BUDGET DEFICIT NEWS AND INTEREST RATES

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Abstract: A common belief held by the popular press, government officials, International Monetary Fund officials and investors is that persistent budget deficits in Turkey elicit higher interest rates, thus hindering capital formation. In this paper, we examine whether budget deficit news can explain the observed high interest rates in Turkey, using the "announcement effect methodology". Financial market participants might have three reasons to expect deficits to raise interest rates: (i) deficits may crowd out private investment; (ii) they might be due to an increase in temporary government spending that affects interest rates; and (iii) they might be monetized in the future and cause inflation. The budget deficit news was obtained by reading electronic editions of major Turkish newspapers for the periods 1996-2003. The results suggest that positive relationship between budget deficits and interest rates due to crowding-out.

Key Words: Budget deficits, interest rates, exchange rates, stock returns

BÜTÇE AÇIĞI HABERLERİ VE FAİZ ORANLARI

Özet: Türkiye'de süregelen bütçe açıklarının faiz oranlarını yükselttiği ve dolayısıyla sermaye oluşumunu engellediği görüşü popüler basın, hükümet yetkilileri, Uluslararası Para Fonu yetkilileri ve yatırımcılar arasında yaygındır. Bu makalede bildirim etkisi yöntemi kullanılarak Türkiye'deki bütçe açığı haberlerinin gözlenen yüksek faiz oranlarını açıklayıp açıklayamayacağı incelenmektedir. Finansal piyasa aktörleri üç nedenden dolayı bütçe açıklarının faiz oranlarını yükseleteceğini bekleyebilirler: (i) bütçe açıkları özel yatırımları dışlayabilir; (ii) bütçe açıkları faiz oranlarını etkileyen geçici devlet harcamalarındaki artıştan dolayı olabilir; (iii) bütçe açıkları gelecekte monetize edilebilir ve enflasyona neden olabilir. Bütçe açığı haberleri, elektronik ortamdaki önemli Türk gazeteleri okunarak 1996-2003 yılları itibariyle toplandı. Sonuçlar bütçe açıkları ile faiz oranları arasındaki pozitif ilişkinin dışlama etkisinden kaynaklandığını göstermektedir.

Anahtar Kelimeler: Bütçe açıkları, faiz oranları, döviz kurları, hisse senedi getirileri

INTRODUCTION

A common belief held by the popular press, government officials, International Monetary Fund (IMF) officials and investors is that persistent budget deficits in Turkey –whether occurring in the past or present or expected to occur in the future- elicit higher interest rates, thus hindering capital formation. However, economists disagree whether [large] budget deficits affect the real economy. The conventional [Keynesian] open economy hypothesis states that large budget

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deficits may increase interest rates and appreciate the domestic currency vis-à-vis other currencies, crowding out investment spending and net exports. Alternatively, proponents of the Ricardian Equivalence proposition[1] claim that deficits have no real effects since households adjust their savings to offset anticipated future tax liabilities implicit in deficits for a given path of government spending. Therefore, interest rates are unaltered and budget deficits have no adverse macroeconomic effects. An intermediate approach, described by Sargent and Wallace (1981) and Brunner (1986), focuses on the implicit relationship between fiscal and monetary policy to explain the way deficits affect interest rates. Accordingly, large and persistent deficits over time raise the likelihood of the monetization of deficits, which feeds into inflationary expectations and hence pushes up nominal rates.

Researchers have sought to test the validity of these views. Most of the empirical results have yielded mixed conclusions. Plosser (1982), using Treasury bill rates and Treasury bond yields, and Evans (1987), using commercial paper and corporate bond rates, find no evidence that larger federal budget deficits increase U.S. interest rates. Darrat and Suliman (1991) also find that budget deficits have no direct causal effects on either Canadian 3-month Treasury bill rate or exchange rates. These results are consistent with Ricardian Equivalence and cast doubts on the crowding-out phenomenon.

Alternatively, Hoelscher (1986) finds that U.S. long-term interest rates are positively associated with deficits; Wachtel and Young (1987), Beck (1993), Thorbecke (1993), and Kitchen (1996) have shown that U.S. interest rates respond positively to budget deficit projections. Knot and Haan (1999) also find a positive association between news about the German consolidated budget deficits and long-term bond rates. On balance, these studies reveal that while short-term rates have little or no correlation with budget deficits, long-term rates respond positively to budget deficits.

