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Creative Accounting Practices and Measurement Methods: Evidence from Turkey

Ata Ozkaya

Abstract

A fiscal rule imposed when the budget is not transparent yields more creative accounting to circumvent it and less fiscal adjustment, generating hidden deficits/debts in public sector. This study focuses on creative accounting practices of governments and adds to the literature by measuring hidden debts of the Turkish public sector ranging from the period 1989 to 2010. The author shows that the IMF has been misinformed, indeed has been misled by the Turkish authorities regarding the magnitude of public debt stock in the late 90's. The lacking information deteriorated the IMF's forecasts, which might be one of the main reasons for the failure of the IMF's planned fiscal consolidation at the outset of 2000–2001 crisis. The author's methodology can easily be adapted to any other country in order to identify the different margins on which governments can cheat and manipulate the Government Finance Statistics.

JEL E62 H61 H63 H83

Keywords Fiscal rules; creative accounting; contingent liabilities; hidden public debt; IMF policies

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1 Introduction

Hidden public liabilities accumulate outside the budgetary system mainly in the form of lending/borrowing relationships among public sector entities to finance their government programs and subsidies (Polackova-Brixi and Mody 2002). In a recent study, Reinhart and Rogoff took our attention to the emergence of hidden debt of public sector as a problem: "Our results here, as well as a plethora of vivid examples from the accompanying Chartbook, suggest that more attention needs to be paid to hidden debts and liabilities. In a crisis, government debt burdens often come pouring out of the woodwork, exposing solvency issues about which the public seemed blissfully unaware" Reinhart and Rogoff (2011b: 21). Even though the authors do not give an accounting definition of hidden debt, there are some other studies focusing on its distinctive formation. Polackova (1998) and Polackova-Brixi et al. (1999) study the fiscal risks that governments face and divide public liabilities into four types: direct explicit, direct implicit, contingent explicit, and contingent implicit. Both studies indicate that hidden debts result from contingent liabilities and conclude that a study of public sector's "accurate" fiscal position cannot be separated from obligations taken by the central government and other public sector entities outside the budgetary system, a fact later emphasized by (Polackova-Brixi and Mody 2002: 25).

Reinhart and Rogoff (2011b) report that historically, domestic debt has in many countries been a major part of hidden debt that includes contingent liabilities of the government. In the 90's the public domestic debt stock in Turkey overwhelmingly threatened fiscal position of public sector. With high and volatile inflation, real interest rates reached double digit rates, necessitating large primary fiscal surpluses in order to realize a rapid buildup of domestic debt, but this in turn depressed growth, thereby making it more difficult to dynamically sustain public debt. By contrast, the stock of external debt has been low relative to export capacity, and the current account remained at sustainable levels even at times of rapid economic growth as long as the currency was properly aligned (Önel and Utkulu 2006; Ozkan 2005). At the end of 1999 Turkey adopted an ambitious stabilization program[1] backed by the International Monetary Fund (IMF). The

[1] During the period under examination Turkey had had 4 stand-by agreements with the IMF that enforced governments to limit primary deficits and to stabilize public debt (for the effects of IMF loan participation, see Barro and Lee 2005).

IMF reports the goals of the program: "To this end, the program rests on three pillars:[2] A large front-loaded fiscal adjustment; a strong exchange rate commitment underwritten by a no sterilization monetary policy rule and income policies; and a wide range of upfront structural reform measures" (IMF 2000c: 47, box 2.1). The initial indications signaled a fall in interest rates on market-based securities from 90 per cent to around 40 per cent. However, a severe liquidity crisis hit the economy in November 2000 and the government troubled meeting its direct liabilities, necessitating large IMF bailouts. However, IMF's policy response to the crisis failed to prevent the collapse of the Turkish Lira and hikes in interest rates in February 2001, which turned into the most serious financial and economic crisis Turkey has experienced. As a result, the crisis aggravated the domestic debt problem (see Akyüz and Boratav 2003; Ekinci 2002; Miller 2006).

Our study aims to contribute to the literature by examining the Turkish public sector budget financing process and its domestic debt stock structure from the period 1989Q1 to 2010Q1. In contrast with the literature we show that "accurate" public debt stock through 90's was significantly greater than "announced" debt stock. We also show that the IMF staff has been misinformed, indeed has been misled by the Turkish authorities regarding the magnitude of public debt stock. The lacking information might have caused forecast errors, affecting planned fiscal consolidation at the outset of the crisis and might have been an important reason for the failure of the actions taken by the IMF, a fact later emphasized by Blanchard and Leigh (2013).

Our study is also in line with a number of empirical and theoretical studies on "creative accounting". Among others Easterly (1999), Milesi-Ferretti (2004), Milesi-Ferretti and Moriyama (2006), von Hagen and Wolff (2006), Buti et al., (2007), Alt et al. (2012), and more recently De Castro et al. (2013), focus on shortcomings of traditional indicators in the presence of fiscal rules imposed by an outside agent, i.e., EMU, IMF, WB. We add to this literature[3] by measuring the hidden debts of Turkish public sector ranging from 1989Q1 to 2010Q1. To do this we provide a simple method which can be adapted to any other country by taking

[2] The first pillar of the program directly addresses the primary balance of the public sector. The third pillar of the program constitutes structural reforms addressing the stabilization and sustainability of the public debt level through the improvement of the fiscal transparency (see IMF 2000c: 48).

