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MASTER'S THESIS

**PUBLIC DEBT SUSTAINABILITY: THE CASE OF THE REPUBLIC
OF MACEDONIA**

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INTRODUCTION

Public debt is a key economic concept that has been one of the main economic topics of interest in the past decade, following the recent global financial crisis. As an economic concept, public debt is also known as government debt or national debt since in general it refers to the borrowings of a country's government (Arsovski, 2008). However, the national definitions on what it includes and how it is measured may differ significantly from one country to another. In general, when the public revenues of one country are not sufficient to finance its public spending, the country is obliged to borrow in order to cover the expenses (Arsovski, 2008). Therefore, the modern financial theory points out that some of the primary reasons for the creation of a public debt are high public expenditures and budget deficit, time gaps between public expenditures and revenues, government interventionism in the economy, extraordinary government expenditures in the areas of infrastructure, social policy, research and development etc. (Arsovski, 2008).

As a concept, public debt has been given significant attention not just in the recent years, but historically for a long period of time. Namely, in the period after the World War I and the Great Depression, the public debt worldwide began to go up, reaching its peak after the World War II. This is also the period of John Maynard Keynes and his ideas on government interventionism in periods of economic recession, which have contributed to vanishing debt brakes and raising countries indebtedness (Stiglitz, 2000). According to Abbas, Belhocine, El-Ganainy, and Horton (2010) in the 'Historical Public Debt Database' the above is the first noted period when countries started borrowing extensively and the highest level of advanced economies indebtedness was recorded in 1946 amounting to 150% of Gross Domestic Product (hereinafter: GDP).

The recent global financial crisis made public debt an increasingly popular topic of discussion for many researchers and economic policy makers. The reason behind is the enormous indebtedness of countries which is not comparable with any other prior period. In particular, advanced economies faced the crisis with already higher public debt to GDP ratios than previous periods of crisis. Further, the collapse of the economy that followed from drop of revenues, as well as the costs for stimulating the economy, have resulted in sky-rocketing debt ratios (Abbas, Belhocine, El-Ganainy & Horton, 2010). Member states of the European Union came to a point where they were not even able to cope with the repayment or refinancing their debts on their own.

For all of the reasons stipulated above, many organizations and institutions, among which mainly the International Monetary Fund (hereinafter: IMF), European Commission, European Central Bank, devoted their focus on the topic of public debt and its sustainability, policy recommendations for countries to deal with such, as well as undertaking measures to help bailing out endangered countries of the debt crisis.

Public debt has also been a question of raising concern in Republic of Macedonia in the past decade. Even though compared to other countries Macedonia was considered to be handling the recent global financial crisis quite well, the public debt has been fast accumulating in the recent years. Debt levels escalated, and more than doubled in a time period of less than ten years: from debt-to-GDP level of 23% in 2008, to debt-to-GDP level of 50.1% in the last quarter of 2016 (Ministry of Finance of the Republic of Macedonia, 2017a).

Even though this relative level of debt to GDP may seem to be much less compared to other indebted countries within Europe, for a country and economy like Macedonia this may be considered as reaching the upper limit level of sustainable debt. The fast and continuous increase of indebtedness provoked many discussions and variety of opinions among Macedonian economic experts and made public debt and its sustainability the primary topic of interest in the country.

The main questions of concern related to the topic are the trajectory of debt levels, the risks associated with the accumulation of debt and its portfolio, as well as the overall productiveness of the existing debt. Furthermore, the national definition and concept of public debt raises questions in regards to possible hidden government debt arising from government arrears.

The main purpose of this research is to develop a conceptual framework for conducting a debt sustainability analysis, and based on the conceptual framework developed, to determine the sustainability of the Macedonian public debt. The conceptual framework shall take into account the explicit characteristics of Macedonia as a country and its public debt, in terms of: concepts of its measurements, factors that influence the debt dynamics, trends and structure of the Macedonian public debt, as well as specific risks that may affect its sustainability. Furthermore, based on the developed conceptual framework, the main objective of the research is to conduct a sustainability analysis of the Macedonian public debt. The analysis aims to project the future trajectory of public debt as well as key macroeconomic variables closely related to it and determine its sustainability. Moreover, it aims to develop stress-test scenarios and sensitivity analysis based upon specific characteristics of Macedonian economic setup. The final purpose of the debt sustainability analysis is to identify possible policy measures that will stabilize or achieve the required levels of public debt ratios in order to ensure its sustainability.

The primary method of analytical approach used in this research is developing a public debt sustainability analysis on the Macedonian public debt. The fundamental objective of this research is providing answers to the main research questions:

- a) Is the current level of Macedonian public debt sustainable?
- b) How shall different scenario and sensitivity analyses affect the sustainability of the Macedonian public debt?
- c) Are there any vulnerabilities or risks to the public debt sustainability and, if yes, what are the possible policy measures for debt stabilization?

In order to provide answers/solutions to the above questions, there are both quantitative and qualitative steps in place through which the research proceeds.

Namely, the first and second chapter set up the conceptual framework for the sustainability analysis, whereas the third chapter analyzes the Macedonian public debt sustainability.

More specifically, the first chapter gives an overview of the concept and definition of public debt, with a focus on the European concept and definition as a benchmark for further analysis. Moreover, it identifies the main factors that influence public debt level or its dynamics, as well as criteria for identifying possible risks and vulnerabilities.

The second chapter gives an overall assessment of the Macedonian public debt, as well as the current economic and political position. It provides an overview of the concept and definition of the Macedonian debt and its comparison to the European benchmark. It also discusses possible implications on the Macedonian public debt arising from the conformity to European standards. Furthermore, it analyzes in details the level and trend of Macedonian public debt and its structure. It completes the picture of Macedonia's current position and characteristics with a broader economic and political analysis that may have effects on debt dynamics and its sustainability.

The last chapter contains the analysis of Macedonian public debt sustainability, under baseline and several scenario and sensitivity analyses. The analysis, apart from providing conclusions on Macedonian public debt sustainability, includes alternative policy measures that lead towards debt stabilizing paths and/or achieving specific required levels of public debt.

1 THE CONCEPT OF PUBLIC DEBT AND ITS SUSTAINABILITY

The first chapter of this Master's thesis gives a literature review on the concept of public debt and factors influencing debt dynamics and debt sustainability. This chapter provides a conceptual framework for conducting debt sustainability analysis as the main purpose of this Master's thesis.

The first section provides a conceptual and statistical definition of public debt, with a focus on European standards used as a benchmark. The second section provides a literature review of identified factors influencing debt dynamics and debt sustainability.

1.1 Concept of public debt – European benchmark

The first step in the development of the conceptual framework is to understand the definition and concepts of public, i.e. government debt. Even though, defining debt and deficit may seem to be easy in theory, however, when browsing over available literature on the topic, there are some important questions arising whose answers have a strong influence over debt and deficit numbers (Irwin, 2015). According to Irwin (2015), the core of this subject matter is in the query how government sector and debt are defined. Namely, there is no single, uniform, internationally accepted definition of debt, deficit and their methodology. By way of explanation, there are many differences, in how debt and deficits are measured across countries (Irwin, 2015). Differences in the concepts and methods of national debt statistics are reflected in their relative deficit-to- GDP and debt-to-GDP ratios. On the other hand, the level of debt and deficit is essential for estimating fiscal risks. Consequently, that may sometimes lead to misunderstandings and inaccurate debates on fiscal policies, for which many are not even aware of (Dippelsman, Dziobek & Gutierrez Mangas, 2012).

For such purpose, the International Monetary Fund (2014a) and the European Commission (2016a) have set out frameworks on government finance statistics (hereinafter: GFS) specifically designed and used for the purpose of fiscal analysis, including the subject matter of government, i.e. public sector's debt. Conformity of national methodologies to more standardized definitions enables appropriate comparison of data between countries in their debt ratios, debt sustainability analyses and it would respectively permit convenient fiscal policy discussions (Dippelsman et al., 2012).

Macedonia as a country has a long-standing aspiration to enter the European Union (hereinafter: EU). For that purpose, compliance with European standards and EU Acquis in every area of functioning as a sovereign country are inevitable. That is the main reason why literature review is covered in this section, giving a greater focus on European concepts of public debt. The European benchmark is later on used for comparison with the Macedonian concept of public debt. The main motivation between the conceptual comparisons is to develop a clear understanding of conceptual and statistical differences of public debt that may be of great importance and have further impact on the level of the Macedonian public debt as well as its sustainability.

The Treaty of the Functioning of the European Union obliges that Member states have to be in compliance with budgetary discipline by satisfying and adhering to two conditions

which are part of the criteria known as convergence or Maastricht criteria. The criteria that Member states are obliged to fulfill, as being part of the European Economic and Monetary Union, refer to the government deficit-to-GDP ratio not exceeding 3% and debt-to-GDP ratio not exceeding 60% (European Commission, 2016a). However, as previously mentioned, there are many statistical differences that may disrupt the accuracy of the government finance data. Such differences would also respectively imply obstacles to the compliance to the budgetary discipline criteria. The ‘Manual on Government Deficit and Debt’ by the European Commission (2016a) provides guidance and its set to ensure accuracy, transparency, and comparability across the European Union statistics in the area of government finance. The Manual basically represents an implementation of the latest European System of National and Regional Accounts 2010 (hereinafter: ESA 2010) which sets out an internationally accepted accounting framework that systematically, in details, describes the economy. The International Monetary Fund, on the other hand, has the ‘Government Finance Statistics Manual 2014’ (2014a) which is also developed with the same purpose. However, this chapter relies more on the European Commission’s ‘Manual on Government Deficit and Debt’ (2016a) as a reference for the development of conceptual framework for debt sustainability analysis.

