AN EMPIRICAL ANALYSIS OF DEBT POLICIES, EXTERNAL DEPENDENCE, INFLATION AND CRISIS IN THE OTTOMAN EMPIRE AND TURKEY: 1830-2005 PERIOD

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Abstract

The study analyzes the relationship among domestic debt-inflation-domestic debt cost-external debt-external dependency-crisis in the Ottoman Empire and in the Republic of Turkey. The study discusses that the monetary based explanations have not been satisfactory for the period of 1830-2005 especially for the investigated periods with crises and external dependence. The cost of domestic and external debt and various measures of debt and dependence discussed in the study were used to analyze the relationship between external dependence, domestic and external debt, crises, inflation, cost of domestic and external debt, external dependence and crises in accordance with Autoregressive (AR) and Vector Autoregressive Regression (VAR) models. We analyzed the Ottoman Empire in light of inflationary effects of throne changes, wars and crises. Further, the inflationary effects of domestic and external debt are investigated for Turkey in light of the cost of debt, crises and political factors. As our results, increasing political instability has significant explanatory power on inflation. For the periods of increasing debt, the inflationary effects of debt policies are highlighted. The domestic debt-inflation-domestic debt cost-external debt-external dependency-crisis cycle enhances especially during the Decline Period of Ottoman Empire. The analysis also holds for the periods with high costs of debt in Turkey.

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Keywords: Inflation, Domestic Debt, External Debt, External Dependence, Crisis, Autoregressive models.

1. Introduction

The study aims to analyze the relationship among domestic debt-inflation-external debt-external dependency-crisis in the Ottoman Empire and in the Republic of Turkey. As our opinion, the explanatory power of domestic debt on inflation is very important. Increasing domestic and external debt worsened the terms of borrowing, increased the interest payments and worsened the maturity; increasing costs of domestic debt resulted in increased external debt, hence the increasing external financing worsened the cost of external debt especially in the periods in which the channels of domestic borrowing becomes obsolete. As a result of the process, the country becomes less immune to economic crises; whereas, the country's external dependence increases subsequently.

The characteristics of the domestic debt can be divided into two categories as the moderate and the swift domestic debt, in accordance with the domestic borrowing

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conditions during the period. The moderate domestic debt is an important source of finance of the development without any inflationary side effects. These periods are the periods of the moderate terms of the domestic borrowing with long maturities and low interest rates. In these periods, even though war expenditures and losses in tax revenues resulting from recessions put a strong burden on the fiscal budget, it is observed that, most of the government expenses are financed with the tax revenues, thus only a fraction of the deficit is financed with the domestic and foreign debt.

On the other hand, Ponzi schemes is an important characteristic of the phases with the swift borrowing; hence financing domestic debt with increasing domestic debt results in inflationary spirals and economic crises. Debt policies cannot finance development. The ratio of new investment is low. As the capital gains interest revenues, luxury consumption is high. (This topic will not be investigated in detail.) Consequently, high costs of the domestic debt results in the economic crises. These effects are accelerated for the periods with intense political instability. In the paper in context of political instability, Cukierman, Edwards and Tabellini (1992) suggest that, there is a strong positive relationship between political instability and seignorage and emphasized the inflationary effects of political instability but as our opinion, the increase in cost of debt (domestic and external debt) is rise in political instability period and this process results high inflation and crisis.

In addition to the studies discussing seignorage in accordance with political instability and inflation, another group of working papers suggest that, though the governments fail to advocate to the seignorage revenues, there is a strong inflationary impact of domestic debt which cannot be avoided. Furthermore, in accordance with the FTPL theory; fiscal policies have an even or stronger role on the determination of the price level; the fiscal policy can be effective in the determination of the price level although expansionary monetary policies cannot be advocated. (Woodford (1994, 1995, 1998, 2000, 2001), Leeper (1991), Sims (1994, 1997), Bildirici and Ersin; (2005, 2007)).

According to our studies, at the process of increasing domestic debt cost-increasing inflation; higher inflation rates increase domestic debt cost even further; as a result, financing debt with debt process increases the interest rates as the maturity rates decrease drastically. The process results in economic crises. Another important source in the process of the rise in the cost of domestic debt is external borrowing. The interest rates on foreign debt is comparatively lower at first, however the terms of borrowing worsens as the governments exercise more external debt. High cost of external debt is experienced with the worsening of the import/export ratios, increases external dependence; the combination of high cost of domestic debt with high cost of external debt increases the intensity of the crises; consequently, as long as the policies regarding the crises are advocated with monetary measures, their positive effects fail to be permanent; as a result, the effects of the crises are intensed after a period.

Political instability has strong impact on the cycle of domestic debt, external debt, crisis and external dependence. In the Ottoman Empire the important sources of political instability had been frequent changes in Sultans, inability to maintain the geographical borders of the country, accelerated frequency of wars, permanent and chronic rebellions; whereas, in the Turkish Republic, frequent changes in the

governments, coalition governments, separated characteristics of the parliament, internal confrontations are among the main sources of political instability.

As a result, the political environment has a strong impact on the increasing interest rates on domestic debt, external debt and shortening of the maturities.

In the second part of the study, the relationship between external debt, domestic debt and inflation in the Ottoman Empire is analyzed. In the third part of the study, the relationship between external debt, domestic debt and inflation is analyzed for Turkey. In the fourth part, the econometric models and their results will be discussed.

2. Domestic debt, foreign debt and inflation in the Ottoman empire

Karlofça Aggrement (1699) led Ottoman Empire to lose some of its soil for the first time; although the empire followed policies aiming to maintain its territories afterwards, as a result of the Iranian War in 1730, increasing power of Russia and her intentions to gain free access to the warm seas, the frequency of wars and dispute had risen considerably.

As a consequence of the wars, increasing portions of the agricultural land and important mines had fallen into battle fields; thus, wars had important negative burdens on the budget. As a result of the incapability in following the recent technological improvements in the military, Ottoman Empire forfeit important revenues from the conquests and the fiscal burdens of wars had taken the part of the pillage. In addition, *Mevacip payments* that were paid to the soldiers and to the troops quarterly and corresponded to almost the half of the budgetary expenses increased its pressure on the budget (Inalcik, 2001). In the 19th century, in addition to the increasing expenses and losses in wars, the ever changing consumption patterns influenced by westernization had undoubtedly contributed to the luxury consumption; conspicuous consumption and waste of the gilded age.

One point that has to be mentioned is the role of *Sivis* years on budget revenues. In Ottoman Empire revenues are arranged in accordance with the solar year (365 days), whereas the expenses were based on lunar year (354 years); as a result; the revenues that would be collected for 32 years correspond to 33 years of expenses; in every 33 years *Mevacip payments* were not paid and led to social outburst in *Sivis* years. The crisis experienced in these years (1677-78, 1709-10, 1741-42) is named as "*Sivis-crises*" (Tabakoglu, 1981, 151-52). Further, Ottoman products fail to succeed in the markets as a result of the unjust competition resulted from the *Capitulations* (Davison, 2004, p. 43; Kiray, 1995, p. 60; Tabakoglu, 1985, p. 208-223; Yilmaz, 2002, p. 186) which is another source of the accelerating budget deficits[1].

In light of the points mentioned above, budget deficits amplified strongly; at first, the increase in budget deficits is financed with domestic debt; afterwards with domestic and foreign debt. The resulting scheme is inflation, crisis and increase in external dependency. The path of foreign debt followed by the path of the domestic debt will be discussed below.

The use of the domestic debt in the Ottoman Empire should be considered partially and especially in its last episodes. One of the main reasons is that, the treasury of

[1] For Ottoman Budgets, see: Barkan, Ömer, L. (1960). 1070-1071 (1660-1661) Tarihli Osmanli Bütçesi ve Ekleri. (our transl.) Ottoman Budgets and their Extensions for 1070-1071 (1660-1661). *Journal of Istanbul University Department of Economics* IUIFM C. XVII, (1-4).

the Sultan, *Ceb-i Hümayun,* is addressed as a source of domestic credit in cases of fiscal deficiencies. In order to finance the short run credit demand, the merchants, bureaucrats and *sarraf*- money exchangers are advocated partially. The other source of finance; more to the point was the *Tax Mültezims*-Tenent of demesne (Genç, 1973, p. 193). Moreover, Malikane System is also known as a domestic debt channel, however this system is systematically different then the *kaime*, which we accepted as an important source of domestic debt. At first, Malikane System started to loose its coverage with a decreasing growth rate following the mid-18th century.