[3] See analyses in Celasun and Rodrik (1989) for the previous periods.

into account the country-specific structure of public debt. By identifying the invisible budget of overall public sector, our method enables us to capture creative accounting practices. The motivation behind is twofold. First, one would like to know the many different margins on which governments can cheat. Second, Reinhart and Rogoff (2011a) report that the countries that seem to be experiencing domestic debt intolerance are indeed serial defaulters. Among those serial defaulters,[4] Turkey has been a center of attention of late, has at times defaulted, de facto, on their internal obligations over the past two centuries. An important feature of the Turkish case is that in the wake of financial liberalization, the Turkish economy experienced frequent financial crisis episodes in 1994, 1999 and 2000–2001 and suffered a loss of 10–20% of real gross domestic product (GDP) in a single year (see Ozkan 2005; Akyuz and Boratav 2003; Ozatay 2000). It is worthwhile to note that a major structural problem in middle income countries such as Turkey is illicit relations among public authority, public sector entities (under complete hierarchical control of government) and business people where political authority is used to favor certain businesses over other. The macro-economic consequences of clientelistic policies have been widely observed in Turkey,[5] deteriorating competitiveness of the economy and constraining innovative activities as well (Atiyas 2013; Güran 2011). From an overall perspective Turkey is a good representative of serial defaulters and a richer laboratory for the literature on hidden debts, debt crises, clientelism and for the possible policy implications.

2 Data and Measurement Issues

2.1 Data

The public sector in Turkey comprises eight main entities, each of which has its own budget (see Appendix A.1). The external debt stock statistics are transparent,

[4] Other important countries are Argentina, Brazil, Mexico, Greece and Venezuela.

[5] In 2000, the number of projects failed is 5231.As a recent example, we can mention awful mine disaster on 13 May 2014 resulted with death of 301 miners. The explosion at the Soma mine caused Turkey's worst mining disaster. The mine, formerly a state-owned company (Turkish Coal Industries), had been privatized in 2005.

regularly registered and are publicly announced by the Treasury's and Central Bank's (CBRT) websites: On the other hand, there is no single place in which to find complete and comprehensive public finance data and domestic debt statistics (IMF 2002: 16).Thus we compiled the data published by various government bodies. The data on public sector borrowing requirement (PSBR) are supplied by the State Planning Organization (SPO). Total revenue and expenditure data are reported by the Ministry of Finance (MOF). The data on budgetary operations of the central government[6] (CG) are published by the Treasury. We use the market-based debt data reported by the Treasury. To construct changes in public debt series, we rely on comparable information obtained from the debt management reports by the Treasury, ex post revisions by Turkish Court of Accounts (TCA), reports by the IMF and WB. For other variables such as GDP, CPI and interest rates, see Appendix B for details.

2.2 Measurement Issues

The main drawbacks for the measurement of hidden debts can be listed as follows: first, so many governments and multilateral institutions exhibit lack of transparency in making time series on domestic debt (Reinhart and Rogoff 2011a: 20). Second, the basis of recording (Government finance statistics-GFS) conveys inconsistencies across countries and makes most cross-country analyses[7] concentrate only on direct liabilities (Jeanne and Guscina 2006).Third, an appropriate definition of public sector[8] is necessary, otherwise the traditional fiscal indicators offer starkly different picture of overall fiscal operaions. Finally, creative accountings and government incentives to hide deficits persist under fiscal rules.

Using the delimitation of general government sector defined by Eurostat (2010) is not appropriate for our analysis (see Appendix A.1). Among the public

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[6] The CG budget is referred to by "Consolidated budget" on the Treasury's balance sheets. Beginning from 2006 the data is released as "General Government budget".

[7] Mehl and Reynaud (2005) collected data on domestic debt structures in 33 countries for 1994–2005 and Jeanne and Guscina (2006) in 19 countries covering the years 1980–2005.

[8] The importance of an appropriate definition of public sector has been emphasized by, for example, Blejer and Cheasty (1991), see references therein.

entities other than central government (OG), there are state economic enterprises (SEE) which are composed of many bodies engaged in wide range of economical activites from market production (non-financial SEE) to financial operations (financial SEEs including state banks). In their legal framework non-financial SEEs are market producers, and according to ESA 95 they should be classified as "public corporation" (outside general government). Similarly, financial SEEs should be classified as "public quasi-corporation". In practice these entities are under complete control of CG and in order to realize government programs they act as if they were non-market producers, i.e. sell their output at prices that are not economically significant (see Appendix A.2). The fiscal performance of public sector encompasses a significant amount of government activities financed outside the budgetary system through the fiscal interventions of financial SEEs. These interventions are initially incurred under political pressures and are backed by legal basis with a significant time lag, i.e., transferred to future fiscal periods.

One of the most important emphases in the GFS framework is the basis of recording. Governments have kept their accounts on a cash basis, focusing on their liquidity constraints. The Turkish GFS and budget financing data are on a strict cash basis (IMF 2002: 49). The overall structure of national accounts follows the 1968 System of National Accounts (1968 SNA). The GFS are produced on an approximate GFSM 1986 basis, and the nonbudget sector data fall well short of GFSM 1986 requirements for classification detail (IMF 2002: 12). The Turkish GFS focused mainly on cash transactions and on selected stocks but did not integrate them. Different from the EMU case (Buti et al. 2006; von Hagen and Wolff 2006), the inconsistencies between change in debt and budget deficits arise neither from the difference between accrual – cash based recordings nor from the valuation effects.[9]

The route that we follow can be summarized as follows. Over a given period, change in debt stock can be expressed in terms of security types issued or can be defined by determining how the associated receipts (principals) are used in budget process and how the associated payments (principals) are financed. The second approach may shed light on out-of-budget process, its magnitude and the possible fiscal gimmickries as well. The second approach particularly focuses on the ability

[9] For the discussion on differences between two GFS frameworks, please refer to Bjorgvinsson (2004: 2–4) and to Irwin (2012: 5).

of a government to pay intra-governmental debts under the circumstances where primary balance is persistently negative (deficit) and where fiscal rules are imposed by an outside agent.

