30, 1,047), Iliadakis (2011: 41-131), Bazilis (1996: 303-314).

5. The bitter end: The unfortunate decade of 1913-1923 for both Greece and Turkey

After the end of the Balkan wars all nations (both winners and losers) wished for peace. However broader geopolitical developments would set the path of war, destruction and fire once again. The First World War (1914-1918) was triggered by the assassination of Prince Franz Ferdinand of Austria-Hungary in the town of Serajevo in Bosnia-Herzegovina. The war lasted until November 11th 1918 and during the war years the Ottoman Empire and Bulgaria became allies of Germany and Austria-Hungary, whereas Greece became a member of the Entente, allied to Britain, France, Russia, US, Italy. Before the eruption of the Great War in the short period of peace (August 1913-August 1914) the Greek bankers of Galata attempted once again to copy the investment plan of Thessaly and Epirus regions for the financing of the new regions of Macedonia and Aegean which were now parts of the Greek state. This time it was Vlastos who proposed the creation of a company entitled "Societe fonciere et immobiliere franco-hellenique" capitalized at 10,000,000 French francs. The distribution would be as follows: A number of French banks with "Banque de Paris" as a primary investor would provide the 5,000,000 francs. The Greek bankers of Constantinople would provide the 2,600,000 francs and the remaining 2,400,000 would be provided by Hungarian entrepreneurs. This time however, Vlastos accepted the potential participation of the National Bank of Greece in the new venture. However the National Bank of Greece rejected the idea. In addition to this, the Greek state rejected also the offer pointing out that the capital of ten million francs was totally inadequate to finance the needs of these provinces. Kostis & Kostelenos (2003: 102-105).

The war changed everything. During the war years the Greek economy deteriorated rapidly. High inflation huge losses due to the unrestricted submarine warfare which Germany had endorsed, internal political struggles between King Constantine and Prime minister Venizelos, partial naval blockade by the British fleet, all these and other factors contributed to the deterioration of the economy and the complete collapse of living standards. Salavrakos (2017).

The Greek bankers of Galata had extensive economic ties with the Central Powers, not only because of their geographical location in the Ottoman Empire which was an essential ally of Germany and Austria-Hungary. To illustrate, Aristide Baltazis, a member of the Baltazis banking family was situated in Vienna already from the last quarter of the nineteenth century and had extensive links to Austrian elites and even to the Emperor Franz Josef himself. The daughter of Theodore Baltazis, Eleni Baltazi (1847-1925), was married to an Austrian diplomat Albin Vetsera and she was also a high profile member of the Austrian elite circles. Helen's daughter Maria Vetsera was the mistress of Austrian Crown Prince Rudolf. They both committed suicide in Mayerling on January 30th 1889.

Turning to direct political involvement Stephanos Skoloudis (1838-1928) one of the most eminent Galata bankers became Greek Prime minister on October 25th 1915 until June 9, 1916. Skoludis was a member of the Greek parliament already from 1881 and was also the Minister for Naval Affairs in the Trikoupis government of 1892. Paradoxically however he was simultaneously an Ottoman citizen and banker. Thus during the peak of the First World War and during the peak of internal struggle in Greece between the pro-Entente forces represented by Venizelos and the pro-Central Power forces represented by the King and the Conservatives a Turkish citizen was becoming a Greek Prime Minister! The Entente Powers exercised immense pressure on Skoludis government and as a result the government collapsed. In spite of its brief time in power the incident demonstrates the role of Galata bankers in Greek domestic political and economic life.

The war years were profitable for the National Bank of Greece. To illustrate, the foreign currency reserves of the bank (expressed in drachmae) increased from 204,600 in July 1914 to 1,747,700 in December 1919. In addition to this gross profit increased from 16,164,681 drachmae in 1914 to 42,197,649 drachmae in 1919. The bank took all measures to minimize inflationary pressures and assisted in financing state budgets with loan capital. Kostis & Kostelenos (2003: 135, 167).

In the case of the Ottoman Empire the overall economic characteristics were similar (high inflation, deterioration of living standards, etc.) and the

Greek bankers of Galata once again supported the circulation of internal loans and also organized the purchase Skoda type artillery guns from Austria-Hungary in April 1916 worth 4,200,000 Ottoman lire. Ozan (2017) & Strachan (2001: 952-954).

The First World War ended for most belligerents in November 1918, but unfortunately for Greece and Turkey the war continued until August/ September 1922. The Greek defeat in Anatolia resulted in the Treaty of Lausanne of 1923 and as always in history the biggest cost of war is the human cost. In this case with the Lausanne Treaty a forced exchange of populations resulted for both countries. Around 1,500,000 Greeks departed from the lands of the former Ottoman Empire and arrived and settled in Greece and also around 500,000 Turks departed from Greece and other Balkan states and settled in Turkey. With this exchange of populations the Greek bankers of Galata abandoned Turkey for ever and from dominant bankers became refugees in Greece. Some had already managed to transfer part of their wealth to Greece, but they lost a lot. The 1929 international crisis resulted in the Greek default of 1932 and all entrepreneurial plans for banking re-birth perished. Then World War II erupted which in the Greek case resulted in a Civil War during 1944-1949 period.

6. Epilogue

The case of the Greek bankers of the era is interesting. The bankers of the National Bank of Greece financed the vision of the Megali Idea (Great Idea). The bankers of Galata financed the vision of Greek-Turkish friendship and co-operation. They both believed that were in the “right side of history”.

The former wanted to restore the old ancient and Byzantine Greek glory with the assistance of Britain and France. Their vision was a strong pro-Western Greek state in the region. However the rise of Germany split the Greek pro-western elite to Entente sympathizers and pro-German sympathizers.

The latter, on the other hand, feared for their lives their families, their wealth every time a Greek-Turkish armed conflict erupted. To illustrate this point Zarifis writing, as a refugee, his memoirs in 1934 in Greece vividly remembers and describes how his grand-father with his family escaped the Ottoman Empire throughout the years of the Greek Revolution (1821-1829) in order to save himself and the family from Turkish attacks and lived in the Russian city of Odessa. Zarifis (2002: 39-43). This perfectly legitimate fear made many of the Greeks of Anatolia to oppose the policy of the Great Idea. Especially the cosmopolitan Greek elite, which, was close to the Porte and had direct connections, to the Sultan. Syggros had limited success in attempting to replace

the Great Idea with the policy of rapprochement. However, in 1915 during the First World War, Ottoman Turkey was already an ally of Germany. Greece at that time was officially neutral but split between Prime Minister Venizelos who insisted that the country should enter the war as an ally of Britain and France, and King Constantine who insisted that Greece should remain neutral. At that moment Stephanos Skoloudis (1838-1928), a Galata banker and one of the primary supporters of Greek-Turkish friendship, was appointed by the King as Prime minister (in 1915). Although he did not stay in this position for long (October 25th 1915 until June 8th 1916) the above development demonstrates vividly the influence that the Galata bankers had been able to exercise inside the Greek political elite.

As already pointed out the economic elites of the nineteenth and early twentieth centuries were politically active and did not separate politics from economics. Thus the Greek bankers followed the same path as other elite cycles across Europe, US and Japan. Obviously they were individuals with different rationality compared to the one of today's world.

Speaking and writing about leaders and leadership we can always remember that leaders make mistakes but they always follow right or wrong ideals. Thus Greek bankers from both sides of the Aegean followed their ideals and moral principles of the time. As the mist of historical time passed and disintegrated we may conclude that ironically, perhaps they were both right, or perhaps they were both wrong simultaneously...

Appendix - Dramatis Personae

The members of Galata bankers	The bankers of the National Bank of Greece
Zannis-Stefanovick-Skylitsis (1806-1886). The initial founder of the "Stefanovick-Skylitsis Trade Company" in Constantinople. Three of his sons Dimitrios (1839-1893) Ioannis (1840-1908) and Paul (1842-1901) continued the venture.	Markos Renieris (1815-1897) University Professor, President of the National Bank of Greece (1869-1890)
Antonios Vlastos (1858-) banker	Georgios Stavrou (1788-1869) merchant and banker
Georgios Zarifis (1807-1884) banker	Ioannis Valaoritis (1855-1914)

The members of Galata bankers	The bankers of the National Bank of Greece
Stefanos Zafiroopoulos (1813-1892) banker and shipowner	Stephanos Streit (1835 or 1837-1920)
Georgios (or Zorzis) Koronios (1838-?) banker	
Andreas Syggros (1830-1899) banker primary supporter of Greek-Turkish friendship	
Stefanos Skoloudis (1838-1928) , banker and Greek Prime minister in 1915-1916 one of the primary supporters of Greek-Turkish friendship	
Theodoros Baltazis (1798-1860) banker and merchant	
Vouros ?	
Miltiadis Negrepontis (1873-1951) Minister of Economics 1916-1917 and 1917-1920.	
Dimitrios Psicharis ?	
Xristakis Zografos (1820-1896) banker main shareholder of the General Company of the Ottoman Empire.	
His son Georgios Xristakis Zografos (1863-1920) continued the entrepreneurial activities of his father and became a Greek parliamentarian in 1908. He became a co-governor of the National Bank in 1914, Minister of External Affairs of Greece in 1915 and returned to the National Bank of Greece in 1915-1917.	
Constantine Glavanis (1854-1932) merchant and industrialist the first investor of flower mills in Thessaly Volos using Ottoman capital	

For some individuals although mentioned in the literature there is no biographical information. Most Galata bankers had family origins from the Greek island of Chios. The biographical information of most families can be found in the following source: Georgios I. Zolotas: "History of Chios", volume 3, Sakellarios editions, Athens, 1928, pages 675-876.

Note

The views expressed are personal. They do not reflect the views of the Hellenic Army Academy.

References

International sources

- Birdal M.: "The Political Economy of Ottoman Public Debt, Insolvency and European Financial Control in the late Nineteen Century", Tauris, 2010.
- Chandler A. D. & Daems H. (eds.): "Managerial Hierarchies Comparative Perspectives on the Rise of the Modern Industrial Enterprise", Harvard University Press, 1980.
- Child J. & Faulkner D.: "Strategies of Cooperation Managing Alliances, Networks and Joint Ventures", Oxford University Press, 1998.
- Clay C.: "The Imperial Ottoman Bank in the later nineteenth century: a multinational 'national' bank?", in the volume: Jones Geoffrey (ed.): "Banks as Multinationals", Routledge, 1990, pages 142-159.
- Saul D.: "Victoria's Wars The Rise of the Empire", Viking-Penguin, 2006.
- Elgie R.: "Political Leadership A Pragmatic Institutional Approach", Palgrave, MacMillan, 2018.
- Ferguson N.: "The World's Banker The History of the House of Rothschild", Weidenfeld & Nicolson, 1998.
- Harlaftis G. & Kardasis V.: "International Shipping in the eastern Mediterranean and the Black Sea", in the volume: Pamuk Sevket & Williamson Jeffrey G. (eds.): "The Mediterranean Response to Globalization before 1950", Routledge, 2000, pages 233-265.
- Inalcik H. & Quataert D. (eds.): "An Economic and Social History of the Ottoman Empire" (1300-1600), Volume I, Cambridge University Press, 1997.
- Inalcik H. & Quataert D. (eds.): "An Economic and Social History of the Ottoman Empire" (1600-1914), Volume II, Cambridge University Press, 1997.
- Kantarelis D.: "Theories of the Firm", Inderscience Enterprisers, 2010.

- Kennedy P.: “The Rise and Fall of the Great Powers”, Fontana Press, 1988.
- Pamuk S.: “A Monetary History of the Ottoman Empire”, Cambridge University Press, 2000.
- Ponting C.: “The Crimean War”, Pimlico, 2005.
- Post J. M. (ed.): “The Psychological Assessment of Political Leaders with profiles of Saddam Hussein and Bill Clinton”, University of Michigan Press, 2003.
- Salavrakos I. D.: “The Economic forces of victory versus those of defeat: An analysis of the Greek Economic and Military Mobilization of the 1909-1923 period”, *Journal of Military and Strategic Studies*, Volume 18 issue 1, 2017, pp: 6-41.
- Llewellyn-Smith M.: “Ionian Vision Greece in Asia Minor 1919-1922”, Hurst & Company, London, 2022.
- Stern F.: “Gold and Iron Bismarck, Bleichröder and the Building of the German Empire”, Vintage Books, New York, 1979.
- Strachan H.: “The First World War”, Volume I To Arms, Oxford University Press, 2001.
- Taylor R. L., Rosenbach W. E., Rosenbach E. B. (eds.): “Military Leadership In Pursuit of Excellence”, Westview Press, 2009.
- Thompson W. R.: “Power Concentration in World Politics The Political Economy of Systemic Leadership, Growth and Conflict”, Springer, Switzerland, 2020.
- Vlachoutsicos C.: “An Introduction to Some Key Concepts of Soviet Enterprise Management”, Harvard Business School, Working Paper 90-043, February 1990.
- Ziegler P.: “The Sixth Great Power Barrings, 1762-1929”, William Collins, London, 1988.

Greek sources

- Andreadis A.: “Hellenic War Public Finances 1912-1923”, Athens 1940.
- Bazilis G.: “Andreas Syggros”, Dimiourgia editions, Athens, 1996.
- Bickford-Smith R.A.H.: “Greece in the era of George A’”, Eirmos editions, Athens, 1993.
- Dertilis G.B.: “History of the Greek State 1830-1920”, Volumes I and II, Estia publishing, Athens, 2006.
- Dimitriadou M.: “The Economics of the Struggle 1821-1824”, Papazisis editions, Athens, 2014.
- Exertzoglou C.: “Adaptation and Policy of Homogeneity Capitals. Greek Bankers in Constantinople: The “Zarifis Zafeiropoulos” Branch 1871-1881”, Foundation of Research & Culture, Commercial Bank of Greece, Athens, 1989.

- Zolotas G. I.: "History of Chios", volume 3, Sakellarios editions, Athens, 1928.
- Georgantzis P.: "The Clergy and 21", Xanthi, 1985.
- HMC, Hellenic Committee of Military History: "History of the Balkan Wars 1912-1913", Athens 1987.
- Iliadakis T. M.: "External Loans and the birth of the modern Greek State 1824-2009", Batsioulas editions, Athens, 2011.
- Kekropoulou E.: "The crossroad of the Greeks in the City", Ocean publications, 2022.
- Kostis P. & Kostelenos G.: "The History of the National Bank of Greece 1914-1940", National Bank of Greece, Athens, 2003.
- Loucas I.: "Sea Power and Greek State. The Fleet of the Great Idea", Epikoinonies publishing, Athens 1998.
- Loulos K.: "The German policy in Greece 1896-1914", Cultural Institute of the Agricultural Bank of Greece, Athens 1990.
- Panayiotopoulos B. (ed.): "History of New Hellenism 1770-1871", volume 4, part A, Vima publishing, Athens, 2019.
- Rousou G.: "The Black 97", Fitrakis editions, Athens, 1974.
- Xristopoulos G. (edit.): "History of the Greek Nation", volume 14, Ekdotiki Athinon publishers, Athens, 1977.
- Zarifis G. L.: "My Memoirs A world which has left Constantinople 1800-1920", Troxalia editions, Athens 2002.
- Zolotas G. I.: "History of Chios", volume 3, Sakellarios editions, Athens, 1928.