In this paper, we examine whether deficit news can explain the observed high interest rates in Turkey. The announcement effect methodology relies on the efficient markets hypothesis, which asserts that asset prices incorporate all available information. Because asset prices must change to incorporate new information about deficits when it is received by financial market participants, our purpose is to determine whether the direction and magnitude of changes in

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[1] For details, see Barro (1974) and Seater (1993).

interest rates are compatible with the predictions of either of the theories summarized above. To answer this question we also examine the effects of deficit news on the Turkish lira/US dollar nominal exchange rate and Turkish stock returns.

The reminder of the paper is organized as follows. Section two presents predictions of several models that financial market participants might follow in responding to deficit news. This is followed by a discussion of the data and methodology in Section three. Section four presents the empirical results. This is followed by conclusions in Section five.

FUTURE BUDGET DEFICITS AND ASSET PRICES

If current and/or past deficits affect interest rates, because financial markets are forward looking expectations of future deficits also should affect them. Feldstein (1986) argues that anything expected to affect interest rates in the future can affect long-term interest rates today. The most common theory used to explain the relationship among interest rates over different horizons is called the expectations theory of the term structure. Under that hypothesis, a change in expectations concerning future short-term rates determines the current long-term rates. A typical formulation is

$$R_t^j = \theta_t^j + \sum_{i=0}^{j-1}\left(E_t r_{t+i} \, / \, j\right) \tag{1}$$

where R_t^j denotes the j period interest rate at time t, θ_t^j is a time varying j period risk premium, and $E_t r_{t+i}$ is expected one period interest rate at time t+i, formed based on all information available at time t. If anticipated deficits exert upward pressure on expected future short term rates, $(E_t r_{t+i} \, / j)$, then this should drive up current long term rates, R_t, today. The current long-term rates increase today, as Feldstein (1986) argues, because failure to do so leads capital loss to the holders of government securities and a lower expected return than they could get by simply holding short-term securities or money.

In the previous section, we have mentioned three alternate views that relate budget deficits and interest rates. Financial market participants might follow one of these views in responding to deficit news. Below we summarize the

predictions of these views in terms of the relationship between deficit news and asset prices.

Crowding out Hypothesis

According to Keynesian theory, in an underemployed economy, with rigid prices and wages, and individuals are myopic or liquidity constrained, an increase in the deficit raises disposable income thereby stimulating aggregate demand. Real interest rates have to increase to restore equilibrium between both national saving and private investment and the demand for money given a fixed money stock or increased supply of government securities and the demand for them in the bond market. Therefore, higher interest rates crowd out private investment. Furthermore, an increase in aggregate demand could increase inflation, raising nominal rates. As stressed by Blanchard (1984) deficit news which implies an expected increase in future deficits leads to an expected increase in aggregate demand, which in turn pushes up the current long term real rates. In particular, anticipated future deficits will increase long rates over short rates.

In the Mundell-Fleming open economy model, as set out by Cornell and Shapiro (1985), higher real rates elicit capital inflows, causing the lira to appreciate, which in turn crowds out net exports. However, an increase in expected inflation may decrease the demand for the lira, eliciting a capital outflow and a depreciation of the lira.

What then happens to stock returns? Standard models of stock pricing evolve around the discount rate used in computing the discounted future cash flows earned by the owner of the stock. Hardouvelis (1987) argues that a higher real interest rate adversely affects stock returns both because it raises the real discount rate at which cash flows are capitalized and because it decreases real output and hence future cash flows. Higher inflation also adversely affects stock returns through nominal contracts or taxes. DeFina (1991) argues that higher inflation raises a firm's production costs while it decreases a firm's revenue because nominal contracts hinder immediate adjustments of the firm's revenue and costs. After tax real dividends decline since the inflation premium included in the nominal rate increases (Hardouvelis, 1987).