3 The Structure of Public Debt Stock and Information Partition of the IMF

3.1 Public Debt, Types of Contingent Liabilities and Lagging Juridical Basis Behind Them

The public debt is the aggregate of both domestic and external liabilities of eight public entities. External debt is completely market-based, whereas domestic debt consists of market-based debt and "non-marketable" debt, the latter signifying interest-bearing[10] contingent liabilities incurred among public entities but not registered in budget (see Appendix A.1–A.2). The domestic debt stock of public sector should be considered to be union (but not sum) of market-based domestic debt stock and non-marketable debt stock. In order to avoid confusion, we prefer the term "non-marketable" debt to cover overall stock of contingent liabilities, consisting of both "recognized" share (securitized by law) and "unrecognized" (politically backed, but not legitimate yet) share. The reason is that the Treasury authority prefers the term "cash stock" to signify market-based debt and the term "non-cash stock" to denote only recognized share of contingent liabilities, hiding the unrecognized share. Note also that country-specific technical definitions on GFS may cause misleading. The term "non-marketable debt"[11] is preferred by US authorities and by the IMF to refer to a type of market-based debt (IMF 2000a).

By definition market-based debt is securitized[12] and accumulates through the issuance of the Governmental bonds (G-bonds) and the Treasury bills (T-bills) to financial markets. The non-marketable debt consists of overall contingent

[10] Lower than market-based interest.

[11] OECD System of National Accounts (SNA 1993) and Maastricht (ESA 95)

[12] Marketable securities can only be issued by Treasury on behalf of CG, but not of OG. The G-bonds enjoy one year or more maturity, while that of T-bills is shorter than one year. See Public Borrowing Policy Commission Report (Dikec 2001); Treasury Operations Report 1998 and 1999, published by Turkish Court of Accounts.

liabilities in public sector, implying that a public entity may become borrower or creditor or both within public sector's dynamical fiscal interventions network. Polackova-Brixi and Mody define two type of contingent liabilities: "*Contingent explicit* liabilities are government legal obligations to make a payment only if a particular event occurs…Contingent *implicit* liabilities depend on the occurrence of a particular future event and on government willingness to act on them…" Polackova-Brixi and Mody (2002: 25).

What possibly misleads financial markets is that the Treasury has a legal ability to consolidate and convert contingent liabilities into direct liabilities by issuing special type of securities to creditor public entities (Dikec 2001; Evrensel 2004). In the Treasury's reports this conversion is referred to by "non-cash borrowing", and the special papers (securities) issued are registered as "non-cash G-bonds" and "non-cash T-bills". This new stock is entitled "non-cash stock". Since non-cash stock constitutes only a recognized share of overall stock of contingent liabilities, throughout the study it is referred to by "securitized non-marketable debt stock". Similarly, unrecognized share is referred to by "unsecuritized non-marketablde debt stock". The non-cash borrowing is performed under consiladation law, CBRT law and budget laws constituted in the beginning of each fiscal year.[13] The issuance of the special papers causes an increase in securitized non-marketable debt and hence in overall public debt stock. These securities also enjoy coupons. Note that according to the laws listed above, the coupons may not be paid by the Treasury. Instead the Treasury may issue further special type non-cash G-bonds and may convert interest payments into new principal payments. By implementing those laws, mainly 6 types of special non-cash G-bonds and T-bills are issued for different purposes. These are *Holding* G-Bonds, *Consiladation* G-Bonds, *Foreign currency (FX) differences* G-Bonds, *Short-term cash advances* (STA) G-Bonds, *Duty loses mechanism,* and finally the *Interest payments*[14] G-bonds which convert the matured interest payments into future principals, enjoying updated coupons.

Two questions arise here. How can the Treasury finance servicing the non-cash stock and how can it hide the unrecognized share of contingent liabilities? Section 4 deals with the Treasury's "creative accounting" practices.

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[13] Eight Five-year Development Plan, Public Borrowing Policy Commission Report (Dikec 2001:96).

[14] See "The Letter of Intent" (IMF 1999: Item 58).

3.2 The Information Set of the IMF

In order to examine to how extent the IMF has been informed about the public budget process, we rely on the IMF Staff country report (IMF 2000a) and on the IMF's Report on the observance of standards and codes (ROSC)[15] Turkey (IMF 2000b). Both first report and second report include the latest analyses and recommendations of the IMF on public sector fiscal structure just before the incidence of November 2000 liquidity crisis. These reports clearly show that the IMF has been able to observe two main data type. These are: (1) the budgetary transactions which constitute the budget cash balance of CG and budget cash balances of OG; (2) the stock of securitized non-marketable debt. Consequently, we understand that the Turkish authorities has not informed the IMF of the non-budgetary transactions generating contingent liabilities and hence of the unsecuritized non-marketable debt.

The IMF is informed of the fiscal operations listed below. Table 1 denotes the distinct outcomes of these fiscal operations in terms of security types.

1. All types of budgetary transfers from CG to OG (IMF 2000a: 8; IMF 2000b: Article #11)
2. Extrabudgetary activities by EBF's and Quasi-fiscal activities by financial SEEs (IMF 2000a: 12)
3. "Duty-losses mechanism" which has been arisen from Quasi-fiscal activities (QFA)
   3.1. Duty-losses of nonfinancial public sector (IMF 2000b: Article #3)
   3.2. QFAs and unpaid duty losses (see IMF 2000a: 9; IMF 2000b: Article #4)
4. Treasury guarantees (see IMF 2000a: 15)
5. Stock of securitized non-marketable debt (non-cash stock) (see IMF 2000a: 14)
6. Short-term cash advances from CBRT (see IMF 2000a: 25). These advances are referred to by"unsecurtized vis a vis CBRT" in IMF (2000b: Article #5)

[15] This report was prepared by the IMF Fiscal Affairs Department on the basis of the Turkish authorities' responses to the IMF fiscal transparency questionnaire.

Table 1: The Information Partition of the IMF on Public Debt Stock

I. Cash G-bond stock	**II**. Non-cash G-bond Stock	**III**. Non-cash T-bill stock	**IV**. Cash T-bill stock	**V**. FX-currency difference stock, which is securitized

The items shown in Table 1 are derived from the GFS data announced by the SPO, the MFO and the Treasury. We computed the item (V) "FX differences" by using the data on external debt stock. The STA from CBRT is included. According to GFS the stock is divided into the cash and non-cash stock items.

