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Testing Minsky's Financial Fragility Hypothesis for Turkey's Public Finances

SUMMARY: This paper gauges the degree of fiscal vulnerability in Turkey from a Minskian perspective. Succinctly speaking, Minsky's financial stability hypothesis states that the government should apply hedge financing at least sporadically and pursue countercyclical fiscal policies to restore stability. We calculated two fiscal fragility indices based on Minsky's hypothesis to examine the recent trends in Turkish public finances. According to our findings, Turkish fiscal balances are in a deteriorating trend and heading towards (ultra)Ponzi financing which is evidenced by the plummeting values of the fiscal fragility index. The results are suggestive that currently the fiscal performance in Turkey is waning gradually and current fiscal posture is not on a par with past years. Worsening fiscal balances emit a signal for a looming fiscal crisis and it is evident that this trend should promptly be reversed by the aid of appropriate expedients. Quitting the use of procyclical fiscal policies, building up public confidence by primary balance generation, implementing full-fledged tax reform, restructuring contingent liabilities, proper scrutiny of expenditures, reducing profligacy are among the policy options available for the government. Notwithstanding the abundance of alternative fiscal policies, the current Covid-19 pandemic is quite a hindrance to attaining intended outcomes regarding fiscal stability.

*T*he dynamics of modern capitalism rely chiefly on the mechanisms of the financial system, therefore, any adversity in this field creates a vulnerability that permeates all sectors of the economy swiftly. Financing effectuates investments but at the same time might generate a debt vortex through the credit channel. However, it is almost inevitable for all economic units, such as firms and government, to borrow in the financial market to overcome existing economic bottlenecks or to pursue new investments. According to *Minsky's* taxonomy, the economic fluctuations occur as an outcome of the intertwinement between financial markets and the economic activities of units. The availability of financial resources is affected by the cycles of the

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overall economy but at the same, the amount of available financing is determined by the expansions or recession in the economy. Hence, a malfunctioning financial mechanism brings about the vulnerability of each agent in the economy.

Although Minsky outlined this framework to describe the financial instability for all economic units in general, it was later expanded to government level to contemplate the fiscal vulnerability of public finances. Nevertheless, Minsky himself states that the fiscal policies of the government need to be countercyclical to reduce vulnerability by putting aside part of the existing financing for avoiding future challenges. However, financing a countercyclical fiscal policy oftentimes entails the use of a significant amount of financial resources which is generally challenging for developing countries. During exceptional periods like the Covid-19 pandemic, it is also difficult even for developed economies to finance the economy in a countercyclical manner. Printing money and enlarging the monetary base is an option available for countries but the governments should apply this policy intermittently since it has serious side effects as well. Developed economies whose currency represents a store of wealth in the international circulation have a comparative advantage regarding this policy since their currencies have international liquidity. Hence, they can utilize this advantage and increase the volume of emission without suffering from serious side effects such as inflation.

According to Minsky, the government's fiscal balance should be in the surplus from time to time and long and consecutive periods of speculative financing culminates in a confidence loss against the government in the economy which is crucial for developing economies. If the economic agents' confidences

regarding future path of fiscal balances and governments' ability to swing between the hedge and speculative posture shrinks, the demand for government bonds falls and thereby interest rates rise which results in a fiscal fragility and reduced credibility.

In the recent years, the fiscal posture in Turkey suffers from these adverse conditions and deteriorates gradually in a spiral of diminishing confidence, increasing borrowing needs, rising interest rates and intensifying fiscal vulnerability. Thus, it is the very purpose of this study to investigate the degree of fiscal vulnerability in Turkey by testing the Minsky's financial instability hypothesis using Turkish data. According to our findings, Turkish government finance is currently Ponzi and heading towards an ultra-Ponzi scheme which translates into extreme financial vulnerability and a signal for a looming default. Besides, Turkey has been classified in 'The Fragile Five Economies' category by S&P. Hence, the current unpleasant conditions in Turkish public finances and inherent structural fiscal issues render the country a remarkable case to investigate. This study contributes to the literature by appraising the fiscal vulnerability in Turkey for the first time by using Minsky's financial instability hypothesis.

To accomplish this objective the study is developed in four sections following this introduction:

The first section discusses the theoretical issues related to Minsky's hypothesis and its adaptation to public finance. The second section is devoted to a comprehensive review of the literature on fiscal vulnerability. The third section deals with the empirical issues and introduces the methodology and findings obtained by constructing the public financial fragility index. The final section concludes and provides some words of caveat related to the risks associated with fiscal fragility in Turkey.

BACKGROUND

Theoretical Background

Classical economics assumes that the economy is a sustainable system that constantly seeks equilibrium. However, some historical events have proven that the classic principles of *Adam Smith* and *Léon Walras* are not always valid. Anomalies such as financial crises and severe fluctuations in production and employment are phenomena that cannot be explained by Classical theory properly (Minsky, 1977: 21). From this point of view, Minsky's financial instability hypothesis is an interpretation of the essence of *Keynes'* The General Theory of Employment, Interest, and Money which incorporates disequilibrium into the analysis, unlike Classics. Another origin of the Minskian hypothesis is *Joseph Schumpeter Key's* credit view of money and finance. The main theoretical argument of this hypothesis is the characterization of the economy as a capitalist economy consisting of expensive capital assets and a complex financial system (Minsky, 1992: 1-2). According to Minsky, processes creating financial fragility are natural or endogenous to the economic system described in Schumpeter's tradition.

To put it simply, Minsky's theory is based on the financing dynamics of the investment. Investments can only expand if the demand price exceeds the supply price of capital assets. In that case, investment decisions are made according to the composition of the capital and financial asset portfolios. When an economic unit creates a financial asset portfolio, it also creates a debt structure. Hence, an economic unit expects monetary profit from the composition of its asset portfolio as soon as its investment is financed. In other words, the income expected from the investment must counterpoise the current expenses of the organization as well as interest and depreciation expenses thereof. Stabilitywise, extending this argument to the entire financial system, we can infer that the extent to which the expectations of investors and creditors match determines the degree of financial fragility in the financial system. The difference between the expected revenues of economic units and their financial payments is expressed as a safety margin and the economic position of the relevant unit will be different depending on its value (Ferrari-Filho et al., 2010: 152-153). Hence, financing creates a bond between expected revenue and obligatory debt reimbursements. For the economic unit to be solvent and financially safe, the former needs to be higher than the latter. Thus, any institutional or cyclical factor hindering the manifestation of the expectations regarding the revenues creates a source for financial vulnerability. The size of the safety margin defined above determines the types of a financial posture of the economic agent. There are three postures in Minsky's taxonomy regarding fiscal fragility; Hedge, Speculative and Ponzi which will be discussed in the next section.