The debt that the European Member states report on is referred to as Maastricht debt. This is subject to the Treaty on the Functioning of the European Union that has provided a specific definition of debt which is being used for measuring and reporting reference values that ensure the budgetary discipline required with the Treaty as well (European Commission, 2016a). According to the ‘Manual on Government Deficit and Debt’ (2016a, p.417) debt for the purpose of the Growth and Stability Pact is defined as follows: “Debt means total gross debt at nominal value outstanding at the end of year and consolidated within and between the sectors of the general government”

In specific, in the scope of the definition, the measurement of the stock of country’s debt includes the government liabilities in the categories of currency and deposits, debt securities, and loans. The change in the stock of debt between two periods of time would reflect the issuance of new liabilities by the general government minus the redemption of the debt and other causes of change in its volume (European Commission, 2016a).

Although this definition of country’s debt as well as the scope of the liabilities that the debt includes may seem to be clear and easily understandable, the process of actually determining what is to be or not to be calculated as part of that debt may sometimes be very tricky and difficult to define. Namely, the core differences come from definitions of the government sector and definitions of debt and deficit (Irwin, 2015). Therefore, according to the ‘Manual on Government Deficit and Debt’ (2016a), there are three main pillars or concepts that help in identifying and properly measuring country’s debt. Those

are the classification of units, the timing of transactions, as well as the nature of transactions.

1.1.1 Classification of units of the government sector

The classification of units refers to defining the government sector. According to Irwin (2015), there are few stages in the definition of government. The narrowest definition that Irwin (2015, p.7) suggests is the “budgetary central government” which defines the country’s revenues and spending. Including agencies that are government-controlled results in the definition of “central government” according to Irwin (2015, p.7) while also adding governments at sub-national level would reflect the “general government” definition. Furthermore, according to Irwin (2015) some countries definition of governments also includes corporations that are owned by the government. Adding only the non-financial corporations according to Irwin (2015, p.7) would result in definition of “non-financial public sector”. Adding both financial and non-financial, or all of them, results in the broadest definition of the government as Irwin (2015, p.7) defines it and that is the “public sector”.

According to the European Commission’s ‘Manual on Government Deficit and Debt’ (2016a) the government sector consists of institutional units which are considered as non-market producers and are controlled by the government. More specifically, according to the ‘Manual on Government Deficit and Debt’ (2016a, p.13) the definition of the general government sector and entities which are to be considered as part of it includes:

- “a) General government entities which exist through a legal process to have a judicial authority over other units and administer and finance a group of activities, principally providing non-market goods and services, intended for the benefit of the community;
- b) Non-market public producers i.e. corporations and quasi-corporations controlled by government if their output is mainly non-market;
- c) Non-profit institutions recognized as independent legal entities which are non-market producers and are controlled by the government;
- d) Pension funds, recognized as separate institutional units where there is a legal obligation to contribute and where government manages the funds with respect of the settlement or approval of contributions and benefits”

The ‘Manual on Government Deficit and Debt’ (2016a) discusses in detail examples and statistical issues that may arise during the determination of the status of specific units and entities as being or not being part of the general government sector.

Furthermore, the general government itself is composed of four sub-sectors that include: general government, state government, local government and social security funds (European Commission, 2016a).

Consequently, units which are privately controlled, as well as market units which use their own sales for financing, are not to be included as part of the government sector (European Commission, 2016a). Moreover, according to the 'Manual on Government Deficit and Debt' (2016a) guaranteed debt is not recorded unless the government guarantee has been activated, in which case it becomes part of the government debt.

1.1.2 Timing of government transactions

The second key concept for the measurement of government debt refers to the time of recording transactions. Literature discussion between cash and accrual accounting differences and advantages is of a wide spectrum. Even though statistically the effects from differences in accrual and cash recording are eliminated over a long period of time, the time of recording transactions has an impact on government deficit and debt.

The basic rule according to the 'Manual on Government Deficit and Debt' (2016a) is that all of the transactions related to government sector activity are recorded on accrual basis. This means that timing of transactions is considered the moment whenever the economic activity happens and when liabilities are created, rather than the time when the cash is paid. Specific rules apply to the recording of taxes and social contributions since that type of revenue is often recorded on cash basis and needs to be converted on accrual basis. The special rule refers to not including the amount of taxes and social contributions which is unlikely to be collected, so it will not have an effect primarily on government deficit and consequently government debt as well (European Commission, 2016a).

According to the European Commission (2013a, p.3): "Accruals accounting is the only generally accepted information system that provides a complete and reliable picture of the financial and economic position and performance of a government".

1.1.3 Nature of government transactions

The third concept which is crucial for proper measurement of the government deficit and debt refers to the nature of transactions. The 'Manual on Government Deficit and Debt' (2016a) explains this concept as distinction between financial transactions that do not affect the government deficit directly and non-financial transactions that have a direct effect on the government deficit. The distinction refers to transactions such as consumption, subsidies or grants, wages and salaries are considered as non-financial items and have a direct effect on government deficit, while repayment of debts, acquisition of

financial assets and other financial transactions do not affect the government deficit directly.

1.2 Key factors influencing debt dynamics

Debt sustainability, in general, refers to the ability of a government to meet its debt obligations (Cottarelli & Moghadam, 2011). The level of debt sustainability is country-specific since it depends on the country's specific circumstances and characteristics of the debt portfolio that determine the country's ability to service and repay its debt obligations (IMF, 2014b). For such purposes, the literature defines macro-economic indicators that have direct effect on debt dynamics and trajectories and therefore determine the levels of sustainable debt. This section provides a literature overview of factors identified as factors influencing debt dynamics.

1.2.1 Real growth rates

Real growth rates are one of the main macroeconomic indicators that are considered to directly affect debt levels and its trajectory (Escolano, 2010). The existing literature identifies inter-relatedness between the debt levels and growth rates as variables. One side of that relationship is the potentially adverse effect that debt has on the long-term growth rates. In particular, Hyman (2011) argues for the existence of such adverse effect especially when the debt level oversteps a certain threshold. The hypothesis states that after crossing a certain threshold, the sufficiently high debt levels start exhibiting negative pressures on the willingness of investors providing capital. At a long run, negative effect could come as a result of the potentially adverse effects that high government debt has over investment, long-term interest rates as well as the expectations that are being assumed for future potential taxation increases. Furthermore, high debt levels tend to limit the ability of fiscal expansion in periods of need for counter-cyclical fiscal policy that can create increased vulnerability to crisis (Elmendorf & Mankiw, 1999).

Some of the empirical research supporting the hypothesis for the adverse effects of debt on growth conducted by Reinhart and Rogoff (2010) or Cecchetti, Mohnaty and Zampolli (2011) shows that after crossing a certain threshold, high debt is associated with lower growth rates. According to Reinhart and Rogoff (2010), even though thresholds are always country-specific, high debt to GDP levels standing at 90 percent and above are ultimately related to lower growth outcomes for both advanced and emerging economies. In addition, the threshold point for emerging countries only is set even lower. At levels of debt above 60 percent of GDP, the adverse effects on growth rates could become visible.

On the other side of the relationship between debt dynamics and growth rates, a positive growth rate of GDP tends to immediately lower the debt to GDP ratio *ceteris paribus*. It is

also one of the factors that have a direct inverse effect over the debt levels according to the ‘Practical Guide to Public Debt Dynamics, Fiscal Sustainability, and Cyclical Adjustment of Budgetary Aggregates’ by Escolano (2010). In particular, positive growth rates, all else being equal, will tend to reduce the debt level and vice versa. The empirical research of Cherif and Hasanov (2012) on the effects of growth shocks over debt dynamics, can serve as confirmation of the inverse relationship between growth rates and debt dynamics. They find that the US public debt unsurprisingly falls as a result of a positive growth shock. As a result of positive growth rates in GDP, the primary surplus starts contributing more towards debt reduction. Once primary deficit starts prevailing again, debt levels converge to their pre-shock paths. However, positive growth rates tend to bring other benefits such as employment, which makes it the best available move for debt reduction for policy makers.

The causal relationship between debt levels and growth rates is hard to be determined. Therefore, it remains unclear whether higher debt levels reduce the growth of the economy, or higher growth rates reduce the debt levels.

1.2.2 Interest rates

High government borrowings are usually accompanied with high costs for interest payments that result from the amount of the debt and the interest rates charged. Generally, the interest rates represent the price of the borrowings, which is why they are one of the factors that have a significant effect on debt dynamics. The existing literature, such as Hyman (2011) and Mankew (2004), argue that high debt levels eventually cause an increase in the interest rates in the economy.