Internet Sources

- Bank of Crete https://www.coins-world.info/greek-banknotes/bank_of_crete.asp, Coins, World.
- Ozan O.: "War Finance (Ottoman Empire) in 1914-1918", ohizersn line International Encyclopedia of the First World War, Berlin 2017, doi 10.15463/ie.418.11185

COMPLEXITY OF ACCOUNTING DISCLOSURES, TONE AMBIGUITY, AND FIRM PERFORMANCE: TEXTUAL ANALYSIS OF READABILITY OF U.S. ANNUAL REPORTS

V. SOTIROPOULOU*

Abstract

The purpose of this study is to examine whether managers use more complex and vague information in annual disclosures to hide poor firm performance. The sample consists of annual reports of U.S. companies from 1998 to 2017. Financial data are retrieved from the Compustat/Center for Research in Security Prices (CRSP) database and merged with textual analysis data. The empirical results reveal that annual reports of companies with poor performance tend to be more complex and ambiguous to obfuscate financial underperformance. Finally, this study augments and updates the empirical evidence on the ongoing research regarding the association of complexity and ambiguity of accounting disclosures with firm performance, adopting a comprehensive textual analysis framework.

JEL classification: M41

Keywords: Complexity; Ambiguity; Performance; Textual analysis; Accounting disclosures

1. Introduction

This study aims to examine whether managers intentionally obfuscate accounting disclosures and report ambiguous accounting information to overshadow poor performance. Prior literature does not provide clear evidence about the association of firm performance with annual reports complexity. Several studies validate management obfuscation hypothesis and indicate that managers intentionally overshadow poor performance by disclosing complex information (Schrand and Walther, 2000; Bloomfield, 2002; Li, 2008; de Souza *et al.*, 2019; Alduais, 2022; Dempsey *et al.*, 2012; Ajina *et al.*, 2016; Lo *et al.*, 2017; Demaline, 2020), while others provide the opposite findings (Bloomfield, 2008; Loughran and McDonald, 2020; Rutherford, 2016; Asay *et al.*,

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2018). Furthermore, empirical evidence concerning tone ambiguity of annual reports and its association with firm performance is scarce.

Since there is an ongoing debate about the relationship of firm performance with complexity and ambiguity of annual reports, the motivation of this study is to add empirical evidence in this literature stream. Therefore, the first research question of this study is formulated as: “Is poor firm performance related with reduced readability and thus higher complexity of annual financial reports?” The second research question investigated in this study is: “Do managers of firms that underperform tend to disclose more ambiguous information in 10-Ks?”

To examine these hypotheses, the empirical analysis combines textual analysis along with econometric analysis. The sample consists of U.S. annual reports (10-Ks) from 1998 to 2017 that are processed with Loughran and McDonald dictionary (Loughran and McDonald, 2011). The results of textual analysis are merged with firm-level financial data from the merged Compustat/Center for Research in Security Prices (CRSP) annual database, and the final sample includes 48,750 observations.

The empirical results of this study indicate that managers of companies with poor financial performance try to overshadow this by reporting more complex and vague information in their disclosures. Thus, when performance of a company worsens, the readability of annual reports decreases, too. Furthermore, a decline of firm performance is linked with higher ambiguity of 10-Ks. According to the findings of this study, the management obfuscation hypothesis is valid, and the results are in line with the prior literature that indicates that managers intentionally disclose complex and vague information in case of poor performance.

This study contributes to the existing literature that investigates the relation between firm performance and complexity and ambiguity of annual reports in several ways. Firstly, it updates the empirical evidence in the research field by examining complexity of annual reports under a spectrum that has not been investigated by prior literature, as far as I know. Moreover, this research work adds empirical evidence to the scarce existing findings regarding the impact of firm performance on ambiguity of accounting information. Finally, this study augments the existing literature about readability and ambiguity of 10-Ks and firm performance in the U.S., providing empirical evidence from an extensive sample for the period from 1998 through 2017.

The implications of the findings of this study are significant for the users of accounting information, such as researchers, managers, auditors, and analysts. Particularly, this research work may guide academic scholars in the field to use

additional measures of complexity to examine the management obfuscation hypothesis. Moreover, the results reveal that managers act opportunistically, and they hide poor firm performance by disclosing complex and ambiguous accounting information. Furthermore, this work offers crucial implications for auditors and analysts as it adds empirical evidence on the literature regarding annual reports' reliability and transparency. Specifically, from the auditors' and analysts' perspectives, the findings indicate that if they focus on the measures of readability and ambiguity investigated in this study, they may evaluate more efficiently the quality of accounting information reported in 10-Ks.

The remainder of this work is structured as follows: Section 2 briefly discusses the literature review and develops the hypotheses. Section 3 describes data collection and sample, while in Section 4, variable measurement and the research design are presented. The empirical findings and the discussion are analyzed in Section 5. Finally, Section 6 concludes this study.

2. Literature review and hypotheses development

2.1. Readability in accounting and finance research

The concept of readability of financial disclosures has begun to gain the attention of researchers in accounting and finance many decades ago. Early research on readability has shown that accounting disclosures tend to become more difficult to understand over the years (Soper and Dolphin 1964; Jones, 1988). The increase of the complexity and length of financial disclosures is not only observed in annual and quarterly reports but in all types of accounting disclosures such as corporate social responsibility reports and corporate announcements (Courtis, 1998; Elkins and Entwistle, 2018; Verk *et al.*, 2021).

In the field of finance and accounting, readability of corporate reports measures the ability of reader to understand the information content of reports. In specific, Loughran and McDonald (2014) define readability as the capacity of analysts and investors to interpret value-relevant information from financial documents. Higher readability requires less attempt to understand accounting disclosures (Loughran and McDonald, 2016). Prior research has examined the association of readability with accounting quality using textual analysis (Li, 2010; Loughran and McDonald, 2016).

Most readability studies focus on the accounting disclosures that are produced by managers. Annual reports and 10-K filings that are detailed disclosures filed annually in U.S., have gained great attention from researchers in

readability and textual analysis (Adelberg, 1979; Curtis, 1986; 1987; 2004; Lang and Stice-Lawrence, 2015; Bonsall and Miller, 2017; Kim *et al.*, 2019; Chen and Tseng, 2021).

Furthermore, there are studies that apart from the analysis of annual reports focus on quarterly reports (Lee, 2012), or on certain sections of managers' disclosures such as Management Discussion and Analysis section that is included in reports (Schroeder and Gibson, 1990; Lo *et al.*, 2017). More recent research has investigated the readability of corporate social responsibility (CSR) reports (Martínez-Ferrero *et al.*, 2019; Muslu *et al.*, 2019; Yu and Garg, 2022). In addition, the readability of integrated reports has recently come to the attention of researchers who investigate whether integrated reports provide valuable information to stakeholders (du Toit, 2017; Stone and Lodhia, 2019), and whether it is associated with financial and sustainability performance (Melloni *et al.*, 2017).

Recent literature has focused on readability of analysts' reports (De Franco *et al.*, 2015, Hsieh *et al.*, 2016) as well as Accounting and Auditing Enforcement Releases (AAERs) (Kuang *et al.*, 2020). Readability of reports published from auditors has also been studied by researchers (Pound, 1981; Hay, 1998).

2.2. Readability of corporate disclosures measures in textual analysis

Prior research has used a variety of measures to calculate readability of accounting disclosures.

The Flesch Reading Ease Index is a widely used formula of readability that was developed in 1948 by Rudolph Flesch. A score of the Flesch index between 90 and 100 indicates an understandable text, while values lower than 50 indicate a very complex accounting narrative (Flesch, 1948). There are many studies that have used the Flesch index as a measure of readability as it is considered very accurate (e.g. Smith and Smith, 1971; Wang *et al.*, 2018; Bradbury *et al.*, 2020; Cho *et al.*, 2022).

The Flesch-Kincaid Grade Level (FK) is also a very popular formula that has its origins in Flesch score (Kincaid *et al.*, 1975; 1981). The value of this score indicates the years of education that are necessary to understand the disclosure. Prior literature has been based on this index to measure readability of accounting narratives (e.g. Laksmana *et al.*, 2012; Nazari *et al.*, 2017; Chen and Tseng, 2021), however, it is not as popular as the Flesch index.

Another significant measure of readability in accounting and finance literature is the Gunning Fog Index (Gunning, 1952). According to Efretuei and Hussainey (2023), Fog index has dominated the readability research in finance

and accounting. The measure of this score focus on the number of words per sentence and the percentage of complex words. Complex words are considered the words that include three or more syllables (Li, 2008; Hemmings *et al.*, 2020). The result indicates the years of education that are necessary to comprehend the disclosure. Recent literature in readability of accounting disclosures uses and examines extensively Fog index (e.g. Biddle *et al.*, 2009; Miller, 2010; Goodman *et al.*, 2014; Lang and Stice-Lawrence, 2015; Asay *et al.*, 2017; Hoitash and Hoitash, 2018; Schloetzer *et al.*, 2020; Cho *et al.*, 2022).

Loughran and McDonald (2014) have suggested as an accurate measure of readability of corporate disclosures the size of the file. Specifically, their empirical findings suggest that the logarithm of the size of the reports outperforms the measures of readability that are widely used in accounting literature. Recent studies have based their readability analysis on file size (e.g. Hasan, 2020; Le Maux and Smaili, 2021; Yu and Garg, 2022). Finally, in 2017 Bonsall *et al.*, suggested an alternative readability formula based also on plain English attributes, the Bog index.

In the next section of the literature review, I will examine the motives of disclosing complex and vague information, in what ways this affects the receivers of information, and empirical findings from prior research.

2.3. Management obfuscation hypothesis, readability of reports, and tone ambiguity

Courtis (2004) defines obfuscation as an attempt to confuse and misguide those who receive the information message by using distracting writing technique.

Management obfuscation hypothesis states that complex information in accounting disclosures is used intentionally by managers to hide poor performance (Schrand and Walther, 2000; Bloomfield, 2002). This hypothesis is based on the agency problem that arises from the information asymmetry as managers have strong intensives to hide from stakeholders' negative information about the company that does not serve their interests and so they report in a more complicated manner (de Souza *et al.*, 2019).

By making the reports harder to read, the costs of processing of accounting information are increased as the analysis becomes more difficult and thus, managers strategically attempt to delay the reaction of the market and the incorporation of bad performance in stock prices (Grossman and Stiglitz, 1980). Prior research suggests that lower readability of financial disclosures increases the processing costs of information, and this has a negative impact

on efficiency of stock markets as stock prices do not reveal the value of the firm on time (Lee, 2012; Callen *et al.*, 2013; You and Zhang, 2009; Garafas, 2024a; Garafas, 2024b).

Furthermore, firms with more complex annual reports require a greater effort from analysts to create their reports and they have a higher demand in analysts services. Lower readability is also associated with greater analyst uncertainty, lower accuracy, and greater analyst dispersion (Lehavy *et al.*, 2011; Bozanic and Thevenot, 2015). Moreover, analysts with higher ability issue less complex reports. Furthermore, more readable analysts' reports, increase the volume of trade (De Franco *et al.*, 2015).

Hwang and Kim (2017) stated that firms that report more complex information must trade at a lower market value. Thus, a decrease in readability of financial disclosures, results in a decrease in firm value. Moreover, the impact of complexity of reports in firm value increases in case that stakeholders seek out more information on financial disclosures.

There are many studies that add empirical evidence on management obfuscation hypothesis and the intentional decision of managers to hide information from investors in case that the firm underperforms. In specific, Li (2008) states that lower readability of reports is associated with unsatisfactory performance. In addition, firms with less complex reports have more persistent earnings from one to four years. The results of this study indicated that managers intentionally obfuscate negative information. Many recent studies support Li's findings and validate management obfuscation hypothesis (e.g. de Souza *et al.*, 2019; Alduais, 2022; Dempsey *et al.*, 2012; Ajina *et al.*, 2016; Lo *et al.*, 2017; Demaline, 2020).

Guay *et al.* (2016) have found that managers tend to voluntarily disclose information in financial statements to decrease the negative impact of complex annual reports in information environment. Prior research has shown that there is a negative relationship between managerial ability and the transparency of annual reports (Hasan, 2020). This relationship is weaker for firms with poor performance. Furthermore, firm performance intervenes in this association between readability and managerial ability.

On the contrary, there are some studies that suggest that lower readability of financial reports is not an attempt to obfuscate the information provided but is a consequence of several factors such as the complexity of business operations. Bloomfield (2008) stated that less readable reports may reflect more complex business transactions as well as may be a result of certain legislation. Furthermore, he states that the reason why firms that underperform report in a more complex way is because losses must be thoroughly explained. Loughran

and McDonald (2020) also indicate that firm's complexity has an impact on readability of its reports. Moreover, due to accounting conservatism negative information must be presented in a more detailed manner and this results to less readable disclosures. Curtis (2004) stated that complexity of reports may arise in case that different people participate in their preparation, apart from intentional reporting patterns of managers. More recent research also states that lower readability of reports is not associated with the theory of management obfuscation hypothesis (Rutherford, 2016; Asay *et al.*, 2018).

In addition, in 1998, the U.S. Securities and Exchange Commission (SEC) adopted the plain English disclosure rules that presented two main arguments: a) complex financial disclosures are not comprehensive for the average investor and thus, complexity of financial reporting leads to information asymmetry and b) managers overshadow negative earnings by strategically using ambiguous tone in their reports (SEC, 1998). This regulation made the use of plain language in firm's prospectuses mandatory and at the same time SEC encouraged managers to structure all their financial disclosures in a simple, understandable, and precise manner.

Li (2008) examined the relationship between vague information of reports and firm performance and earnings persistence by using lexical features such as positive words, exclusive words, first person words, verbs that refer to the future, and causation words. His findings suggest that SEC rules of 1998 were relevant as managers choose opportunistically the writing style of disclosures to obfuscate information.

Furthermore, in a recent study, the association between managerial ability and readability of disclosures was examined and the results suggest that managerial ability has a less intense impact on reports' readability after the implementation of SEC's regulations in 1998 (Hasan, 2020).