Ricardian Equivalence Proposition

The Ricardian Equivalence proposition states that for given paths of government spending, an increase in bond-financed deficits induced by tax cuts results in a corresponding increase in the present value of future taxes. The timing of the taxes does not alter the sum of the present value of future taxes and the current taxes. Since bond-financed deficits do not alter the present value of taxes or households' net wealth, the increase in government dissaving is matched by an equivalent increase in private saving. Therefore, aggregate demand, national saving, interest rates, investment, and exchange rate all are invariant with bond-financed tax cuts. However, temporarily high government purchases cause real interest rates to rise since decreased private consumption will be less than the increased deficit, decreasing the national savings.

In sum, according to Ricardian equivalence proposition, forward looking individuals will respond differently to changes in government spending and taxes under lump-sum taxation. While the real rate of interest and investment are invariant with a permanent increase in government spending and tax cuts, temporary increases in government spending will increase the real interest rate and hence, decrease the investment. One way to determine whether Ricardian Equivalence holds is to test for the effect of tax cuts on interest rates.

The Monetization View

Sargent and Wallace (1981) argue that the fiscal authority cannot finance persistent budget deficits continuously via selling bonds, since the public's demand for government bonds is limited by the size of the economy. This limited demand could push the interest rates on bonds above the economy's growth rate, which means the real stock of bonds will grow faster than the size of the economy. Once this point is reached, the principal and interest due on outstanding bonds must be financed by seignorage. Therefore, persistent deficits would ultimately have to be money-financed. Their unpleasant monetarist arithmetic implies that tighter money now can mean higher inflation eventually, which could create fear of monetization. This dominance of fiscal policy over monetary policy is interpreted by Brunner (1986:725)

"…a noninflationary monetary regime and a fiscal regime of permanent deficits beyond some benchmark level are unlikely to coexist in the long run. One of the two regimes will be adjusted to the other. A political economy approach to the underlying processes suggests that the monetary regime is the more likely to adjust and tends to accommodate the fiscal regime".

Similarly, Feldstein (1986) argues that a sustained increase in the budget deficit leads to anticipated inflation and an increase in inflation uncertainty. Accordingly, as the budget deficit persists, real rates are pushed up, the central bank may ease money to reduce these rates, resulting in a rise in inflation and nominal rates. The demand for long-term securities may decrease because financial market participants anticipate a higher rate of inflation or because uncertainty about such an inflationary policy makes long-term securities riskier than short-term ones.

Miller (1992) points out that financial market participants are competent to predict inflation in the short-run but less competent in the long-run. Since they think more or less inflation is uncertain in the long-run, they come to terms on short-run contracts in inflationary circumstances.

According to monetization view, we expect nominal rates to increase, stock returns to decline, and the lira to depreciate due to a decline in demand to hold lira dominated assets.

DATA AND METHODOLOGY

We focus on the effect of government deficit news on asset prices. The deficit news series presented in Table 1 was obtained by reading electronic editions of major Turkish newspapers such as Turkish Daily News, Milliyet, Hurriyet, Radikal, and Zaman. These newspapers were cross-referenced to determine the exact timing of each announcement. The dates of the press statements and the sources of this information are reported in Appendix.

The criteria used to choose the deficit news were as follows:

i)   It had to be from one of the following decision makers: the Minister of Finance, the Parliament, Planning and Budgetary Commission, the Cabinet, the President, and Supreme Planning Council.
ii)   It had to clearly indicate the change in the expected future budget deficits.
iii) It had to be reported in the above-mentioned major newspapers' economy sections excluding commentaries and editorials.

iv) It had to contain new information. It was necessary to determine whether the deficit news was available to the market prior to the specific date on which it was announced. To determine whether deficit news contains new information we searched through the above-mentioned newspapers' economy pages day by day.

The definition of the deficit used here is the consolidated budget deficit, which includes interest payments on outstanding debt. It is the appropriate measure for two reasons. First, it is the most common measure used in press discussions and government officials' announcements when referring to deficit problems. Second, it reflects the burden of the deficit on financial markets. We identified deficit news as changes made in deficit projections during the budget process and after the budget process. The data set contains 21 deficit news announcements during the 01/02/96-07/18/2003 period. In Turkey, up until the last couple of years, fiscal policy has not been transparent and hence, changes in deficit projections have not been announced regularly. Therefore, our sample period and size is very limited when compared to previous studies.