Conceptual Background

The word 'fragility' is mostly used to describe financial markets in the economic literature. This concept is linked to the soundness of the economy in the face of economic uncertainties arising from cyclical fluctuations, extraordinary events, and shocks. In the literature, there are other terminologies to describe the same or similar negative economic situations and none of them have been universally accepted by academics. For instance, in the public finance literature, 'fiscal fragility', 'fiscal vulnerability', 'fiscal stress', or 'public sector financial fragility' are commonly used terms to describe the same concept interchangeably.

One of the early definitions of fiscal fragility proposed by *Hemming and Petrie* (2000: 159) identifies the concept as a situation in which a government already maintains inappropriate fiscal policies, or it cannot improve the quality of policies immediately. *Brixi et al.* (2000: 8) expresses the fiscal vulnerability as the capacity of a government to resist the realization of future fiscal risks. They also underline that any government expenditures, which brings about a rise in its payment obligations, could lead to excessive budget deficits and public debt stock in the long term.

Even though Minsky preferred the term 'financial instability' instead of 'financial fragility' in the original version of the hypothesis (Minsky, 1982), *Ferrari-Filho et al.* (2010), one of our reference articles, used the word 'fragility' when adapting this hypothesis to public finance, therefore, we follow their tradition as well.

Before starting the technical and theoretical discussion of this hypothesis it is worthwhile to describe the three financial postures of economic units from financial stability perspective which were also included in the original version of the hypothesis. Namely, these three concepts are: (1) Hedge, (2) Speculative, and (3) Ponzi.

Firstly, an economic unit which is expecting its cash inflows to exceed its cash payments makes a 'hedge finance'. Economic units in the hedging position can easily counterbalance the interest payments, debt amortizations and current expenses. Therefore, these units have a good safety margin. The amount of debt decreases gradually and they are guarded against fluctuations in their liquidity flows. Hence, they can fulfil their above-mentioned obligatory expenses without suffering from borrowing needs. Secondly, in a speculative position, the cash inflows of an economic unit are less than its liabilities due in some occasional periods. Their revenues are only

sufficient to cover interest payments on their debts. However, they are incapable of paying off debt principals. Hence, speculative units are those with a minor safety margin. The economic units are meant to stay in this posture for short periods for implementing new investment plans. Therefore, the debt level might increase in the short run but they expect stability in the long run. However, unlike hedge posture, the recovery is contingent on economic conditions. Thirdly, economic units in the Ponzi position are extremely speculative. These economic units cannot cover the principal payments, interest payments and current expenses therefore need to borrow on a continuous basis (Minsky, 1986: 79; Ferrari-Filho et al., 2010: 153-154). Also, they cannot generate a safety margin using their revenues. For them to generate a safety margin, the only way is to trade their existing assets. Usually their debt snowballs due to the incessantly rising interest payments which aggravates their already vulnerable situation.

According to Minsky, movement between these postures occurs as a result of cyclical fluctuations in the economy. If there is a boom in the economy, with the expectation of more gains, entrepreneurs are encouraged to make new investments assuming that the good atmosphere will persist in the economy. Since banks have the same intention of raising their revenue, they finance the new investments extensively which moves the economy from hedge to speculative posture. Nevertheless, when the existing resources are depleted, financing costs get higher and credit becomes scarce. Investments and revenues fall and eventually, the economy moves from speculative posture to Ponzi financing. However, according to Minsky, this transition between fiscal postures can be reversed through countercyclical fiscal policies.

From a public financial perspective, Minsky's theory is based on the Keynesian paradigm. According to that, it should reciprocate to the fluctuations in the economy by means of countercyclical policies. Minsky states that refraining from employing countercyclical policies might result in heightened financial vulnerability and might consequently lead to an economic downturn. According to him, the economy must be in a Hedge position when investors ignite the economy and create an expansion, and conversely when the potential risks surge in the economy, the economy heads toward speculative postures. The government can accumulate reserve resources to avoid future financial scarcities when there is a boom so as to enlarge it is the safety margin. Hedge financing escalates confidence in the fiscal posture of the government which is crucial for the credibility of the government. Higher credibility implies facilitated borrowing should the government need financing. In addition, unlike speculative and Ponzi financing, Hedge posture avoids excessive borrowing which reduces the pressure on inflation and interest rates and thereby decreases the likelihood of a surge in financial vulnerability.

Besides these three concepts, it is worthy to mention some relevant concepts such as 'ultra-Ponzi' and 'Minsky moment'. The term of ultra-Ponzi was initially used in *Argitis & Nikolaidi* (2014: 276). It can be defined as the inability to cover the government's primary expenditures without new borrowing let al.one the existing debt and interest compounding thereon. The safety margin of an economic unit with an ultra-Ponzi posture is at the lowest level.

The concept of Minsky moment came about with the 2008 global crisis. This concept refers to the transition from the speculative position to the Ponzi position. It can also be defined as the razor's edge situation between fragility and stability.

LITERATURE REVIEW

Based on the signal approach, *Baldacci et al.* (2011A) generate a fiscal stress index to assess fiscal sustainability in developed and developing economies covering the period starting with the mid-1990s. They note that the periods of fiscal stress occur when the public debt is unpaid or when the country is prone to default. According to their findings, after the global crisis, the financial stress in developed countries increased to unprecedented levels due to their solvency and financing needs, whereas the financial stresses of developing countries are lower compared to developed countries. However the level is still higher than before the crisis for all countries. Referring to the signal approach of Baldacci et al. (2011A), *Berti et al.* (2012) argue that the variables of financial competition perform better in timely detection of fiscal stress. Accordingly, they put forward a composite indicator including both fiscal and financial competition variables. Đurović-Todorović *et al.* (2017) discuss Serbia's fiscal stress for the period from 2007 to 2014 with a signal approach. The results indicate that public debt is excessively higher than the threshold level which indicates a sign of a financial crisis for the Serbian public sector.

Baldacci et al. (2011B) designed two indices to examine the fiscal fragility. The first one is the fiscal vulnerability index based on the signal approach and the second one is the fiscal stress index based on standardization. The results demonstrate that both indices rose for developed economies, and the fiscal situation for emerging economies weakened after the crisis. In a study conducted for Turkey for the period from 1989 to 2017, *Canoz & Marufoglu* (2018) submit a fiscal fragility index by referring to the standardization method of Baldacci et al. (2011B). The findings indicate that the index correctly predicted past crises

and warningly moved towards the crisis threshold between 2015 and 2017.