Uncertain tone of annual reports has a positive association with stock return volatility (Loughran and McDonald, 2011). Furthermore, vague language of S-1 IPO filings has a significant impact on key IPO measures of performance such as first day returns, volatility, and absolute price revisions (Loughran and McDonald, 2013). In addition, Ertugrul *et al.* (2017) indicate that vague information of reports increases the cost of external financing as well as the stock price crash risk. However, not many researchers have shed light to the association between tone ambiguity and firm performance.

Overall, there is still an ongoing debate about the management obfuscation hypothesis as the studies in the research field suggest contradictory empirical findings. Moreover, there is a lack of empirical evidence regarding the association of tone ambiguity of annual reports and firm performance. This study

attempts to augment the empirical evidence to this research stream by examining the hypotheses that are presented in the next section.

2.4. Hypotheses development

2.4.1. Management obfuscation hypothesis

According to management obfuscation hypothesis, managers tend to disclose complex information to hide poor performance (Schrand and Walther, 2000; Bloomfield, 2002; Li, 2008; de Souza *et al.*, 2019; Alduais, 2022; Dempsey *et al.*, 2012; Ajina *et al.*, 2016; Lo *et al.*, 2017; Demaline, 2020). Therefore, I expect that less profitable firms prepare more complex reports. However, prior research in the field provides contradictory empirical evidence, as there are studies that state that complexity of financial reporting is not an attempt to misguide investors rather than a result of other factors (Bloomfield, 2008; Loughran and McDonald, 2020; Curtis, 2004; Rutherford, 2016; Asay *et al.*, 2018; Bushee *et al.*, 2018).

Hence, I examine the association between complexity of reports and firm performance to shed light on the statement that links poor performance with complexity. To address this research question, I structure the following hypothesis:

Hypothesis 1 (H1). *Firms that underperform tend to disclose more complex information.*

2.4.2. Tone ambiguity

The initiative behind plain English disclosures rules that were adopted in 1998 by U.S. Securities and Exchange Commission (SEC) was to increase the transparency of financial reporting, as it was stated by the SEC that managers tend to use ambiguous information in their reports to strategically misguide investors (SEC, 1998). Furthermore, Li (2008) has found an association between tone ambiguity and the intention of managers to hide poor performance.

The overall theoretical reasoning can establish the a priori suggestion that the uncertainty of 10-Ks is used on purpose to overshadow poor performance. However, the empirical findings for this research question are limited. Therefore, in this study I attempt to examine and add empirical evidence to this research question, and thus, I propose the following hypothesis:

Hypothesis 2 (H2). *Firms with poor performance formulate their annual reports in more ambiguous and uncertain tone.*

3. Data collection and sample

3.1. Data and sample formation - Textual analysis

To examine the hypotheses of this study, I constructed a longitudinal database that includes U.S. firm-level data for the period 1998 to 2017. The sample includes annual reports (10-Ks) from Securities and Exchange Commission's (SEC's) Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system for this period. After the implementation of textual analysis, the results were merged with financial data collected from the merged Compustat/Center for Research in Security Prices (CRSP) annual database.

In specific, the sample creation begins with collecting the 10-Ks for the above-mentioned period from Securities and Exchange Commission's (SEC's) Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system (www.sec.gov). U.S. public companies began to voluntarily disclose financial information online on the EDGAR database since 1993. Since May 1996, all U.S. public companies have been required to file electronic annual and quarterly reports (U.S. Securities and Exchange Commission, 2006).

For the purposes of the 10-Ks collection, I used Python programming language to automatically retrieve the reports per quarter and year from the Securities and Exchange Commission's (SEC's) Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system. Then, I used Python again to clean the raw 10-K files to proceed with textual analysis. The cleaning procedure aims to prepare 10-Ks for textual analysis. The cleaned reports were analyzed in Python, and then words were classified into sentiment categories according to the dictionary. After conducting the analysis, I obtained the measures of complexity (number of words, the logarithm of number of words, and size of the report) and ambiguity (percentage of uncertainty and modal weak words).

Financial and utility firms were excluded from the sample as they operate in specific regulatory environments. Following Loughran and McDonald (2011), firms that contain 2000 words or less in their reports were not included in the dataset. Furthermore, amended reports were excluded from the sample according to literature (Loughran and McDonald, 2011). Moreover, 10-K variants were not included in the sample (i.e., 10-K/A, 10-K405, 10KSB, and 10KSB40). Finally, I deleted observations if there were missing data on the regression variables and the final sample includes 48,750 observations.

4. Variable measurement and the research design

4.1. Variable measurement

In this section, the dependent, independent, and control variables used in the regression analysis are defined.

The dependent variables of this study are the measures of complexity and ambiguity. Complexity of 10-Ks is measured by the number of words, logarithm of number of words, and size of the report (*numberofwords*, *length*, *filesize*). Higher number of words, logarithm of number of words, and size of the report indicate higher complexity. Ambiguity of 10-Ks is measured by the percentages of uncertainty and modal weak words (*uncertainty*, *modalweak*). I included three separate independent variables to measure firm performance: Earnings per share from operations (*opeps*), earnings before tax-to-equity ratio (*EBTER*) and Return on Equity (*ROE*).

Furthermore, I controlled for several variables derived from prior research. *Leverage ratio* measures the mixture of equity and external debt that a firm uses to operate. To calculate this ratio, I divided total debt by total assets. *Size* is the logarithm of the market value of a firm's equity. *Market-to-book ratio* is the current closing price of the company's stock divided by the book value per share. *Special items* measure the number of special items divided by the number of total assets. Finally, I included as control variable *acquisitions* of the company. All variables are presented in detail in the Appendix.

4.2. Research design

4.2.1. The impact of firm performance on complexity of annual reports

Initially, in this study, I examine the impact of firm performance on the obfuscation of accounting information that managers disclose in their reports. To investigate this research question, the following model is constructed:

$$\text{COMPLEXITY}_{i,t} = \beta_0 + \beta_1 \text{FIRM_PERFORMANCE}_{i,t} + \beta_2 \text{LEVR}_{i,t} + \beta_3 \text{SIZE}_{i,t} + \beta_4 \text{MTB}_{i,t} + \beta_5 \text{SI}_{i,t} + \beta_6 \text{ACQ}_{i,t} + \varepsilon_{i,t} \quad (1)$$

To this end, I run nine regressions with three different measures of complexity (the number of words, logarithm of number of words, and size of the

report) and three different measures of firm performance (earnings per share from operations, earnings before tax-to-equity ratio, and return on equity).

4.2.2. The impact of firm performance on ambiguity of annual reports

To shed light on the second research question of this study, the impact of firm performance on annual reports' ambiguity, I constructed the following model:

$$\text{AMBIGUITY}_{i,t} = \beta_0 + \beta_1 \text{FIRM_PERFORMANCE}_{i,t} + \beta_2 \text{LEVR}_{i,t} + \beta_3 \text{SIZE}_{i,t} + \beta_4 \text{MTB}_{i,t} + \beta_5 \text{SI}_{i,t} + \beta_6 \text{ACQ}_{i,t} + \varepsilon_{i,t} \quad (2)$$

For this research question, I run six different regressions. Ambiguity of annual reports is measured by the percentages of uncertainty and modal weak words, and firm performance by earnings per share from operations, earnings before tax-to-equity ratio, and return on equity.

5. Results and discussion

5.1. Descriptive Statistics

Table 2 presents the results of the descriptive analysis of the variables of this study.

Earnings per share from operations (*opeps*) and earnings before tax-to-equity ratio (*EBTER*) have positive values of mean, while Return on Equity (*ROE*) has a negative mean value. The average size of the report is 262208.85 and the average number of words is 33881.48. The results of the descriptives indicate that managers tend to use more uncertainty words (mean value of 1.33) than modal weak words (mean value of 0.515). Furthermore, the leverage ratio has a mean value of 0.635, indicating that the average firm in the sample financed its assets primarily with debt rather than equity. The size of the firm has an average value of 5.424 with a minimum value of -7.601 and a maximum value of 13.58. Moreover, the market-to-book ratio has a mean value of 2.194, meaning that on average, firms are trading at a premium. The average value of special items is negative (-0.053). Finally, the mean value of the dummy variable constructed for acquisitions is 0.377.

Table 1: Descriptive statistics

VARIABLE	MEAN	STD. DEV.	MIN	MAX
OPEPS	1.316	65.687	-760.77	8548
EBTER	0.046	1.126	-5.746	5.302
ROE	-0.24	0.965	-6.544	0.55
LENGTH	10.287	0.572	7.601	13.79
FILESIZE	262208.85	142021.83	16122	8497701
NUMBEROFWORDS	33881.48	18343.644	2001	974981
UNCERTAINTY	1.33	0.318	0.104	2.798
MODALWEAK	0.515	0.238	0	1.68
LEVR	0.635	0.727	0.048	5.21
SIZE	5.424	2.366	-7.601	13.58
MTB	2.194	291.8	-31266.666	44000
SI	-0.053	1.878	-148.049	177.111
ACQ Obs. 48,750	0.377	0.485	0	1

5.2. Empirical results and discussion

5.2.1. The impact of firm performance on complexity of annual reports

Tables 3-5 present the results of the regression analyses that examine the relationship between firm performance and complexity of accounting information that managers disclose in annual reports.

The empirical findings indicate that firms with poor performance tend to disclose more complex information. Particularly, the coefficients of the variables that are used to measure performance (earnings per share from operations, earnings before tax-to-equity ratio, and return on equity) are all negative and statistically significant. This result holds the same for all the measures of complexity of annual reports used in this study (number of words, logarithm of number of words, and size of the report).

In other words, managers of firms that underperform tend to obfuscate the information content of annual reports. A possible explanation to this could be that managers try to overshadow negative earnings by preparing more complex reports. The results of this study are in line with the studies that confirm the

management obfuscation hypothesis (Schrand and Walther, 2000; Bloomfield, 2002; Li, 2008; de Souza *et al.*, 2019; Alduais, 2022; Dempsey *et al.*, 2012; Ajina *et al.*, 2016; Lo *et al.*, 2017; Demaline, 2020).

Concerning the effect of the control variables on 10-Ks complexity, firm leverage has a statistically significant and positive impact on complexity. Thus, firms with higher leverage ratio, report more complex information. Furthermore, the size of the company has a positive and significant impact on the firm's complexity, which indicates that larger firms tend to prepare more complex 10-Ks. The market-to-book ratio has no statistically significant impact on the dependent variable. Also, the relation between special items and complexity is positive and statistically significant when performance is measured by ROE, while when performance is measured by earnings per share from operations and earnings before tax-to-equity ratio is not statistically significant. Finally, acquisitions of a firm have a negative and statistically significant impact on complexity of annual reports.

Table 2: Earnings per share and complexity of 10-Ks

	LENGTH			FILESIZE			NUMBEROFWORDS					
	Coef.	T-stat	p-value	Coef.	T-stat	p-value	Coef.	T-stat	p-value			
OPEPS	0	-2.89	0.004	***	-10.518	-3.71	0	***	-1.348	-3.61	0	***
LEVR	0.111	16.90	0	***	24699.145	14.24	0	***	3357.067	14.70	0	***
SIZE	0.068	15.80	0	***	13578.307	13.36	0	***	1841.155	13.55	0	***
MTB	0	-0.40	0.692		-0.708	-0.78	0.437		-0.094	-0.78	0.435	
SI	0	0.45	0.655		99.729	0.40	0.686		19.122	0.58	0.559	
ACQ	-0.028	-4.44	0	***	-5513.552	-3.67	0	***	-766.674	-3.94	0	***
Constant	9.859	393.71	0	***	174956.13	28.73	0	***	22052.719	27.19	0	***
R ² within	0.032				0.018				0.022			
F-statistic	70.739				50.607				53.476			
P(F-statistic)	0.000				0.000				0.000			
Number of obs.	48,750				48,750				48,750			

Notes: This table reports the OLS regression results of the impact of firm performance (measured by earnings per share from operations) on 10-Ks complexity. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors and fixed effects are included. Refer to Appendix for variable definitions.

Table 3: Earnings before tax-to-equity ratio and complexity of 10-Ks

	LENGTH			FILESIZE					NUMBEROFWORDS			
	Coef.	T-stat	p-value	Coef.	T-stat	p-value	Coef.	T-stat	p-value			
EBTER	-0.009	-5.41	0	***	-1685.397	-4.13	0	***	-226.346	-4.19	0	***
LEVR	0.114	17.29	0	***	25329.261	14.52	0	***	3441.66	14.99	0	***
SIZE	0.068	15.91	0	***	13717.62	13.44	0	***	1859.908	13.64	0	***
MTB	0	-0.80	0.426		-1.097	-1.15	0.249		-0.147	-1.16	0.246	
SI	0	0.44	0.66		93.18	0.40	0.692		18.256	0.59	0.558	
ACQ	-0.028	-4.42	0	***	-5487.31	-3.66	0	***	-763.155	-3.92	0	***
Constant	9.854	391.51	0	***	173854.53	28.42	0	***	21904.646	26.89	0	***
R ² within	0.033				0.019				0.022			
F-statistic	70.817				49.212				52.382			
P(F-statistic)	0.000				0.000				0.000			
Number of obs.	48,750				48,750				48,750			

Notes: This table reports the OLS regression results of the impact of firm performance (measured by earnings before tax-to-equity ratio) on 10-Ks complexity. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors and fixed effects are included. Refer to Appendix for variable definitions.

Table 4: Return on Equity and complexity of 10-Ks

	LENGTH			FILESIZE			NUMBEROFWORDS					
	Coef.	T-stat	p-value	Coef.	T-stat	p-value	Coef.	T-stat	p-value			
ROE	-0.063	-18.05	0	***	-13518.238	-15.71	0	***	-1787.004	-15.55	0	***
LEVR	0.094	15.20	0	***	21230.855	12.81	0	***	2898.567	13.26	0	***
SIZE	0.094	18.91	0	***	19155.325	16.24	0	***	2578.421	16.36	0	***
MTB	0	-0.46	0.644		-0.847	-0.79	0.429		-0.113	-0.79	0.43	***
SI	0.003	3.03	0.002	***	661.293	2.83	0.005	***	93.365	2.95	0.003	
ACQ	-0.03	-4.78	0	***	-5912.244	-3.97	0	***	-819.381	-4.24	0	***
Constant	9.713	339.49	0	***	143830.64	20.72	0	***	17938.09	19.39	0	***
R ² within	0.048				0.027				0.032			
F-statistic	99.007				72.003				73.951			
P(F-statistic)	0.000				0.000				0.000			
Number of obs.	48,750				48,750				48,750			

Notes: This table reports the OLS regression results of the impact of firm performance (measured by Return on Equity) on 10-Ks complexity. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Robust standard errors and fixed effects are included. Refer to Appendix for variable definitions.

5.2.2. The impact of firm performance on ambiguity of annual reports

The findings of the regressions that investigate the impact of firm performance on ambiguity of annual reports are presented in tables 6-8.