The explanation behind it is that a change in the budget balance of the government at the same time represents a change in the national or public savings. Governments running budget deficits and borrowing domestically in order to finance those deficits contribute to decline of the public savings and thereby decline of the loanable funds in the economy. The decline in loanable funds available for investment by the private sector can increase interest rates, reduce the private investment and contribute towards reducing the economic growth and the future living standard. So, although fiscal expansion is supposed to stimulate the aggregate demand, at the same time it causes a rise in interest rates which on the other hand reduces the investment spending in the economy. That eventually results in a reduction of the aggregate demand known in the literature as the crowding-out effect (Mankiw, 2004). On the other hand, governments having budget surpluses could serve to pay off country’s public debt. By this, they would increase the funds available in the capital markets and the national savings which could eventually result in lowering interest rates, more private investment and higher economic growth (Hyman, 2011).

Although domestic borrowings could result in crowding-out effect, such effect is not the case when governments borrow abroad. However, the interest rates paid on borrowings at the international market are usually higher than the ones paid at the domestic market. Furthermore, elevated debt levels could also cause an increase in the interest rates in the case of international borrowings. Namely, high debt levels coinciding with running budget deficits could increase the country's risk premium which would ultimately result in increasing the price of borrowing – the interest rates (Scheachter et al., 2012).

There are a small number of empirical studies that examine the relationship between interest rates and debt levels. One empirical study that focuses on providing a support for the theoretical hypothesis of adverse relationship is the empirical research of Engen and Hubbard (2004) on federal government debt and interest rates. The empirical results of the study by Engen and Hubbard (2004, p.42) show that:

“Taken together, the bulk of our empirical results suggests that an increase in federal government debt equivalent to one percent of GDP, all else equal, would be expected to increase the long- term real interest rates by about three basis points, while some estimates are not statistically significantly different from zero.”

Interest rates are also among the factors that have a direct and meaningful effect on determining future debt paths. The simplified debt dynamics identifies the interest rates as one of the variables that are directly proportional to debt levels. That means an increase in the current year interest rates contributes to an increase in the current year debt levels *ceteris paribus* and vice versa (Escolano, 2010).

1.2.3 Primary balance

Another factor contributing to the simplified debt dynamics being directly related to debt levels is the primary balance. Primary balance is one of the macroeconomic indicators that serve as an insight into understanding the position of government fiscal policy. It basically shows the government budget balance excluding interest payments which are attributed to already existing debt. In such way, it serves as an indicator that shows fiscal imbalances arising from current government expenditures or in other words the government current fiscal efforts (Escolano, 2010).

By way of explanation, for countries that have a primary deficit, the current fiscal imbalances lead to raising borrowing needs to finance those imbalances and thus contribute to further accumulation of debt levels. On the other hand, countries that achieve primary surplus are showing current fiscal efforts and measures in consolidative direction for reducing government debt levels. The ‘Toolkit to Assessing Fiscal Vulnerabilities and Risks in Advanced Economies’ (2012) points out the primary balance as one of the

medium-term and long-term adjustment needs to ensure fiscal sustainability. Having high debt levels and high primary deficits can become unsustainable if not corrected timely. The simplified debt dynamic shows the linear relationship between debt levels and primary balance by primary balance lowering the debt levels, all else being equal (Escolano, 2010).

1.2.4 Inflation

The connection between inflation and debt dynamics occurs simply due to the fact that high levels of inflation can reduce the costs for servicing debt obligations. One very important fact to be considered is that the effects of inflation could be reflected on the nominal debt levels and costs for servicing debt obligations. Attempts to change the real debt values of debt through the inflationary channel is impossible and governments that attempt in doing so will be in the position of paying much higher interest rates than before (Reinhart & Rogoff, 2010).

Empirical research as for example the research by Cherif and Hasanov (2012) support the theoretical literature hypothesis by showing the effect of inflationary shock over the debt dynamics. The research shows that positive inflation shocks had the effect of reducing the US debt but with a short-term impulse response, after which debt converged to pre-shock debt paths. The effect that inflation has on debt dynamics was not direct but came as a result of various forces. In particular, a positive inflation shock means higher inflation which, on the other hand, is ultimately followed by lower growth, higher interest rates, and higher deficit. So, initially, the higher inflation causes a reduction in the debt ratio but it does not last long. This means that the favorable effects of higher inflation are not enough to overweight the adverse effects that come from lower growth, higher interest rates, and rising primary deficit. In other words, inflation alone would not have the desired effect unless it is expected that the monetary policy would react differently to the positive inflationary shock. In order for an inflation shock to have a stronger role in reducing debt, the monetary policy has to be relaxed with lower interest rate jumps (Cherif & Hasanov, 2012).

The greatest focus for determining the future debt trajectories are the level of growth rates, interest rates, and primary balance. As long as a country could payoff interest without the need for refinancing or with negative implications for economic growth, the debt levels are considered sustainable. What the simplified debt dynamics suggests is that in any given period, the stock of debt or the debt-to-GDP ratio is influenced by the existing debt level in the previous period, real interest rates, growth rates and the primary balance. As previously mentioned, as long as a country experiences primary surplus, it reduces the debt level. The same holds as long as interest rates are lower than the growth rates of the economy. However, in cases when interest rates are being higher than the growth rates and the

primary balance is in deficit, it is the very first and basic indicator that debt levels are becoming unsustainable (Escolano, 2010).

1.3 Risks to debt dynamics and sustainability

The objectives of a successful debt management are to ensure debt sustainability, or, in other words, to guarantee that debt servicing obligations, as well as financing needs, are met at lowest possible costs while having a reasonable degree of risk (IMF, 2014b). However, managing risk and managing costs almost always involve a trade-off. For that purpose, despite government's fiscal policy objective, the government's tolerance to risks is the main factor that influences the judgments. Some of the risks, to which debt dynamics and sustainability is frequently exposed, are the market risk, which also refers to interest rate and exchange rate risk, refinancing risk, operational risk and many others (IMF, 2014b).

The market risk to debt dynamics is the risk associated with an increase in the debt costs, which could be a result of changes in variables as the interest rates and, or exchange rates. In particular, it includes interest rate and exchange rate risk (IMF, 2014b). The market risk would have an immediate negative effect on debt dynamics, not just by increasing the debt-servicing obligations, but it could also initiate the need of refinancing the already existing debt or a need for making new debt that would serve to cover the costs of the already existing one. The market risk exposure is mainly determined by the composition of the debt portfolio. In particular, the composition of the debt portfolio by the share of fixed and variable interest rates, domestic and foreign currency denominated debt, as well as the share of short term and long term debt maturity (Government of Republic of Macedonia, 2016).

Interest rate risk is the risk associated with an increase in the costs for servicing debt obligations that arise from the changes in the interest rates (IMF, 2014b). The sensitivity of interest rate shocks depends on the composition of the debt portfolio. Since the portfolio can be composed of debt with fixed and floating interest rate, debt with floating rates are more exposed to interest rate risk. Moreover, debt with short maturity is considered to be more vulnerable to changes in interest rates due to the refinancing needs. So, debt portfolios that have a great share of short term and/or floating rate are considered to be more risky and sensitive to changes in the interest rates (IMF, 2014b).

The sensitivity of debt dynamics to interest rates shocks is even more emphasized in cases of elevated debt levels. Namely, countries with high debt levels, alongside budget deficits, are challenged with higher financing needs. The greater the financing needs of a country for a new debt, the greater the sensitivity to interest rates shocks. Proper measuring and managing the interest rate risk is crucial for a good debt management, especially in

countries where the domestic securities' markets are not developed enough, in which cases the financing needs are covered by external borrowings with less favorable conditions. Some of the measures that debt management undertakes in accessing the interest rate exposure are the share of variable interest rate debt to total debt and average time to re-fixing which calculates the average time till the change of the interest rates. The greater the share of debt with floating interest rates or the lower the value of the average time to re-fixing indicator, the greater the exposure to interest rate risk (Government of the Republic of Macedonia, 2016).

Some countries have a composition of debt portfolios that could also be sensitive to factors such as the exchange rates. The risk associated with an increase in the costs for debt servicing obligations that arise from changes in the exchange rates is defined as exchange rate risk. The exposure to exchange rate risk depends on the external debt of a country or more precisely the debt denominated in foreign currency (Government of republic of Macedonia, 2016). Small and emerging countries that have undeveloped securities markets tend to rely more on external borrowings which makes their debt levels more sensitive to exchange rate movements. Furthermore, countries that have debt denominated in a currency with a floating exchange rate are considered to be the most sensitive (Government of the Republic of Macedonia, 2016). According to the 'Revised Guidelines for Public Debt Management'(2014) some measures that could serve to assess the debt portfolio sensitivity to exchange rate movements could be a share of debt denominated in the domestic currency in the total debt portfolio as well as the ratio of short-term external debt to international reserves.

Refinancing risk is the risk where the existing debt could not be refinanced or it would be refinanced at remarkably high costs (IMF, 2014b). To some extent, the refinancing risk is related to interest rate risks in cases when the increases in costs of refinancing arise from higher interest rates. However, it is sometimes considered as a separate one, due to the failure to refinance maturing debt, or in cases when funding costs become remarkably high so that it can even lead to debt crisis (IMF, 2014b). Managing the refinancing risk means managing and having control over maturing obligations, as well as preventing them from maturing all at once in any given time period. One of the indicators which demonstrate the exposure of debt portfolio to refinancing risk is the average time to maturity of debt. Greater average time to maturity of the debt portfolio means lower uncertainty, which in fact implies lower refinancing risk (Government of the Republic of Macedonia, 2016).