Stoian (2011) reports the vulnerable periods of fiscal policy for the 27 EU member states from 1970 to 2012. For this purpose, the author presents a new methodology for evaluating fiscal vulnerability by referring to the event studies approach proposed by *Fama et al.* (1969). The results reveal that EU countries have had a vulnerable fiscal policy during the relevant period. Another study, Stoian (2012), examines the vulnerability of the fiscal policy of 10 Central and Eastern European countries for the period from 1996 to 2010 using the same method. They conclude that the fiscal policies of all countries except Bulgaria and Estonia are vulnerable to fiscal stress.

Stoian et al. (2015) develop a new methodology named V-L-D to identify the short-term vulnerabilities of fiscal policy for EU member countries. It ranks the vulnerability in four categories from lowest (1) to highest (4). According to the results, a total of 310 financial vulnerability periods are determined. Of these, 128 are low vulnerability, 94 are medium vulnerability, 62 are high vulnerability, and 26 are an extremely high vulnerability. Stoian et al. (2018) carry out another study with the same method for EU member countries for the period from 2004 to 2013. They find that Greece, Portugal, Romania, the United Kingdom, Ireland, Spain, and Slovenia are the most financially vulnerable countries. Citing the V-L-D method of Stoian et al. (2018), *Guler* (2018) examines the fiscal vulnerability of Turkey for the period from 1990 to 2013. In this paper, a fiscal vulnerability index calculated for Turkey is compared with EU countries. According to the results, Turkey has an improvement in the fiscal vulnerability indicators after 2000, but when considering the whole period Turkey's fiscal vulnerability is still high.

By adapting the Minskian hypothesis to public finance, Ferrari-Filho et al. (2010) derive an index of financial fragility for Brazil's public sector from 2000 to 2008. They conclude that the fiscal structure of Brazil was speculative in the period from 2000 to 2008. Their results indicate that public debt increased during this period, and it became difficult for the Brazilian government to pursue fiscal policies. Similarly, Minsky's hypothesis is used by *Terra* & Ferrari-Filho (2020) in a recent study for Brazil. This research covers a wider period from 2000 to 2016 and uses three versions of the index to evaluate Brazil's public finances. According to the results, the Brazilian government is speculative in its borrowing requirements from 2000 to 2013, but it is under the Ponzi regime from 2014 to 2016. Nikolaidi (2014) estimates an index of financial fragility for the Greek public sector for the period from 2001 to 2009 by referencing Minsky's hypothesis. The results imply that the Greek public sector was under the Ponzi regime between 2001 and 2002 and in later years, it was under the ultra-Ponzi regime. Also, based on this hypothesis, Argitis & Nikolaidi (2014) establish a financial fragility index for the public sector of Greece between 1988 and 2012. They focus on the relationship between the public sector's cash inflows and outflows to derive the index. The authors criticize the ineffectiveness of the Greek government's programs to meet its loan commitments and ensure its financial sustainability. According to the results, the Greek public sector has been under an ultra-Ponzi regime since 2003. In another study, based on the same hypothesis and conducted once again for Greece, *Beshenov & Rozmainsky* (2015) examine how the behavior of public and private sectors led to the debt crisis. When the public sector side of the research is examined, Greek bonds, which lost their value after 2009, impelled the country to enter a

debt spiral by increasing the borrowing costs. Besides, the policies implemented by the Greek government to exit this debt spiral were insufficient.

Jędrzejowicz & Koziński (2012) aim to assess Poland's fiscal vulnerability. To achieve this objective, they concentrate on five key public finance issues, such as (1) the level of public debt, (2) medium-term dynamics of public debt, (3) long-term sustainability of public debt, (4) public debt management and government liquidity, and (5) fiscal rules and institutions. Using this framework, they claim that Poland's vulnerability to fiscal risks was very limited after the 2008-2009 global crisis and that fiscal imbalances against public debt accumulation must be corrected.

A MINSKIAN EXPLORATION INTO THE POSTURE OF TURKISH PUBLIC FINANCES

Based on the viewpoint of the theoretical considerations in the preceding section, this section appraises the course of fiscal sturdiness in Turkey over the recent history based on the postulates of Minsky's financial instability hypothesis. To accomplish this objective, it is worthwhile to briefly touch upon the formulation of the basic tenets of the hypothesis to methodologically embody the conceptual framework outlined in the previous section. Also, to gauge the fiscal fragility based on financial data, it is essential to build up a profound tool that serves the purpose of standardizing the decision rule for analytically testing whether the country is engaging in hedge, speculative or Ponzi financing. In this sense, Filho et al. (2010) is a seminal contribution to the literature since the authors adapt the Minsky's financial fragility hypothesis into the context of public finance. Thus, we start this section with the formal derivation of the fiscal fragility index based on this adaptation methodology.

Embodying the Fiscal Fragility Concept: Fiscal Fragility Index

In order to gauge the fiscal performance of Turkey in recent decades in terms of fragility, we borrow the formulation of the fiscal fragility index formulation in Filho et al. (2010) which is predicated on Minsky's financial fragility taxonomy. Their approach is to a large extent based on the government cash flow which is comprised of its total revenue and expenditure which can be partitioned into current and financial expenditures. Financial expenditures are comprised of interest payments and debt amortization spending. Using this terminology, three postures (Hedge, Speculative and Ponzi) of Minsky's hypothesis described in the previous section can be adapted to the context of public finance as follows:

Hedge position, which guarantees fiscal stability by securing a cash margin to shun adverse effects of unexpected surges in expenditures or similar type of falls in the revenues, occurs when total revenues of the government sector exceed the total value of current and financial expenditures. In Filho et al. (2010) this situation is formally represented with the following formula:

$$(T + Rk + Rof) - G > Ga + Gi \tag{1}$$

where;

T : Taxes
Rk : Capital Revenue
Rof : Revenue (Other Sources)
G: Current Expenses
Ga: Financial Amortization Expenses
Gi: Interest Payments

Using the same notation, they formulate the speculative fiscal posture as;

$$(T + Rk + Rof) - G < Ga + Gi \qquad (2)$$

In this case, total revenues surpass only current expenditures and are not sufficiently large to cover the financial expenditures of the government. Unlike hedge posture, speculative posture does not secure a safety margin for the government against unanticipated financial hardships since the revenues are not capable of covering the expenses in full. Hence, speculative posture compels the government to at least partially make use of borrowing instruments to avoid public default in the short run. Also, in the medium term, some policy alterations in the form of tax hikes or spending cuts become inevitable for the fiscal authorities so as to transform the existing speculative position into a more reliable hedge context and thereby avoid the potential downswings in the fiscal balances of the country.