The amounts associated with above-mentioned six items become observable only if they are securitized by issuance of special securities. Note that there are also some other difficulties that the IMF staff faced. The Court of Accounts' reports[16] state that budgetary operations of public entities were illegally mis-registered. Similarly, the IMF states that the duty losses of the financial SEEs were not registered in budget accounts. The Turkish authorities declared that duty losses (IMF 2000a: 12) took the form of some state banks' providing subsidized credits to certain groups such as farmers and small businesses. However, the fact is much more crucial and the estimates of the duty losses in 1999 as percent of GDP vary from about 11 percent (Eichengreen 2001) to 15 percent (Ertugrul and Selçuk 2001).

We can summarize the initial findings of the study. The IMF has been informed of five components of the public sector's debt stock. We tabulate[17] them in Table 1. The aggregation of these items constitutes the securitized debt stock: the sum of market-based stock and non-cash stock.

It is evident that unsecuritized share of public debt, which is a significant part of net-increase in annual/quarterly public debt data is hidden from the IMF staff. Because the PSBR data do not show the "accurate" deficit, the IMF staff is not able to estimate the "accurate" debt stock of entire public sector. Since the special securities can be issued only on behalf of CG, the government is able to manipulate the non-cash stock data as if it were covering overall debt of public sector. The legal framework for indebtedness and the accounting system fall short to prevent such manipulations.

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[16] In 1998 Court of Accounts denied the accounts of the Treasury. These reports are published only in Turkish.

[17] To conserve space we do not depict the data on a figure. See the Treasury's debt statistics (please see www.treasury.gov.tr).

4 The "Accurate" Debt Stock of Public Sector and Accounting "Illusion"

In previous section, we have already determined that the "accurate" debt stock of public sector is composed of marketable public debt stock, securitized non-marketable public debt stock and unsecuritized non-marketable public debt stock. This section presents the invisible part of public sector's budget structure which produces the contingent liabilities. We revise the "conventional" budget identities to characterize the "accurate" budget structure of public sector.

Consider a fiscal period *t*. Let C_t stand for the stock of contingent liabilities (unsecuritized non-marketable debt stock) at period *t*, and H_t for the hidden non-budgetary transactions[18] taking place at period *t* (flow variable). The D_t denotes a share of non-marketable debt at period *t*, which had been securitized *k*-period before. Thus let D_{t-k} stand for the share of the contingent liabilities which was converted to direct liabilities (securitized) at period *t–k*. Let $\overline{B}_t$ show the total stock of non-marketable public debt, which is the sum of unsecuritized and securitized non-marketable debt stocks. In (3) let us suppose that D_{t-k} equals to λ percent of C_{t-k}, λC_{t-k}. Equation (4) shows one-period iterated (*t–k*+1) value of D_{t-k}, that is D_{t-k+1}. Based on (3), to obtain D_{t-k+1} we have to take into account; first, the interest r' bearing on the stock, second the principal repayments P_{t-k+1} that the Treasury pays to stock holder public entities, and third the new receipts R_{t-k+1} from financial public entities. The P_{t-k+1} and R_{t-k+1} are flow variables which are shown on data sheets of the Treasury (see the examples of the Treasury's balance sheets given in Section 4.2). In (4), $(1+r')$ stands for return on non-cash securities.[19] In (7) , r denotes the interest rate bearing on market-based securities.

$$C_t = C_{t-1} + H_t \tag{1}$$

$$\overline{B}_t = C_t + D_t \tag{2}$$

$$D_{t-k} = \lambda C_{t-k} \quad ; \text{ for k > 0 and } \lambda < 1 \tag{3}$$

[18] See Appendix A.1.

[19] The interest rate on non-cash stock is imposed by the Treasury under hierarchical pressure of central government.

$$D_{t-k+1} = (1+r')D_{t-k} - P_{t-k+1} + R_{t-k+1} \tag{4}$$

$$D_t = (1+r')^k D_{t-k} - \sum_{n=1}^{k-1}(1+r')^{k-n}(P_{t-k+n} - R_{t-k+n}) - P_t + R_t \tag{5}$$

Equation (5) gives the *k*-period ahead value of D_{t-k}, that is D_t. Equation (6) shows the "accurate" net-increase in securitized non-marketable debt at period *t*+1, ΔD_{t+1}. On the balance sheet of the Treasury, the value of ΔD_{t+1} is shown under the title "net-increase in non-cash stock". However, the Treasury depicts ΔD_{t+1} as if it were equal to $R_t - P_t$, and hides the interest bearing on the stock, $r'D_t$. Let B_t^c stand for the market-based public debt. The net-increase in market-based debt is the difference between market-based receipts $B_t^{(R)}$ and market-based payments $B_t^{(P)}$, which equals to the sum of interest payments bearing on the market-based stock $(r.B_t^{(c)})$ and primary balance $(G_t - T_t)$. Thus we have to revise this conventional budget financing identity by taking into account the "non-cash payments". Equation (7) revises the conventional identiy, and determines the "accurate" net-increase in market-based debt stock. The reason for this revision is straightforward: the Treasury should borrow an additional market-based receipt in order to repay the principals of securitized non-marketable debt stock to non-cash G-bond and non-cash T-bill holders. Thus P_t appears in RHS of (7). Together with the government spending G_t, the P_t deteriorates the primary balance, implying a positive stock-flow adjustment (SFA).[20] Finally, (8) defines the "accurate" magnitude of market-based debt.

$$\Delta D_{t+1} = r'D_t - P_{t+1} + R_{t+1} \tag{6}$$

$$\left[B_t^{(R)} - B_t^{(P)}\right] = (r)B_t^c + P_t + G_t - T_t \tag{7}$$

$$B_t^c = (1+r)B_{t-1}^c + P_t + G_t - T_t \tag{8}$$

Equations [1-8] enable us to determine the "accurate" magnitude of total debt stock of overall public sector, B_t^A. Equation (9) defines the "accurate" debt as sum of "accurate" market-based debt stock and the stock of non-marketable public debt. The latter is already defined in (2).