According to the results of this study, managers of firms that underperform choose to disclose more vague information in 10-Ks. In particular, the coefficients of the independent variables (earnings per share from operations, earnings before tax-to-equity ratio, and return on equity) are negative and statistically significant. This result holds the same for both measures of ambiguity of annual reports used in this study (percentage of uncertainty words and percentage of modal weak words in 10-Ks).

Therefore, managers of firms with poor performance choose to disclose vague accounting information. An interpretation to this could be that they attempt to hide poor performance by reporting in an ambiguous manner. This is in line with prior literature (SEC, 1998; Li, 2008).

Regarding the coefficients of the control variables of tables 6-8, the coefficient of leverage ratio is positive and statistically significant. The same holds for the coefficient of variable that measures the size of the firm, indicating that larger firms disclose more ambiguous accounting information. The market-to-book ratio has no statistically significant impact on the ambiguity of 10-Ks. Furthermore, the relation between special items and the dependent variable is positive and statistically significant for the majority of regressions. Finally, acquisitions of a firm have a negative and statistically significant impact on ambiguity of annual reports when ambiguity is measured with the percentage of modal weak words in the 10-Ks, while when ambiguity is measured with the percentage of uncertain words in the 10-Ks this variable has no impact on firm ambiguity.

Table 5: Earnings per share and ambiguity of 10-Ks

	UNCERTAINTY			MODALWEAK				
	Coef.	T-stat	p-value	Coef.		T-stat	p-value	
OPEPS	0	-3.77	0	***	0	-2.63	0.009	***
LEVR	0.03	7.96	0	***	0.024	9.14	0	***
SIZE	0.04	17.28	0	***	0.026	16.64	0	***
MTB	0	-0.69	0.489		0	-0.84	0.4	
SI	0.001	1.54	0.125		0.001	2.92	0.003	***
ACQ	-0.003	-0.79	0.43		-0.006	-2.53	0.012	**
Constant	1.094	80.71	0	***	0.361	39.58	0	***
R ² within	0.029				0.029			
F-statistic	55.098				52.317			
P(F-statistic)	0.000				0.000			
Number of obs.	48,750				48,750			

Notes: This table reports the OLS regression results of the impact of firm performance (measured by earnings per share from operations) on 10-Ks ambiguity. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors and fixed effects are included. Refer to Appendix for variable definitions.

Table 6: Earnings before tax-to-equity ratio and ambiguity of 10-Ks

	UNCERTAINTY			MODALWEAK				
	Coef.	T-stat	p-value	Coef.		T-stat	p-value	
EBTER	-0.002	-2.49	0.013	**	-0.001	-1.91	0.056	*
LEVR	0.031	8.20	0	***	0.025	9.34	0	***
SIZE	0.04	17.31	0	***	0.026	16.67	0	***
MTB	0	-0.80	0.422		0	-0.96	0.335	
SI	0.001	1.49	0.136		0.001	2.87	0.004	***
ACQ	-0.003	-0.78	0.436		-0.006	-2.52	0.012	**
Constant	1.093	80.29	0	***	0.36	39.38	0	***
R ² within	0.029				0.029			
F-statistic	51.290				50.500			
P(F-statistic)	0.000				0.000			
Number of obs.	48,750				48,750			

Notes: This table reports the OLS regression results of the impact of firm performance (measured by earnings before tax-to-equity ratio) on 10-Ks ambiguity. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors and fixed effects are included. Refer to Appendix for variable definitions.

Table 7: Return on Equity and ambiguity of 10-Ks

	UNCERTAINTY			MODALWEAK				
	Coef.	T-stat	p-value	Coef.		T-stat	p-value	
ROE	-0.031	-16.49	0	***	-0.019	-15.36	0	***
LEVR	0.022	6.05	0	***	0.019	7.51	0	***
SIZE	0.053	19.28	0	***	0.034	18.58	0	***
MTB	0	-0.71	0.475		0	-0.84	0.403	
SI	0.002	3.12	0.002	***	0.002	4.09	0	***
ACQ	-0.004	-1.07	0.285		-0.006	-2.80	0.005	***
Constant	1.024	64.97	0	***	0.317	30.12	0	***
R ² within	0.041				0.040			
F-statistic	66.295				64.224			
P(F-statistic)	0.000				0.000			
Number of obs.	48,750				48,750			

Notes: This table reports the OLS regression results of the impact of firm performance (measured by Return on Equity) on 10-Ks ambiguity. *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors and fixed effects are included. Refer to Appendix for variable definitions.

6. Conclusion

This work attempts to shed light on the relation between complexity and ambiguity of annual reports and firm performance.

To examine the research questions, the dictionary method is adopted, which is an algorithmic approach in Python programming language. The results of textual analysis are merged with financial data from the merged Compustat/Center for Research in Security Prices (CRSP) annual database, to create the final sample which includes 48,750 observations from the period 1998 to 2017.

The results of this study indicate that when firm performance worsens, managers tend to disclose more complex information in 10-Ks. This result is in line with the management obfuscation hypothesis that states that managers attempt to overshadow negative earnings by preparing less readable reports. Moreover, poor firm performance is linked with more vague accounting disclosures. A possible explanation to this could be that managers use more ambiguous language to reduce the transparency of 10-Ks and hide poor performance. This is in line with the agency problem as managers seem to act opportunistically by obfuscating accounting information and creating information asymmetry to overshadow poor performance from external stakeholders.

This work initially contributes empirical evidence to the limited existing literature that examines the association between ambiguity of annual reports and

firm performance. Furthermore, this study measures complexity adopting an alternative measure that has not been used in the previous literature, augmenting the empirical evidence in the field. Finally, this work provides empirical evidence concerning the relation of firm performance with complexity and ambiguity from an extensive sample for the period 1998 to 2017.

The findings of this study are relevant and provide significant implications for academics, managers, auditors, and analysts as they contribute to the better comprehension and analysis of the impact of accounting performance on the complexity and ambiguity of financial reporting. Specifically, the empirical evidence of this work might provide an insightful interpretation of the association between firm performance and obfuscated and vague information of 10-Ks, as it examines these relations under the spectrum of a variety of complexity and ambiguity measures. Therefore, researchers, managers, and external stakeholders may gain a deeper insight into the information disclosed in corporate reports.

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References

- Adelberg, A. H. (1979). 'A methodology for measuring the understandability of financial report messages'. *Journal of Accounting Research*, 17 (2), pp. 565-592. <https://doi.org/10.2307/2490519>
- Ajina, A., Laouiti, M., and Msolli, B. (2016). 'Guiding through the Fog: Does annual report readability reveal earnings management?'. *Research in International Business and Finance*, 38, pp. 509-516, <http://dx.doi.org/10.1016/j.ribaf.2016.07.021>
- Alduais, F. (2022). 'Textual analysis of the annual report and corporate performance: evidence from China'. *Journal of Financial Reporting and Accounting*, <https://doi.org/10.1108/JFRA-04-2022-0129>
- Asay, H. S., Elliott, W. B., and Rennekamp, K. (2017). 'Disclosure readability and the sensitivity of investors' valuation judgments to

- outside information'. *Accounting Review*, 92 (4), pp. 1-25, <https://doi.org/10.2308/accr-51570>
- Asay, H. S., Libby, R., and Rennekamp, K. (2018). 'Firm performance, reporting goals, and language choices in narrative disclosures'. *Journal of Accounting and Economics*, 65 (2/3), pp. 380-398, <https://doi.org/10.1016/j.jacceco.2018.02.002>
- Biddle, G. C., Hilary, G., and Verdi, R. S. (2009). 'How does financial reporting quality relate to investment efficiency?'. *Journal of Accounting and Economics*, Vol. 48 Nos 2/3, pp.112-131, <http://dx.doi.org/10.1016/j.jacceco.2009.09.001>
- Bloomfield, R. (2002). 'The 'Incomplete Revelation Hypothesis' and financial reporting'. Working paper, Samuel Curtis Johnson Graduate School of Management, Cornell University, Ithaca, NY, May 2002, <http://dx.doi.org/10.2139/ssrn.3126713.2.1.1>.
- Bloomfield, R. (2008). 'Discussion of 'annual report readability, current earnings, and earnings persistence''. *Journal of Accounting and Economics*, 45 (2/3), pp. 248-252, <https://doi.org/10.1016/j.jacceco.2008.04.002>
- Bonsall, S. B., Leone, A. J., Miller, B. P., and Rennekamp, K. (2017). 'A plain English measure of financial reporting readability'. *Journal of Accounting and Economics*, 63 (2/3), pp. 329-357, <https://doi.org/10.1016/j.jacceco.2017.03.002>
- Bonsall, S. B., and Miller B. P. (2017). 'The impact of narrative disclosure readability on bond ratings and the cost of debt', *Review of Accounting Studies*, 22 (2), pp. 608-643, <https://doi.org/10.1007/s11142-017-9388-0> or <http://dx.doi.org/10.2139/ssrn.2865761>
- Bozanic, Z., and Thevenot, M. (2015). 'Qualitative disclosure and changes in sell-side financial analysts' information environment'. *Contemporary Accounting Research*, 32 (4), pp. 1595-1616, <https://doi.org/10.1111/1911-3846.12123>
- Bradbury, M. E., Hsiao, P.-C. K., and Scott, T. (2020). 'Summary annual reports: Length, readability and content'. *Accounting and Finance*, 60 (3), pp. 2145-2165, <https://doi.org/10.1111/acfi.12370>
- Bushee, B. J., Gow, I. D., and Taylor, D. J. (2018). 'Linguistic complexity in firm disclosures: Obfuscation or information?'. *Journal of Accounting Research*, 56 (1), pp. 85-121, <https://doi.org/10.1111/1475-679X.12179>
- Callen, J. L., Khan, M., and Lu, H. (2013). 'Accounting quality, stock price delay, and future stock returns'. *Contemporary Accounting Research*, 30 (1), pp. 269-295, <https://doi.org/10.1111/j.1911-3846.2011.01154.x>
- Chen, T.-K., and Tseng, Y. (2021). 'Readability of notes to consolidated

- financial statements and corporate bond yield spread'. *European Accounting Review*, 30 (1), pp. 83-113, <https://doi.org/10.1080/09638180.2020.1740099>
- Cho, M., Hyeon, J., Jung, T., and Lee, W.-J. (2022). 'Audit pricing of hard-to-read annual reports'. *Asia-Pacific Journal of Accounting and Economics*, 29 (2), pp. 547-572, <https://doi.org/10.1080/16081625.2019.1600418>
- Courtis, J. K. (1986). 'An investigation into annual report readability and corporate risk-return relationships'. *Accounting and Business Research*, 16 (64), pp. 285-294, <https://doi.org/10.1080/00014788.1986.9729329>
- Courtis, J. K. (1998). 'Annual report readability variability: Tests of the obfuscation hypothesis'. *Accounting, Auditing and Accountability Journal*, 11 (4), pp. 459-472, <https://doi.org/10.1108/09513579810231457>
- Courtis, J. K. (2004). 'Corporate report obfuscation: Artefact or phenomenon?'. *British Accounting Review*, 36 (3), pp. 291-312, <https://doi.org/10.1016/j.bar.2004.03.005>
- De Franco, G., Hope, O.-K., Vyas, D., and Zhou, Y. (2015). 'Analyst report readability'. *Contemporary Accounting Research*, 32 (1), pp. 76-104, <https://doi.org/10.1111/1911-3846.12062>
- de Souza, J. A. S., Rissatti, J. C., Rover, S., and Borba, J. A. (2019). 'The linguistic complexities of narrative accounting disclosure on financial statements: An analysis based on readability characteristics'. *Research in International Business and Finance*, 48, pp. 59-74, <https://doi.org/10.1016/j.ribaf.2018.12.008>
- Demaline, C. (2020). 'Disclosure readability of firms investigated for books-and-records infractions: An impression management perspective'. *Journal of Financial Reporting and Accounting*, 18 (1), pp. 131-145, <https://doi.org/10.1108/JFRA-10-2018-0094>
- Dempsey, S. J., Harrison, D. M., Luchtenberg, K. F., and Seiler, M. J. (2012). 'Financial opacity and firm performance: The readability of REIT annual reports'. *The Journal of Real Estate Finance and Economics*, 45, pp. 450-470, <https://doi.org/10.1007/s11146-010-9263-2>
- du Toit, E. (2017). 'The readability of integrated reports', *Meditari Accountancy Research*, 25 (4), pp. 629-653, <https://doi.org/10.1108/MEDAR-07-2017-0165>
- Efretuei, E., and Hussainey, K. (2023). 'The fog index in accounting research: contributions and challenges'. *Journal of Applied Accounting Research*, 24 (2), pp. 318-343, <https://doi.org/10.1108/JAAR-09-2021-0243>
- Elkins, H., and Entwistle, G. (2018). 'A commentary on accounting standards and the disclosure problem: Exploring a way forward'. *Journal of*

- International Accounting, Auditing and Taxation, 33, pp. 79-89, <https://doi.org/10.1016/j.intaccudtax.2018.11.003>
- Ertugrul, M., Lei, J., Qiu, J., and Wan, C. (2017). 'Annual report readability, tone ambiguity, and the cost of borrowing'. *Journal of Financial and Quantitative Analysis*, 52 (2), pp. 811-836, <https://doi.org/10.1017/S0022109017000187>
- Flesch, R. (1948). 'A new readability yardstick'. *Journal of Applied Psychology*, 32 (3), pp. 221-233, <https://doi.org/10.1037/h0057532>
- Garafas, G. (2024a). 'Analyzing the balance sheet of the euro area NCBs and the ECB. The impact of securities on inflation and economic activity'. *Actual Problems of Economics*, 1 (271), pp. 66-77, <https://10.32752/1993-6788-2024-1-271-66-77>
- Garafas, G. (2024b). 'Insights into the Price Puzzle: The Impact of Main Refinancing Operations (MRO) Rate and Unconventional Monetary Policy'. *Argomenti*, (27), <https://doi.org/10.14276/1971-8357.4528>
- Goodman, H. T., Neamtiu, M., Shroff, N., and White, D. H. (2014). 'Management forecast quality and capital investment decisions'. *Accounting Review*, 89 (1), pp. 331-365, <https://doi.org/10.2308/accr-50575>
- Grossman, S. J., and Stiglitz, J. E. (1980). 'On the impossibility of informationally efficient markets'. *The American Economic Review*, 70 (3), pp. 393-408, <http://www.jstor.org/stable/1805228>
- Guay, W., Samuels, D., and Taylor, D. (2016). 'Guiding through the Fog: Financial statement complexity and voluntary disclosure'. *Journal of Accounting and Economics*, 62 (2/3), pp. 234-269, <https://doi.org/10.1016/j.jaccoco.2016.09.001>
- Gunning, R. (1952). *The technique of clear writing*. New York: McGraw-Hill.
- Hasan, M. M. (2020). 'Readability of narrative disclosures in 10-K reports: Does managerial ability matter?'. *European Accounting Review*, 29 (1), pp. 147-168, <https://doi.org/10.1080/09638180.2018.1528169>
- Hay, D. (1998). 'Communication in auditors' reports: Variations in readability and the effect of audit firm structure'. *Asia-Pacific Journal of Accounting*, 5 (2), pp. 179-197, <https://doi.org/10.1080/10293574.1998.10510540>
- Hemmings, D., Hodgkinson, L., and Williams, G. (2020). 'It's ok to pay well, if you write well: The effects of remuneration disclosure readability'. *Journal of Business Finance and Accounting*, 47 (5/6), pp. 547-586, <https://doi.org/10.1111/jbfa.12431>
- Hoitash, R., and Hoitash, U. (2018). 'Measuring accounting reporting complexity with XBRL'. *The Accounting Review*, 93 (1), pp. 259-287, <https://doi.org/10.2308/accr-51762>