Since the establishment of levy of Malikane System in 1695, 2 percent of the total fiscal revenues was gathered from the Malikane system; whereas, it increased partially to 5% in 1770's. If the coverage of Malikane system in 1774 is compared to the period of 1697-98, even though the number of *Mukataa*[2] increased 209% and the revenue gathered from these Mukataas increased 88%, Malikane tax revenues increased 347% (Genç, 2000, p. 117). In the first half of the 19th century, *Esham*[3] was taken as an obligatory process to finance current expenses. Especially, the important increase in *Esham* revenues was observed during the war of 1806-12, where the yearly interest payments corresponded to 7.500.000 *kurus* and this represented a 50.000.000 *kurus* increase in the overall debt stock. On the other hand, yearly interest payments were 3 times higher than its quantity in 1800 and the yearly interest paid was higher than 25% of budget revenues. *Kaime* is also an important factor in 19th century. (for *Esham* see: Cezar, 1986).

In the 5th of February 1840, an *Istikraz* (borrowing) actualized with 2 years of maturity and with an interest rate of 18%, which was above the operative interest rate of 12%. In August 1840, new *sehim* (shares) were issued as payable to the bearer and 17% of budget revenues were gained (Genç, 1973, p. 193-94). Unfortunately, the inflation started to rise drastically in these years; to 5.73% in 1840; 12.04% in 1841 and 6.53 in 1842. The average rate of inflation actualized as 8.101% for 1840-42.

During 1848 crisis, the Bank of Dersaadet issued new currency, *kaime*, to the system, hence kept the discount above the market rate intentionally to increase the overall emission effectively (Akyildiz, 2003, p. 61-62).

Kaime gained its importance to solve the problem but as a result of the limited sources of domestic borrowing the cost of domestic debt was increase. The expenses and revenues were kept in balance by short run domestic debt until 1854 Kirim war. The war expenses estimated as 11.200.000 sterling could not be financed with the *army kaime*'s or with credits from Galata capital. As a result of upward pressure of Kirim War on the needs of credit, new *sehim* were issued with 10% interest rate and with 3 years maturity. After the introduction of these new *sehim* in March 1854, sale volume increased sharply. Moreover part of these new *sehim* were sold to foreign finance institutions; hence with this characteristic, the new *sehim* issued after 1854 departs from the old *sehim*[4].

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[2] Ottoman instrument of financing state expenses. Mukataas corresponded to the source of tax distinct, also called tax-farms, which represents distincts such as an agricultural piece of land or customs.

[3] The basic difference between the *malikâne* and *esham* was that; in the former the entire revenue of the tax-source was sold to an investor *malikaneci* for his life term, in the latter only the annual profit of the tax-source was sold off, again, for a life term, *ber vech-i malikâne*.

[4] Akyildiz, A. (2003), pp. 154-55; Pakalin, M.Z. (1939); Karal, E. Z. (1983), pp. 98-162

Consequently, the interest rate on the domestic debt reached 18 percent. The cost of domestic debt increased. The external debt interest rate was 6 percent and comparatively lower than the interest rate on the domestic debt. Increases in the external debt failed to succeeed in the finance of the domestic debt. However, the cost of domestic debt and the cost of external debt brought about the external dependence. Nevertheless with the first external credit taken in 1854, a new phase of external debt had started. Until 1854, the empire was abstaining from using external debt. Two important factors were; firstly, asking for foreign help was against the tradition and was considered discreditable; second, the *Fetva of Seyhülislam* restrained external debt, which was adverted as a sinful act (Cezar, 1986, p. 137; Falay, 1989, p. 80).

The other factors are the reluctance of creditor countries to Ottoman Empire since it was considered to gain its power and increase the tension in the region; hence in this climate of credit, Ottoman Empire felt less confident on external credits (du Velay, 1978, p. 78). Thus, although frequently issued *kaime* after 1851 bear a certain amount of interest, after the depreciation in its value, budget deficits were financed mostly by external debt.

Ottoman debts provided an adequate environment for the European capital seeking new areas of investment and consumption (Falay, 1989, p. 80). Consequently, after the Ottoman Empire's debt seeking two groups benefited; firstly, creditor investors were to gain a subsequent amount of premium; secondly, as the small savers benefited from the interest income, the state would collect benefits the funds and direct them towards importing industry goods; as a result, the process would create additional demand for the European industry. Creation of additional demand for the European industry was an important factor.

According to Hobsbawn (2005), England got used to the revenues from the North America and from the colonial revenues from the colonies worldwide and from debtor countries, the moratoriums of debtor countries and especially the state of Ottoman Empire put important burdens on the economy and slowdowns in industrial production in Europe. This situation evoked the consortiums of foreign bond holders' representatives of foreign countries' investors (Hobsbawn, 2005, p. 119).

Estimated foreign fund flows are given in Table 1. Both inflows of funds due to Ottoman state borrowing in the European financial markets and total debt payments escalated sharply from 1854-1864 to 1865-1874. Compared to the higher rates of interest on domestic debt, the external debt was considered more appropriate. Consequently, as will be discussed, external debt committed in the period had been a borrowing form with comparatively higher costs. As in the post 1990 period in Turkey, debt is financed with more debt commitment.

There are similarities between the first foreign debt in the Ottoman Empire and the conditions in the Turkish Republic in 1990's, especially in the Ponzi schemes the parties-creditors and debtors- committed. In the case of one player's trickery, the Ponzi game would result in serious problems as seen in late 1870's. [5] An important realization in these years is that, foreign debt is financed with domestic debt with an increasing rate. This borrowing was issued with 6% interest rate seemed comparatively lower than the *Esham-i Cedide*'s interest rate of 10%. Even though, in an environment with 68%

[5] Budget realizations and domestic debt data for 1860-1911 are calculated from Shaw (1975); for CPI data look: Pamuk, S. (1999).

issuance rate, the interest rates are lower, external debt is considered to have lower interest rates. The issuance of 1863 aimed the elimination of the domestic debt. Floating domestic debt, named as *Esham-i Cedide* and *Tahvilat-i Mümteze* were the bonds issued by the state agencies; with an interest rate that reached 12 percent.

The path of foreign debt in the Ottoman Empire had its starting course with comparatively low rates of interest, external debt that took place in cases where domestic debt channels become unattainable. The path of the ratio of domestic debt/foreign debt for 1860-1880 followed a decreasing path starting from 1861 and it started to increase drastically after 1877. It is observed that the path of the ratio kinked downwards during 1879-1880 years after 1897, where the domestic debt became three times of the foreign debt. One should mention that, although 17% of Ottoman budgets were reserved for interest and principal payments in 1863, the ratio reached 59 % in 1878. The budget is considered as being far from the realities. Although the asar tax revenue was noted in the budget as 9 million lira, this amount was not to be collected until 1910. The revenue from tobacco was noted as 1.500.000 liras, it continued to be 700-800 thousand liras until 1881 Muharrem Enactment (Açba, 2004, pp. 89-90). According to our calculations, the ratio of external debt interest and principal payments to the budget corresponded to around 40 % in 1863 and to around 80 % in 1870. Therefore, the ratio of interest and principal payments of external debt to the budget did not correspond to 17 % but was recorded to be over 70 % for the years discussed One should note that, the debt data given in Table 1 covers only those with confident and known sources, not all debt data for the period analyzed in the study.

The external debt of the Ottoman Empire between the 1854-1913 period could be divided into two periods. At the first period that corresponded to 1854-1875 years, the Empire borrowed with very heavy conditions; whereas, at the second period that corresponded to 1882-1913 years, low rates of interest as a result of *Duyun-i Umumiye*, in which period there had been an important net capital outflow through the principal and the interest payments and Ottoman debt stock had been decreased. As can be seen in Table 1, external debt had been commited with challenging conditions after 1860. Issuance prices in the years 1865, 1869 and 1877 are around 50%. Under these contitions, it is observed that Ottoman borrowings had enormous costs for the period. The increase in the cost of borrowing resulted from the Ponzi scheme of paying debt with further borrowing; these circumstances drew the country into the fiscal bankruptcy.

Accordingly, the external debt that actualized with 6% interest rate and 80% issuance rate in 1854, resulted in a severe fiscal banktruptcy in 1870's. Thus, the cost of external debt could not be measured by means of interest rates since the issuance rates had fallen to 50 %. The studies based on the external debt of the Ottoman Empire exercised the interest +amortization in the calculation of real interest rates. Even though, this calculation cannot be refuted under 100% issuance rates, the calculation might be severely misleading under issuance rates that had fallen towards 32 percentages.