The third and the most undesirable fiscal posture is the so-called Ponzi scheme. In this scenario, the government cannot even cover the current spending let al.one the financial expenditures. As a result, the interest payments and debt amortization expenditures halt which causes public debt to snowball. Such a fiscal context is obviously insolvent and requires continuous debt restructuring as a result of shrinking sovereign credibility and increasing borrowing needs. The Ponzi fiscal posture jeopardizes the overall economic stability by crowding-out the private investments and creating a *'doom loop'* between higher borrowing needs higher interest rates, higher cost of debt financing and higher taxation. This procedure is eventually followed by a debt overhang which poses a disincentive for new investors and consumers since it is clear that the sole benefiter of the future primary balances will be the existing creditors. Also, when the debt level keeps mounting incessantly, the fiscal space of the government budget gets narrower and consequently,

government falls short of sufficient financing should an unforeseen downturn occur in the economy. Filho et al. (2010) formally describes this posture as follows;

$$(T + Rk + Rof) - (p)G > (1-p)G + Ga + Gi \qquad (3)$$

where p denotes the portion of current expenditures covered by government revenues. According to this formula, the Ponzi posture dramatically restricts the fiscal manoeuvrability and the government can only finance part of the current expenditures which are mandatory but fails to defray financial obligations such as interest payments and debt amortizations which emits a signal for a looming default for the economy.

Depending on the circumstances in the economy, the fiscal posture of the country takes one of these three forms. Public financial management malfunctionalities, international crises, pandemics, economic environment, etc. collectively determine the level of fiscal fragility ranging from hedge to Ponzi as described above. However, in order to spot the location of the country on the fiscal fragility palette (from hedge to Ponzi), we need to quantify a decision rule by calculating an index using the data on fiscal balances. By using the formulations above, Filho et al. (2010) creates a 'Public Finance Fragility Index' as articulated below.

Formally, equilibrium occurs when the following condition holds;

$$(T + Rk + Rof) - G = Ga + Gi \qquad (4)$$

Dividing each side with we get;

$$\frac{(Tr + Rk + Rof) - G}{(Ga + Gi)} = 1 \qquad (5)$$

This equation represents the fiscal fragility index. Using this index, the three postures described above can be formulated as follows:

Hedge posture occurs when;

$$\frac{(Tr + Rk + Rof) - G}{(Ga + Gi)} > 1 \qquad (6)$$

Speculative posture occurs when;

$$\frac{(Tr + Rk + Rof) - G}{(Ga + Gi)} < 1 \qquad (7)$$

Ponzi posture which is a special case of speculative posture occurs when;

$$\frac{(Tr + Rk + Rof) - G}{(Ga + Gi)} < 0 \qquad (8)$$

To appraise the level of fiscal fragility in Turkey, we calculated two fiscal fragility indices using two different data sets based on the formulation above which is inspired by Minsky's financial fragility hypothesis. The first index is calculated using the budget execution data which involves government revenues and expenditures as described above. The second index also has the same underlying reasoning but it utilizes borrowing requirements data instead. The second index was introduced by Terra et al. (2020) in an attempt to enhance the argument of fiscal fragility more comprehensively. In this version of the index, they use the ratio of primary balance to the interest expenditures to build up the index.

For our analysis, the underlying reason for calculating the index with these two different approaches is twofold: First, the primary balance and interest expenditures data provided by the Turkish Treasury which are used for the second index cover a much larger time span (1990-2020) allowing interpretations of the fiscal stability in the 90s and early 2000s while the budget execution data used for the first index solely covers the period 2006 onwards. Thus, to enlarge the scope of

analysis, we calculated the fiscal fragility index with primary balance data as well as budget execution data. Secondly, following the logic introduced by Terra et al. (2020), testing the hypothesis with two data sets permits a more comprehensive analysis along with the inter-verification of the implications of each other since they test the same variable using different components of the government budget. Thus, the 2006-2020 sections of the two data sets allow for a comparative analysis of fiscal fragility in Turkey by means of two indices calculated with different approaches.

Salient Features of the Data

As mentioned in the previous section, we calculated two different versions of the fiscal fragility index using two different data sets. The data used for the first index is the *'General Budget Balance and Financing Data Set'* published by the Turkish Ministry of Treasury and Finance. The budget execution details are provided within this data set and we subtracted the current expenditures from total revenues and divided the result with the summation of debt amortization and interest payment expenditures to obtain the value for the fiscal fragility index.

The second index was calculated using the *'Consolidated Budget Realisations'* data set published also by the Turkish Ministry of Treasury and Finance. Following the Terra et al. (2020) approach, we used this dataset to calculate the fiscal fragility index which is represented by the ratio of primary balance to the interest payments. This borrowing requirements approach to fiscal fragility index excludes debt amortization payments and financial revenues from the equation and tests the ability of the government to cover interest payments through primary balance. Hence, this type of fiscal fragility index constitutes a

good proxy for the first fiscal fragility index and at the same time provides insightful results despite its lower data requirements.

In addition to the fiscal data described above, we retrieved the data for two more indicators from the IMF database, namely annual CPI and annual GDP growth rate. We used the CPI values for deflating all fiscal series to neutralize the effect of inflation on nominal values. Since the consumption is only a fraction of the GDP, the CPI values might lack some aspects of total GDP but despite its partial coverage it can still be used as a proxy for GDP deflator to neutralize the effect of inflation. Finally, we used the GDP growth rate series to determine the type of fiscal policy the Turkish government has pursued each year. According to Terra et al. (2020), if the fiscal stance of the country exhibit characteristics of a hedge posture and positive GDP growth simultaneously, then, the undertaken fiscal policy is deemed countercyclical, whereas, if the GDP growth period coexists with a speculative or Ponzi fiscal posture, then, the fiscal policy in that particular period is considered as procyclical. Hence, we use the GDP growth series to determine the type of cyclicality of the undertaken fiscal policies.

Now that we have listed the variables we used for the analysis, it is worthwhile to evaluate the prominent trends in the data so as to facilitate the interpretation of the fiscal fragility index in the next section.

The *Figure 1* illustrates the budget revenue and expenditure realizations in Turkey between 2006 and 2020. The data for 2020 covers the January – August period. It can clearly be seen on the graph that the financial expenditures follow a stable pattern throughout the sample whereas current expenditures and total revenues exhibit a positive trend. The impact of the 2008-2009 economic crisis is quite visible on the graph with rapidly falling revenues and rising expenditures. Another prominent point

to make about the graph is that, even though the 2020 data covers only eight months, the current and financial expenditures are already higher than that of the entire 2019. This clearly proves that the Covid-19 pandemic has already resulted in a severe deterioration in public finances in Turkey. Also, the downward trend in total revenues in the recent years and upward movement in the current expenditures jointly indicate that the country is heading towards a Ponzi posture in public finances caused by skyrocketing health expenditures and social transfers.