Operational risk is the risk to which debt managers are mainly exposed to while conducting their job tasks. It incorporates different types of risks which can occur on a daily basis. It refers mainly to risks of errors in executing and/or recording transactions, system and services or internal control failures, reputation risks etc. One way to reduce the exposure to

operational risks is to use information systems or software platforms that would significantly decrease the exposure to human errors (IMF, 2014b).

2 MACEDONIAN DEBT, ECONOMIC, AND POLITICAL OVERVIEW

The second component of the conceptual framework is a detailed analysis of Macedonia and its public debt. More specifically, that involves Macedonian concept of debt and its comparison to the European benchmark, as well as an overall economic and political overview that would be used for the public debt sustainability analysis in the next chapter.

The first section of this chapter is specifically focused on the Macedonian debt. It begins with a discussion of the concept and definition of the Macedonian public debt and comparison to the European standards discussed in the previous chapter. It also analyzes the possible implications on Macedonian public debt stemming from compliance with the European standards. Moreover, it provides a specific focus on the Macedonian debt and deficit, their creation, historical trends, and their current levels. The overview covers the period of the last ten years, and the main sources used are the annual reports of public debt management prepared by the Ministry of Finance of the Republic of Macedonia, as well as the International Monetary Fund country reports.

The next two sections are focused on the overall economic and political movements in Macedonia. They present, in particular, a historical overview of the main macroeconomic indicators that affect debt dynamics, as well as the current political position in Macedonia. The reasoning to do so is the fact that economic and political movements are essential for future projections of the analysis in the next chapter. The time period covered is the past ten years, while the main data sources used are provided by the Ministry of Finance of the Republic of Macedonia and the National Bank of the Republic of Macedonia. For the purpose of the political overview, references are drawn from the European Commission Report for Macedonia 2016 (2016c), along with the latest International Monetary Fund Country Report for Macedonia (2016a).

2.1 Macedonian public debt

The creation of the Macedonian debt dates back to the breakup of the Social Federal Republic of Yugoslavia, when the Yugoslav debt was split among the successor republics. The monetary independence that followed, as well as the numerous problems that emerged in the period of transition, generated the need for borrowings in order for the country to be able to finance its public needs. According to Arsovski, Nenovski and Smiljkovski (2009) the main reasons behind the creation of the Macedonian debt have been mainly the activities related to: servicing of the part of the Yugoslav public debt which was

undertaken by Macedonia, reconstruction and rehabilitation for part of the Macedonian banking system, the economic depression which was going on throughout the period of transition, dealing with the issue of foreign currency savings of the citizens which were mainly deposited in the National Bank of Yugoslavia, financing of the budget deficits etc. With time, the effect of all of those factors resulted in Macedonian public debt reaching its peak in 2000 with 57.2% of GDP (National Bank of the Republic of Macedonia, 2017a).

However, in the years afterwards, the strengthening of the management of public finances in Macedonia led to a gradual reduction of the above public debt levels. In the period of the past ten years, the most intensive decrease of the debt commenced in 2007. In general, that was the time period when the Macedonian government decided to pay off part of its debts towards the international financial institutions before their maturity. As a result, the lowest ratio of public debt was reached in 2008 at 23% of GDP (Arsovski et al., 2009). Since 2008 to date, the relative level of public debt has more than doubled and reached a level of 50.1% of GDP in the fourth quarter of 2016. In absolute terms, the level of debt has even tripled in a time period of less than 8 years (Ministry of Finance of the Republic of Macedonia, 2017a).

2.1.1 Macedonian concept of public debt and its comparison to the European Benchmark

In order to begin with analyzing the Macedonian public debt sustainability, an understanding of the national definition, scope, and measurements of public debt is necessary. Since Macedonia's long-standing aspiration is to enter the European Union, this section also provides a literature review on conceptual differences of the Macedonian public debt with the European benchmark. Differences that may arise from the national definition and concept of public debt to the ones of EU may have a significant effect on measurements of debt-to-GDP ratio and contribute to misleading analyses of the fiscal position of the country. Therefore, the first segment of this section gives an overview of implications to Macedonian public debt levels arising from (non)compliance with the European standards. While European countries usually equalize the term and value of general government debt and public debt, Macedonia as a country has certain specifics in the definition of country's debt by reporting on both general government and public debt (Ministry of Finance of the Republic of Macedonia, 2017a). Namely, according to the Ministry of Finance of the Republic of Macedonia, in the European Commission's 'Final Findings of Eurostat technical visit to the Republic of Macedonia' (2016b) there are three levels of debt in the Republic of Macedonia: central government debt, general government debt, and public debt.

Central government debt refers to the debt of the state and public institutions that are established by the Republic of Macedonia. According to Article 2 of 'Public Debt

Law' (2014) central government debt excludes the debt of public enterprises and companies that are fully or predominantly owned by the state, municipalities or the debt of the National Bank of Republic of Macedonia (European Commission, 2016b; Public Debt Law, 2014).

General government debt sums the central government debt and the local government debt including the liabilities of municipalities, municipalities within the City of Skopje and the City of Skopje. According to Article 8 of 'Public Debt Law' (2014), the local government debt is not a liability of the Budget of the Republic of Macedonia unless it is assumed by any of the municipalities due to their inability to service their debt obligations (European Commission, 2016b; Public Debt Law, 2014).

Public debt includes both central and general government debt, as well as the debt of the public enterprises and trading companies for which a sovereign guarantee has been issued. However, according to Article 8 of 'Public Debt Law' (2014) such guaranteed debt is not a direct liability of the Budget of Republic of Macedonia. According to Article 23, in cases of default of public enterprises or trading companies to service the debt obligations on their due dates, sovereign guarantee gets activated and in such case the debt is measured within the general government debt level. (European Commission, 2016b; Public Debt Law, 2014)

By way of explanation, the definition of public debt is wider than general government debt. The difference is consequently reflected in the level of general government debt and public debt reported by the Ministry of Finance (Ministry of Finance of the Republic of Macedonia, 2017a). According to Irwin's (2015) definitions of the government sector, Macedonian debt corresponds to the definition of public sector's debt. The Macedonian Public Debt Law, or other existing literature related to the Macedonian public debt and its definition, does not provide a comprehensive overview of how units are being classified within the government sector, and that also goes for the non-financial and financial units of the public sector.

According to the Ministry of Finance in the European Commission's 'Final Findings of Eurostat technical visit to the Republic of Macedonia' (2016b), the scope of the debt instruments includes loans taken at the domestic market by private creditors, loans taken at the external market by private creditors but also the official multilateral and bilateral creditors, securities issued both on the domestic market as structural bonds and continuous government securities, as well as securities issued at the external capital market which in the case of Macedonia are Eurobonds.

In terms of time of recording the transactions in Macedonia, transactions are recorded on cash rather than accrual basis. This means they are recorded not once the liabilities arise,

but rather when they are paid out. According to Article 17 of the 'Accounting for Budget and Budget Users Law' (2015) revenues and other inflows are recorded at the time of their realization i.e. when they are collected. On the other hand, the expenditures and other outflows of the Budget of the Republic of Macedonia are recorded at the time when they have been paid (Accounting for Budget and Budget Users Law, 2015).

By all of the above, the terms government and public debt do not equalize in the case of the Republic of Macedonia. Besides, neither the concept of public debt nor the concept of general government debt in Macedonia equalizes with the European concept of public i.e. government debt. Proper analysis of the indebtedness, debt sustainability of the country, and comparisons to other countries would be very difficult to achieve in such case. Therefore, besides analyzing the debt sustainability of the Macedonian public debt, defined as it is, conducting a sensitivity analysis on assumed conformity to European standards, scope, and measurements would show the effect over the sustainability of the Macedonian public debt.

However, conducting a comparison of the Macedonian public debt concept, its scope, definition, and measurements with the European concept requires a deep and complex analysis. There is a very limited scope of literature that covers this topic. Macedonia as a candidate country should comply with European standards in terms of government statistics. The harmonization with European standards in terms of government statistics has been only discussed in the European Commission's Progress Reports (2014; 2016c) for Macedonia, as well as the European Commission's 'Final Findings of Eurostat technical visit to the Republic of Macedonia' (2016b).

The latest progress report of the European Commission for Macedonia (2016c, p.46) states that the country is: "moderately prepared in the area of statistics", but it points out the need for further alignment with ESA 2010 and in particular with the EU standards in terms of government deficit and debt. On the other hand, the 'Final Findings of Eurostat technical visit to the Republic of Macedonia' (2016b, p.15), specifically on the compliance of Macedonian debt definition to the European definition, concludes that: "Eurostat took note that, for the time being, the national definition of the government debt does not entirely correspond to the government (EDP) debt definition, in terms of content, coverage, and valuation."

From the discussion in the first chapter of this Master's thesis regarding the EU definition of government debt, the Eurostat concluding remarks could be anticipated. Differences could be noticed in the way public i.e. government debt is defined. More specifically, differences can be anticipated in the definition of the government sector i.e. classification of units that are to be included within the scope of the debt itself, as well as differences in the time of recording government transactions.