Table 1: Major Deficit News

Date	News	Deficit (in TL, Trillion)
07-13-96	Debate on the budget at the parliament	439
07-07-97	The government revises transfers to the social security institutions	220
09-03-97	The State minister announces the deficit projection for 1997	921
01-11-98	The Minister of Finance announces additional revenues from new tax arrangements	-500
06-08-99	Budget draft for 1999 is at the Parliament's Planning and Budgetary Commission	4,480
06-30-99	The Parliament passes the budget for 1999	-942
08-17-99	The projected budget deficit for 1999 is revised	179
12-31-99	The Parliament passes the 2000 budget	-158
10-16-00	The Cabinet reduces the budget deficit for 2001	-100
06-09-01	Supplementary budget for 2001 at the Parliament	25,400
10-16-01	The Cabinet approves the 2002 budget	-2,300
01-19-02	The President approves tax increase	-800

10-16-02	The Minister of Finance presents the 2003 budget to the Parliament	4,900
12-18-02	The Planning and Budgetary Commission approves the tax cut	700
12-19-02	The Planning and Budgetary Commission approves a bill to extend the special communications tax and special transaction tax for 2003	-2,000
01-29-03	The Supreme Planning Council prepares the 2003 budget draft	14,700
02-28-03	The Parliament approves the tax amnesty law	-10,000
03-04-03	The budget for 2003 is presented to the Parliament	-3,700
03-18-03	The Planning and Budgetary Commission cuts expenditures	-961
03-25-03	The Cabinet decides to cut budgetary spending	-4,000
03-25-03	The Cabinet decides to keep additional real estate and motor vehicle taxes in effect	-1,800

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Note: A negative sign indicates a decrease in deficits.

We use an announcement effect methodology to examine the reaction of asset prices to deficit news. The methodology employed in this paper has been previously used by Wachtel and Young (1987), Beck (1993), Thorbecke (1993), Kitchen (1996), and Knot and Haan (1999). The announcement effect methodology relies on the efficient markets hypothesis, which assumes all relevant information is fully incorporated in asset prices. This implies that if an increase in the budget deficit has an effect on asset prices, an unanticipated announcement of a larger deficit should lead to a response in financial markets. Therefore, we are concerned with asset price changes immediately before and after the release of deficit news. Regressions of the following form have typically been used to examine whether deficit news has an effect on asset prices:

$$\Delta x_t = \alpha + \beta (d_t) + \in_t \tag{2}$$

where Δx_t is the change in the asset price from the deficit announcement during the 24 hour time interval, or the daily change in prices, d_t is the change in the future deficits measured in trillion of Turkish liras. When we use dummy

variables for deficit news, d_t indicates a dummy equaling 1 if the deficit news implies larger future deficits, -1 it implies smaller future deficits, and 0 otherwise. Our coefficient of interest is the β. The results from regressions in (2) are used to test the following deficit news effect hypotheses:

Interest rate response hypothesis:

$H_{\text{INTEREST RATE}}$: β ≠ 0;

Turkish lira/US dollar exchange rate response hypothesis:

$H_{\text{EXCHANGE RATE}}$: β ≠ 0;

Stock return response hypothesis:

$H_{\text{STOCK RETURNS}}$: β ≠ 0;

Investable index returns hypothesis:

$H_{\text{INVESTABLE}}$: β ≠ 0;

The interest rate data on Turkish Treasury securities at market closing are collected for the 5 days preceding the deficit announcement, the day of the announcement, and 5 days after the deficit announcement. The terms to maturity for the Treasury securities included are: 3-month, 6-month, and 1-year. The secondary market Treasury rates are obtained from the Istanbul Stock Exchange. The data set includes daily observations from 07/05/96 to 04/02/03.

The Turkish lira/US dollar exchange rate data is taken from the electronic database system of the Central Bank of the Republic of Turkey. We use first differences of exchange rate in our regressions. Nominal stock returns are obtained from the Istanbul Stock Exchange. We use the Istanbul Stock Exchange National-100 value weighted index and calculate log returns. The Turkish S&P/IFC Investable Index is taken from Bloomberg[2]. The returns for both

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[2] Standard and Poor's (S&P) Emerging Markets Database (EMDB), described in more detail by Edison and Warnock (2003), collects daily index closing values for "investable" and "global" equities, the former (latter) representing those available to all investors (a country's residents). S&P analysts determine whether a reasonably liquid market exists for a given security that can be

National-100 and Investable indexes are calculated by taking log first differences of the nominal indices. The data set for the exchange rate and the stock index include daily observations from 01/02/96 to 07/18/03, while the data for S&P/IFC Investable Index covers daily observations from 01/02/96 to 6/20/03.