The *Figure 2* depicts the primary balance and interest payments data which are used for the calculation of the second index of fiscal fragility in our analysis. During the late 90s, Turkey faced a severe economic crisis caused by a combination of several factors including long-lasting conflicts in domestic politics, short-living governments, the Asian crisis, devastating earthquakes, etc. As a result of these factors, at the end of this decade, the inflation level hit record high levels and consequently interest payments topped out during this period leading to a far-reaching adverse impact on the fiscal balances in Turkey. Extremely high interest expenditures coupled with the short maturity structure of the debt portfolio narrowed the fiscal space in the country dramatically and as a result, the budget lost all of its social policy tool traits since it was no longer controllable. The primary balance during this period was also remarkably low which gave rise to drastic borrowing needs since the fiscal reaction created by the primary balance against mounting public debt was quite shallow and therefore the debt servicing and rollover were not feasible with its own resources which created an ever-increasing borrowing requirement.

However, at the beginning of the new decade, the single-party government performed remarkably well in terms of primary balance generation under the supervision of IMF

Figure 1

BUDGET EXECUTION DATA
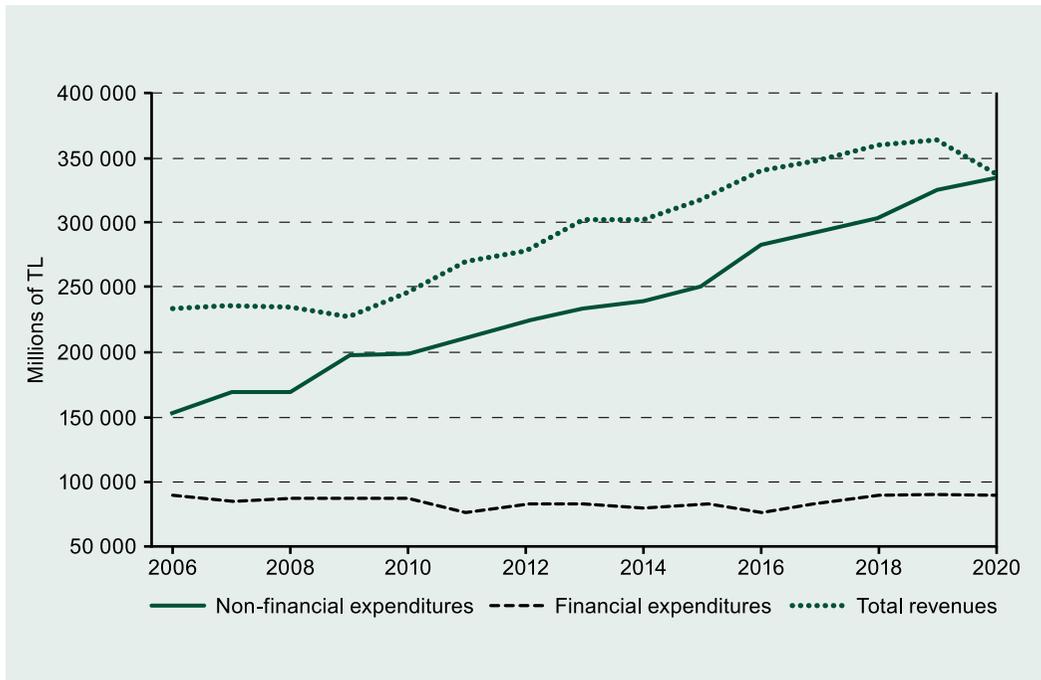
Source: Turkish Ministry of Treasury and Finance

which can be seen on the early 2000s section of the Figure 2. Strong adherence to the IMF program also resulted in overall recovery in the economy and public finances, evidenced by swiftly falling inflation rates and interest expenditures. Not surprisingly, the two series on the Figure 2 are nearest to each other during this decade indicating a strong fiscal posture by the time. Despite the fact that this period does not represent a hedge posture for fiscal balances in Turkey since the primary balance line is still below the interest expenditures line, they are very close to each other which results in an index value which is close to unity.

Notwithstanding the remarkable performance of the government during the first two-thirds of the decade, during the remaining third of the decade the same level of fiscal success could not have been achieved by the

government and primary balance departed from its rising trend and exhibited a downward movement instead and eventually hit the zero level at the end of the decade. The remarkable fall in the fiscal performance of the country in terms of primary balance generation can at least partially be attributed to the global financial crisis but it is clear that the primary balance was already declining before the year global crisis hit the world economy. Also, in the post-crisis episodes, the primary balance generation strength is not on a par with the early 2000s level thereof which indicates a clear divergence from the fiscal discipline that was exerted during the early years of the decade.

In recent years, this unpleasant trend in the fiscal policy design is more vividly visible on the Figure 2. Even though the interest expenditures keep falling steadily, the primary

Figure 2

PRIMARY BALANCE AND INTEREST EXPENDITURES
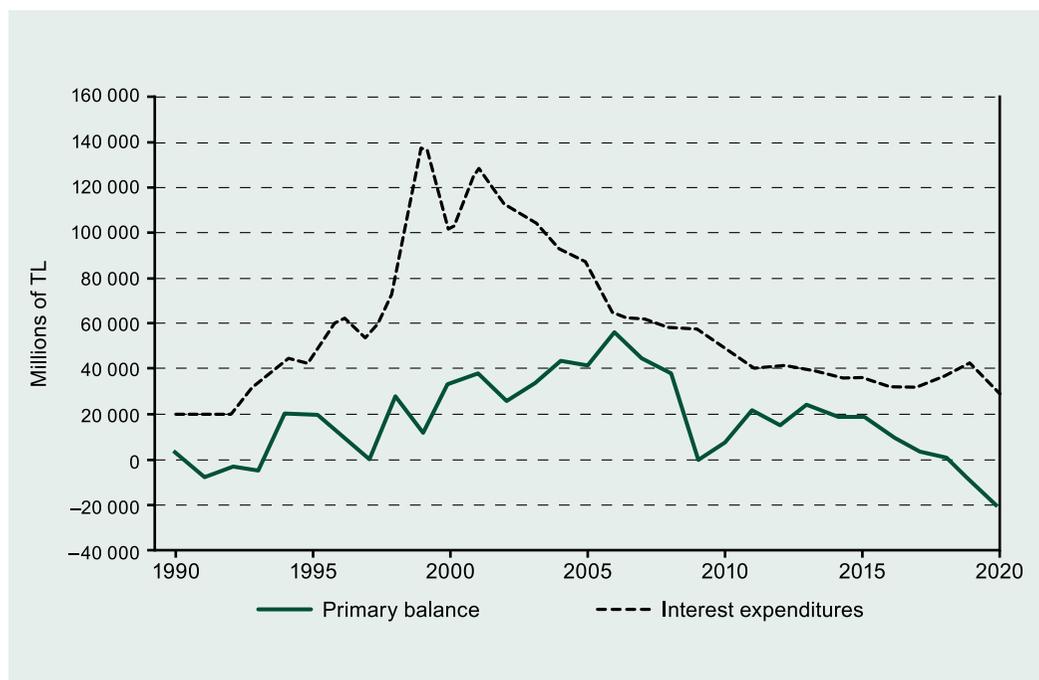
Source: Turkish Ministry of Treasury and Finance