To begin with, the differences in terms of the definition of the government sector, Eurostat technical visit to the Republic of Macedonia (2016b) notes that Macedonia does not follow the classification of units inside or outside the government sector. In particular, this refers to the national definition of public debt that includes public corporations debt, without conducting any classification of those public corporations inside or outside of the government sector. In order to comply with the European standards, Macedonia shall conduct a classification of public corporations in accordance with the 'Manual on Government Deficit and Debt' (2016a) and respectively classify them inside or outside the government sector. Further, the definition of debt shall include only the debt of those public corporations that would be classified within the government sector, while guaranteed debt shall be part of the country's debt only in cases the sovereign guarantee gets activated (European Commission, 2016b).

Eurostat technical visit to the Republic of Macedonia (2016b) has also suggested a reclassification of particular units inside or outside the government sector. Namely, it requested a further analysis of particular public enterprises for their reclassification inside or outside the government sector, as well as including new units whose characteristics require classification inside the government sector.

More specifically, public hospitals, which so far have been classified outside the government sector, should be reclassified inside the government sector (European Commission, 2016b). That means that the Ministry of Finance of the Republic of Macedonia should consider the debt of public hospitals as government debt. Eurostat technical visit to the Republic of Macedonia (2016b), also discloses that the action point to reclassify the public hospitals inside the government sector and consider them as part of the government debt has been implemented by the Macedonian State Statistical Office as of June 2015. However, it needs to be taken into account that public hospitals are not allowed to issue any debt, thus with the current definition of recording debt in Macedonia, they do not add to the level of Macedonian debt. Nevertheless, they do have a significant number of matured unpaid claims i.e. arrears. The level of public hospitals' arrears for 2015 according to the 'Analysis for Funds Realization of the Health Insurance Fund and Public Hospitals' (2016) are about 0.56% of GDP. Approximately the same level also stands for 2016 (Health Insurance Fund of Macedonia, 2017). Public hospitals' arrears in the past ten years have been the highest in 2006 when they were 0.69% of GDP and lowest in 2008 at 0.03% of GDP. They have been rising ever since (Health Insurance Fund of Macedonia, 2016).

Other specific units discussed within the 'Final Findings of Eurostat technical visit to the Republic of Macedonia' (2016b) that could be possibly reclassified within the government sector are the Public Enterprise for State Roads and the Macedonian Bank for

Development Promotion. Namely, the Public Enterprise for State Roads is a government controlled enterprise to whom the government provides investment grants or equity injections, guarantees upon its liabilities, and would be most appropriately classified within the government sector (European Commission, 2016b).

The Macedonian Bank for Development Promotion is defined as institutional unit controlled by the government, financed by the government, its liabilities are being guaranteed by the government, and services are provided below the market rates. Even though there is a requirement for further analysis, the characteristics of the Macedonian Bank for Development Promotion point to a reclassification of the above within the government sector (European Commission, 2016b).

In terms of debt, the debt of the Public Enterprise for State Roads, as well as the one of the Macedonian Bank for Development Promotion are included within the public debt of Macedonia as debts for which a sovereign guarantee has been issued. In 2015 the debt issued by the Public Enterprise for State Roads has been almost 40% of the total guaranteed debt, while the debt of the Macedonian Bank for Development Promotion was about 30% (Ministry of Finance of the Republic of Macedonia, 2016). So, in compliance with the EU standards, the debts of the Public Enterprise for State Roads and the Macedonian Bank for Development Promotion would be possibly reclassified with the government sector and the debt would be recognized as such, instead of being part of the public debt only. More specifically, the difference between the general government debt and the public debt in 2015 was around 8.7 p.p. (Ministry of Finance of the Republic of Macedonia, 2016). As per the above, reclassification within the government sector of the Public Enterprise for State Roads and the Macedonian Bank for Development Promotion would mean reclassification of 69% of the guaranteed public debt in 2015 as part of the general government debt.

In terms of time of recording transactions, the difference is evident. As defined in the first chapter, the European standards rely on accrual recording of transactions, while Macedonia as a country uses cash recording of transactions. Compliance to European standards would mean recording transactions on an accrual basis. 22 countries of the European Union are using accrual accounting along with cash data (Irwin, 2015). The International Monetary Fund has suggested applying the same method for Macedonia as early as the year 2001; however, Macedonia has not yet accepted and applied such suggestions (Popovski, 2015).

The problem of arrears and delayed payments of the government especially to the domestic private sector has been an important topic of discussion in Macedonia lately. The IMF (2012) in their 2012 country report for Macedonia disclosed for the first time their concerns over arrears accumulation. At the time being, there have been some publicly disclosed figures that amounted to around 0.2% of GDP (IMF, 2012). In the years

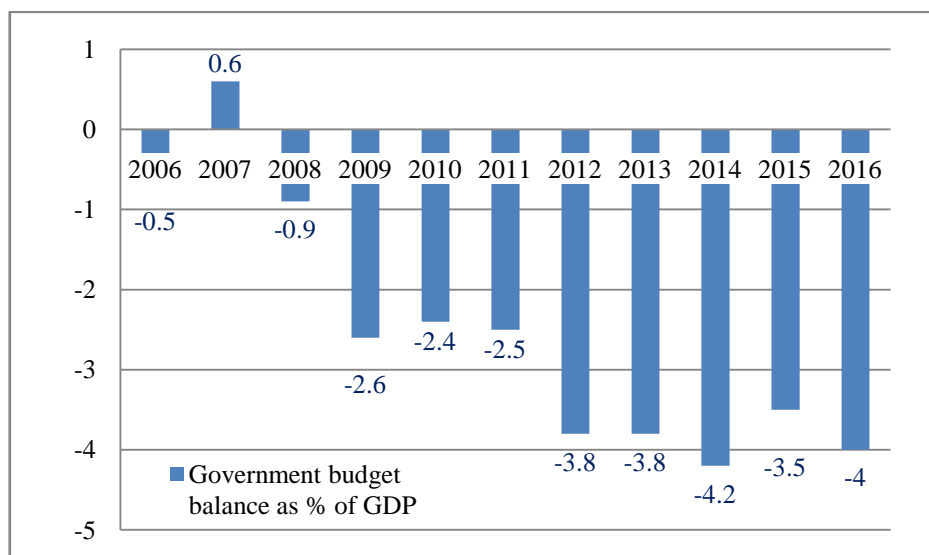
afterward, the topic that covers government arrears has been even more persistent among economic expert discussions. The Institute for Economic Research and Policy Finance Think, Skopje (2016), has stressed out that the Ministry of Finance and their fiscal strategies need to pay attention to this problem since it can significantly affect the liquidity of the economy. The European Commission in their last progress reports (2014a; 2016c) expressed their concerns over the government arrears. The arrears resulting from a delayed refund of VAT as well as public contracts obligations are persistent, and consequently, there is no transparency over the entire extent of the country's debt (European Commission, 2014a). In the latest progress report for Macedonia, the European Commission (2016c) pointed out the need of strengthening the fiscal transparency, and the need of consistent informing on the payment arrears. The discussion of government arrears is critical from the point of view that an unknown level of government arrears means inaccurate estimates of the government debt levels. According to Popovski (2015), government arrears are considered to be government debt, if not serviced on time. The level of such arrears are known to the Ministry of Finance but are not publicly disclosed. If the Macedonian government arrears are included within the Macedonian government debt, the debt level will significantly increase (Popovski, 2015).

2.1.2 Macedonian government budget balance

The usual reason for the creation of public debts is to cover up for budget deficits. Even though, the new government that took place in 2006 started a more expansionary fiscal policy, the modest debt levels in that particular period allowed for the government to start running budget deficits from 2007 onwards (Commission of the European Communities, 2007). The expansionary fiscal policy of the new government has committed to reforming and reducing taxes, however, at the same time it started with increased government spending on public sector wages, pensions, agriculture, social contributions etc. (IMF, 2009). For the past ten years, the average yearly growth rate of the revenues within the budgets has been around 2%, while the budgetary expenditures have been growing yearly by 7% on average (Ministry of Finance of the Republic of Macedonia, 2017b). On the expenditures side, the current expenditures in the period between 2006 and 2016 are on average about 89% of the share of the total expenditures, while the capital expenditures represent on average only 11% of the share. At the same time, the greatest share of the current expenditures is attributed to social benefits, goods and services, and wages and salaries. The highest yearly growth rate, approximately an average of 7%, among them is in the area of social benefits, especially the social transfers and the transfers to the Pension and Disability Insurance Fund. Yet, in the years until 2010, such expansionary policy was not seen as a threat to fiscal sustainability since budget deficits were maintained below 3% of GDP (IMF, 2010).

Meanwhile, the general government debt i.e. public debt started to moderately increase, which contributed to the International Monetary Fund (2010) to start expressing concerns (for the first time in 2010) on the medium and long run financing of those budget deficits. The start of the increase in the public debt levels was the reason that the country report of Macedonia in 2010, as part of the debt sustainability guidelines, also suggested that a prudent debt ratio for Macedonia would be one around 25% of GDP (IMF, 2010). The reasoning behind that threshold was the analysis that emerging markets debt sustainability levels are lower compared to advanced economies. Moreover, they have a higher probability of a debt crisis whenever their debt levels are above that 25% threshold (IMF, 2010). Even though Macedonia at that time period had a public debt ratio of 27% and a government debt ratio of 24% of GDP, it was considered to be at the median among emerging economies with fixed exchange rate (IMF, 2010). Figure 1 shows the Macedonian government budget balance in the past years.