- Hsieh, C.-C., Hui, K. W., and Zhang, Y. (2016). 'Analyst report readability and stock returns'. *Journal of Business Finance and Accounting*, 43 (1/2), pp. 98-130, <https://doi.org/10.1111/jbfa.12166>
- Hwang, B-H., and Kim, H. H. (2017). 'It pays to write well'. *Journal of Financial Economics*, 124 (2), pp. 373-394, <https://doi.org/10.1016/j.jfineco.2017.01.006>.
- Jones, M. J. (1988). 'A longitudinal study of the readability of the chairman's narratives in the corporate reports of a U.K. company'. *Accounting and Business Research*, 18 (72), pp. 297-305, <https://doi.org/10.1080/00014788.1988.9729377>
- Kim, C., Wang, K., and Zhang, L. (2019). 'Readability of 10-K reports and stock price crash risk'. *Contemporary Accounting Research*, 36 (2), pp. 1184-1216, <https://doi.org/10.1111/1911-3846.12452>
- Kincaid, J. P., Aagard, J. A., O'Hara, J. W., and Cottrell, L. K. (1981). 'Computer readability editing system'. *IEEE Transactions on Professional Communication PC*, 24 (1), pp. 38-42, <https://doi.org/10.1109/TPC.1981.6447821>
- Kincaid, J. P., Fishburne, R. P. J., Rogers, R. L., and Chissom, B. S. (1975). 'Derivation of new readability formulas (Automated Readability Index, Fog Count and Flesch Reading Ease Formula) for Navy enlisted personnel'. Research report, Institute for Simulation and Training, University of Central Florida, Orlando, February. Available at: <https://stars.library.ucf.edu/cgi/viewcontent.cgi?article=1055&context=istlibrary>
- Kuang, Y. F., Lee, G., and Qin, B. (2020). 'Does government report readability matter? Evidence from market reactions to AAERs'. *Journal of Accounting and Public Policy*, 39 (2), <https://doi.org/10.1016/j.jaccpubpol.2019.106697>
- Laksmna, I., Tietz, W., and Yang, Y.-W. (2012). 'Compensation discussion and analysis (CD&A): readability and management obfuscation'. *Journal of Accounting and Public Policy*, 31 (2), pp. 185-203, <https://doi.org/10.1016/j.jaccpubpol.2011.08.003>.
- Lang, M., and Stice-Lawrence, L. (2015). 'Textual analysis and international financial reporting: Large sample evidence'. *Journal of Accounting and Economics*, 60 (2/3), pp. 110-135, <https://doi.org/10.1016/j.jacceco.2015.09.002>
- Le Maux, J., and Smaili, N. (2021). 'Annual report readability and corporate bankruptcy'. *Journal of Applied Business Research*, 37 (3), pp. 73-80, <https://doi.org/10.19030/jabr.v37i3.10374>
- Lee, Y.-J. (2012). 'The effect of quarterly report readability on information

- efficiency of stock prices'. *Contemporary Accounting Research*, 29 (4), pp. 1137-1170, <https://doi.org/10.1111/j.1911-3846.2011.01152.x>
- Lehavy, R., Li, F., and Merkley, K. (2011). 'The effect of annual report readability on analyst following and the properties of their earnings forecasts'. *The Accounting Review*, 86 (3), pp. 1087-1115, <https://doi.org/10.2308/accr.00000043>
- Li, F. (2008). 'Annual report readability, current earnings, and earnings persistence'. *Journal of Accounting and Economics*, 45 (2/3), pp. 221-247, <https://doi.org/10.1016/j.jacceco.2008.02.003>
- Li, F. (2010). 'Textual analysis of corporate disclosures: A survey of the literature'. *Journal of Accounting Literature*, 29, pp. 143-165, <https://www.cuhk.edu.hk/acy2/workshop/20110215FengLI/Paper1.pdf>
- Lo, K., Ramos, F., and Rogo, R. (2017). 'Earnings management and annual report readability'. *Journal of Accounting and Economics*, 63 (1), pp. 1-25, <http://dx.doi.org/10.1016/j.jacceco.2016.09.002>
- Loughran, T., and McDonald, B. (2011). 'When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks'. *The Journal of Finance*, 66 (1), pp. 35-65, <https://doi.org/10.1111/j.1540-6261.2010.01625.x>
- Loughran, T., and McDonald, B. (2013). 'IPO first-day returns, offer price revisions, volatility, and form S-1 language'. *Journal of Financial Economics*, 109 (2), pp. 307-326, <https://doi.org/10.1016/j.jfineco.2013.02.017>
- Loughran, T., and McDonald, B. (2014). 'Measuring readability in financial disclosures'. *Journal of Finance*, 69 (4), pp. 1643-1671, <https://doi.org/10.1111/jofi.12162>
- Loughran, T., and McDonald, B. (2016). 'Textual analysis in accounting and finance: A survey'. *Journal of Accounting Research*, 54 (4), pp. 1187-1230, <https://doi.org/10.1111/1475-679X.12123>
- Loughran, T., and McDonald, B. (2020). 'Textual analysis in finance'. *Annual Review of Financial Economics*, 12, pp. 357-375, <https://doi.org/10.1146/annurev-financial-012820-032249>
- Martínez-Ferrero, J., Suárez-Fernández, O., and García-Sánchez I.-M. (2019). 'Obfuscation versus enhancement as corporate social responsibility disclosure strategies'. *Corporate Social Responsibility and Environmental Management*, 26 (2), pp. 468-480, <https://doi.org/10.1002/csr.1697>
- Melloni, G., Caglio, A., and Perego, P. (2017). 'Saying more with less? Disclosure conciseness, completeness and balance in Integrated Reports'. *Journal of Accounting and Public Policy*, 36 (3), pp. 220-238, <https://doi.org/10.1016/j.jaccpubpol.2017.03.001>
- Miller, B. P. (2010). 'The effects of reporting complexity on small and large

- investor trading'. *The Accounting Review*, 85 (6), pp. 2107-2143, <https://doi.org/10.2308/accr.00000001>
- Muslu, V., Mutlu, S., Radhakrishnan, S., and Tsang A. (2019). 'Corporate social responsibility report narratives and analyst forecast accuracy'. *Journal of Business Ethics*, 154 (4), pp. 1119-1142, <https://doi.org/10.1007/s10551-016-3429-7>
- Nazari, J. A., Hrazdil, K., and Mahmoudian F. (2017). 'Assessing social and environmental performance through narrative complexity in CSR reports'. *Journal of Contemporary Accounting and Economics*, 13 (2), pp. 166-178, <https://doi.org/10.1016/j.jcae.2017.05.002>
- Pound, G. D. (1981). 'A note on audit report readability', *Accounting and Finance*, 21 (1), pp. 45-55, <https://doi.org/10.1111/j.1467-629X.1981.tb00028.x>
- Rutherford, B. A. (2016). 'The struggle to fabricate accounting narrative obfuscation: an actor-network-theoretic analysis of a failing project'. *Qualitative Research in Accounting & Management*, 13 (1), pp. 57-85, <https://doi.org/10.1108/QRAM-06-2015-0060>
- Schloetzer, J. D, Tseng, A., Yohn, T. L., and Yoon, Y. S. (2020). 'Blame attribution and disclosure propensity'. *The Accounting Review*, 96 (4), pp. 405-432, <https://doi.org/10.2308/TAR-2018-0397>
- Schrand, C. M., and Walther, B. R. (2000). 'Strategic benchmarks in earnings announcements: The selective disclosure of prior-period earnings components'. *The Accounting Review*, 75 (2), pp. 151-177, <https://doi.org/10.2308/accr.2000.75.2.151>
- Schroeder, N., and Gibson, C. (1990). 'Readability of management's discussion and analysis'. *Accounting Horizons*, 4 (4), pp. 78-87, https://faculty.etsu.edu/POINTER/schroeder_n.pdf
- Smith, J. E., and Smith, N. P. (1971). 'Readability: A measure of the performance of the communication function of financial reporting'. *The Accounting Review*, 46 (3), pp. 552-561, https://www.jstor.org/stable/244524?casa_token=0V8zv3psJx4AAAAA%3AHkx871YE4syh5HPOaRK3Id_3Todbow80IRMJYa6e8Atv-tYs_ptOu4OjOoxGT4Lj1J_xO5tMKHk9Ipw-GtEYLmJ-O48-iliFvekIIq6Esc4MeVIggnxvKtQ&seq=1
- Soper, F. J., and Dolphin, R. (1964). 'Readability and corporate annual reports'. *The Accounting Review*, 39 (2), pp. 358-362, <https://www.proquest.com/docview/1301309467/fulltext/992A14F8FB094EFCPQ/1?accountid=28974&sourcetype=Scholarly%20Journals&imgSeq=5>
- Stone, G. W., and Lodhia, S. (2019). 'Readability of integrated reports: An exploratory global study'. *Accounting, Auditing and Accountability*

- Journal, 32 (5), pp. 1532-1557, <https://doi.org/10.1108/AAAJ-10-2015-2275>
- U.S. Securities and Exchange Commission (SEC). (1998). 'A plain English handbook: how to create clear SEC disclosure documents'. Available at: <https://www.sec.gov/pdf/handbook.pdf> (accessed 7 May 2023)
- U.S. Securities and Exchange Commission. (2006). 'Electronic filing and the EDGAR system: A regulatory overview'. Available at: <https://www.sec.gov/info/edgar/regoverview.htm> (accessed 23 July 2022)
- Verk, N., Golob, U., and Podnar, K. (2021). 'A dynamic review of the emergence of corporate social responsibility communication'. *Journal of Business Ethics*, 168, pp. 491-515, <https://doi.org/10.1007/s10551-019-04232-6>
- Wang, Z., Hsieh, T.-S., and Sarkis, J. (2018). 'CSR performance and the readability of CSR reports: Too good to be true?'. *Corporate Social Responsibility and Environmental Management*, 25 (1), pp. 66-79, <https://doi.org/10.1002/csr.1440>
- You, H., and Zhang, X. (2009). 'Financial reporting complexity and investor underreaction to 10-K information'. *Review of Accounting Studies*, 14 (4), pp. 559-586, <https://doi.org/10.1007/s11142-008-9083-2>
- Yu, K., and Garg, P. (2022). 'Corporate social responsibility report readability, credit ratings and cost of borrowing'. *Review of Accounting and Finance*, 21 (5), pp. 423-448, <https://doi.org/10.1108/RAF-11-2021-0322>

Appendix

Table A: Variable definitions

Type	Code	Explanation
DV	OPEPS	Earnings per share from operations.
DV	EBTER	Earnings before tax-to-equity ratio.
DV	ROE	Return on Equity.
IV	LENGTH	Natural logarithm of number of words in the report, measure of readability & complexity.
IV	FILESIZE	Size of the report, measure of readability and complexity.
IV	NUMBEROFWORDS	Number of words in the report, measure of readability and complexity.
IV	UNCERTAINTY	Percentage of uncertainty words in annual reports.
IV	MODALWEAK	Percentage of modal weak words in annual reports.
CV	LEVR	Leverage Ratio, total debt divided by total assets.
CV	SIZE	Logarithm of the market value of equity.
CV	MTB	Market-to-book ratio. Calculated by dividing closing price of stock with the book value per share.
CV	SI	Special items divided by total assets.
CV	ACQ	Acquisitions.

*DV= dependent variable, **IV= independent variable, ***CV= control variable.

INTRODUCING NORTHWESTERN GREECE TO AN INTERNATIONAL AUDIENCE: CAN LOCAL RELIGIOUS MONUMENTS PLAY SUCH A ROLE?

G. ZOGRAFOS

Abstract

Northwestern Greece which actually comprises two regions, Epirus and Western Macedonia is one of the least visited parts of the country in terms of international tourist arrivals. Although, Epirus has a significant improvement in the listings during the last decade as a result of the development of its coastal zone and of the development of the Zagori area, the rest of the Northwestern Greece stays away from the interest of international tourists.

The present research aims to record the religious and pilgrimage monuments of Northwestern Greece, to record their special characteristics and to look at them as potential poles of international tourism activity. The research done, tries to enlighten several issues such as which are the monuments that have relevant characteristics. Furthermore, the research would find in which way development of religious and pilgrimage tourism through those monuments, can help local communities.

It seems that the maintenance and restoration of monuments are necessary so they can be easily visited. Establishment of good quality access is of equal importance. Moreover, the introduction of routes of cultural, religious and pilgrimage nature connecting various monuments seems to be especially crucial for the spreading of the tourist expenditure thought the region's hinterland. Strengthening of hospitality and catering businesses so they could revamp their infrastructure and upgrade their services is also highly important. All the above are pieces contributing to the shaping of one satisfactory tourist experience.

Overall, based on the above, it follows that the regions of Western Macedonia and of Epirus have significant possibilities for the development of religious and pilgrimage tourism. Development of a special form of tourism, such as this, could act only positively for the rise of local income and for the stopping of demographic decline. The latter is a high danger especially for the subject region. In this way, the subject regions can be benefited by the need of spreading the high demand that exists globally for visiting the adjacent unique complex of Meteora which is under pressure.

JEL Classification: R580

Keywords: North Western Greece, religious monuments, religious heritage, religious and pilgrimage tourism, local development

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Introduction

Because of the importance that religion has always had for humans, religious tourism is often considered to be the oldest form of tourism, dating back thousands of years. Traveling to the sacred places dating back to the distant past and visiting settlements and places, where the gods were worshiped and the elements of nature were displayed they had the same human motivation, faith. This belief, even if it can sometimes be characterized as extreme, was the key element that led to the founding of religions.