[20] The intra-governmental debt payment is a component of stock-flow adjustments (SFA).

$$B_t^A = B_t^c + \overline{B}_t \tag{9}$$

Using (8) we rearrange (9) and obtain (10).

$$B_t^A = (1+r)B_{t-1}^c + \overline{B}_t + P_t + G_t - T_t \tag{10}$$

And (2) into (10) yields (11).

$$B_t^A = (1+r)B_{t-1}^c + C_t + D_t + P_t + G_t - T_t \tag{11}$$

In (12) we obtain net-change in "accurate" value of total debt stock at period t+1, ΔB_{t+1}^A.

$\Delta B_{t+1}^A = B_{t+1}^A - B_t^A$, is equal to

$$\Delta B_{t+1}^A = rB_t^c + H_{t+1} + \Delta D_{t+1} + P_{t+1} + G_{t+1} - T_{t+1} \tag{12}$$

Replacing (6) into (12) yields (13). Note that P_t given in [1-12] has twofold implications: In (6) it reduces the securitized non-marketable debt, while in (8) it increases the market-based debt. Even though the magnitudes of two-type P_t are identical, they act in opposite "direction". When we compute the "accurate" increase in debt stock, we have to take into account one type P_t which arises from market-based borrowing.

$$\Delta B_{t+1}^A = rB_t^c + H_{t+1} + r'D_t + P_{t+1} + R_{t+1} + G_{t+1} - T_{t+1} \tag{13}$$

Equation (13) shows that at period t+1, net-increase in "accurate" debt stock depends positively on following flow variables. These are,

1) sum of interests bearing on market-based debt stock and on securitized non-marketable debt, $rB_t^c + r'D_t$
2) non-budgetary transactions (flow of contingent liabilities), H_{t+1}
3) sum of non-cash payments and non-cash receipts, $P_{t+1} + R_{t+1}$
4) primary balance, $G_{t+1} - T_{t+1}$

Above arguments and (13) show that government can manipulate public debt statistics by subtracting non-cash payments from non-cash receipts $(R_{t+1} - P_{t+1})$ and announcing the result as if it were equal to net-increase in non-cash debt stock. The contribution of the hidden liabilities in (13) includes not only legitimate

(political in past) factors $r'D_t + R_{t+1}$ but also political ones $H_{t+1} + P_{t+1}$, a fact already emphasized by Alt et al. (2012: 14).

4.1 What Is Kept Hidden and What Is "Illusion"?

The Treasury never announces B_t^A given in (11), since it never announces C_t given in (1). Thus we cannot determine the exact magnitude of $\overline{B}_t$ given in (2). What is hidden by the Treasury is H_{t+1}. Since the exact value of contingent liabilities at any period cannot be observed, we cannot compute (13), ΔB_{t+1}^A.

The accounting "illusion" that the Treasury applies can be easily seen on its balance sheets (see Section 4.2). In order to obtain net-increase in total public debt if one simply adds net-increase in market-based debt stock to net-increase in non-cash debt stock (the seventh column of the tables), then the non-cash payments (P_t) eliminate each other. That is, if (5) is replaced into (11), then the P_t values eliminate each other. Equation (13) defines the "accurate" borrowing requirement of public sector. However, PSBR data announced by the Treasury and by the SPO constitute only a share of its exact magnitude. Equation (14) clarifies this issue.

$$[PSBR]_{t+1} = (r)B_t^c + G_{t+1} - T_{t+1} \tag{14}$$

Equation (14) is known as the conventional budget identity in the literature and it shows that the borrowing requirement of public sector is equal to its budget balance (deficit).

The difference between (13) and (14) gives us the contingent liabilities (flow) of overall public sector at a given period t+1. Equation (15) deals with this issue.

$$\Delta B_{t+1}^A - [PSBR]_{t+1} = H_{t+1} + r'D_t + P_{t+1} + R_{t+1} \tag{15}$$

Equation (15) shows the balance of operations taking place outside the budgetary system. This value constitutes the deficit of "invisible budget". To compute "accurate" debt stock of overall public sector, we have to rely on (11). Even though we cannot observe the exact stock of contingent liabilities (C_t), (11) enables us to obtain "a least" value for it.

4.2 Analysis of the Announced Balance Sheets

To illustrate our methodology, we present below the announced data on public budget process. In Appendix C, we exemplify our findings for three fiscal periods: 1995, 1997 and 2009. We consider that the analysis of the fiscal year 2009 is crucial, since the off-budget structure of public sector is still conserved. The main idea is to compare the total receipts (payments) to the total non-cash receipts (payments). This comparison enables us to distinguish between securitized and unsecuritized partitions of contingent liabilities.

Let us introduce the data sheet shown below. The original view of domestic debt data statistics over any period-T is shown by first seven columns and four rows. The eighth and ninth columns are imported by us from the "consolidated budget financing" (CG budget financing) balance sheet, because single data source is not available. From the data sheet given below, we observe the cash amount borrowed from market (Receipts market-cash), cash repaid to market (Payments market-cash), and the market-based borrowing used to finance budget balance (Rec.cash for budget – Pay. Cash for budget). On the data sheets, the variables P_t and R_t find themselves under the items "non-cash payment" (B1+B2) and "non-cash receipt" (A1+A2), respectively. Even though the components of the net-increase in non-cash stock (A1,A2,B1,B2) are hidden, we are able to observe (A1+A2–B1–B2)=DNC, "net-increase in non-cash stock" announced by the Treasury. From below-shown data sheet, we can extract the fifth and sixth rows. The amounts depicted are given in terms of 1000 YTL (new Turkish Lira).