RESULTS

Table 2 presents our results from the estimation of equation (2) using dummy variables for deficit news. With the exception of the 3-month Treasury rate, the coefficients on deficit news are positive and statically significant for 6-month and 1-year Treasury rates. News indicating an increase in current-year deficit will increase 6-month Treasury rates on average by 1.26 percent and 1-year Treasury rates by 1.76 percent of the original level at that day. This is consistent with the expectations theory of the term structure because increases in future deficits lead expected increase in shorter-term interest rates in the future, and hence drive up longer-term interest rates immediately.

The positive response of interest rates to news indicating increased future deficits reveal that financial market participants expected deficits to raise interest rates. Market participants, as we discussed previously in Section two, might have three reasons to expect deficits to raise interest rates: (i) deficits may crowd out private investment; (ii) they might be due to an increase in temporary government spending that affects interest rates; and (iii) they might be monetized in the future and cause inflation. To determine which reason financial market participants might have in mind in responding to deficit news, we examine the effects of deficit news on Turkish lira/US dollar exchange rate.

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freely purchased by global investors, in which case it is included among the list of investable securities. The goal is to stimulate the private capital flows to emerging markets.

Table 2: Regression Results for Asset Prices Responses to Deficit News (Using Dummy Variable for Deficit News)

Dependent Variable	Deficit Effect	R^2	F-stat	DW
3-month Treasury rate[a]	0.36 (0.70)	0.0025	0.49	2.61
6-month Treasury rate[a]	1.26 (3.30)	0.053	10.92	2.33
1-year Treasury rate[b]	1.76 (2.68)	0.046	7.22	2.17
Turkish lira/US dollar[c]	-7,831 (-2.78)	0.004	7.76	1.76
National-100[c]	-0.019 (-2.73)	0.0038	7.49	1.95
Investable Index[d]	-0.024 (-3.08)	0.0048	9.5	1.93

Notes: Values in parentheses are t statistics. In all regressions, a constant term is included. F-stat is the F-statistic. DW: Durbin Watson Statistic.

[a] The sample period from 07/05/96-04/02/03 contains 196 observations.
[b] The sample period from 06/30/97-04/02/03 contains 152 observations.
[c] The sample period from 01/02/96-07/18/03 contains 1969 observations.
[d] The sample period from 01/02/96-06/18/03 contains 1947 observations.

The Turkish lira/US dollar exchange rate appreciates by 7,831 liras when there is news indicating an increase in future deficits (see table 2). As set out by Engel and Frankel (1984), news of an inflationary increase in the money supply leads to a capital outflow and depreciates the domestic currency while news of an increase in the real interest rate elicits a capital inflow and appreciates the domestic currency. Therefore, we interpret an increase in interest rates coupled with an appreciation of the Turkish lira as an indicator of a rise in the real interest rates and hence, we interpret this finding to suggest that market participants do not expect deficits to be monetized.

We also try to discriminate between the crowding out view and the Ricardian Equivalence proposition. As we discussed previously, according to the Ricardian Equivalence proposition, for a given path of government spending, debt financed tax cuts (tax hikes) imply a higher (lower) present value of future taxes. Therefore, news indicating tax cuts or hikes should not alter interest rates. In our

deficit news sample, we have only three news events associated with tax hikes and one associated with a tax cut. With each event, interest rates react to news of a tax cut or a tax hike that is contrary to the prediction of the Ricardian Equivalence proposition.

News indicating an increase in future deficits decreases both returns on the National-100 index and the Investable index by 1.9 percent and 2.5 percent of the original levels, respectively. Both decreases are statistically significant (see last two rows of the table 2).

Using dummy variables for deficit news we have presented evidence that changes in future deficits do affect interest rates, exchange rate, and stock returns within the subsequent 24 hour period. However, we were unable to determine quantitavely how much the change in future deficits lead to changes in these variables. Therefore, we also regress daily changes in the 3-month Treasury rate, 6-month Treasury rate, 1-year Treasury rate, Turkish lira/US dollar exchange rate, National-100 stock returns, and Investable Index returns on changes in future deficits measured in trillions of liras.