Their variety and complexity can be justified through human typology, the environmental conditions of the civilization and why not, by how advanced the respective society was (Collins-Kreiner, Wall, 2015). Today, millions of people travel around the world in search of religiosity and spiritual guidance, reaching places that are considered sacred and worshiped as such. After all, the most massive tourist flows are still to this day the religious ones (Aulet & Vidal-Casellas, 2018). For example, the Hindu Kumbha Mela pilgrimage in India attracts about 70 million visitors annually, and the Hajj, a Muslim pilgrimage in Saudi Arabia, is visited by about 2 million tourists each year. These are two illustrative examples, but all over the world, including Greece, there are many sacred places that attract tourists (Aplin, 2007).

The purpose of this paper is to investigate the issue of the development of religious and pilgrimage tourism in the wider region of NorthWestern Greece, which actually comprises of two regions: Epirus and Western Macedonia. More specifically, it aims to present the possibilities of this area in this field and the perspectives. Overall, one of the key results of the research which has held, is that the regions of Western Macedonia and Epirus, host many monuments of religious interest that can be highlighted in the context of religious and pilgrimage tourism.

1. Tourism in northwestern Greece

The area that is the focus of this paper is that of northwestern Greece, which consists of western Macedonia and Epirus. Both the Region of Western Macedonia and that of Epirus consist, based on current data, of four regional units and individual municipalities. Western Macedonia is the only region of Greece without a coastline. The tourist traffic in Western Macedonia is minimal, while in Epirus it is starting to become important. Thus, in Epirus and according to the relevant data, a significant number of accommodation is beginning to exist, as being scattered in the four regional units, with a greater concentration in Ioannina.

The region of NW Greece is accessible in several ways. First of all, in terms of land movements, they are made through the road network, which, especially during the last years, has been expanded and modernized to a significant extent, resulting in a reduction in the time of movements, but also in improving their conditions. That happened due to the introduction of Egnatia highroad in the traffic system of Greece. At the same time, in general, Northern Greece is accessible by air, through Macedonia Airport in Thessaloniki, but also by sea, from the port of Igoumenitsa. Secondly, the airport of Ioannina, as well as that of Aktion, facilitate traffic in the wider area. There are also airports which are under-functioning in Kozani and Kastoria. Of these, only the Aktion airport regularly receives international flights.

2. Religious tourism in Greece

Greece, thanks to its rich religious and cultural heritage, also claims a significant share in religious tourism. In fact, due to the strong religious conviction of the Greeks as well as their timeless connection with the Orthodox Christian faith, the country has emerged as one of the most important tourism pillars of Christianity and Orthodoxy. Numerous Byzantine and post-Byzantine churches, frescoes, icons of significant value are among the cultural heritage of the country, attracting the interest of pilgrims and religious tourists. Apart from the religious monuments included in the UNESCO list, Greece has a huge wealth of monuments and places of pilgrimage scattered throughout its territory (Moira, 2009).

During late years in Greece, tourism related to monasteries and pilgrimage activities has developed and attracts a large number of believers not only from the country, but also from abroad. In any case, in Greece, as in the rest of the countries of the western world, pilgrims consist one of the target groups of the tourist industry. Cultural religious expression is practiced at all times of the year, both along the tourist season and out of it. The geographical position of Greece in the Mediterranean Region, the easy access, the climatic conditions which are characterized by long periods of sunshine and the generally mild climate of the country, allow the development of religious tourism for most of the periods throughout the year (Aslan & Andriotis 2009).

An important driver in the development of religious tourism in Greece can be the utilization of the country's religious and cultural wealth in such a direction. The social factor which includes the hospitable character of Greeks throughout the country's regions as long as important religious traditions exist, can give Greece the character of an important religious destination (Moira, 2009).

The challenge and prospects of religious tourism in Greece are great, as according to the World Tourism Organization, it is a rapidly growing tourism product. In fact, five of the monuments of the Greek cultural heritage included in the UNESCO are monuments of religious interest. In the context of a policy for the development of religious tourism in Greece, also, notable actions have been taken by the Church of Greece, by public bodies dealing with tourism, local government and by private bodies (Poulaki & Lagos, 2013).

Greeks looking for the experience of pilgrimage tourism prefer to make short trips, for example, during the weekend, so as to visit a monastery or a place of worship. The duration of the trip is determined by the religious nature of the visits and by the age of the participants. Official statistics on visits to religious sites, including visitor origin, travel distance, duration of visit, age, education level and other characteristics that could help analyze the phenomenon are insufficient. On the contrary, there are estimates, which, however, do not allow the exact calculation and evaluation of the relative tourist traffic.

Almost all regions of Greece have religious resources, which creates favorable conditions for the development of religious tourism. A characteristic feature of religious tourism in Greece is that 85% of visitors come from the country itself as part of domestic tourism (Poulaki & Lagos, 2013). Visitors coming from abroad, arrive mainly from Eastern European countries that have an Orthodox population. Regions where foreign tourists mainly come from, are Russia, Romania, Serbia, Bulgaria and Cyprus. Apart from these, however, there is also a significant number of visitors coming from the Greek communities of Western and Northern Europe, America, Australia and Africa. These tourists travel either exclusively for religious purposes or in combination with other tourist activities (Albani, 2014)

3. Heritage in Epirus and western Macedonia

As mentioned above, the cultural heritage of the subject regions is particularly important, as is its history. In the wider area of NW Macedonia, many archaeological sites have been uncovered, dating mainly to prehistoric times, however the findings reach as far as the Ottoman period. A special place is occupied by the castle of the Servia, which from 560 to 650 AD. it was a Byzantine castle-state.

The monuments of the regions of NW Greece are evidence not only of antiquity, but also of its modern history. For example, in the areas of Apozari and Doltso in Kastoria visitor can see the old mansions in one of the most picturesque settings of the area. Similar interesting sightseeing exist also in the area of Siatista, which is famous for its frescoed mansions. At the meanwhile,

Kastoria, has a total of 72 churches and well-preserved monuments from the Byzantine and post-Byzantine periods, which ranks it among the most important poles for religious tourism in a national level.

As far as the Christian period of the Arta area is concerned, it is witnessed by the Byzantine castle of Arta, the famous Byzantine churches of Panagia Parigoritissa and others, while in the area of Ioannina there are a number of Byzantine and post-Byzantine monasteries on local lake's island. Furthermore, the Dormition Monastery of the Theotokos Molyvdoskepastos in Konitsa and many more are scattered through the Ioannina region. (Mallas, 2003).

In addition to the above, in the wider area of NW Greece the visitor can try traditional products and flavors and come in contact with the lush culture of locals, their activity and modern life by combining the pilgrimage with other activities (Collins-Kreiner & Wall, 2015)

Grevena is one of the most popular mountain destinations in Greece, as it has a variety of attractions such as "ValiaKalda", the Vasilitsa National Ski Center, the North Pindos National Park and many stone bridges. In Kastoria the visitor can visit the lake settlement at Dispelio, the cave of the Dragon, but also the petrified forest at Nostimo. Finally, the Geopark of Grevena Kozani "Tithys" is among the 6 recognized Geoparks of Greece that are on the corresponding UNESCO list

In Kastoria, which also has natural wealth, there are the so-called "brick villages" in the municipal district of Koresteia. These are mountainous settlements on the Vitsi mountain, which form a unique landscape, which is why they have been chosen for the filming of movies, such as "The meteoric step of the stork" by Angelopoulos and "Deep soul" by Voulgaris. The Bridge and the Chrysavgi waterfall form a particularly attractive scene.

As for the region of Epirus, the visitor can enjoy the natural landscape and visit traditional settlements. In particular, in the Region of Epirus there is a set of NATURA 2000 areas. The visitor can choose the National Park of Vikos - Aaos, the Amvrakikos Gulf and the lagoons where he encounters various types of marine fauna. The Kalamas River and Elos Kalodiki are some of the other places one can visit.

The tourist visiting NW Greece, therefore, has the opportunity to participate in activities and experiences related to the nature, environment and settlements of the region (Zografos, 2021). In the region of Western Macedonia, the development of winter sports is also favored, while in Epirus, water sports are also developed during the summer on the coast of Preveza (Zografos 2021).

As research was concluded it can be said that the monuments that exist in the area are many and they clearly testify to the religious character of society in the past, but also to the relation of them with the present societies of the subject regions. Among

all of those monuments those that could attract visitors interest were selected. They were selected as magnets not only for tourists whose main objective is pilgrimage, but also for those people who travel for various reasons and they are likely to combine their travel with activities related to religious and pilgrimage tourism.

4. The research

The aim is to make use of the specific monuments, so as to stimulate overall tourism and the economy of the region. What is emphasized as extremely important is to form suitable “routes” that will connect the monuments to the wider area and give visitors the opportunity to visit not only the specific monuments, but also other points of interest (Zografos, 2016).

The increase in tourist traffic can contribute, at the same time, to the increase in operations and turnovers of the area’s businesses (businesses active in the hospitality and catering sectors, as well as trade). Thus, religious and pilgrimage tourism can be a driver of development, leading to the improvement of the standard of living and the lives of their inhabitants.

The present research aimed to record the religious and pilgrimage monuments of NW Greece, their special characteristics and why they could be transformed into a pole of attraction for visitors to the areas. Recording took place, by answering the following research questions:

1. What are the monuments of NW Greece that can be used in contexts of religious and pilgrimage tourism?
2. What are the possibilities and prospects of utilizing these monuments?
3. In which way the utilization of monuments can help the overall development of the local community?
4. What are the proposals for further utilization of these monuments?

The research showed that there are several religious monuments in the area which could be promoted successfully as poles of pilgrimage and religious tourism. Actually that seems to be necessary as the global popularity of the Meteora complex (one or two hours of drive from most of the monuments researched) sets inevitable the spread of interest in nearby areas as the need of protection of Meteora is quite harsh.

5. The findings

The findings of the research are as follows. All monuments mentioned below are of high pilgrimage value. Most of them comprise cultural and protection of nature values as well:

Holy Monastery of Agia Paraskevi Domavisti in Namata Kozani

It is a historical monument of the Municipality of Voios located at an altitude of 950m. The monastery was founded at the beginning of the 14th century, as it can be seen from the study of an inscription on an icon found in the monastery. The monastery is the oldest in the wider area and is famous for its wood-carved and gilded iconostasis. The first temple was destroyed and, subsequently, a second one was built, while the monastery experienced many destructions and looting in its long history. The last time it was looted was in 1944 when the German troops removed all the relics that were left and burned the Temple which was miraculously saved.

Holy Monastery of Saint Nikanor in Zavorda, Grevena

It is a historical monastery that was founded at the beginning of the 16th century in honor of the Transfiguration of the Savior. The monastery is built according to the standards of Mount Athos, while in the center of the courtyard the three-aisled church has been erected. The monastery is decorated with frescoes dating from the 16th and 19th centuries, while the tomb of the founder is located on the south side.

Holy Monastery. of Virgin Mary in Tournikion

It is located near the Monastery of Zavorda and was moved from its original location to an adjacent hill in 2011 under the risk of being flooded by the waters coming from the Hilarion Dam. The transfer was carried out and it was a complete success despite the difficulties.

Holy Monastery. of Virgin Mary's birthday in Klisoura

The Monastery of the Nativity of the Theotokos Kleisouras is located in Kastoria at an altitude of 970 m. It is a three-aisled domed basilica with a narthex, which is surrounded by a fortress complex. The monastery was founded according to the prevailing version of 1314 by the monk Neophytos and was renovated in 1813. It has a wood-carved iconostasis that was gilded in 1772. The monastery also made a significant contribution to the Macedonian Struggle, as many fighters found refuge in its area, among them Pavlos Melas. It had a similar role later, during the German occupation, as well as on other occasions, such as in 1903, when the Turks tried to burn the village and its inhabitants took refuge there.

Holy Monastery of Saints Anargyroi in Melissotopos in Kastoria

This particular monastery, according to tradition, had a miraculous sanctification of the Virgin Mary that still flows in its place today. Initially, the church of Saint Panteleimon was built in this place, however, later, the new monastery was built. In 1903, women and children from the surrounding area found refuge in the monastery, while later its charitable work continued.

Holy Monastery of Saint Kohn the Baptist in Ioannina's lake Island

This monastery is located on the eastern side of the island of Ioannina, very close to its settlement. Not much is known about its history, however it is known that its catholicon was frescoed in 1789 and the frescoes were destroyed by the Turks and then repaired. The monastery is built on a steep rock, on the spot where the hermitage of the first monks of the area was located.

Holy Monastery of Saint Nicolas Tzoras

This Monastery is located on Mount Driscos and has been identified, although not with evidence, with Agios Nikolaos of Mount mentioned in a gold bullion of Byzantine Emperor Andronikos Palaiologos of 1321. However, it has not yet been proven that it actually dates back to Byzantine times. However, the monastery is connected with the battle of Driscos and the liberation of the Ioannina people from the Ottomans.

Holy Monastery of Kipina

It is one of the most impressive monasteries in Epirus, if not in all of Greece, as it is built on the mountain in the hollow of a vertical rock. The rock is carved to form a dome and that happened at this point in 1212 AD. The monastery was built in honor of the Dormition of the Virgin.

Holy Monastery of the Dormition of the Virgin Molyvdoskepastos

This monastery is one of the oldest and most beautiful monasteries of Epirus and is located near the Greek-Albanian border. The name Molyvdoskepastos is due to the fact that sheets of lead cover the roof of the monastery's catholicon. The monastery was founded in the 7th century by Byzantine

Emperor Constantine IV Pogonatos and renovated in the 14th century by another Emperor, Michael II Comnenus Duke. Externally, it has an enclosure and looks like a fortress, while its catholicon has a high dome. Later, two chapels were built next to the monastery. Inside, it has frescoes that date mainly to the 16th century, although there are also some examples from the 14th. An important place among the relics of the Monastery is the icon of Virgin Mary carrying Jesus Christ as an infant, which is considered miraculous.

Conclusions

Overall, from the survey made in Regions of Western Macedonia and of Epirus, it appeared that there are many monuments of religious interest that can be highlighted in the contexts of religious and pilgrimage tourism. Based on the results of the process, the following conclusions arise in relation to the research questions that have been formulated.

From all the monuments that exist in the specific areas, which are many and testify to the religious character of the society of earlier times, but also of today, they were selected those one which are likely to combine other activities with those of religious and pilgrimage tourism.

Another criterion for the selection of the monuments was the fact that they are not only related with religion, but also with other dimensions of tourism attractions, for example, with nature and the morphology of the terrain, such as the Kipina Monastery or with historic events of the past like the Monastery of the Nativity of the Virgin Mary in Kleisoura etc. This choice was made as relevant planning seeks to attract those tourists who they don't have religious factor as their primary reason for visiting. They may be attracted however by the historical character or the physical location of the monuments they visit.