balance hits negative levels after some 25 years of positivity which is a prominent signal for a worsening fiscal context in the Turkish economy. Some of the grounds for weakening fiscal performance include the failed coup attempt in 2016, war in neighbour countries, international conflicts, depreciation of TL against other currencies and increasing fiscal profligacy in the country. Failing to reverse this path of the primary balance might have economic effects permeating all sectors of the economy swiftly through the channels of snowballing public debt since primary balance appears to be far from trimming the adverse movements in public debt movements. Coupled with the adverse economic effects of Covid-19, the fiscal outlook of the country is likely to encounter even harsher economic conditions in the near future.

Appraising the Fiscal Fragility in Turkey via Public Financial Fragility Index

In the final section, we evaluate the evolution of fiscal fragility in Turkey by means of the index described in the preceding sections which serves the purpose of embodying the fiscal fragility concept. The Figure 3 depicts the values of the fiscal fragility index calculated using the budget execution data. The index values measure the capability of the government to cover the financial expenses through total revenue and current expenditure differential. It can clearly be observed on the graph that the highest value was achieved in 2006. As mentioned in the previous section, the mid-2000s were the most successful period in terms of fiscal performance in the recent economic history. However, even in this year,

the index value is less than one corresponding to a speculative fiscal posture which does not guarantee fiscal solvency in the medium term. In the following years until the global crisis, the index value follows a downward trend indicating a weakening fiscal quality and rising fiscal fragility.

During the global crisis, the index plunged abruptly since fiscal balances were to large extent financed by foreign resources which is a serious source of vulnerability for the economy. The 50% decline in the index value in 2009 proves that the Turkish fiscal balances are indeed fragile and for this reason, external shocks pose a great deal of risk for fiscal stability since the Turkish Lira is not classified as an international reserve currency. Since the domestic currency has no sovereignty in

the international markets, the government is impeded to borrow in foreign currencies which has impairing effects on the economy especially when the borrowing requirements are high as in the case of most developing economies. Hence, for countries like Turkey, preserving the ability to finance its budget through its own tools and generate primary surpluses on a continuous basis is crucial so as to generate a seamless influx of foreign capital under reasonable conditions. However, as illustrated on the Figure 3, in the recent years Turkey is gradually losing this capability despite considerable recovery after the global crisis. The continuous decline of the fragility index value is visible on the *Figure 3*.

The fiscal sturdiness is clearly worsening in the recent years as evidenced by the

Figure 3

**PUBLIC FINANCIAL FRAGILITY INDEX
(BUDGET EXECUTION DATA)**
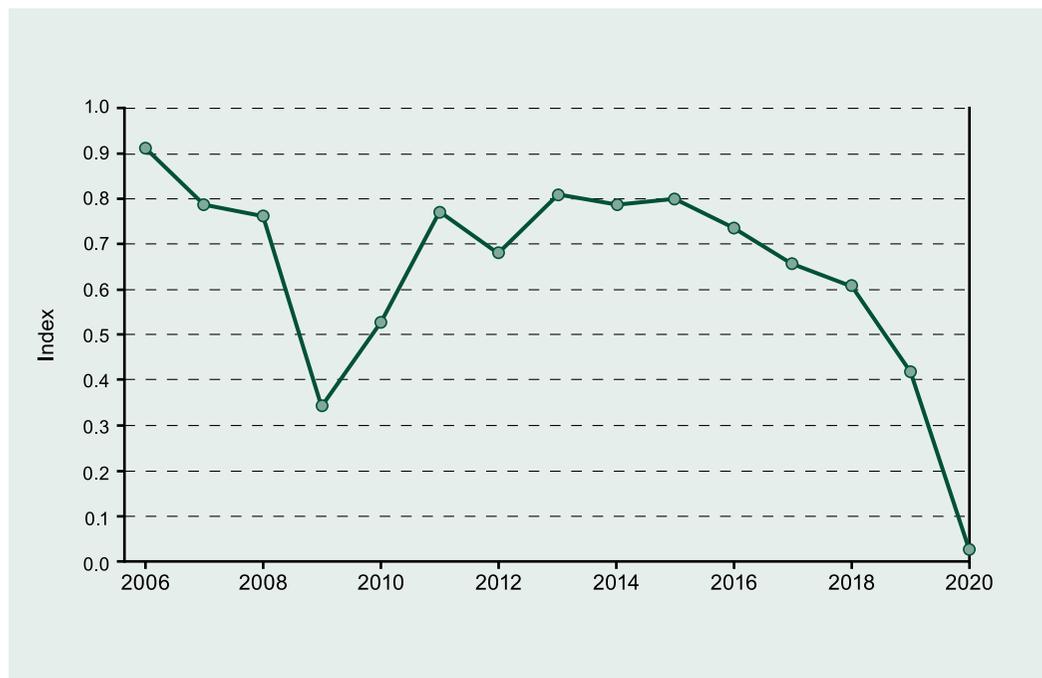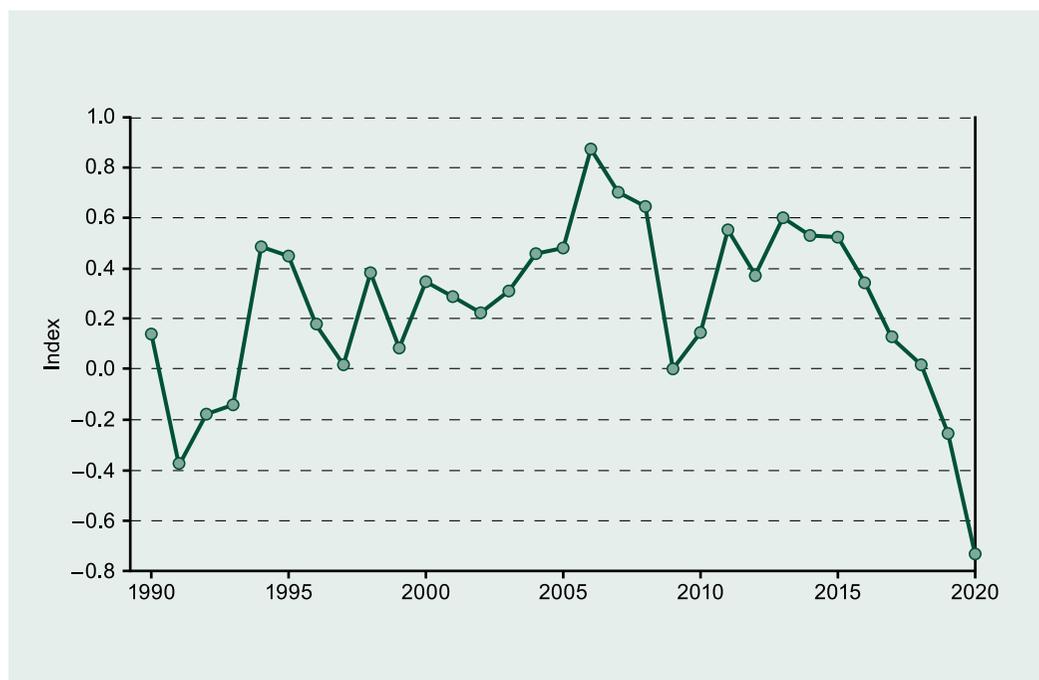