Figure 1. General Government Budget Balance (as % of GDP)



Source: Ministry of Finance of the Republic of Macedonia, *Basic macroeconomic indicators*, 2017b, p.1, Table 1.

In the middle of the global financial crisis, budget deficits continued with a further increase and reached a level of 3.8% of GDP in 2012 (Ministry of Finance of the Republic of Macedonia, 2017b). Besides the extensive loosening of the fiscal policy by the government, the reasoning behind that increase in 2012 was attributed to arrears clearance (IMF, 2012). From 2012 till now, fiscal discipline deteriorated. Consistently, the high budget deficits of around 3.8% on average contributed towards a public debt accumulation and started notably raising the question of future fiscal and debt sustainability (Ministry of Finance of the Republic of Macedonia, 2017b). Namely, within the past few years, all of the IMF reports as well as the European Commission progress reports suggest the need for

immediate fiscal consolidation (IMF, 2015a; 2016a; European Commission, 2014a; 2016c). The IMF's country report in 2015 (2015a) states that in the period before the crisis, the strong economic growth of Macedonia contributed to building up a reliable fiscal environment. However, such fiscal environment does not exist anymore. The reason behind this lays mainly in the government policy choices. Tax, social and pension contributions were cut down and could be considered among the lowest within the region. At the same time, the social transfer system remained with its generosity, accompanied with increased public expenditures on wages and salaries (IMF, 2015a). The latest country report by the IMF (2016a) also recommends a rationalization in public transfers, especially the social transfers and subsidies that in 2015 accounted for about 62% of total spending, as opposed to the emerging countries average of about 48%. Furthermore, the IMF's latest country report (2016a) also stresses out the population aging pressures over public finances. In particular, the pension deficit is sizable, about 4.5% of GDP, and according to IMF it is expected to reach 10.5% of GDP till 2030 as a result of low contribution rates and low labor force participation rates.

2.1.3 Budget transparency

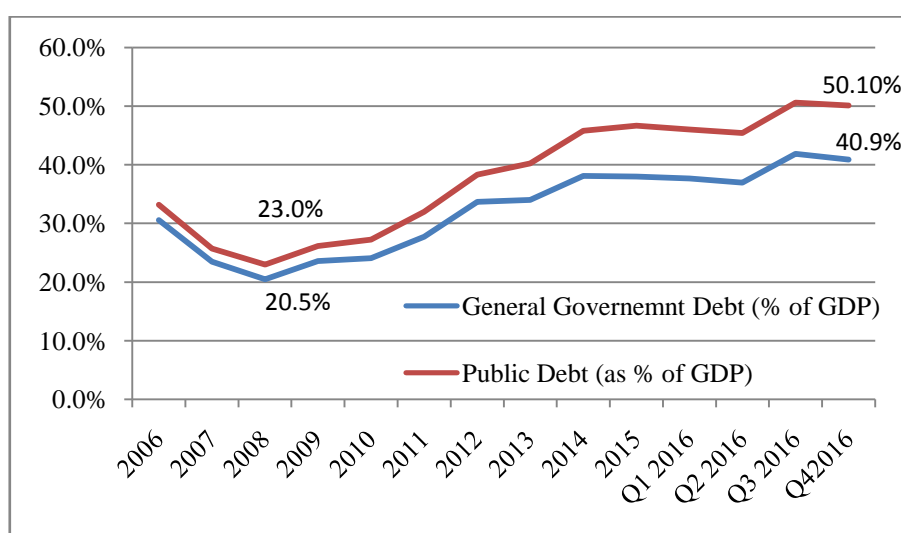
When discussing the government budget expenditures, one of the most important things to mention is the significant problem of budgetary transparency. The problem of transparency has been mentioned along with the discussion of government arrears, and it is one of the concerns expressed in the progress reports of Macedonia by the European Commission (2014a; 2016c). Strictly speaking, according to the 'Open Budget Index 35/100' by the International Budget Partnership (2015), the Macedonian budgetary transparency for 2015 is ranked with a score of 35 out of 100. The budget transparency, according to the 'Open Budget Index 35/100', has significantly deteriorated in the past years. In 2008, according to this index, Macedonia scored 54 out of 100 and with that it was considered more transparent than Serbia, Bosnia and Herzegovina and Albania (International Budget Partnership, 2015). However, in 2015, with a score of 35, Macedonia is lagging behind the 45 global average score, and also has the lowest score among the region. By way of explanation, the index shows that Macedonian government only provides minimal budget information to the public. Relating this fact together with the increased government spending, the sizable budget deficits and accumulation of Macedonian debt in the past years, it means that the public does not explicitly know for what purposes the government expenditures are being used.

2.1.4 Macedonian public and government debt

According to the definitions of the Macedonian general government debt and public debt, it is expected that they are identical in terms of their historical trend movements. The lowest relative level of general government debt was in 2008 as 20.5% of GDP, which was

only 2.5 percentage point difference with the lowest public debt level of 23% of GDP. With the increase in general government debt lately, it has reached the level of 41% of GDP in the fourth quarter of 2016. The public debt, on the other hand, has reached a level of 50.1% of GDP in the last quarter of 2016 (Ministry of Finance of the Republic of Macedonia, 2017a). The difference of 9.1 percentage points between the relative level of general government debt and public debt is attributed to the guaranteed debt that is calculated within the public debt scope according to the Macedonian Public Debt Law (Ministry of Finance of the Republic of Macedonia, 2017a). Figure 2 gives an overview of the Macedonian debt trajectory within the last 10 years when the yearly growth rates on average for the general government debt and for the public debt were 8% and 9% respectively.

Figure 2. General Government and Public Debt of Macedonia (as % of GDP)



Source: Ministry of Finance of the Republic of Macedonia, *Stock of general government and public debt as of 31 December 2016*, 2017a, p.1, Table.1.

The elevated debt levels in the past years, especially since 2011 onwards, have provoked a lot of discussion among experts. Namely, the greatest focus has been put on the debt trajectory that followed a significantly increasing trend, as well as the productiveness of the money borrowed. In terms of debt levels and debt trajectory, the ‘Fiscal Strategy of the Republic of Macedonia 2017-2019’ (2016) suggests that the Macedonian public debt shall not exceed the threshold of 60%, which is in accordance with the Maastricht criteria. However, the expert judgments, as well as the suggestions by the European Commission (2016c) and International Monetary Fund (2016a), state that Macedonia shall need to start with fiscal consolidation immediately, as it is already being at the upper limit level of debt sustainability. The last IMF’s country report for Macedonia (2016a) suggests that a recent analysis of the International Monetary Fund finds that safe debt thresholds for emerging market economies are set in the range between 49-58% of GDP. However, for a country as

Macedonia with fixed exchange regime and existence of serious vulnerabilities, the safe threshold would be at the lower bound, i.e. around 50% of GDP (IMF, 2016a). At the same time, the last European Commission progress report (2016c) also stresses out the lack of commitment to fiscal consolidation, which is essential in this state of being. Moreover, it captures the tendency of the government to revise annual deficit targets upwards in the middle of the year which contributes towards further financing needs and debt accumulation. According to the European Commission (2016c), the Macedonian government, rather than identifying concrete measures and savings that would lead to increased fiscal consolidation, bases the fiscal consolidation on relatively optimistic scenarios for the GDP growth.

In terms of debt productivity, most of the expert judgments and discussions, consider Macedonian government spending as not always being productive. The main reasoning behind those claims is that the purpose of the money borrowed has not always been transparently disclosed to the public, which has been proved with the downgrade of the 'Open Budget Index 35/100' for Macedonian budget transparency.

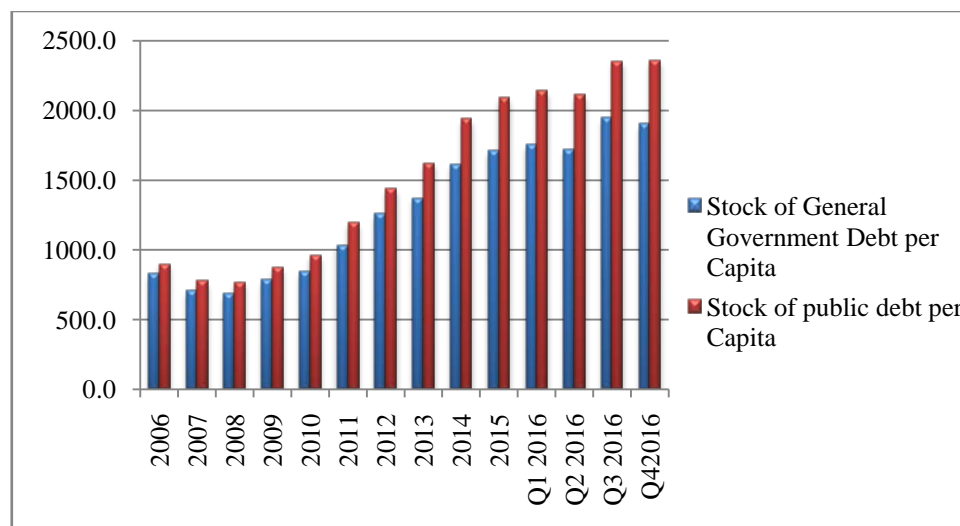
According to Petreski in his column 'Courageous but smart(er), fiscal policy after the elections' (2016) a smaller part of the money borrowed has been used with a specific purpose, such as a road construction, or the loans by the Council of Europe for the construction of Clinical Center etc. The greater concern lies within the rest of the money borrowed, whose purpose is unknown, and which at the same time represent a greater share of the borrowings. It is not always disclosed where the money received by the Eurobond issuance end up and how they are spent. According to Petreski (2016), the latest such example is the Eurobond issued in 2016, amounting 450 millions of Euro, for which the government did not explicitly disclose for what purposes it would use the money. By that, Petreski's column sums up to the conclusion that the main reason behind government borrowings is alimony of all their promises. Petreski (2016) states that money borrowed are mainly being used for increases in pensions, social help, wages in the public administration, as well as other projects either unproductive or with low productivity, all of which are above the potential of the economy itself.