Side by side comparison between receipts and payments allows us to obtain the amount of securities used for financing the non-budgetary tasks. The use of market-based cash receipts (XRG, XRT) in non-budgetary tasks is obtained respectively by (GCRB) – (GCRM) = XRG and (TCRB) – (TCRM) = XRT. The payments (XPG, XPT) for previous receipts (XRG, XRT) are obtained

Data Sheet 1: Compilation of Domestic Debt Statistics and Budget Financing Data

PERIOD T	*Type of security*	*Receipts market - cash*	*Payments market-cash*	*Receipts non-cash*	*Payment non-cash*	*Net-inc in non-cash stock*	*Rec. cash for budget*	*Pay. Cash for budget*
	G-Bond	GCRM	GCPM	A1	B1	DNC	*GCRB*	*GCPB*
	T-Bill	TCRM	TCPM	A2	B2		*TCRB*	*TCPB*
				XRG	**XPG**			
				XRT	**XPT**			

respectively by (GCPB) – (GCPM) = XPG and (TCPB) – (TCPM) = XPT. We can deduce that if there were no accumulation of non-budgetary transactions, then we can define an "identity for securitization". The three steps shown below clarify this issue.

a) The absolute value $|XRG + XRT|$ shows the amount of total market-based borrowing which is not used for budget financing of CG (or vice versa according to the sign).
b) The absolute value $|XPG + XPT|$ has been paid from budget but did not address the market. Instead it was allocated for non-budgetary operations (or vice versa according to the sign).
c) Given a) and b), in case of no accumulation of non-budgetary operations

   $|(XRG + XRT) - (A1 + A2)| = 0$ and $|(XPG + XPT) - (B1 + B2)| = 0$ should hold together. Their unification implies that $|(XRG + XRT) - (A1 + A2)| - |(XPG + XPT) - (B1 + B2)| = 0$ should hold. Otherwise, it reveals the deficit generated by non-budgetary transactions and its sign "–" shows that this amount is securitized, or "+" shows that this amount rests unsecuritized.

This simple methodology enables us to identify the net-increase in "accurate" debt stock in terms of securitized and unsecuritized components, showing whether the net-increase in domestic debt borrowing instruments is carried out for budgetary or non-budgetary tasks. Table 2 summarizes these results.

Let us present our findings. By using the methodology introduced in Section 4.1 and exemplified in 4.2, we identify the non-budgetary transactions which compose the net-increase in unsecuritized domestic debt stock. Different from Table 1, Table 2 shows the distinct components (flows) of both securitized and unsecuritized contingent liabilities. In Table 2 the items (III), (IV) and (V) (excluding securitized FX alterations) constitute the share of unsecuritized contingent liabilities in net-increase in "accurate" domestic debt stock.

The hidden liabilities given in Table 2 affect the IMF stabilization program initiated in 1999 through its first and third pillars, addressing optimal primary deficit and stabilized public debt level, respectively (IMF 2000c: 47). Based on the data supplied by the Turkish authorities, the IMF identifies in nominal terms first, the true functional relationship (base setup) between optimal primary deficit and inflation rate together with the stabilized public debt level at the end of 1999 (see

IMF 2000a: 22, items 31–33). Thus conditional on actual (nominal) levels of primary deficit and public debt, the base setup seeks a simultaneous solution for optimal primary deficit, inflation rate and stabilized public debt level. Given the outcome of the base setup, the IMF staff introduces the sensitivity analysis and determines a "central scenario" for the period 2000–2001. According to the IMF's central scenario an additional 0.2 % GNP primary surplus would be needed for each 2 % points of lower inflation. A 0.5 % lower primary surplus would be required for a stock of debt 10% points lower (see IMF 2000a: 22).

Focusing on actual levels, we find out: First, from (13) and (14) the annual "accurate" primary deficit in real terms over real annual GDP is "at least" 7% greater than the IMF knows.[21] This value certainly changes the base setup which determines the optimal primary surplus to stabilize the known public debt for the period 2000–2001. Second, given that at year 2000 the public debt stock known to the IMF is also 17% smaller than it actually is (see Figure 1),[22] the base setup should be revised again. Thus the knowledge of the accurate values of both primary deficit and debt stock of public sector would require revising the functional relationship and hence the central scenario. The IMF data and the Treasury's announcements are approximately identical (see Table 5 and Table 6, IMF 2000a: 24–25). An important feature of the series shown on Figure 1 is that from perspective of stationarity the "announced" public debt over GDP series in

Table 2: The Distinct Components of the Net-Increase in "Accurate" Public Debt Stock

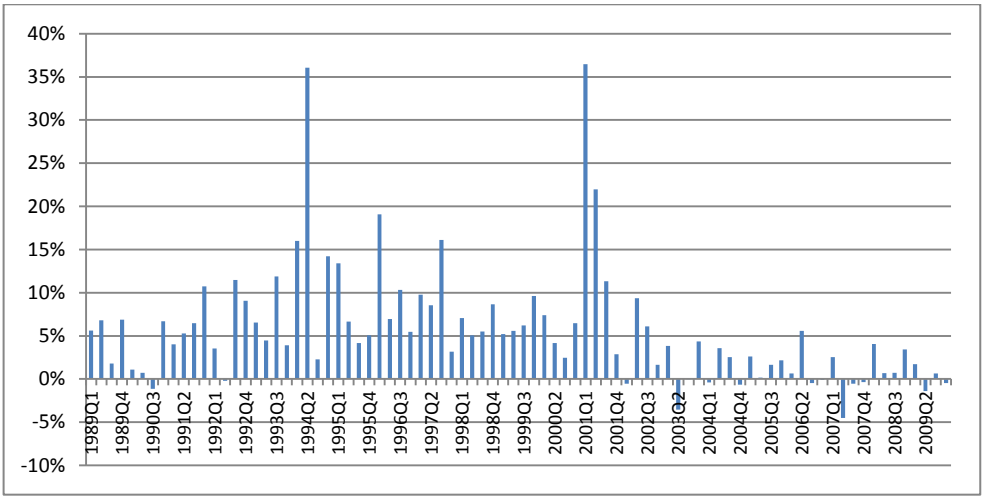
I. Market-based borrowing used to finance CG budget	**II**. STA from CBRT used to finance CG budget	**III**. Market-based borrowing which is not used to finance CG budget, but used in non-budgetary transactions	**IV.** Non-cash borrowing used in non-budgetary transactions, including FX alterations on external debt stock, which are securitized	**V**. FX-alterations on external debt stock, which are unsecuritized

[21] The primary deficit is a flow variable and the IMF knows only the amount of cash budgetary transactions.