As it is mentioned above, the goal is to utilize monuments in various ways so as to stimulate overall tourism and economy of the region. What is emphasized as extremely important is to shape up the appropriate "routes" that will connect the monuments to the wider area and will give visitors the opportunity to visit not only the specific monuments, but also other places of interest.

This is a good practice to follow mostly in the case of tourism, particularly cultural, but also for the religious one. For example, the visit to the monastery of Agios Ioannis Prodromos on its island lake of Ioannina can be combined with other monasteries and temples in the area, but also with a visit to the island's museum or the castle of Ioannina. In this way the composition of a unique, varied and authentic product becomes a possible tourist experience which in turn helps the visitors of the area to get to know it better. Furthermore,

the visit could be combined with a trial of local products. This practice can help the development not only of religious and pilgrimage tourism, but also, in general, of businesses in the area contributing to local development.

Tourism, moreover, is an engine of development. Thus, religious and pilgrimage tourism can be a driver of development and drag along the economy of regions leading to the improvement of the standard of living and the lives of their inhabitants (Zografos 2022).

In conclusion, the proposals for further development are the following:

1. Maintenance and restoration, where necessary, of religious monuments so as to ensure their endurance over time and the possibility of hosting guests.
2. Creation of “routes” of cultural and religious nature that they will connect different monuments, but also aspects of history and activity of the individual areas.
3. Utilization of holidays and events throughout the year, so as to achieve the expansion of the tourist season during the lesser active months.
4. Strengthening hospitality and catering businesses so that they would renew their infrastructure and services and contribute to the shaping of one satisfactory tourist experience.

Overall, based on the above, it follows that the regions of Western Macedonia and of Epirus have many possibilities for the development of religious and pilgrimage tourism, only some of which were developed in the context of this work. The care to improve existing conditions and exploit potential of regions is essential as it can help overall development and promotion of these areas and the rise of the standard of living of their inhabitants. In this way adjacent areas to the pole of Meteora in Central Greece can be benefited by the need of spreading the high demand that exists globally for visiting the unique site of it.

References

- Aplin, G., (2007). World Heritage Cultural Landscapes. *International Journal of Heritage Studies*, 13(6), 427-446.
- Aulet, S. & Vidal-Casellas, D. (2018). Tourism and religion: Sacred spaces as transmitters of heritage values. *Church Commun. Cult*, 3, 237–259.
- Aslan, D., & Andriotis, K. (2009). Clustering visitors to a religious island – The case of Tinos. *International Conference on Tourism Development and Management (ICTDM): Tourism on a changing world: Prospects and Challenges*. September 11-15, 2009. Kos, Greece.
- Collins-Kreiner, & N., Wall, G. (2015). Tourism and religion: Spiritual journeys and their consequences. In S. Brunn (Ed.). *The changing world religion map* (pp. 689-707). Dordrecht, Netherlands: Springer.

- Mallas, A., (2003), Study for the Tourism Development of the Region of Epirus, Ministry of Tourism Development. Athens: GNTO. (In Greek)
- Moira, P., (2009). *Religious Tourism*. Athens: Interbooks (In Greek)
- Polyzos, S., (2010), Religious Tourism in Greece: Spatial Analysis and its contribution to the development of disadvantageous areas. *Series of Research Papers*, 16 (9): 203-222. (In Greek)
- Poulaki, P. & Lagos, D. (2013). The Contribution of religious Tourism in Regional Development. The case of Chios. *11th Scientific Conference of the Hellenic Department of ERSA*. Patras (In Greek)
- Tala, M.L., & Padu Rean, A.M. (2008). Dimensions of religious tourism. *Amfiteatru Economic*, 10 (23), 97-102.
- Zografos, G. (2022). How Far Gastronomical Tourism Could Reach? Evidence From Greece' *Archives of Economic History*, XXXIII (1-1) 47-58
- Zografos G. (2021). Could the combination of cultural and sailing tourism provide us with special products along a country's port system? Evidence from Greece' *3rd International Congress Age of New Economy and New Jobs-Blue Economy and Blue Innovation*, Italy- Croatia Interreg, Split, Croatia
- Zografos G. (2021). Gastronomy and local products as tools of tourism development: The case of the Region of Epirus in Greece. *TEBEConference* , Tel Aviv, Israel
- Zografos G., (2016) Identifying the footsteps of St Kosmas Aetolos: Proposal for the development of a network of sites in places where St Kosmas preached. *Record Book of the 2nd Panhellenic Conference in Pilgrim Tourism*. HOLY COMPANION of the CHURCH of GREECE, 52-59. (In Greek)
- <https://www.pdm.gov.gr/>
- <https://www.php.gov.gr/>
- <https://www.statistics.gr/2011-census-pop-house>

SPACE LAW AND TOURISM

A. MANIATIS*

Abstract

The prehistory of Outer Space Law, also called Cosmic Law, is based on the notion of cosmos, meaning the order of the universe, the astronomy with emphasis on constellations, and the right to theory (observation and theoretical approach). The right to theory keeps being a constant, in the history of this field, for both professional experts, such as those of ad hoc public services like the National Observatory of Athens, and amateurs. This branch is considered to have emerged in 1910, as Space Law was referred to, in a journal article in Paris. Its current period started in 1957, when the first artificial satellite was launched, and its emblematic source is the Outer Space Treaty. Nowadays, it is marked by various domestic laws, space agencies of States, commercialization and privatization. Besides, a new tendency consists in space tourism, being generally deprived of specific rules. It results an osmosis between Cosmic Law and Tourism Law whilst those fields have in common the right to theory, given that theory was the name of tourism in ancient Greek. Last but not least, space economy is an important multifaceted phenomenon, facilitating everyday life in a lot of domains.

JEL Classification: K

Keywords: astronomy, Outer Space Law/Cosmic Law, right to theory, space economy, space tourism, Tourism Law

1. Introduction

On 20 July 1969, Neil Armstrong stepped from the Eagle onto the surface of the Earth's natural satellite with the following words: "*That's one small step for [a] man, one giant leap for mankind*". That declaration is emblematic for the history of Moon exploration, mainly as far as crewed missions are concerned. This was the case of the Project Apollo, consisting in the U.S. human spaceflight carried out by NASA, from 1968 to 1972. It was named after Apollo, who was the god of light, music and the Sun in the ancient Greek religion. Humans did not manage to go back to the Earth's satellite afterwards, but the desire to resume such ambitious project seems to be very strong, especially the last years.

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So, it would be actual to conduct a research on the exploration and use of the outer space, which is the last region that has become accessible. By nature, this scope is new and concentrates the world interest. In this chain of ideas, it would be important to take an approach to the rules governing this part of the universe, and also to the economy of space-based activities.

RQ *We assume that Cosmic Law has a very ancient background of rules.*

First of all, the present analysis sheds light on the question of prehistory of Outer Space Law, or more commonly referred to as Space Law (2).

Afterwards, it introduces to the history of this set of rules, which constitutes a self-existent field (3).

Then, it analyzes the phenomenon of space tourism in the wider context of space economy (4).

Finally, it ends up to some critical remarks, including findings in reference to the aforementioned hypothesis (5).

2. The prehistory of Outer Space Law or Cosmic Law

The term “astronomy” comes from the Greek noun “astronomia” (“αστρονομία”), a complex word made of “astron” (“άστρον”), namely star, and “-νομία” (-nomia), from “νόμος” (nomos), meaning law. So, astronomy means law of the stars. Even prehistory is likely to be associated to astronomy. For instance, the world-famous monument of Stonehenge constitutes a prehistoric construction in the UK, which has been studied for its possible connections with ancient astronomy. Modern astronomy is regarded as a part of a continuous tradition, nowadays almost 4,000 years long.

The ancient Greek noun “cosmos” means the order, in contraposition to the world disorder. It is also notable that in modern Greek there is the adjective “apocosmos” (απόκοσμος), meaning eerie, namely strange in a frightening and mysterious way. So, this word with an obviously negative meaning declares an abnormal status, out of this world. It is particularly suitable to describe a place of damage, such as a serious accident. It results a continuum of the central word “cosmos” and other related words, in Greek.

The concept of cosmic laws is related to the natural law doctrine. This theory is based upon what is believed to be the Cosmic Law, which is commonly known as the law of Nature. Natural laws are considered to be cosmic laws, which are not produced by humans.

Nowadays, there is a scarce use of the vocable “Cosmic Law” as a synonym of the mainstreaming expression “Outer Space Law”, as it is the case of a study using it marginally (Marinich, 2023). More frequent is the use of this vocable

for the State norms, against the rules of the Church. However, the history has highlighted the value of the cosmic approach to science, in the sense of a rational investigation beyond the religious doctrine. The emblematic case consists in the prosecution of Galileo Galilei. In 1633, the Italian astronomer was summoned before the Roman Inquisition. At first, he denied that he had advocated heliocentrism, but later he said he had only done so unintentionally (History.com Editors, 2023). He was convicted of “vehement suspicion of heresy” and under threat of torture forced to express sorrow and curse his errors.

The great astronomer was not the first to formulate the doctrine on heliocentrism. The ancient Greek astronomer Aristarchus initiated the theory that the universe is heliocentric and that the planets are round (Harris-Papaioannou, 2023). Indeed, Aristarchus of Samos was one of the greatest astronomers of antiquity along with Hipparchus of Nicaea, whilst later astronomers of the same nation, especially Hipparchus and Ptolemy, managed to refine his methods and arrived at very accurate values on the size and distance of the Moon. Hipparchus erected an observatory in Rhodes around 150 BC and set about compiling a list of approximately 850 stars. Dedicated to his contribution to the early study of the solar system, a crater on the surface of Mars was named after him in 1973 (Harris-Papaioannou, 2023). A larger crater on the Moon was baptized in a similar way.

The astronomical history of Modern Greece has been marked by the creation of the Observatory of the capital and later by the discovery of an ancient cultural good, the Antikythera computer. As far as the National Observatory of Athens is concerned, it was founded in 1842 as the first research centre in Greece and also in Southeast Europe and is known in this country as “Asteroskopeio”. It is situated directly across from the Acropolis on “Lofos Nymphon”, in central Athens, literally just steps away from where ancient Greek astronomers conducted their first experiments (Harris-Papaioannou, 2023). This close proximity to the physical space used by the researchers in the antiquity is comparable to the aforementioned continuum of mainstreaming terms of astronomy, like cosmos along with the related words in the framework of the vocabulary of the Greek language.

The public service on the matter, which constitutes a legal person under public law, is an important carrier for research and dissemination of astronomical knowledge to the public.

As for the Antikythera Mechanism, the world’s oldest surviving mechanical calculator, which was discovered inside an ancient shipwreck by Greek sponge divers on 17 May 1901 in the Antikythera region, included finely bronze gear wheels. When manually rotated by a handle, the gears spun dials

on the exterior showing the phases of the Moon, the timing of lunar and solar eclipses, and the positions of the five planets (Mercury, Venus, Mars, Jupiter, and Saturn) known at the time, at different times of the year (Harris-Papaioannou, 2023). The mechanism is held as the unique known physical survivor of a long tradition consisting in mechanical astronomical displays. The widespread existence of those devices is possible to be inferred, on the basis of some references in Greco-Roman literature.

The use of the location of space bodies with reference to the map of the starry sky, which was created by the ancient constellations, is regarded as a kind of legal custom in Space Law (Halunko, 2019). This doctrinal approach deals with the diachronic discipline of astronomy, whose early version consisted of mapping the positions of the stars and planets, a science which is nowadays referred to as astrometry. The beginning of astrometry dates back to the aforementioned achievement of Hipparchus, consisting in his star list.

There is a distinction between official groups of stars, the constellations, and unofficial groups, called asterisms. On the one hand, constellations are star patterns, resulting from the projection of human imagination into the cosmos. A lot of them are very old whilst the origins of the earliest constellations are likely to go back to prehistory. Especially in navigation, the importance of constellations was great before the invention of the compass, since sailors relied on observing them to be able to orient themselves at night. For instance, this kind of guidance was provided to Odysseus for the final part of his travel, in the *Odyssey*. Although many ancient cultures have had their own names for the constellations, the designations Western astronomers are most familiar with are those belonging to the Greek mythology. Astronomers and the International Astronomical Union, which is a scientific union being founded in 1919 and aiming to promote and safeguard the science of astronomy in all its aspects, recognize 88 constellations, all with well-defined boundaries. On the other hand, most asterisms are relatively new whilst many are small patterns within a constellation, and some are large patterns made of bright stars from multiple constellations (Briggs et al., 2024). The word “asterism” has its roots in the Hellenistic common language. In a similar way, the Ancient Greek word for constellation is “astron”.

Besides, it is notable that in the Code of the Byzantine Emperor Justinian I, issued from 529 to 534, air was classified along with water, sea and sea coast as common good. In Middle Ages, the Glossators –scholars of legal schools in the 11th and 12th century in Italy, France and Germany– proposed somewhat different rule to govern the matter at stake, which was the following: “dominus soli est dominus coeli” meaning “the master of land is also the master of

skies” (Richards). The air above each territory was considered subject to the sovereignty of the territorial State “*usque ad sidera*”, namely up to the stars (Richards). Next step in the evolution of legal thought concerning air and space can be traced back to works of the Dutch jurist Hugo Grotius, according to which seas were similar to air and, unlike land, were deemed the common property of all (Richards).

3. The history of the Outer Space Law or Cosmic Law

In French there is a tendency to avoid adjectives as far as the name of branches of law is concerned. For instance, the expression “*droit du tourisme*” seems mediocre with regard to the alternative term “*droit touristique*”, but it is the dominant one for linguistic reasons while in other languages, such as Spanish and Greek, there is no linguistic convention that imposes the use of the vocable “*droit du tourisme*” (Maniatis, 2022). Besides, in the same language there is a distinction between “*droit spatial*”, an expression available for the corpus of international instruments, and “*droit de l’espace*”, which means the law applicable to outer space, celestial bodies and space activities (Couston, 2014).

Outer Space Law began to emerge in 1910, when it was initially mentioned in an article of a journal, in Paris, but it was about an idea without shape or substance (Doyle, 2011). Its starting phase, of theoretical nature, ended in 1957, when Sputnik 1, the first artificial satellite, was launched, into an elliptical low Earth orbit by the Soviet Union. After that historical launch, no official protest was expressed on the matter. In practice, it can be argued that the flight of the first satellite gave rise to an instantaneous custom of space law, according to which every State has the right to launch a spacecraft into space (Halunko, 2019). Nowadays, this legal custom should be supplemented by the rule that every individual who has received permission (license) from a space State has the right to launch a spacecraft into space (Halunko, 2019). The consecration of the right of a State to launch a spacecraft has been associated to the instant principle, as baptized by the doctrine, in the sense that it is about rules being produced instantly.