2.1.5 Macedonian public and government debt per capita

Elevated debt accumulation also means increasing the debt burden by the entire population of the country. According to the last census of the Macedonian population and households in 2002, Macedonia is populated by 2,002,547 inhabitants (Census of population 2002, 2017). Calculating the public debt burden per capita in Macedonia shows that the burden has increased from 899 euro per capita in 2006 to 2359 euro per capita in the last quarter of 2016. The general government debt burden, on the other hand, has increased from 827 euro per capita in 2006 to 1904 euro per capita in 2016. Figure 3 shows the increase in general

government and public debt per capita. It is clearly visible that significant debt burden was created in the years from 2011 onwards.

Figure 3. General Government and Public Debt per Capita



Source: Ministry of Finance of the Republic of Macedonia, *Stock of general government and public debt as of 31 December 2016, 2017a*, p.1, Table.1; *Попис на населението 2002*[*Census of Population 2002*], 2017.

2.1.6 Structure of debt portfolio

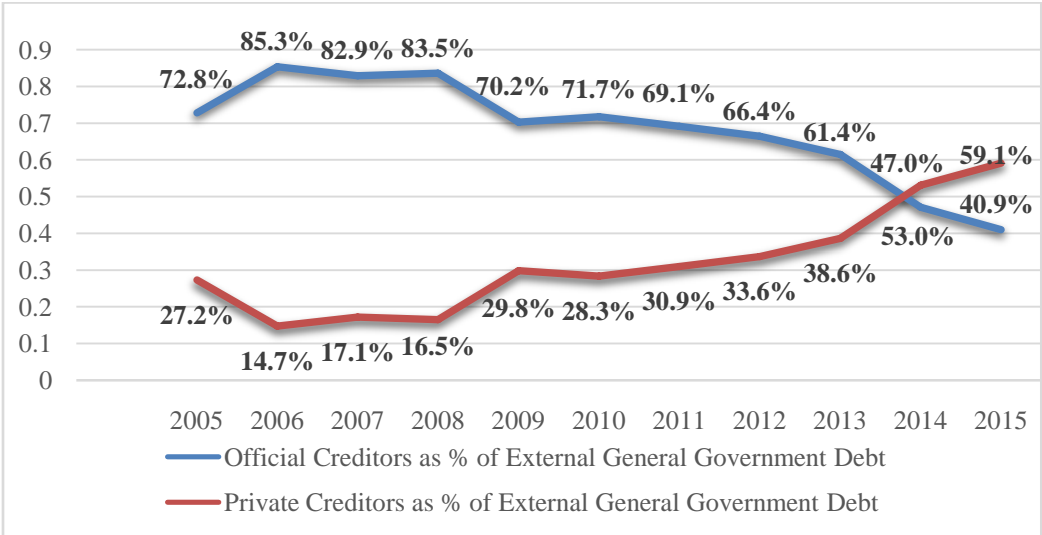
The structure of the debt portfolio is specifically important part of the analysis for assessing possible debt vulnerabilities. Analyzing the structure of the Macedonian debt portfolio, from the Annual Reports on Public Debt Management (2007-2016) the share of external and domestic debt as part of the general government and/or public debt remains the same through the years. Around 60% to 70% of general government and public debt respectively is external debt, while the remaining 40% to 30% are domestic debt. Macedonia as a country does not have a developed domestic market and therefore relies a lot on external financing. As expected, greater share of external debt has the public debt as a result of the guaranteed debt which is almost always an external debt (Ministry of Finance of the Republic of Macedonia, 2017a).

According to Popovski (2015), if not managed carefully, the preferences over external borrowing may sometimes become a problem for countries as Macedonia. The reason to do so is the constantly high trade deficit which is around 20-25% of GDP and current account deficit which has been around 4% of GDP on average for the past ten years (Ministry of Finance of the Republic of Macedonia, 2017b). With the increase of public debt, its share in the external debt of the country has also significantly increased. With such trade and current account deficit, while having increasing public debt, Popovski (2015) claims that

the structure of the Macedonian external debt has become less favorable, which may contribute to a lot of other problems in the future.

Greater change is exhibited in the structure of the external debt creditors in the last ten years. Specifically, the new government that came in 2006 started with repayment of the debt to the international financial institutions even before their maturity due dates, which resulted in the lowest debt to GDP ratios in 2007 and 2008 (Ministry of Finance of the Republic of Macedonia, 2017a). However, after 2008 onwards, the country’s indebtedness began to increase again. From then on, the borrowing policy has been oriented more towards private instead of official creditors. According to the ‘Annual Report on Implementation of the Public Debt Strategy of the Republic of Macedonia for 2008’ (2009), the share of private creditors in the external government debt in 2008 was 16% or only 11% of the total general government debt. On the other hand, as per the ‘Annual Report on Public Debt Management of the Republic of Macedonia for 2015’ (2016) the share of private creditors in 2015 was 59% of the external debt or 36% of the total general government debt. To sum up, the share of private creditors for the last eight years, in the external government debt, has increased by 43 percentage points. Official creditors, on the other hand, that had a share of 84% of the external government debt, or 55% of the total general government debt, have fallen to 41% share the external government debt and 25% share in the total general government debt, respectively (Ministry of Finance of the Republic of Macedonia, 2007; 2016). That implies a decrease of 43 percentage points of the official creditors in the share of external government debt. The figure below shows the switch in creditors for the Macedonian external government debt for the past ten years.

Figure 4. Share of Official and Private Creditors in the External Debt of Macedonia



Source: Ministry of Finance, *Annual Report on Implementation of the Public Debt Strategy for the Republic of Macedonia for 2008, 2009*, p. 32, Chart 27; Ministry of Finance, *Annual Report on Public Debt Management of the Republic of Macedonia for 2011, 2012*, p.34, Chart 23; Ministry of Finance, *Annual*

Report on Public Debt Management of the Republic of Macedonia for 2013, 2014, p. 28, Chart 21; Ministry of Finance, Annual Report on Public Debt Management of the Republic of Macedonia for 2015, 2016, p. 35, Chart 35.

A great amount of the external general government debt issued by private creditors falls on the Eurobonds that Macedonia first started issuing in 2005. Namely, from 2006 till 2011 the Eurobonds represented almost 99% of the share of the external general government debt by private creditors, while in the period between 2011 and 2015 they represented around 60% of the share on average (Ministry of Finance of the Republic of Macedonia, 2009; 2013; 2016). From 2009 to date Macedonia has issued four Eurobonds, out of which one was issued in 2009 and the other three in the period 2014-2016 on a yearly basis. Within the Macedonian debt portfolio, Eurobonds have also been considered as the debt with the highest interest rates. The Eurobond's interest rate is on average around 5.8% or in a range between 3.975% for the Eurobond in 2014 and 9.875% for the Eurobond in 2009, which was considered as the most expensive one (Ministry of Finance of the Republic of Macedonia, 2010; 2016). The three Eurobonds issued from 2014 to date have still not matured.

Other segments of the Macedonian debt portfolio that serve as indicators for the potential risks and vulnerabilities are the average time to maturity and the currency structure. The average time to maturity indicator is closely related to the risk of refinancing. Namely, the higher the average time to maturity of debt is, the lower the uncertainty and risk of refinancing (Government of the Republic of Macedonia, 2016). The average time to maturity disclosed in the Annual Public Debt Reports of the Ministry of Finance of the Republic of Macedonia (2009; 2012; 2014; 2016) shows that, within the past ten years on average, the average time to maturity has been 5.2 years. However, the average time to maturity has been mainly decreasing through the years. As the table below shows, the average time to maturity was 6.8 years in 2006, 3.8 years in 2012 and 2013 and slightly increasing again to 4.3 years in 2015 (Ministry of Finance of Republic of Macedonia, 2009; 2012; 2014; 2016).