Source: own calculations

findings above. In other words, how the fiscal performance of the country measures up against its past achievements is portrayed on the Figure 3 and it is clear that recently it is heading towards an unsustainable fiscal posture. The reasons for the unending decline in the fiscal stability include political instabilities, rising military expenditures, contingent liability schemes, diminishing tax base and malfunctioning fiscal policies including increasing fiscal profligacy. The unpleasant trend in the fiscal fragility index is also evidenced by the *Figure 4* which plots the values of the fragility index calculated with borrowing requirements data.

The data used for this variant of the index exclude the debt amortization expenditures and financial revenues therefore the values are different from the previous version and it exhibits an even gloomier portrait for the fiscal quality of the country. According to the Figure 4, Turkey is already in a Ponzi context which indicates that it can only finance its existing debt with new borrowing in short maturities which is obviously not sustainable. Nevertheless, regardless of the point values of each index, the recent declining trend is visible on both graphs. The economic fluctuations and vulnerabilities of the 90s were to some extent resolved in the early 2000s however, the optimistic economic recovery has initially been put on pause before the global crisis in 2009 and thereafter have not been restored again. Compared to volatile and pessimistic

Figure 4

PUBLIC FINANCIAL FRAGILITY INDEX (BORROWING REQUIREMENTS DATA)

Source: own calculations

conditions in the 90s, the recent outlook of the fiscal balances is not far-off in terms of stability. The economy has already passed *'Minsky Moment'* and is systematically heading towards an ultra-Ponzi financing which is extremely hazardous for fiscal balances. Nonexistence of a sufficient safety margin emits signals for a looming default in the medium term should no suitable expedients are employed in a timely manner.

As we mentioned earlier, according to Terra et al. (2020), the public financial fragility index can also be used to determine the type of fiscal policy employed. In other words, the cyclicality of the fiscal policies can be found out (pro or countercyclical) by analysing the coexistence of economic growth and index values. Since Turkey was not under a hedge fiscal posture but speculative and Ponzi postures throughout the sample which was coexisting with economic growth for the majority of the observation years, it can be concluded that the fiscal policy in Turkey is chiefly procyclical during this period. The GDP growth rate was negative only in 1994, 1999, 2001 and 2009 in Turkey according to IMF data and in the rest of the years of the sample positive growth rates was coinciding with speculative financing which makes the procyclical in terms of fiscal policy design. The procyclicality implies that during the phases of economic expansion, the government is devoting more resources in transfer payments due to politico-economic preferences instead of expanding the accumulation of reserves for future challenges. According to *Alesina et al.* (2008), in developing countries procyclical fiscal policies are common. The voters demand more tax cut and higher transfer payments during economic booms as they have limited confidence on the future course of fiscal policies conducted by the government. They are mostly not confident that the portion of the income reserved for future challenges will

not be used for this particular purpose but instead will be wasted by the government. Hence, during periods of economic growth, they demand more transfer payments and lower taxes which results in lower primary balance to keep public debt under control. During the last decade, this scenario was to a large extent prevalent in fiscal policy design. As we mentioned in the theoretical section, according to Minsky the fiscal policy needs to be countercyclical to stabilise the economy by constituting the transition from speculative to hedge fiscal postures but in Turkey, the fiscal policy was procyclical during the last two decades. In recent years, insufficient tax revenues along with heightened transfer payments and contingent liabilities have culminated in a fragile and delicate public finance posture reminiscent of the 90s as a result of procyclical fiscal policies.

CONCLUSION

It is evident from the analysis of two different versions of the financial fragility index that Turkish fiscal posture has been gradually diverging from the speculative posture in the recent years and currently is in a Ponzi fiscal regime which depletes all the safety margins of the fiscal system. Implications of this type of fiscal posture include borrowing in short maturities and at high financial costs, reduced credibility, higher and immediate borrowing requirements, reduced fiscal space and reduced manoeuvrability of the budget for transfer payments and other current expenses. Since fiscal stability is inherently a forward-looking concept, preserving the current status of a posture once achieved is as important as effectuating stability at the beginning. However, recently, Turkey has not performed well in this regard and fiscal stability appears to be fading out gradually.

The primary balance was positive for more than 20 years but contrastingly consecutive negative primary balances are recorded in the last years which is a clear sign for a decline in fiscal strength of the country in terms of debt management. Besides, the public financial fragility index values calculated in our study are heading towards negativity indicating a transition in the direction of extreme fragility. Negative values of the fiscal fragility index imply Ponzi type fiscal posture which is not sustainable since it is by definition based on new borrowing on every round instead of revenue generation which is a stairway to financial default as a result of compounding and never-decreasing interest payments and debt accumulation. Also, negative values of the index coexist with economic growth periods which indicates that the government is not making use of expanding revenues and does not accumulate reserves for future financial challenges. This type of fiscal policy is called procyclical and is common in developing countries since those countries are not far-sighted in fiscal management due to politico-economic preferences. However, Minsky states that the government should be in surplus at least sporadically and pursue countercyclical policies to avoid financial crises but according to our findings, Turkey is not following these type of policies which further increases the level of fiscal vulnerability.