[22] In our computation 1987=100 prices (CPI) are taken into account. The Treasury's stock data can be found in Debt Statistics released on www.treasury.gov.tr and also in Annual Debt Management Reports released by the Treasury from 1999 to 2010. The data can be supplied upon to request. Please note that for comparisons one has to take care of both the deflating methodology (base prices, CPI) and the computation method for the real annual GDP (see Appendix B for our method).

real terms exhibits sustainable character, whereas "accurate" public debt (including hidden debts) over GDP series in real terms does not.[23] Note that our estimation is not an exhaustive measure but give "a least" value for hidden debts.[24] An overvaluation of the Turkish Lira because of a higher inflation than forecasted[25] within the framework of quasi-fixed exchange rate regime and the refusal of some ministers to privatize the SEEs which were constituting an important source of income for the budget balance played also important roles in this failure.

Figure 1: The Hidden Debts in Real Terms over "Accurate" Gross Debt Stock of Public Sector in Real Terms (percentage)



[23] For the details on sustainability analysis of public debt stock based on stochastic methodology, please refer to Ozkaya (2013: 38).

[24] This minimum value is the output of (9), the drawbacks find themselves in the second term at the RHS of the (9). We could compute only a share of this second term.

[25] The IMF staff concludes that a primary deficit of 2.7 % of GNP would require an inflation of 125% to stabilize the debt to GNP ratio. To achieve zero inflation a primary surplus of 2.5 % of GNP is needed. This functional relationship is the base for the central scenario of the IMF staff for the estimations of the year 2000 (see IMF 2000a: Item 31).

It is worthwhile to note that following the crisis 2001, the Turkish public finance authority started to implement GFSM 2001 and revised the public sector structure and classifications according to ESA 95 (see items 11–12, Turkish National Program 2003).[26] These innovations improved training and skills of the Turkish officials. Such technical developments have important effects on increasing fiscal transparency, control and efficiency on budget process of public sector, followed by successful stabilization of the public debt stock.[27] However, clientelistic policies persist and the establishment of independent regulatory agencies outside the traditional bureaucracy is still lagging. Unfortunately, because of increasing political pressure the public surveillance on TCA's annual reports is banned in 2013, which will certainly deteriorate the achieved fiscal transparency (Soyaltın 2013).

5 Conclusion

The persistent hidden liabilities may create structural effects on emerging markets with open capital accounts where financial markets, interest rates and exchange rates go through fluctuations, associated with boom-bust cycles in international capital flows (Jaeger and Schuknecht 2007). Because the persistency of hidden debts are closely related to the lack of transparency on public budget systems (Alt et al. 2012: 19), complex interactions of public financial institutions and weaknesses in the regulatory framework may aggregate the fragility of banking sector and hence of financial sector. In this study we identified that public sector not only enjoys various political instruments to generate contingent liabilities but also creates special budgetary laws to convert stock of contingent liabilities to direct liabilities, hiding the deficits generating the converted liabilities. In contrast to the wide belief, we show that the authorities may have misled the IMF staff regarding the hidden public debt and invisible budget process. Secondly, we

[26] The Ministry of Finance is responsible for the harmonization of GFS with the requirements of the ESA 95. http://www.abgs.gov.tr/index.php?p=196&l=2.

[27] A recent study, Ozkaya (2013) examines the stabilization of the Turkish and EU countries' public debt stock over GDP data from 2002Q1 to 2013Q1 by focusing on both stochastic approach and non-linear dynamical analysis. Different from most EU countries, the Turkish public debt stock is determined to exhibit sustainable path from the perspective of both approaches.

introduced the non-budgetary transactions, which will strengthen the efforts of academic research on fiscal transparency. Our findings on "creative accounting" practices contribute to the literature on "hidden deficit" which is defined by cash expenditures shifted off the budget for hiding subsidization (Polackova-Brixi et al. 1999; Easterly 1999), accumulation of low-quality assets (Buti et al. 2007) and capital injections (von Hagen and Wolff 2006; Alt et al. 2012). Finally, we showed that the magnitude of hidden liabilities was strong enough to affect the IMF stabilization programme 1999 through its first and third pillars.

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Appendix A

A.1 Contingent Liabilities and Components of Securitized Non-Marketable Debt (Non-Cash sSock)

The public sector in Turkey comprises eight main public entities, each of which has its own budget according to budget appropriation laws (see IMF 2000a). These are Central Government (CG) and other governmental entities (OG). The OG are Local Authorities (LA), State-Owned Entreprises (or State Economic Enterprises SEE), Social Security Institutions (SSI), Extra Budgetary Funds (EBF), Unemployement Insurance Fund (UF or UI), the SEEs under privatization, and the Central Bank (CBRT). The SEE comprises financial SEEs (state-owned banks) and non-financial SEEs.

The lending/borrowing relationships constituting contingent liabilities are not initially legal, but are politically established under hierarchical control of CG. With a significant time lag, the Treasury consolidates and recognizes these liabilities by law, and issues special type of non-tradeable securities to the lenders. The amount of transactions are recorded neither to lender's budget nor to borrower's, and is hidden from public view. These non-budgetary (off-budget) transactions occur in the form of cash and/or in form of transactions of goods and/or services both commercial and noncommercial.

The share of the non-marketable debt which is recognized (securitized) by the Treasury consists of following components: accumulated net losses of non-financial SEEs; repetitive operational losses of financial SEEs; frequent assumption of public entities' debts; guarantees on private sector partnerships for public policies where sufficient return is unlikely[28] because of clientelistic policies; increase in foreign debt in local currency; interest bearing on these debts. Because these six items become observable only when they are securitized by law (see Section 3.1), we refer to "hidden debts" as debt-creating fiscal interventions. These interventions have a direct impact on the relevant entity's net borrowing/net lending (increasing the deficit or reducing the surplus). According to the classification proposed by Polackova-Brixi and Mody (2002: 24–25) first three

[28] The average duration of an infrastructure project reached 15 years. In 2000, the number of projects failed is 5231.

items and sixth one consist of contingent implicit, the fourth and fifth items consist of contingent explicit liabilities.