As a result, we calculated a variable; cost of borrowing; by taking the interest rate, issuance price and the amortizations into consideration. In the study, we calculated the cost of debt following the external debt policies given in Table 1. The cost of debt series are given in Figure 1 below.

Table 1. Certain Yearly Occurrence of External Debt in the Ottoman Empire between 1862-1875, According to their surely known sources*

Year	Borrowing Purpose	Borrowing Conditions				
		Source	Issuance price	Interest rate	Collateral	Worth of value
1854	Kirim War Finance	London Dent, Palmer Co.	80%	6%	Egypt tax r evenues	3.000.000 pounds
1855[1]	Kirim War Finance	London, Rotshild	80%	8%	Egypt tax revenues	5.000.000 pounds
1860	Debt finance and budget deificit finance	M. Mirés	53.75 %[2]		Customs duties, salt and fish tax, Filibe rose oil tax, Edirne silk tax	16.000.000 pounds
1862[3]	Clearance of domestic debt (withdrawal of banknotes from circulation)	London Devaux	68%	6%	Tobacco and salt duties and dividends.	8.800.000 Ottoman gold
1863-64	Clearance of a portion of domestic debt and withdrawal of coins from circulation	France	71%	6%	Certain duties; silk, tobacco, salt asar [4]	8.800.000 Ottoman gold
1865	Re-borrowing to finance debt service	Two French financial institutions	66%	6%	-	6.600.000 Ottoman golds
1865	Esham-i Umumiye borrowing, aimed to change domestic debt to external debt	France and England	50%	5%	-	7.273.000 Ottoman golds
1870	Railroad construction in Rumeli, known as "Lo-Turk"		32.125 %[5]	3%	Egypt tax revenues	34.848.001 Ottoman golds
1871-72	Debt finacing	Through Ottoman and Ostro Ottoman Bank;from England, France and Austria	98.50 %	9%	Edirne, Tuna, Selanik tax revenues and Anatolia Agnam taxes	12.238.820 Ottoman Lira
1873	to finance the budget deficit	Two French Banks			Halep revenues, and a potion of Anatolia Agnam Taxes	30.555.556 Ottoman Lira
1874	to finance external debt and fluctuating debt	Through Ottoman bank	43.50 %	5%		44.000.000 Ottoman Lira
1875	Fiscal bankruptcy					

*We did not include all the external debt data available and used in the study, but we included only those that we are confident of their borrowing source. Source: Yeniay, I. H., 1964, pp. 32-36. Eldem, V., 1997, p. 57. Akyildiz, A., 2003, p. 106.[1]Ari, B., 2002, pp. 671-678.[2] In year 1860, for the external debt accumulated as 3.300.000 *kese*,a payment of interest and issuance accumulating 210.000 *kese* was made. A portion of 2.000.000 *kese* was paid, which corresponded to 25% interest rate; accounted for yearly interest and issuance payments of domestic debt (Açba, 2004). [3]The 1862 borrowing aims the removal of banknotes from the system. The money in circulation amounted to 2.000.000 *kese*, which corresponds the fluctuating debt. In order to witdraw the banknotes from the circulation and to finance the level of the domestic debt, the need of

borrowing was 4.000.000 *kese*, a amount which cannot be considered feasible to borrow. The amount to be borrowed was planned to be 2.000.000; that aimed to be financing the withdrawal of currency and part of the floating debt to be remowed. The tobacco, salt, duties and some dividends were pointed as the collateral. The amount of the borrowing was insufficient to finance the withdrawal effectively, because of that, instead of accepting 100 kurus as 1 kaime, the accounting was accepted as and equated to 40 kurus. [4]Asar tax system; one tenth of total revenues.[5]Issued by the Union and Baron Hirsch on the 10th of March, 1870 and 11-12th of September, 1872.

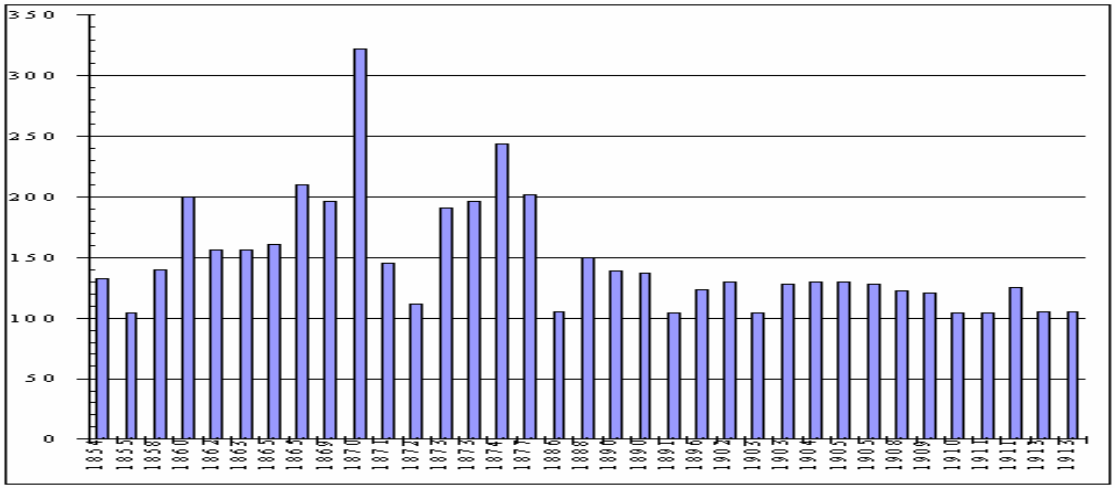


Figure 1.The Cost of Debt, 1854-1913

The return on Ottoman debt instruments had an important premium that could not be avoided compared to the European markets. The domestic rates of interest on financial investments in England for the period 1888-1913 are given in Table 2 for comparison purposes.

The returns on Ottoman financial instruments were comparatively more beneficial than the British bonds and British colonies; hence these instruments had provided an important flow of returns. During the second half of the 19th century international capital movements gained its importance. The period illustrates diversified projects and after the mid 19th century, government debt securities were offered in the market (Kindleberger, 1985a, p. 9). An important point is that, as the ties between capital and good markets encouraged the external placement, resulting from the fact that debtor countries had chosen British products; England gained relevant ability to achieve its balance of payments during the period. As a result, it is not suprising that the proportion of Ottoman borrowings increased among the credits that France and England offered to the Europe (Ashwoth, 1987, p. 194).

Following the fiscal bankruptcy and the depletion of external debt sources, domestic debt gained its relevance. Even though external debt is an important source of finance as a result of its low rate of interest at the beginning, cost of external debt increased over time. The external debt committed to finance the domestic debt increased the cost of external debt; during the process, external debt increased. In the year 1879-1880, domestic debt increased 19045,9% compared to the last fiscal year. The inflation

rate increased to 3.63% in 1879. The path of the domestic debt/external debt inversed in 1879. Although the ratio actualized as 0,0015 in 1877, it increased sharply to 3,47 in 1879.

Table 2. Domestic Rates of Interest in England for the 1888-1913 Period

		Constant interest bearing bonds	*Average return on bonds in British colonies*
Years	1888	4.35	3.43
	1900	3.35	3.20
	1910	3.72	4.19
	1913	5.23	4.44
Return on British Stocks			
	1898-1902	3.45	2.63
	1903-1907	3.37	6.25

Source: Iversen C.; 1967, p. 104.

The increase in external debt and the rise in the cost of debt brought about the external dependency and fiscal bankruptcy. The external dependence had been an important burden. During the refinance of debt liabilities, the effects of dependence could not be avoided and dependence increased. In consequence of the external dependence, the Ottoman Empire faced important losses as a result of 1881 Enactment and 1903 Stock swap. After the establishment of *Düyun-u Umumiye* and after the signs of trust were extracted; among the borrowings until 1903, in addition to the debt stock, new borrowings took place in 1890-91 and 1894 which had no difference in characteristics but aimed the exchange of old bonds with the new ones. These additions, in contrast to the argument, did not provide important advantages. Table 3 summarizes the losses of the Ottoman from the Muharrem Enactment in detail.

Table 3. The Results and Properties of the 1881 Muharrem Enactment

I. The coverage of Muharrem Enactment:* Total debt at the beginning: 4.955.176.500 *franks*	The discount after the enactment: -4.568.841.250 *francs*	Resulting debt stock: =386.335.250 *francs*
II. 1854-1874 Borrowing Revenues: 2.700.000.000	-debt collateralized with Egypt taxes=real debt stock: 2.411.000.000 Paid: - 38.635.200	=2.124.664.800 *franks* (debt stock left)
III. debt stock accepted in Muharrem Enactment: 2.660.930.850 *francs*	The 200.000.000 francs of advances and domestic debt not included.	-advances -domestic debt: =2.460.930.850 francs. This amount is 16% more than the real debt stock, 2.124.664.800 *francs.*

* Our calculations are based on Akyildiz, A., 2003, Efendi, P. ;2005, Yeniay, I. H., 1964, .