Reversing the ongoing downward trend in the fiscal fragility index entails numerous measures and policy alterations which might have painful social costs as well as economic sacrifices. However, a back-loading fiscal adjustment might reduce the associated social costs since it spreads the fiscal costs over time, unlike front-loading adjustment which aims at generating desired outcomes immediately at higher social costs. The indicated back-loading adjustment package should rely heavily on spending cuts rather than tax hiking which is less harmful to society. Systematic spending cuts, however, entail proper and transparent scrutiny of existing expenditures so as to reduce profligacy which is crucial for restoring stability. Also, contingent liabilities involving infrastructure investments appear to be an inordinate fiscal burden on the budget therefore restructuring the current contingent liability schemes might reduce government expenditures dramatically. In addition, the constantly postponed tax reform should be implemented promptly, besides, widening the tax base and reducing the portion of indirect taxes should be the major tenets of the prospective tax reform.

Nevertheless, since the Covid-19 pandemic has recently proven to be an enormous impediment for economic activities all around the world, even the proper implementation of these strategies might not result in the desired recovery in fiscal balances. Developing countries including Turkey were caught off-guard by the pandemic, therefore, rapidly rising health expenditures and plummeting government revenues hinder fiscal recovery regardless of the policy action taken by the government. The already shallow fiscal space is insufficient to cover the immediate financing needs of the Covid-19 which exacerbates the fiscal stress even further. Hence, a swift restoration of fiscal stability appears to be unlikely to occur in the near future due to harsh conditions imposed jointly by the malfunctioning fiscal system and the current pandemic.

References

Alesina, A., Campante, F. R., & Tabellini, G. (2008). Why is fiscal policy often procyclical?. *Journal of the European Economic Association*, *6*(5), pp. 1006-1036,
https://doi.org/10.1162/JEEA.2008.6.5.1006

Argitis, G., & Nikolaidi, M. (2014). The financial fragility and the crisis of the Greek government sector. *International Review of Applied Economics*, 28(3), pp. 274-292,
https://doi.org/10.1080/02692171.2013.858667

Baldacci, E., McHugh, J., & Petrova, I. K. (2011B). Measuring Fiscal Vulnerability and Fiscal Stress: A Proposed Set of Indicators. *IMF Working Papers,* pp. 1-20

Baldacci, E., Petrova, I. K., Belhocine, N., Dobrescu, G., & Mazraani, S. (2011A). Assessing fiscal stress. *IMF Working Papers,* pp. 1-41

Berti, K., Salto, M., & Lequien, M. (2012). *An early-detection index of fiscal stress for EU countries* (No. 475). Directorate General Economic and Financial Affairs (DG ECFIN), European Commission

Beshenov, S., & Rozmainsky, I. (2015). Hyman Minsky's financial instability hypothesis and the Greek debt crisis. *Russian Journal of Economics,* 1(4), pp. 419-438,
https://doi.org/10.1016/j.ruje.2016.02.005

Brixi, P. H., Shatalov, S., & Zlaoui, L. (2000). *Managing fiscal risk in Bulgaria*. (No. 2282), The World Bank

Canoz, İ., & Marufoglu, A. (2018). A Proposal to Detect the Fiscal Fragility of the Public Sector in Turkey. In B. Tuncsiper (Eds.), *Critical Debates in Social Sciences* (pp. 717-728), FrontPage Publications Limited

Đurović-Todorović, J., Đorđević, M., & Vuković, M. (2017). Fiscal stress analysis in the Republic of Serbia. *Economic Themes,* 55(1), pp. 55-69,
https://doi.org/10.1515/ethemes-2017-0004

Fama, E. F., Fisher, L., Jensen, M. C., & Roll, R. (1969). The adjustment of stock prices to new information. *International economic review,* 10(1), pp. 1-21,
https://doi.org/10.2307/2525569

Ferrari-Filho, F., Terra, F. H. B., & Conceição, O. A. (2010). The financial fragility hypothesis applied to the public sector: An analysis for Brazil's economy from 2000 to 2008. *Journal of Post Keynesian Economics*, *33*(1), pp. 151-168,
https://doi.org/10.2753/PKE0160-3477330108

Guler, H. (2018). Measuring the Fiscal Vulnerabilities in Turkey and Comparing Turkey's Results with European Union Countries. *5th International Congress on Political, Economic and Social Studies (ICPESS),* Nigde. *2*, pp. 201-210

Hemming, R., & Petrie, M. (2002). A framework for assessing fiscal vulnerability. *Government at Risk: Contingent Liabilities and Fiscal Risk*, pp. 159-178

Jedrzejowicz, T., & Kozinski, W. (2012). A framework for fiscal vulnerability assessment and its application to Poland. *BIS Papers chapters*, *67*, pp. 285-294

Minsky, H. P. (1977). The financial instability hypothesis: An interpretation of Keynes and an alternative to "standard" theory. *Challenge,* 20(1), pp. 20-27, Retrieved September 18, 2020, from http://www.jstor.org/stable/40719505

Minsky, H. P. (1982). The financial-instability hypothesis: capitalist processes and the behavior of the economy. *Hyman P. Minsky Archive. Paper*

282. Retrieved September 18, 2020, from https://digitalcommons.bard.edu/hm_archive/282

Minsky, H. P. (1992). The financial instability hypothesis. *The Jerome Levy Economics Institute Working Paper*, (74). Retrieved September 18, 2020, from http://hdl.handle.net/10419/186760

Minsky, H. P. (1986). *Stabilizing an Unstable Economy.* New Haven: Yale University Press

Nikolaidi, M. (2014). *Essays on Financial Fragility, Instability and Macroeconomy.* (Doctoral dissertation). Athens: National and Kapodistrian University of Athens

Stoian, A. (2011). A Simple Public Debt Dynamic Model for Assessing Fiscal Vulnerability: Empirical Evidence for EU Countries. *Research in Applied Economics,* 3(2), E3, https://doi.org/10.5296/rae.v3i2.1137

Stoian, A. (2012). How vulnerable is fiscal policy in Central and Eastern European countries?. *Romanian Journal of Fiscal Policy (RJFP)*, 3(2), pp. 68-81

Stoian, A., Obreja Brașoveanu, L., Brașoveanu, I. V., & Dumitrescu, B. (2018). A Framework to Assess Fiscal Vulnerability: Empirical Evidence for European Union Countries. *Sustainability, 10*(7), 2482 http://dx.doi.org/10.3390/su10072482

Stoian, A., Obreja Brașoveanu, L., Dumitrescu, B., & Brașoveanu, I. (2015). *A new framework for detecting the short term fiscal vulnerability for the European Union countries* (No. 63537), University Library of Munich, Germany

Terra, F. H. B., & Ferrari-Filho, F. (2020). Public Sector Financial Fragility Index: an analysis of the Brazilian federal government from 2000 to 2016. *Journal of Post Keynesian Economics*, pp. 1-25, https://doi.org/10.1080/01603477.2020.1713006