The first three rows of the Table 3 indicate the response of various Treasury rates to changes in future deficits measured in trillion of liras. A news event indicating an increase in future deficits does not affect 3-month Treasury rate since the deficit news variable turns out to be insignificantly different from zero. Both responses of 6-month and 1-year Treasury rates to deficit news are statistically significant. An increase in the future budget deficit of 1 quadrillion liras on average raises the 6 month Treasury rate by 2.7 percent and the 1-year Treasury rate by 4.1 percent[3] over 24 hours.

The Turkish lira/dollar exchange rate responds negatively to deficit news (see table 3 row four). A 1 quadrillion-lira increase in future deficits leads to an appreciation of the TL by 5,974 liras[4].

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[3] During 1996-2002 period GNP was 79,708 trillion on average, while consolidated budget deficit to GNP ratio was 12.5. This means that budget deficit was approximately 6,377 trillion during the same period.
[4] During 1996-2002 period $1 was 715,019 liras.

Table 3: Regression Results for Asset Prices Responses to Deficit News
Measured in Trillion Liras

Dependent Variable	Deficit Effect	R^2	F-stat	DW
3-month Treasury rate[a]	0.00003 (0.43)	0.00009	0.19	2.59
6-month Treasury rate[a]	0.00027 (5.25)	0.12	27.62	2.13
1-year Treasury rate[b]	0.00041 (5.4)	0.16	29.26	1.88
Turkish lira/US dollar[c]	-0.5974 (-1.50)	0.001	2.26	1.76
National-100[c]	-0.0000018 (-1.85)	0.00017	3.44	1.96
Investable Index[d]	-0.0000025 (-2.18)	0.0024	4.76	1.94

Notes: Values in parentheses are t statistics. In all regressions, a constant term is included. F-stat is
the F-statistic. DW: Durbin Watson Statistic.

[a] The sample period from 07/05/96-04/02/03 contains 196 observations.
[b] The sample period from 06/30/97-04/02/03 contains 152 observations.
[c] The sample period from 01/02/96-07/18/03 contains 1969 observations.
[d] The sample period from 01/02/96-06/18/03 contains 1947 observations.

The last two rows of Table 3 indicate that deficit news has a statistically
significant effect on both returns to the National-100 and the Investable Index.
On average news indicating a 1 quadrillion lira increase in future deficits
decreases returns on the National-100 by 1.8 percent and returns to the
Investable Index by 2.5 percent.

At first glance it is puzzling that higher budget deficits in Turkey appreciate the
currency. One might expect that substantial ongoing deficits and high inflation
rates would cause investors and creditors to reallocate funds away from lira-
denominated assets, leading to a depreciation of the exchange rate. However,
with the liberalization of the capital account in 1989, Turkey has moved from
money financing to debt financing. As Ozatay and Sak (2002:5) explain " the
central bank lending was nil since 1997". They continue

"Especially starting from the early 1990s, there was no close link between rising deficits and inflation. The main reason was that budget deficits were mainly financed through government securities. However, the sustainability of this financing mechanism was conditional on the continuation of demand for government securities. In the absence of a program, that reduces borrowing requirement, a halt in demand would force authorities to monetize and hence cause a jump in the exchange rate and inflation rate. This led economic policy makers to do their best to prevent a decline in demand for government securities (26)".

The strong demand for government securities broke the link between deficits and inflation that is often seen in countries with high budget deficits.

There are several explanations for the high demand for government securities. First, the policy of keeping domestic interest rates high encouraged short-term capital inflows. Second, a large portion of the deficits arose from high nominal interest rates due to high inflation. As Haliassos and Tobin (1990:903) argue, holders of government securities will save some of these interest receipts to preserve the value of their principal. This is because government securities holders understand that part of their interest receipts represent return of principal. Therefore, this will increase the demand for government securities. Third, high interest rates coupled with more or less predictable exchange rate depreciations created arbitrage opportunities for both domestic and external agents. For instance, in the 1990s, Turkish banks borrowed short-term in foreign currencies at lower interest rates, converted[5] them to lira and invested in longer-term government securities at higher interest rates. Banks downplayed the exchange rate risk because, as Balkan, et al. (2002:4) argue," after the inception of capital account liberalization, the TL is observed to be mostly on an appreciation trend…the extent of appreciation of the TL reached to 18 percent over 1989 to May 2002." They also believed that the government could bail them out if necessary. There were thus moral hazard problems and excessive risk-taking in the banking sector. Finally, the implicit tax exemption on government securities kept the demand for government securities by banks high.