After the establishment of Düyun-u Umumiye, the collection of tax revenues by the Düyun-u Umumiye collectors separated these revenues from the central budget and worsened the budget deficit. Even though the Düyun-u Umumiye institution represented the Ottoman bond owners, the representatives' actions were obliged to be authenticated

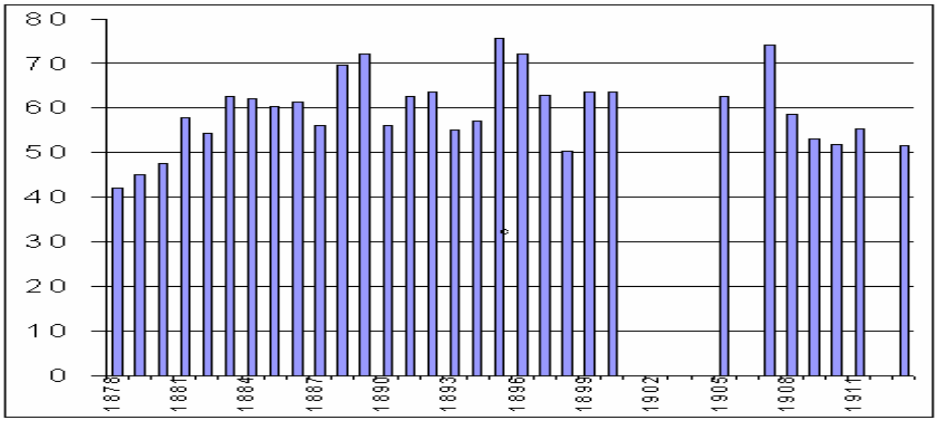
from foreign governments; as a result, Düyun-u Umumiye become an important source of intervention mechanism to the Ottoman Empire for the creditor European countries. In 1903, in accordance with the the fiscal reforms commited, policies aimed the swap of the debt bearing assets. The amount of 75.928.019 is equal to the capital in circulation in 1903. The capital swap during the 1903 fiscal reform is followed in the Table 4. The debt stock are divided into four groups and examined in accordance with the Muharrem Enactment and followed bt 1903 Fiscal Reforms. The total quantity of the external debt is accumulated as 103.502.515 Ottoman liras, 75.928.019 liras paid as per 1903. Only a 24.574.496 lira of debt is serviced, hence total sum of swapped capital cumulated as 32.738.722 Ottoman liras.

Table 4. 1903 Fiscal Reforms (Ottoman Liras)

Debt	*Principal payments concerning the Muharrem Enactment*	*Principal payments as per 1903*	*Total quantity paid*	*Total Capital Swapped in 1903 Fiscal Reform Prices %, levels in ( )*
A	7.831.870	All paid	All paid	All paid
B	11.049.307	4.158.023	6.891.284	70 (2.910.616)
C	33.604.176	27.354.470	6.249.706	42 (11.488.877)
D	48.017.162	4.415.526	3.601.636	37,5(16.655.822)
Total	*103.502.515*	*75.928.019*	*24.574.496*	*Total sum of swapped capital: 32.738.722*

* Our calculations are based on Efendi, P. ;2005.

During the stock exchange swap, it is obvious that, Ottoman Empire lost in average. The stock exhange price increased to 39.9 % which resulted in a loss. Accordingly, if the average of the three years' prices had been taken, the total amount swapped would have been cumulated as 27.300.000 instead of 32.738.772. The usage of 1903 prices instead of the average price increased the debt 5.438.772 liras additionally.



Source: Aybar, M.C. ;1939.

Figure 2. Import/Export Ratio

According to our analysis, the high costs of external debt which is led towards imports has a second accelerating effect on external dependence. One of the important variables regarding external dependence, the *import/export ratio* is given in Figure 2,

which covers the 1855-1913 period. Although the ratio inversed, England's exports were gradually increasing. It is observed that, exports clearly fail to meet the imports. The ratio of England originated products had increased to 13% of GNP by the end of 18th century; whereas the latter corresponded to 22% in the early 1870's (Hobsbawn, 2005, p. 125).

As a result of Ottoman Empire's insufficiency in financing imports with exports and financing the deficit with debt, the ratio of imports to exports ratio corresponds to external dependence. Another important ratio that shows the degree of external dependence is the external debt ratio for the 1855-1913 period. The external debt ratio reflects the characteristics of the period remarkably. The increase in domestic debt rose the inflation, with increasing inflation rates, cost of debt increased accordingly, which resulted in the external debt with high costs of borrowing. The increases in the cost of debt, the debt stock resulted in external dependency which led to economic crisis inevitably.

The relation between inflation rate and especially the total debt in accordance with the relative relations between the domestic and foreign debt provides important observational importance in 1880's. We believe that, many important studies based on the relative effects of the devaluation of *akçe* on the inflation rate have failed to explain the path of inflation rate fully in the period. Pamuk (1997) puts forth important findings that the main source of the inflation in 17th century was the devaluation of *akçe* as a result of fiscal and monetary conditions. Pamuk states that, the relative conditions that the Ottoman Empire had been drawn to had strong impacts on serious fiscal insufficiency; thus the inflationary effects of the wars that the Empire was experiencing could not be avoided. Although we are of the same opinion, we believe that, the inflationary effects of the devaluation of the akçe are not as important as mentioned.

On the other hand, the relation between the debasement of *akçe* and inflation shows that, the inflation did not rise as a consequence of the debasement *per se* but the increase in inflation is followed the debasement of *akçe*. The debasement, budget deficit and total debt relation would provide important evidence. In 1888, the total change in the total debt and the budget deficit was 91.36% and 719.44%, and the inflation rate increased by 142.92%. Accordingly, the change in the total debt in 1889 was 28%; whereas, the change in the budget deficit and the inflation rate were 559,11% and 141,85% respectively. The relative value of *akçe to USA dollars* for the years mentioned are 0,57 and 0,59. The years, 1891 and 1893 are crisis years. As a result, the value of *akçe* did not cause to inflation, but high inflation rates experienced in this period had important effects on the value of *akçe*. As a result of the unavalability of debt data for the period, we could not investigate the relationship between the domestic debt and inflation.

3. domestic debt, foreign debt and inflation in the republic of Turkey

In the Republic of Turkey, moderate and swift fiscal debt periods gain importance. Swift debt policies are significant for the periods investigated after 1983 in Turkish Republic as well as it had been significant for the Ottoman Empire, whereas, 1923-1970 period is characterized with the moderate debt with comparatively low costs of domestic and external debt.

The Republic of Turkey was founded after the Ottoman Empire; following the structural cycles, similar economic policies had been pursued until the 1929 Great Depression that had started the period of etatism. Even though important measures had

been taken in the years of industrialism with government leadership in order to encourage the usage of the foreign capital; the lessons learned from the Ottoman borrowing history; the conservative approach of the Kemalist beurocrats to debt, the risk of default introduced after the start of repayment of the Ottoman debt in 1929; the wreckage undertaken after the I. WW, the negative effects of the Great Depression led the country to assess the chance of borrowing at its lowest level, but it was also observed that, fluctuating external debt was partially used between 1923-29 foundation years. In the period, 7 million TL worth of debt was undertaken with the condition of postponing the privileges given to the Ottoman Bank for 10 years. In addition, another important source of debt operated under such conditions that created a low amonts of foreign fluctuating debt, where the public demanded corporation bonds with low maturity to finance the foreign firms which invested in public biddings in return.

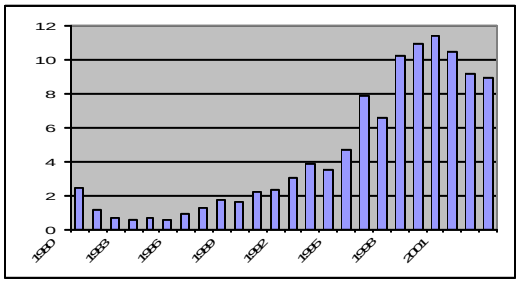
In Turkey, the first domestic debt has taken place in 1933 following the increasing needs of industrialization. The main characteristics of domestic debt for the 1933-1960 period is that, they had been committed for the finance of investments such as public rail roads in order to overcome bottle necks faced through the process of industrialization; the interest rate of these borrowings range between 5 and 7 percent and their maturity is 20 years combined with good repayment programs. After 1960, Turkey shifted towards a planning period and inward substitution; however, the tax reforms that were required for increasing expenditures of industrial plans were not committed. Consequently, the process of continuous raises in domestic debt/GDP ratio led to higher interest rates and inflation rates, increasing borrowing costs, which resulted in budget deficits that lead domestic debt and price level to increase correspondingly (Bildirici and Ersin, 2005, p. 14).