A.2 Public Corporations (Non-Financial SEEs) and Public Quasi-Corporations (Financial SEEs)

The main factors affecting SEE profitability, and thus budgetary transfers and the need for debt assumption by the central government are public sector price adjustments and wages. For many goods, public price adjustments are made periodically, generally with several years lag, rather than being automatically linked to production costs[29] (IMF 2000a). In addition to this some of contingent implicit liabilities arises from BOT (Build-operate-transfer) contracts in the energy and water sector. Some 18 BOTs are currently in operation, mainly in the energy sector.[30]

Financial SEEs and duty losses

Beginning in 1993, state banks started accruing duty losses, on account of credit subsidies to the agricultural sector, which were not appropriated in the budget and the bulk of which were not securitized until the fiscal year 2006. Duty losses can conceptually be broken down into three components: the credit subsidy component; interest on the unsecuritized stock of duty losses outstanding, financed by state bank borrowing; a residual, which reflects operational losses and activities mandated by the government.

Appendix B

Depending upon the inflation level, we may propose two methods in order to calculate annual real GDP.

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[29] Between 1994 and 1999 losses (duty losses plus equity injections) for the main agricultural SEE amounted to $6.2bn. The Treasury assumed $2.4bn in SEE debt during 1992–2002, including for the national airline and energy enterprises.

[30] In the BOT model, a private company builds and operates a plant and transfers ownership to the state after a pre-specified amount of time.

I. Let $(GDPA)_T$ denote the current annual GDP at period *T* and that $(GDP)_T$ denote current GDP occurred within period *T*.

1. $(GDPA)_T = (GDP)_T + (GDP)_{T-1} + (GDP)_{T-2} + (GDP)_{T-3}$, and equivalently

$(GDPA)_T = (GDPA)_{T-1} + [(GDP)_T - (GDP)_{T-4}]$ denotes the Annual GDP at *T*.

II. Let $(GDPAr)_T$ denote the real annual GDP at period *T* based on constant prices of some fixed period *t*, P_T^t. We obtain two methods of calculations:

1. $(GDPAr)_T = \dfrac{(GDPA)_T}{(P)_T^t}$ and

2. $(GDPAr)_T = (GDPAr)_{T-1} + \left[\dfrac{(GDP)_T}{(P)_T^t} - \dfrac{(GDP)_{T-4}}{(P)_{T-4}^t}\right]$

where the convergence $(P)_T^t - (P)_{T-n}^t \to \varepsilon$ yields the equality of two methods. In other words if the inflation is too small, then two methods yield nearly same results. Given high inflation in the Turkish economy through the most of the period, we propose to use method II.

Appendix C

Let us introduce the first case: the fiscal year 1995.

Data Sheet A1: Compilation of the Domestic Debt Statistics and Budget Financing Data for the Fiscal Period 1995

Year	*security*	**market**	**market**	**non-cash**	**non-cash**	**non-cash stock**	**for budget**	**for budget**
1995	**G-Bond**	366873	94489	A1	B1	85465.7	*222453*	*136796*
	T-Bill	1298630.2	971561.6	A2	B2		*1147241*	*950023*
				-144420	**42307**			
				-151389.2	**-21538.6**			

The data sheet shows the net-increase in non-cash debt stock as (A1+A2)–(B1+B2)=85465.7. Since the total non-budgetary receipt equals to absolute sum

(144420+151389.2)=295809.20 and that the total non-budgetary payment is given by absolute sum (–42307+21538.6)=20768.4, the non-budgetary transactions should be determined as (295809.20+20768.4)=316577.6.

The non-budgetary transactions are said to be securitized if (295809.20–(A1+A2))=0 and (–20768,4+(B1+B2))=0 hold together. This implies that (295809.20–(A1+A2))–(–20768.4–(B1+B2))=0 holds. Thus the amount (316577.6 –85465.7)=231111.9 rests unsecuritized, which shows the deficit generated outside the budgetary system. This amount causes a net-increase in stock of contingent liabilities at fiscal year 1995.

Let us introduce the second case: the fiscal year 1997.

If the data sheet is compiled, then we see that the net-increase in non-cash debt stock is (A1+A2)–(B1+B2)=656249.4. Since the total non-budgetary receipt equals to the absolute sum (1117038.3+92756.1)=1209794.40 and that the total non-budgetary payment is absolute sum (333947.1+265415.9)=599363, the net non-budgetary transactions should be equal to (1209794.4–599363)=610431.4. In order to securitize the non-budgetary transactions, (1209794.40–(A1+A2))=0 and (599363–(B1+B2))=0 should hold, implying that (1209794.40–(A1+A2))–(599363–(B1+B2))=0 holds. Thus the amount (610431.4–656249.4)=–45818 shows the securitized share of previously accumulated contingent liabilities. This amount shows the share of (previous) contingent liabilities which are consolidated and are converted to the direct liabilities at 1997. The sign "–" depicts that it is a net-decrease in stock of contingent liabilities (unsecuritized non-marketable debt stock) but net-increase in stock of direct liabilities. Thus the net indebtedness of public sector remains unchanged.

Different from the fiscal years 1995 and 1997, on balance sheets of 2009 the details of the net-increase in non-cash debt stock are announced by the Treasury.

We extract following information about the operations taking place outside the budgetary system.

The non-marketable G-bond and T-bill securities used for budget financing amount to 3509315.53 and 0.96136, respectively. If the method is applied, then we obtain the difference 9375512.58–(9375512)=0.58, which shows the unsecuritized non-budgetary transactions at period 2009. It constitutes a net-increase in un-securitized non-marketable debt stock.

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The Editor

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