CONCLUSION

In this paper, we presented evidence that there is a positive association between news about consolidated budget deficits and longer-term interest rates. We collected deficit news by reading electronic editions of several newspapers. We then presented three competing views financial markets might have in mind

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[5] Balkan, et al. (2002:4) show that gross inflows of foreign credits received by banking sector reached $122 billion in 1993 and $209 billion in 2000.

responding deficit news. We find that financial markets respond the day deficit news is released to the public.

We have regressed daily changes in the 3-month Treasury rate, the 6-month Treasury rate, the 1-year Treasury rate, the Turkish lira/US dollar exchange rate, National-100 stock returns, and the Investable Index returns both on dummies for deficit news and on deficit news measured in trillions of liras. From both measures of deficit news, we find that both 6-month and 1-year (but not the 3-month rate) Treasury rates respond positively and significantly to deficit news. The results also indicate that increased future deficits cause the lira to appreciate. Taken together, the positive response of interest rates and the appreciation of lira, this leads us to conclude that financial market participants expected deficits to raise real rates but not expected inflation. We also try to discriminate between the crowding-out view and the Ricardian Equivalence proposition by investigating the effects of tax hikes or cuts on interest rates. We have only four news events indicating that tax changes and following each event, interest rates respond as expected. This indicates that market participants believe that tax changes do matter, which runs contrary to predictions of Ricardian Equivalence.

The results also showed that both National-100 stock returns and the Investable Index returns responded negatively and significantly to deficit news.

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APPENDIX: MAJOR DEFICIT NEWS AND SOURCES

Date	News	Source telling when occurred
07-13-96	Debate on the budget at the parliament	Turkish Daily News, 07-12
07-07-97	The government revises transfers to the social security institutions	Milliyet, 07-07, late afternoon
09-03-97	The State minister announces the deficit projection for 1997	Turkish Daily News, 09-03
01-11-98	The Minister of Finance announces an additional revenues from new tax arrangements	Hurriyet, 01-11, late afternoon
06-08-99	Budget draft for 1999 is at the Parliament's Planning and Budgetary Commission	Radikal, Milliyet, 06-07
06-30-99	The Parliament passes the budget for 1999	Milliyet, Radikal, 06-29, late at day
08-17-99	The projected budget for 1999 is revised	Radikal, 08-17, late afternoon
12-31-99	The Parliament passes budget for 2000	Zaman, 12-30
10-16-00	The Cabinet reduces the budget deficit for 2001	Turkish Daily News, Radikal, 10-16
06-09-01	Supplementary budget for 2001 at the Parliament	Milliyet, Turkish Daily News, 06-09
10-16-01	The Cabinet approves the 2002 budget	Turkish Daily News, Radikal, 10-16, 16:59
01-19-02	The President approves tax increase	Radikal, 01-19
10-16-01	The Minister of Finance presents the 2003 budget to the Parliament	Radikal, Turkish Daily News, 10-15, late at night
12-18-02	The Planning and Budgetary Commission approves the tax cut	Radikal, 12-17
12-19-02	The Planning and Budgetary Commission approves a bill to extend the special communications tax and special transaction tax for 2003	Turkish Daily News, 12-17, at night
01-29-03	The Supreme Planning Council prepares the 2003 budget draft	Milliyet, Zaman, 01-28, 17:00
02-28-03	The Parliament approves the tax amnesty law	Turkish Daily News, 02-27

03-03-03	The budget for 2003 is presented to the Parliament	Zaman, Milliyet, Hurriyet, 03-03,18:27
03-18-03	The Planning and Budgetary Commission cuts expenditures	Radikal, Turkish Daily News, 03-18
03-25-03	The Cabinet decides to cut budgetary spending	Radikal, 03-24
03-25-03	The Cabinet decides to keep additional real estate and motor vehicle taxes in effect	Radikal, 03-25, 13:53