Similar to the policies experienced in the Ottoman Empire, the economy shifted towards open market economy without the fulfillment of required reforms. According to Kazgan (2005) following the 1978 crisis, Turkey had shifted towards outward looking liberalization policies after 1980. Public sector borrowing requirement (PSBR) increased from its 5% level in 1980's to 10% in 1990's, which was followed by sharp increases on interest paid for domesic debt. Hence, the share of total debt payments in tax revenues increased drastically from 11.9% in 1980 to 201% in 2003. The ratio of domestic debt/GDP increased from 13.6% in 1980 to 69.2% in 2001. On the other hand, domestic debt/PSBR ratio increased sharply from 47.7% to 114% between 1980 and 1991; in addition, the ratio reached its highest levels during economic crises, namely, 160% in 1994, 137% during Asia crisis in 1997 and 121% in 2001.

In 1980, interest paid on domestic debt had corresponded to 2% of total transfers, whereas the latter had corresponded to 13.2 % during Gulf crisis and reached 26% in 1994 crisis, 36.1 % in 1998 and 46.6 % in 2001 crisis. On the other hand, maturity rate decreased drastically compared to pre-1980 period. In 1989, average interest rate on domestic bonds corresponded to 59% and the average maturity of domestic bonds had been 233 days. Even though the average maturity had been relatively short during 1989-1993, just before 1994 crisis, interest rates followed an increasing trend and reached 89% in 1993; in 1994 and 2000 crises, the maturity rate decreased to 119 and 148 days, and interest rates increased to a yearly average of 164.4% and 96.2%, respectively. The evidence suggests that, the cause of instability had not only been the continuing domestic

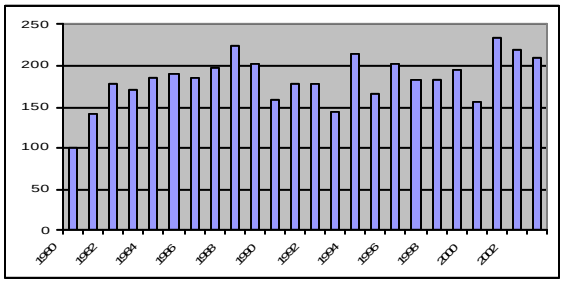
borrowing but also worsening costs of borrowing that lead to inflationary spirals inevitably.

The inflationary process followed by interest policies had been accompanied by exploding borrowing levels, the budget deficits caused by increasing interest payments amplified domestic debt stock. The fact that, refinancing of debt by borrowing more led budget constraint and Ricardian equivalence to detoriate which was resulted from the continuing Ponzi schemes in fiscal policies. Furthermore, following the increases in domestic debt and decreasing maturity rates, an inflationary process becomes unavoidable through wealth effects. The process produces even higher inflation rates resulting from non-Ricardian fiscal and active monetary policy combinations. The increasing debt costs lead to inflationary process based on domestic debt-inflation-increasing domestic debt cost-inflation spiral. Consequently, the process of borrowing led to higher rates of interest on debt which resulted in economic crises. Although the number of governments encouraging in external debt accellarated in accordance with the USA's world policies after the World War II, this sort of debt is not in our focus in the study. The point that we aim to analyze is that, the inflationary effects of the increase in the cost of domestic debt, which aggrevates the cost of foreign debt and external dependence and the debilitation of the immune system to economic crisis. 1980 is an important turning point both in terms of economic policies and in terms of political regimes applied. With the 24 January 1980 decisions, serious important measures were taken to overcome external debt bottlenecks as well as the establishment of price stability. The decreasing characteristics of external debt during the years of military intervention changed into an ever increasing structure of external debt after the introduction of civil life.



Source: www.hazine.gov.tr

Figure 3.Domestic/External Interest Payments Ratio, 1980-2005



Source: www.hazine.gov.tr

Figure 4.Imports/Exports Index, 1980-2005, 1980=100

After 1983, the domestic debt increased, the cost of domestic debt increased and the external debt started, which had been committed with comparatively lower cost of debt. During 1988-89, 1994, 2000-01 crises coincide to the years with increases in domestic debt/GDP ratio, thus, followed by a decline after the crises. It is observed that, interest payments increased accordingly for 1988, 1994 and 2001 crisis years. As a result of the swift increase in the debt stock, total external debt in 1983 exceeded the amount of the year 1979. After the introduction of varying interest rate exercise, led to sharp increases in the external debt. The external debt maintained its increasing path, hence the debt stock doubled between 1984 and 1988. One of the most important changes regarding the foreign debt had taken place in 1989. The total external debt was 16,2 billion dollars in 1980. Until 1997, the total external debt increased five-fold and amounted to 82,1 billion dollars.

These improvements showed a decreasing trend only in 1994, however the upward trend regained its course. In 1994, as domestic and foreign debt increased faster, the inflation rate was recorded as 104% for the CPI index and 140% for the WPI index, pushing the real interest rate even higher. In 1995, total external debt accumulated 73.728 million dollars. As a result of the credits used in international markets, the external debt almost tripled in this period. In 1997, with the help of the balanced budget policies, tax revenues were aimed to be increased and expeditures were to be decreased effectively. On the other hand, the total interest payments on domestic debt increased sharply. Both in the Ottoman Empire and in the Turkish Republic, as the domestic and external debt increase, the external dependence initiates its course, hence they become less immune to crises. The process that had been experienced in the Ottoman between 1854-1873, had taken place after 1990, as the domestic debt, external debt, inflation rate rose sharply and external dependence became inevitable.

As our results, domestic debt increases led to external debt increases, with increasing cost of external debt, external dependence increased its relevance. In contrast, domestic debt and external debt increased together, as a result of the high rates of inflation, the domestic debt/external debt interest payments ratio increased eventually. As in Figure 3, the ratio of domestic debt to external debt interest payments rose sharply to eight-fold and showed significant spikes especially in 1994 and in 2000. The domestic/external debt interest payments reached the local maximum of 4 before 1994 crisis, after a small amount of decrease following the crisis, started to increase and reached 8 in 1997, consequently, the domestic interest payments reached its global maximum of over 11 fold of external interest payments during 2001 crisis.

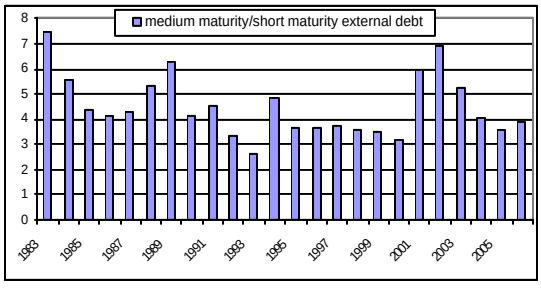
The interest payments of domestic and foreign debt for the 1980-2006 period are given in Table 5 and indexed as 1980=100 by utilizing interest payments of domestic and external debt data given in million dollars. The interest payments on domestic and external debt in 1980 were recorded as 235 million for the former and 1138 million dollars for the latter. Interest payments on domestic debt reached 448 million dollars in 1985, 3429 million dollars in the year 1990; hence, increased gradually to 7774 million dollars in 1995 and peaked to 27702 million dollars in 2000 before 2001 economic crisis, that accounted as almost to a 4-fold increase between 1995 and 2000. External debt interest payments were recorded as 1138 million dollars in 1980; 1753 million dollars in 1985; 3264 million dollars in 1990; 4303 million dollars in 1995; 6301 in 2000; and increased to 7124 million dollars in 2001 and remained stable between 2001 and 2005; increased to 9339 million dollars in 2006. The data is indexed in Table 6. It should be noted that the increase in domestic interest payments in 2000 is 11788 % compared to 1980 corresponding to an 117-fold increase; whereas, the interest payments on external debt increased 5-fold between 1980 and 2000. After 2001 crisis, as a result of the worsening conditions in domestic borrowing and the sharp economic downturn, the inability to borrow from domestic savings resulted to comparatively increased external debt stock and especially external debt interest payments with worsened terms of debt and higher costs of borrowing. One point that cannot be overlooked is that, during the process of domestic debt, the inflation rate reaches a point where the sources of internal debt become impractical; which leads the policy makers to advocate external debt sources. The inflationary effects of debt combined with high costs of external debt increases external dependence and the process results in crisis and moratorium.