Nevertheless, we consider that it is doubtful whether this approach is compatible with the general concept of a customary rule or not. On the one hand, Public International Law has particular features as for consuetudinary rules, such as the fact that many international treaties are attempts to codify pre-existing customary law and that a rule may exist in both forms, as a written rule of a treaty and as a customary one being applicable against States that are not

parties of the treaty on the matter. On the other hand, a custom is considered to be the result of a repeated practice in a certain period of time, so not in an isolated and instant way.

The next years have been marked not only by various texts of both positive and soft international law but also by new customs. The mainstreaming text is the Outer Space Treaty (OST), which was opened for signature on 27 January 1967 and entered into force on 10 October of the same year. It has been called *Magna Carta for the Outer Space Law*, which is comparable to the denomination “Constitution for the oceans” (de Pooter) for the United Nations Convention on the Law of the Sea (UNCLOS).

Over a period of twelve years since the entry into force of the treaty, the following international conventions in the framework of the United Nations were signed, to further develop the law on outer space activities:

- Rescue Agreement (1968),
- Space Liability Convention (1972),
- Registration Convention (1975), as for space vehicles,
- Moon Treaty or Moon Agreement (1979).

Criticism has been raised as for the democratic character of the production of Cosmic Law, in the sense that it is considered to be produced by States solely and the United Nations (Marinich, 2023). Humanity does not have access to its formation, although the resolutions and declarations of the General Assembly of the United Nations have stated that the cosmos does not belong to States, but it is the common heritage of mankind.

However, this approach does not make it clear that the OST did not adopt the aforementioned precedent on the universe as common heritage of mankind. Unlike this text, the 1979 Moon Treaty incorporated such as label, but it is very marginal, with less than 20 States Parties. No space superpower is a participant whilst on 5 January 2024 the withdrawal by Saudi Arabia from the Agreement took effect.

Besides, it is notable that even the vocables “humanity” and “mankind” are not exempted from criticism, given that they are rather vague, at least in juridical terms. Humanity has gained territory in International Law, the Space Law included, but this entity is fully deprived of legal personhood.

It is also argued that a certain system of inequality arises when people living in a space superpower have more rights and opportunities to take part in the creation of Outer Space Law and receive more benefits from space activities than people living in another State (Marinich, 2023). This opinion is deeply linked with the principle of democracy, whose first denomination in ancient Greek was “isonomy”, in the sense of citizens’ equality in the possession of

State power. Nevertheless, it is not fully convincing, mainly as long as super-powers are deprived of democracy and constitutionalism.

Furthermore, it is to signalize that astronomy has a democratic character in practice, given that it constitutes one of the few sciences in which amateurs enact an active role, especially as far as the discovery and observation of transient events are concerned. Non-professional astronomers have helped with a lot of significant discoveries, such as those related to new comets. So, they represent the diachronic right to investigation, particularly in form of observation of natural phenomena.

It is also notable that the dynamic of customs in Cosmic Law keeps existing, as it is the case of the right of States and private space companies to “bomb” cosmic bodies for scientific purposes. For instance, in April 2019, the Japanese spacecraft Hayabusa-2 detonated an explosive charge next to the asteroid Ryugu, which it explored, and no State protested against this fact (Halunko, 2019). However, the destruction of old satellites orbiting in space by the States involved, such as China and India, was not endowed with the acceptance of the international community. Consequently, the issue of the right of space States to destroy their own satellites remains open (Halunko, 2019). In general, the growth of the satellite telecommunications industry as well as the interest of private companies in the exploitation of space resources have highlighted many gaps in the current legal framework.

Finally, it is to point out that Space Law is not made uniquely of international rules but also of domestic ones. For example, Greece has recently institutionalized an ad hoc public agency, which in its current form is officially called “Hellenic Space Centre”. It is about a legal person under private law which constitutes a non-profit organization, without taking any specific form of such persons, illustrated by companies. On the contrary, the initial agency on the matter was a company, in the field of Commercial Law. This spirit of privatization is rather odd for a public carrier regulating activities of private entities. Nevertheless, it ties in well with the general trend of privatization and commercialization of space activities, on international scale. It is to underline the fact that after the active development of Cosmic Law in the second half of the 20th century there was a phase of stagnation. In recent years, the development of space legislation has begun to revive, for instance with the 2018 Law of the UK on space industry (Halunko, 2019). The new era is attributed to various factors, such as the emergence of private business in outer space, a significant increase in the amount of space debris, and potential attempts by some States to move the arms race into outer space.

4. Space tourism

Three revolutions are identified for tourism: the invention of tourism in Western Europe, the shift towards mass tourism in Western societies and the third revolution, which emerged at the end of the 20th century. This movement, being marked by the globalization of tourism, is incorporated into an economic, geopolitical, social and technological context, itself characterized by profound and extremely rapid changes (Clergeau, 2016). The shift of the centre of gravity of the world economy towards the East, global hypercompetition, waves of technological innovation but also societal transformations and the emergence of new social demands contribute to shaping an unstable, complex and uncertain environment, to which tourism adapts while participating in its dynamic of evolution.

Unlike underwater tourism which has not been endowed with an important development, space tourism constitutes a significant new business sector (Jégouzo, 2018). The term “space tourism” denotes any commercial activity that offers customers direct or indirect experience with space travel (Hobe et al, 2004). It started as a concept after the launch of Dennis Anthony Tito, who became the first private individual to pay for his own trip into space as a tourist, to the Russian part of the International Space Station (ISS) in 2001. Besides, the launch of Scaled Composites’ SpaceShipOne in 2004 marked the begging of re-usable spaceships (Avgerinopoulou et al., 2021). Several governmental services, such as that of Russia, and private companies like Space X, Virgin Galactic etc. are providing space tourism opportunities to the public.

It is to underline that Outer Space Law was drafted at a time that space activities were purely scientific and the only actors in the exploration and exploitation were the governments, hence all space international treaties address only States (Avgerinopoulou et al., 2021). According to article VI of the OST, “*States Parties to the Treaty shall bear international responsibility for national activities in outer space, whether such activities are carried on by governmental agencies or by non-governmental entities*”. In a comparable way, according to the Liability Convention, the “*launching state is held liable for any damage caused by its space object*”.

International treaties do not refer to tourists. For instance, the terms “tourism” and “hospitality” are fully absent in the OST, which consecrates specific rights for astronauts, being the “envoys of mankind”. Furthermore, the Rescue Agreement focuses on the return of the personnel and the assistance to astronauts. It is unclear whether space tourists are endowed with the recognized right to rescue or not. In spite of the fact that there is no explicit provision, it is admitted that this guarantee protects whoever is located in the outer space.

At the regional level, the main regulations for space activities lay within the European Union legal framework, notably provisions regarding data protection and general economic rules (Avgerinopoulou et al., 2021).

As far as commercial activities are concerned, including space tourism, the delimitation of airspace and outer space is an important matter. It is likely that questions of Air Law and Space Law may be involved (Hobe, 2010). The mix of Air Law and Space Law may cause particular problems, especially because it is about two essentially different branches. Indeed, Air Law is marked by the central concept of the sovereignty of the subjacent polities over their airspace whilst according to Article I of the OST outer space is free for exploration and use. Furthermore, it would be important to achieve harmonization between the use of air space and the transit to and from space. An improvement would be the adoption of a space traffic management system under the Registration Convention regime along with the need for a formal relationship between space traffic and air traffic control (Avgerinopoulou, 2021).

Anyway, the question of safety of space transport is of major importance. This priority is not attributed uniquely to ethical reasons, but it is also based on the question of success of the related business. It is notable that accidents are likely to damage, if not to destroy, this market, which is by nature extremely dangerous and expensive. This remark, which constituted an already established common belief, has been indirectly confirmed in the case of Titan. On 18 June 2023, that submersible, operated by the tourism and expeditions private company of the U.S. “OceanGate”, imploded, during an expedition to view the shipwreck of the Titanic, in the North Atlantic Ocean. Last but not least, the principle of safety of journeys is a rather underestimated one, even in terms of legal consecration, as it is the case of (EU) regulation 2021/782 on rail passengers’ rights and obligations (recast) (Maniatis, 2023).

5. Conclusion

In reference to the completed analysis, the RQ has been fully confirmed. Not only does Cosmic Law have a very ancient background of rules, but it constitutes a diachronic code of values. Those values are of major importance, given that they are related to significant philosophical matters and existential questions of humans. Cosmic Law was reflected in the traditional constellations and illuminated the path of people, much before the emergence of the relevant field of law in its initial phase, in 1910.

From a global point of view, the current study ends up to the following critical remarks:

a. Important prehistory of Cosmic Law, based on the right to theory

Outer Space Law lacks neither identity nor history. It has important roots in the oldest science of astronomy, which has been linked to wider intellectual approaches, such as mythology. It is also related to the diachronic branch of Maritime Law, in terminological and other terms (the second component of the term “astronaut”, the use of astronomy, exemplified by celestial navigation...). It is intrinsically connected with the human right to theory, namely to observation, mainly in the night sky in case of good weather, and to interpretation (theoretical approach) of the universe.

b. Important history of Cosmic Law, based on the right to theory

The customary background of Outer Space Law, which consists in the cultural heritage of various constellations, has been completed in the current historical period of this branch, from 1957 and on, by new consuetudinary rules of Public International Law. It is to underline the fact that the instant principle constitutes a remarkable particularity of Space Law. Just the opposite, usually the rules of this field require long and arduous discussions before morphing into soft law or an international treaty, agreement or convention (Nadeau, 2018). For instance, Sputnik was launched in 1957, but the OST was only adopted ten years later (Nadeau, 2018). It is also notable that the current status of this branch is characterized by an important production of domestic rules on the matter, the creation of ad hoc national agencies even by countries with no spacefaring tradition and also an opening to private and commercial space activities.

c. Osmosis of Space Law and Tourism Law, based on the right to theory

In the aforementioned context of commercialization, synergies between the public sector and the private one, and privatization, a new trend has developed, consisting in space tourism. It is to signalize that theory was the name used for tourism in ancient Greek, given that the tourist is an observer of natural and cultural resources for recreational reasons. It results that the term “theory” constitutes the common basis of both Space Law and Tourism Law, whose osmosis has started.

d. Multifaceted importance of space economy

The economic activity engaged in outer space by States and businesses is intense (Elafros, 2022). Space economy is a field of major importance, mainly in the service market, not only for enterprises but also for consumers, far beyond the relatively marginal issue of space tourism which concerns tourists of very high income. It has a serious dynamic, in economic and political

terms. For instance, in Greece the broadcasting media sector was gradually liberalized, with satellite rebroadcasting of foreign television programs as an emblematic lever of pressure, in the late 1980s. So, the liberty of the exploration and use of the outer space, which is a fundamental principle explicitly consecrated in Outer Space Law, has been combined with the liberalization of sectors of national economy, in practice. Furthermore, Greece should consider the exploitation of existing and upcoming space technologies for many reasons, which concern both the national economy and defense (Kolovos, 2006).

Cosmic Law in narrow sense is a new field but it is endowed with a very old background and an interesting perspective, such as the unaccomplished step of extraterrestrial colonization...

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References

- Avgerinopoulou, D.-Th., and Stolis, K. (2021). Current Trends and Challenges in International Space Law. https://www.essc.esf.org/wp-content/uploads/2021/09/53rd_Athens17_Avgerinopoulou_Article_Current_Trends_and_Challenges_in_Space_Law.pdf
- Briggs, A., and Editors of EarthSky (2024). “What’s a constellation? What’s an asterism?”. EarthSky, <https://earthsky.org/astronomy-essentials/definition-what-is-a-constellation-asterism/>
- Clergeau, C. (2016). “La troisième révolution touristique – Diversification des pratiques et des stratégies”. *Mondes du Tourisme, Hors-série*, file:///C:/Users/User/Downloads/tourisme-1236.pdf
- Couston, M. (2014). *Droit spatial*. Paris: Éditions Ellipses.
- De Pooter, H. “Une Constitution de l’ONU pour les océans”. *La Vie - Le Monde, hors-série*, pp. 144-145.
- Doyle, S. (2011). “A Concise History of Space Law: 1910-2009. New Perspectives on Space Law”. Internet Archive, <https://archive.org/details/2010keynote/page/n9/mode/2up>
- Elafros, Y. (2022). “Head of Hellenic Space Center outlines future challenges, new paths of inquiry”. I Kathimerini <https://www.kathimerini.com/>

- society/1196255/head-of-hellenic-space-center-outlines-future-challenges-new-paths-of-inquiry/
- Halunko, V. (2019). "Space Law: the Present and the Future". *Advanced Space Law*, 3, pp. 30-47.
- Harris-Papaioannou, S. (2023). "How Ancient Greeks Set Humanity on the Path to Space Exploration". *Greek Reporter*, <https://greekreporter.com/2023/06/02/ancient-greek-astronomers-space-exploration/>
- History.com Editors (2023). "Galileo Galilei". *History*, <https://www.history.com/topics/inventions/galileo-galilei>
- Hobe, S. (2010). "The legal regime for private space tourism activities – An overview". *Acta Astronautica*, 66 (11-12), pp. 1593-1596, <https://www.sciencedirect.com/science/article/abs/pii/S0094576509004251>
- Hobe, S. and Cloppenburg, J. (2004). "Towards a new aerospace convention? Selected legal issues of space tourism". *International Institute of Space Law*, 4(1).
- Jégouzo, L. (2018). *Le droit du tourisme*. 2e édition. LGDJ.
- Kolovos, A. (2006). *Space and National Security. Political and Strategic Dimensions*. (2nd ed.). Athens: Poiotita Editions (in Greek).
- Maniatis, A. (2022). *Les droits au tourisme et à l'hospitalité. Étude de droit du tourisme*. Éditions universitaires européennes.
- Maniatis, A. (2023). *The Unionist acquis in the field of tourism. Tourism and rail law study*. Our Knowledge Publishing.
- Marinich, V. (2023). "Fundamental principles of outer space (cosmic) law development". *Internauka*, [file:///C:/Users/User/Downloads/FUNDAMENTAL_PRINCIPLES_OF_OUTER_SPACE_CO%20\(2\).pdf](file:///C:/Users/User/Downloads/FUNDAMENTAL_PRINCIPLES_OF_OUTER_SPACE_CO%20(2).pdf)
- Nadeau, Y. (2018). "Introduction to Space Law". *Academia.edu*, file:///C:/Users/User/Documents/Introduction_to_space_law_YPN_11_07_2018.pdf
- Richards, A. "Short Introduction to Space Law". *Academia.edu*, https://www.academia.edu/1883059/Short_Introduction_to_Space_Law

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2. On the first page of the abstract file the following information should be printed:

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