Table 5. Interest Payments of Domestic and Foreign Debt, Indexed as 1980=100

Years	*Interest payments on domestic debt**	*Interest payments on external debt**	*Total*
1980	100,00	100,00	100,00
1985	190,64	154,04	160,31
1990	1459,15	286,82	487,47
1995	3295,32	378,12	877,42
2000	11788,09	553,69	2476,55
2005	12442,55	699,38	2709,32
2006	11703,83	820,65	2683,39
% increase from 1980 to 1990	1459,15	286,82	487,47
% increase from 1990 to 2000	807,87	193,05	508,04
% increase from 2000 to 2006	99,29	148,21	108,35
% increase from 1980 to 2006	11703,83	820,65	2683,39

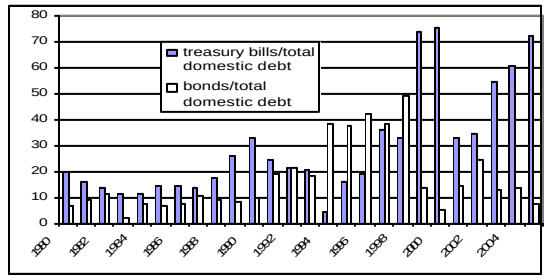
Source: www.tcmb.gov.tr * Indexed as 1980=100. In the calculation of domestic debt interest payments, end-year TCMB exchange rate ask price is used. Note: Interest on the debt payments includes both public and private sector.

The total interest as a share of public expenditures gained its relevance especially in 1980-2006 period. The ratio corresponded to 7 percent of total expenditures in 1980; whereas, it increased to 50% between 1980-1990 gradually and it reached 55% in 1991 Gulf War as a result of worsening of the international terms of debt. It is observed that, the ratio reached 62% during 1994 crises, decreased gradually to 48% before the 1998 Russian crisis and increased sharply to 65% after the crisis and achieved its highest level of 73% in 2000 and 2001 economic crises in Turkey. During the period, not only the maturity of debt worsened, the interest payments on both domestic and foreign debt increased drastically. Further, the share of domestic debt interest payments in the total interest payments increased from 20% in 1980 to 439% in 2000, recorded as 394% in 2001during the crises, peaked to 539% in 2003 and decreased to 294% in 2006. Further, analogous to the path of the total interest payments in 1980-2005 period, Figure 5. and 6. investigate the evolution of maturity on domestic and external debt.



Source: www.tcmb.gov.tr *medium run=maturity more than 1 year, short run=maturity less than a year*

Figure 5.The ratio of medium to short maturity of external debt 1980-2006



Source: www.tuik.gov.tr

Figure 6.The maturity of domestic debt, the share of t-bills and government bonds

The interest payments became the dominant expenditure in total expenditures; whereas, the maturity of debt and the terms of borrowing in light of the cost of debt worsened drastically for 1980-2006. As can be seen in Figure 5, the maturity worsens gradually before economic crises in 1994, 2000 and 2001 and increases partially afterwards; however, the long run trend of maturity worsened and the low maturity rates

continued its importance during the period. The shares of treasury bills and government bonds to total domestic debt are given in Figure 6. In Figure 6, the share of treasury bills were maintained at a higher level for the period; thus, were increased its share especially after 2000; and dropped drastically before economic crisis in 2001 as a result of worsening conditions of debt. The channels of domestic debt lessened drastically in 1994 crisis, which obliged the government to undertake measures that aim to increase the share of external debt; hence the continuing scheme of debt process combined with high costs of debt and worsened terms of borrowing increases external dependence and crisis.

The high cost of external debt is an important factor on external dependence. The import to export ratio is given in Figure 4. The ratio is calculated as 1980=100. It is observed that, exports failed to achieve an important shift in financing the imports for the 1980-2006. The import/export ratio as a sign of external dependence increased drastically one year before 1994 and 2001 crises. Consequently, as the cost of debt is a strong factor on imports, it should be considered as generating a second accelerating effect on external dependence. As can be seen, in 1980-2006 period and especially in 1990-2003 period, after the points where the cost of domestic debt increased sharply, the importance of external debt increased until the point where the cost of external debt increased accordingly. The process resulting from the increase in the cost of external debt in the Ottoman Empire increased the export prices and interest rates; whereas, in Turkey, short term borrowing and interest rates increased. Consequently, the interest payments ratio of domestic debt/external debt increased sharply after 1990. As a result, the inflationary effects of domestic debt gained its relevance in accordance with the non-Ricardian policies applied in 1980-2005 period. Thus, external debt cost is a strong source of the external dependence.

4. Data, econometric methodology and empirical analysis

Our findings suggest that, domestic debt and external debt has strong impacts on the episodes and the inflation rate. In this study, the main emphasis is given to the effects of domestic debt on inflation, increase in the cost of domestic debt, in cost of external debt, external dependence and crisis. First, the effects of domestic debt, cost of debt, external debt, and cost of external debt, external dependence, inflation, and crisis will be investigated. We adopt domestic debt, inflation and cost of debt, external dependence with crisis to AR processes. Second, the study aims to investigate especially the effects of structural and political factors on inflation.

a. The Results for the Ottoman Empire:

At the first part, the study analyzes the structural and political factors. At the second part, we investigate external dependence and cost of debt. The results are given in Table 6. The base model is given in column I. In Model I, the estimator of external debt *(ed)* is estimated as 0.12 and the inflationary effects of *ed* cannot be rejected at 5 % significance level. The estimator of AR (2) is statistically significant in 10% level and estimated as 0.74. The effects of crises are investigated in the second model given in column II. One important point is that, after the inclusion of the crisis, the estimator of ED did not change and estimated as 0.12 as given in the base model I. The results of the *External Dependence* models are given in the columns V, VI and VII. First, we investigated the inflationary effects of the cost of debt. The *cost* estimator is calculated as 0,13 and positive effects of the cost of debt on the inflation rate cannot be rejected. The AR(2)

term is estimated in III as 0,92 and close to unity, and there is strong persistence compared to the other models. In model VII, The *cost* estimator is higher than the previous models. The analysis suggest that inflationary effects of the cost of debt cannot be rejected for the period.

Table 6. AR Results for the Periods 1854-1897 and 1887-1911

	A. 1887- 1911					**B. 1854-1897**	
Inflation rate (enf)	**I**	**II**	**III**	**IV**	**V**	**VI**	**VII**
c	X	X	X	X	4,84**	5.02**	6,60**
ED (external debt)	0,12**	0,12**	0,12**	0,13**	X	X	X
M/X Ratio	X	X	X	X	X	0,034*	X
Cost (Cost of Debt)	X	X	X	X	0,137**	0,132*	0,17**
DP(throne)	X	X	-0,04**	0,07*	X	X	X
D1(wars)	X	X	X	2,42**	X	X	X
D2(crises)	X	-0,03**	0,03*	-0,014*	X	X	X
AR(2)	0,74**	0,78**	0,77**	0,83**	0,40**	0,92**	0.12**
R^2	0,55	0,62	0,69	0,92	0,67	0,67	0,95
F	13,444	17,1315	22,258	103,5	14,16	10,185	137,32

x: not included in the given model. ** (*) statistically significant at 5% (10%) significance level.

b. The Results for the Republic of Turkey

In the previous section, we analyzed the period corresponding to the decline of Ottoman Empire in accordance with the econometric models based on AR processes. For the period representing the Republic of Turkey starting from the first domestic borrowing in 1933 (*Ergani Borrowing)*; we estimated the inflationary effects of domestic debt.

All models are estimated for three periods; 1933 – 2005, 1933-1983 and 1983 – 2005. The analysis is divided into two sections. Firstly, we analyzed the overall effects of domestic debt on inflation in accordance with the structural effects; economic crises and political party types in Table 7. Secondly, we followed the same methodology for two sub periods in Table 7 and investigated the inflationary effects of external debt in addition to the domestic debt; the 1933-1983 moderate borrowing period-low interest rates and long maturities- and for the 1983-2005 periods –shortened maturities and increased interest rates- to investigate the differences in inflationary policies in accordance with ruling government types and effects of economic crises. We observed that, inflation rate follows AR(3) (inflationary effects of domestic debt) and AR(4) process for the 1933-2005 period in the Table 7 and for the subperiods in the Table 8 in the Annex (inflationary effects of external and domestic debt) respectively. Since the model VII regresses all party types P1, P2, P3 and P4, no intercept is included to overcome the dummy variable trap. Further, we estimated the effects of economic crises in two parts; first, an overall effect of economic crises –a dummy for all years with economic crises- is estimated as *DK*; second, economic crises are regressed one by one for 1940, 1960, 1980, 1991, 1994 and 2001 crises years (note that *DK*, all crisis in one dummy, is excluded for these models). Further, ruling party types are analyzed in accordance with their characteristics to estimate the effects of different government types on inflation policies. Consequently, we divided the parties into 4 distinct groups, P1 represents one party rule, P2 represents

coalition governments, P3 represents minority governments and P4 represents transition governments.

Table 7. Regression Results for Turkey, 1933-2005

Iinflation rate (enf)	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
c	0,11** (2,77)	0,11** (2,92)	0,17** (2,87)	0,20** (3,23)	0,17** (2,36)	0,16** (2,42)	X	0.24** (3,59)	0,15** (2,27)	0.15** (3,44)	X
domestic debt (ib)	0,42** (4,71)	0,30** (3,29)	0,20** (2,49)	0,17** (2.16)	0,15** (2,60)	0,13** (2,31)	0,27** (3,31)	0.17** (2,09)	0,42** (5,46)	0.31** (3,67)	X
overall econ. crises (DK)	X	0,16** (3,40)	X	X	X	X	0,13** (2,97)	X	X	X	X
1940 crisis (D40)	X	X	0,26** (3,77)	0,26** (3,79)	0,28** (5,66)	0,28** (5,72)	X	0.27** (4.09)	X	X	0,14** (2,49)
1960 crises (D60)	X	X	X	X	0,08* (1,66)	0,08* (1,65)	X	0,07* (1,93)	X	X	0,08* (1,77)
1980 crisis (D80)	X	X	X	X	0,30** (6,27)	0,31** (6,35)	X	X	X	X	0,32** (6,88)
1991 Crisis (D91)	X	X	X	X	X	0,076 (1,37)	X	X	0,27** (3,19)	X	0,34** (3,74)
1994 Crisis (D94)	X	X	X	X	0,21** (3,06)	0,29** (3,59)	X	X	0,21** (2,04)	X	0,14** (2,49)
1998 Crisis (D98)	X	X	X	X	0,17** (2,56)	X	X	X	X	X	X
2001 Crisis (D01)	X	X	X	X	X	0,08* (1,65)	X	X	0,05 (0,51)	X	0,12** (2,60)
One party regime(P1)	X	X	X	-0,05** (-2,30)	X	X	-0,13** (-3,12)	-0,09** (-2,63)	X	X	X
Coalition regime(P2)	X	X	X	X	X	X	0,09* (1,65)	X	0,16** (3,09)	X	X
Minority party (P3)	X	X	X	X	X	X	0,23** (4,28)	X	X	X	X
Transition party (P4)	X	X	X	X	X	X	0,13** (2.62)	X	X	X	X
Imp./Exp. Ratio M/X)	X	X	X	X	X	X	X	X	X	0,19** (2,40)	0,11** (2,20)
AR(3)	0,31** (2,32)	0,35** (2,50)	0,68** (6,94)	0,66** (6,53)	0,80** (9,83)	0,78** (8,70)	0,52** (3,99)	0,69** (6,91)	0,61** (6,42)	0,48** (3,95)	0,94** (17,85)
R^2	0,52	0,60	0,93	0,61	0,78	0,79	0,67	0,65	0,66	0,56	0,76
F	35,85	39	30,95	23,87	30,21	24,87	17,80	22,12	19,70	26,34	31,67
DW	1,11	1,23	0,98	1,01	1,03	1,14	0,99	1,11	1,30	1,04	1,10

**(*) denotes significance at 5 (10) percent significance level. X: not included to the model.

Model I in column I represents the base model. In Model I, a percentage point increase in domestic debt results in 0,42 percentage point increase in the inflation rate for the 1933-2005 period. The AR(3) term is estimated as 0,31. In column II, the explanatory power of the regression increased after the inclusion of the effects of economic crises *(dk)* to the model. Economic crises variable is estimated as 0,16 and shows that there is a significant positive impact of economic crises on inflation. On the other hand, the inflationary effect of domestic debt decreases to 0,30. The structural effects of 1940 crisis including the WW II are given in column III. We noted that, as a result of balanced budget policies followed until late 1940's and especially low rates of domestic debt instruments issued with low costs, the inflationary effects of domestic debt is estimated as 0,20 and lower comparing to the Model I and II as expected. One party rule (*P1*), which was also eminent until 1950's is estimated in Model IV. The estimator of *P1, one party rule* is estimated as -0,05. The structural effects of 1940, 1960, 1980, 1994 and 1998 crises are included to the Model V. The model does not take effects of party types into consideration and provides a overall model for economic crises only. A similar model is estimated in the last column of Table 7 for 1983-2005 sub-period. The estimators of crisis dummies d40, d60, d80, d94 and d98 are estimated as positive and calculated as statistically significant at 5% significance level. The increase in R^2 denotes the increase in the overall significance. The effects of all crises variables are included to the Model VI. Model VII aims to analyze the overall effects of economic crises and all government types in one model. One point that should be noted is that, party types are not analyzed according to their popularity functions but according to their explanatory power of commitment to anti-inflationary policies resulting from their share in the parliament; e.g. coalitions, minority governments and transition governments.

Firstly, the estimator of domestic debt is estimated as 0,27 and the positive inflationary impact of domestic debt cannot be rejected. The effects of economic crises *(dk)* is estimated positive and is significant as expected. Secondly, all party types followed debt policies that increased the inflation rate for the 1933-2005 period accordingly. We noted that, the estimator of one party regime (*P1*) is positive compared to the Model IV. On the other hand, the analysis shows that, chronological division of the period to 1933-1983 and 1983-2005 is necessary in accordance with the shift to the fast borrowing period with high costs in 1983. Hence, the results given in Table 8 shows that, the negative estimates of one party regime variable cannot be rejected for both 1933-1983 and 1983-2005 periods, which supports the results given in model IV. Regarding the effects of high costs of debt in 1980-2005 period; 1994, 1998 and 2000-2001 crises deserve significant importance. The most important problem caused by the periods of swift domestic debt is increasing the vulnerability to economic crises. Consequently, domestic debt created inflationary pressures that lead to the domestic debt to increase further through the cost of debt channels until the point is reached where the inflation-cost of debt-domestic debt-inflation channels become obsolete and policies are directed towards external debt, the resulting scheme leads to increasing cost of external debt-external dependence, economic crisis and inflation. In the study, we investigated the relative significance of the explanatory variables tested for two sub periods; 1933-1983 and 1983-2005 and four models are gathered of each period in light of political factors and economic crises. Results are given in Table 8. It is observed that similar results are obtained in Table 8 with subperiods compared to the results for the whole period of 1933-2005 analyzed in Table 7.

In Table 8, Model (I) analyses one party regime of 1933-1983 period with the effects of d40, d60 and d80 military rule. Model (II) analyzes the effects of coalition governments on inflation. The estimator of domestic debt increases to 0,30 compared to 0,21 in Model I. Results suggest that, the inflationary effects of domestic debt cannot be rejected for 1933-1983 moderate borrowing period. Even though the inflationary effects are comparatively lower than 1983-2005 swift borrowing period, policies followed in Turkey had inflationary effects and showed non-Ricardian characteristics for the 1933-1983 period. 1983-2005 period covers Turkey's shift in policies towards financial liberalization, high costs of borrowing and important economic crises years of 1994, 1998 and 2000-2001. The results for 1983-2005 swift borrowing period are given in Models V through VIII in Table 8. AR(4) term is significant for all models. Further, one percentage point increase in domestic debt *(ib)* increases the inflation rate by 0,18 percentage points. the crisis dummy of 1994 is statistically positive and calculated as 0,15.

Furthermore, the difference of these models is such that, the analysis replicates the models with foreign debt as an explanatory variable. Similar results are gathered for these models. The inflationary effects of domestic debt could not be rejected for all of the models for all party types. The estimators of external debt is estimated as 0,38 for the one party regime (Model IX); +1,003 for the coalitions (Model X); +1,36 for the model of minority rule (Model XI); +0,58 for the overall model, which does not take political factors into consideration. The 2001 crisis dummy is estimated as negative, owing to the fact that, the path of inflation had been decreasing after the crisis. It should be noted that, central bank independence gained after 2001 crisis and tight fiscal-monetary policy mixture is an important factor for the post 2001 period. Furthermore, we calculated impulse response functions for the 1983-2005 period from VAR and VEC models. Results are given in the Figure 7 in the Annex. VAR and VEC models are chosen following the reported results in Table 8. We included same lag order and same input variables in Table 8. VAR and VEC models are not reported to save space. The estimated parameters are very close to Models in Table 8. Results can be obtained on request.

In Figure 7 the first figure on the upper-left represents the response of the inflation rate (*lntufe*) to 2001 (*d01*) and 1994 (*d94*) crises, external debt (*ldb*) and domestic debt (*lnib*). As our results, the response of the inflation rate follows a positive path following a positive shock in the domestic, external debt and crises variables *d01* and *d94* for 2001 and 1994 crises respectively. In the second figure the response of 2001 crisis to an impulse in inflation rate, external debt are positive, the response followinf an impulse in domestic debt is negative for the first three periods and becomes positive afterwards. The response of the 2001 crisis following an impulse in external debt, domestic debt and inflation is positive until the shock dies after the 4^{th} period. In the 4^{th} figure, the external debt follows a positive path following a positive shock in domestic debt, whereas, the domestic debt follows a positive path following a positive shock in external debt in the last figure on the right bottom. It should be noted that, as a result of the scale in the figures and since five variables' responses are given in one figure to gain space, the path of external debt and domestic debt seem to be relatively undersized. Both of the responses of external and domestic debt variables to inflation and 2001 crisis are positive. The response of external debt to 1994 economic crisis is negative that could be considered as a result of the depletion of external sources of debt after 1994 crisis.

5. Concluding remarks

In this study, we aimed to investigate the relationship between domestic debt, inflation, domestic debt cost, external debt, external dependency and crisis in the Ottoman Empire and in the Republic of Turkey. We aimed to follow a fiscal approach instead of a monetary approach by also taking political factors for the period into consideration. The explanatory power of domestic debt cost on inflation is very important. Increasing costs of domestic debt resulted in increased external debt, hence the increasing external financing worsened the cost of external debt especially in the periods in which the channels of domestic borrowing becomes obsolete. As a result of the process, the country becomes less immune to economic crises; whereas, the country's external dependence increases subsequently.

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Annex

Table 8. Regression Estimates for Turkey, 1933-1983 Moderate Borrowing & 1983-2005 Swift Borrowing Periods

	1983-2005				1983-2005			
	V	**VI**	**VII**	**VIII**	**IX**	**X**	**XI**	**XII**
c	040** (6,15)	X	X	X	X	0,36** (7,49)	0,42** (7,39)	0,24** (3,34)
domestic debt (ib)	0,18** (2,20)	0,36** (3,75)	0,36** (3,81)	0,40** (3,73)	0,24** (2,33)	0,14* (1,75)	0,15** (1,76)	0,299** (2,82)
External debt (db)					0,38** (2,33)	1,003** (3,53)	1,36** (4,4)	0,58** (2,29)
1940 crisis (D40)	X	X	X	X	X	X	X	X
1960 crises (D60)	X	X	X	X	X	X	X	X
1980 crisis (D80)	X	X	X	X	X	X	X	X
1991 Crisis (D91)	X	0,15** (2,32)	0,09* (1,64)	0,15** (2,30)	X	X	X	0,21** (2,36)
1994 Crisis (D94)	0,15** (2,49)	0,18** (2,16)	0,28** (4,13)	0,24** (3,04)	X	0,31** (5,52)	0,40** (5,4)	0,28** (3,55)
1998 Crisis (D98)	X	0,14* (1,91)	0,10* (1,61)	0,19** (2,53)	X	0,16** (1,89)	0,27** (4,43)	X
2001 Crisis (D01)	X	X	X	X	X	-0,28** (-4,57)	-0,31** (-4,009)	X
One party regime (P1)	-0,17** (-4,87)	X	X	X	-0,26** (-4,71)	X	X	X
Coalition regime (P2)	X	0,12** (2,07)	X	X	X	0,12** (2,72)	X	X
Minority party (P3)	X	X	0,17** (2.86)	X	X	X	-0,15* (-1,94)	X
Transition (P4)	X	X	X	X [1]	X	X	X	X [1]
AR(4)	0,49** (2,80)	0,68** (5,01)	0,87** (8,19)	0,73** (5,65)	-0,87** (-14,70)	-0,73** (-4,87)	-0,68** (-5,06)	-0,61** (-2,52)
R^2	0,72	0,58	0,63	0,46	0,63	0,86	0,83	0,68
F	11,84	4,42	5,45	5,32	10,22	7,51	5,63	4,26
DW	1,54	1,98	1,76	1,98	1,96	2,44	2,3	1,89

***(*) denotes significance at 5 (10) percent significance level. X: not included to the model.All variables are in first differences.* [1] *No transition government for the period 1983-2005*

	1933-1983			
	I	**II**	**III**	**IV**
c	0,08** (2,88)	X	X	X
domestic debt (ib)	0,21** (2,29)	0,30** (2,81)	0,32** (4,56)	0,19** (2,21)
External debt (db)				
1940 crisis (D40)	0,19** (3,62)	0,14** (2,32)	0,12* (1,91)	0,23** (4,79)
1960 crises (D60)	0,06 (1,60)	X	0,10** (2,54)	0,09** (2,01)
1980 crisis (D80)	0,38** (6,12)	X	0,32** (4,45)	0,31** (5,73)
1991 Crisis (D91)	X	X	X	X
1994 Crisis (D94)	X	X	X	X
1998 Crisis (D98)	X	X	X	X
2001 Crisis (D01)	X	X	X	X
One party regime (P1)	-0,06** (-2,07)	X	X	0,08** (2,16)
Coalition regime (P2)	X	0,27** (4,73)	X	X
Minority party (P3)	X	X	0,17** (2,24)	X
Transition (P4)	X	X	X	0,09** (2,39)
AR(4)	-0,23* (-1,77)	-0,68** (-3,47)	-0,22** (-2,30)	0,57** (3,63)
R^2	0,71	0,60	0,70	0,63
F	15,58	7,36	14,78	12,02
DW	1,32	1,57	1,47	1,11

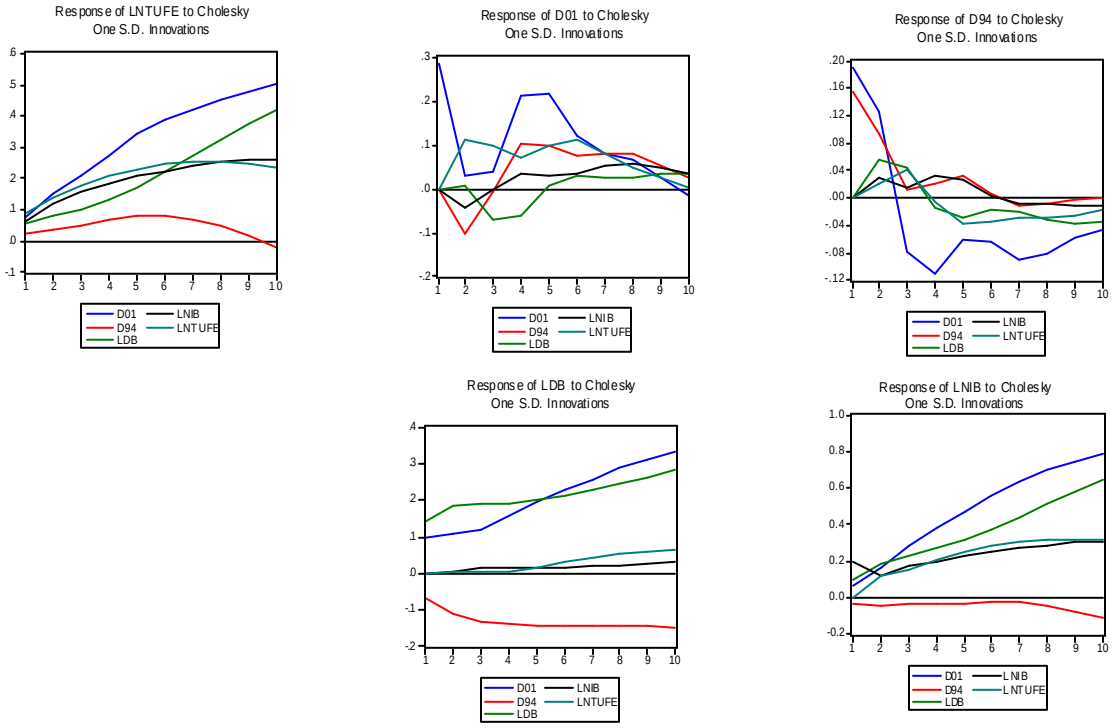

Figure 7. Impulse response functions, 1983-2005