Table1. Average Time to Maturity of Macedonian General Government Debt

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Average time to maturity	6.8	6.9	6.4	5.5	5.2	4.9	3.8	3.8	4.2	4.3

Source: Ministry of Finance, *Annual Report on Implementation of the Public Debt Strategy for the Republic of Macedonia for 2008, 2009, p. 34 Table. 8; Ministry of Finance, Annual Report on Public Debt Management of the Republic of Macedonia for 2011, 2012, p.33, Table.8; Ministry of Finance, Annual Report on Public Debt Management of the Republic of Macedonia for 2013, 2014, p. 26, Table.6; Ministry of*

What the indicator basically shows is debt used to mature and/or be renewed at every 7 years, but now the process of maturity is shorter. According to the average time to maturity of 2013, 2014 and 2015, every 4 years a part of the debt in the debt portfolio will mature and will have to be fully repaid or refinanced. By way of explanation, the risk of uncertainty and refinancing has been slightly increasing in the past decade. According to the 'Fiscal Strategy of the Republic of Macedonia 2017-2019' (2016), the change in the average time to maturity is a result of maturing of external debts and changes regarding the external debt portfolio. More specifically, decreasing the share of debt issued under concessional conditions with longer time to maturity and increasing the share of debt that is issued under market conditions on the international money market (Government of the Republic of Macedonia, 2016).

Furthermore, the currency structure of the debt portfolio is one of the indicators that determine the exposure of the debt portfolio on exchange rate risk (IMF, 2014b). In Macedonia, within the past ten years, the currency structure has not been a subject of frequent changes. The debt denominated in the local currency is on average around 20% of the total debt, while the debt denominated in Euros is around 60% of the total debt, and has an increasing tendency. The rest of the currency structure of the Macedonian debt portfolio includes the US dollar, the Japanese Yen, IMF Special Drawing Rights and other (Ministry of Finance of the Republic of Macedonia, 2009; 2012; 2014; 2016). IMF Special Drawing Rights share has been substantially decreasing in the past ten years (Ministry of Finance of the Republic of Macedonia 2009; 2016). A larger share of foreign currency denominated debt indicates a higher exchange rate risk, even though Macedonia has a fixed exchange rate regime. Moreover, the exchange rate risk is high for emerging countries, not just due to their high share of external debt, but also due to the domestic debt denominated in foreign currency (Government of the Republic of Macedonia, 2016).

2.1.7 Credit rating

Since the structure of the debt portfolio shows that the Macedonian debt is issued more on the international rather than on the domestic market, with a greater preference over private rather than official creditors in the past ten years, an important segment to be discussed is the country's credit rating. Macedonia has been rated by the rating agencies Fitch and Standard and Poor's and by both of them in the past ten years it has been upgrading and downgrading within the non –investment, speculative grade. Only in the period of issuance of the first Eurobond in 2005, according to Standard and Poor's (2005) Macedonia's local currency sovereign rating was BBB-/ Stable outlook, which according to the rating description is investment grade. In 2009, when the second Eurobond with the highest interest rate was issued, Macedonia was downgraded by both the above agencies. By Fitch

(2009) it was rated to BB+/Negative outlook and by Standard and Poor's (2009) to BB+/Stable. The reasoning behind the downgrade according to the Fitch Report (2009) was that Macedonia was considered highly vulnerable and exposed to external financing risks. Such risks resulted from large imbalances, foreign currency debt, widening of the current account deficit etc. According to Standard and Poor's (2013) as a rating agency, Macedonia from 2013 was downgraded to BB-/Stable outlook. According to Fitch as a rating agency, Macedonia hit the worst credit rating in 2016 as BB/Negative outlook. According to both the above credit rating agencies, postponing the fiscal consolidation and lack of stabilization of the debt to GDP ratio puts significant negative rating pressures (Fitch, 2016; Standard & Poor's, 2016). Furthermore, the downgrading of the credit ratings puts significant pressures over the risk premium of interest rates that Macedonia is being charged, as well as other borrowing conditions by international private creditors on which it has been strongly relying lately.

2.2 Economic overview of Macedonia

The second section of this chapter provides an overview of the main macroeconomic indicators that have been identified in the literature review as having an effect on debt dynamics. The reason to do so is using this analysis for the macroeconomic projections of the debt sustainability analysis.

2.2.1 Gross domestic product and real growth rates

According to Mankiw (2004) GDP is considered to be the best measure of the economic welfare, while real growth rates of GDP are a good measure of a country's economic progress. As per the above, the starting point for an overview of the economic situation in Macedonia is the GDP and its real growth rate as indicators. Namely, the gross domestic product of Macedonia, when analyzed in absolute terms (at current prices), has been continuously increasing in the past ten years. In particular, it has almost doubled from an amount of 5,472 million Euros in 2006 to preliminary data amount of 9,410 million of Euro in 2016 (Ministry of Finance of the Republic of Macedonia, 2017b). The average yearly growth rate of GDP at current prices in the past ten years was 5.9%.

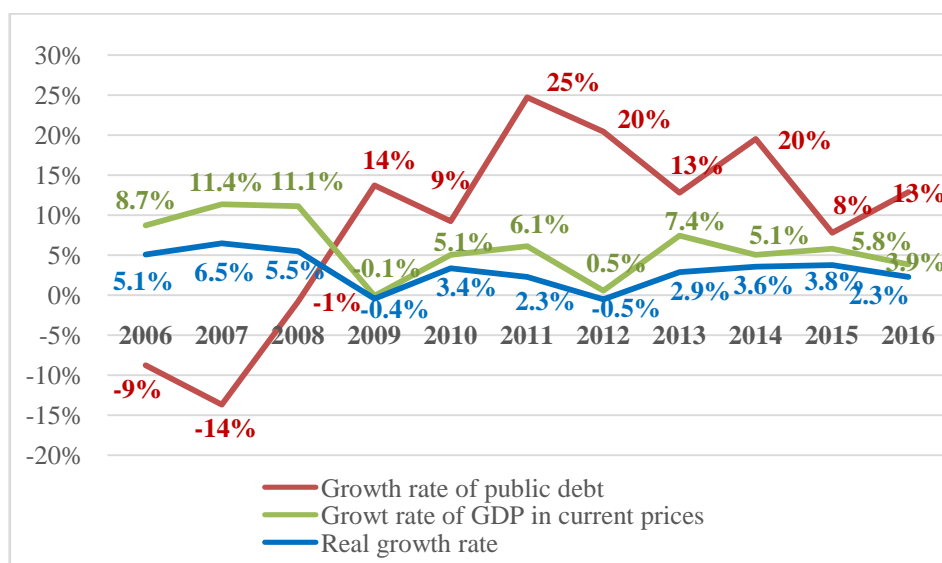
On the other hand, when analyzing the real growth rates, the Macedonian economy (same as the global economy) was doing quite well in the period from 2006 till 2008, with real growth rates ranging from 5% to 6.5%. However, Macedonian small economy has always been dependent and exposed to possible vulnerabilities of global economic developments, especially the European economic developments. The reason for that are the strong trade ties, ties within the banking sector, strong dependence on remittances, as well as foreign direct investments. Therefore, it was expected and logical that the hit of the global economic and financial crisis will have an effect on the economy in Macedonia. On the

other hand, according to IMF in Macedonia's country report for 2009 (2010), Macedonian vulnerability to the particular global financial crisis was defined as limited. At the time being, Macedonia had a modest level of public debt, low fiscal deficit, a significant amount of international reserves, and small banking system that did not rely a lot on external financing. However, the strong trade ties and the large trade and current account deficits were pointed out as the main vulnerabilities (IMF, 2010).

Macedonian economy did take a hit of the global financial crisis, mainly through deteriorated export demand, as well as losing external financing. The result was fall in the real growth rates from 5.47% in 2008 to -0.36% in 2009 (Ministry of Finance of the Republic of Macedonia, 2017b). At the same time period, the Macedonian government started with increased fiscal spending that led towards raising budget deficits from 2009 onwards (Ministry of Finance of the Republic of Macedonia, 2017b). In late 2009, the monetary authorities also started an easing cycle by reducing the interest rates in the economy from 9% to 4%. The result from such monetary easing, healthy banking sector as well as trading partner recovery was a peak in real growth rates in 2010 (IMF, 2011).

Real growth rates fluctuated in the period afterward and experienced an even greater recession in 2012 when they were -0.46% (Ministry of Finance of the Republic of Macedonia, 2017b). The negative growth rates according to IMF's country report in 2013 (2013) were associated with weak domestic and weak external demand. Fall in exports again worsened the trade balance and the current account, weak FDI inflows followed together with capital outflows that came as a result of cross-border intra-companies activities (IMF, 2013). From 2012 onwards, the real growth rates of Macedonian economy have been positive and increasing. According to the Ministry of Finance of the Republic of Macedonia, they were the highest in 2015 when they were reported to stand at 3.8% (Ministry of Finance of the Republic of Macedonia, 2017b). In fact, as per the above, it could be said that the outcome and effects of the global economic and financial crisis on the real growth rates of the economy were even lower than expected. However, starting from 2015 the country has experienced a prolonged political crisis which still remains unresolved. Due to the above, the growth rates slowed down and the preliminary data of the Ministry of Finance of the Republic of Macedonia reported real growth rates of 2.3% for 2016 (Ministry of Finance of the Republic of Macedonia, 2017b). Analyzing the real growth rates, growth rates of GDP in current prices and debt growth rates, it is easily observable that debt growth rates have been much higher than growth rates of the economic activity. Figure 5 shows the debt growth rates and the growth rates of the economy. Namely, from 2006 till 2008 the public debt growth rates were negative; however, starting from 2008 onwards the public debt growth rates have been much higher than the growth of the economy. They have reached a level as high as 25% in periods when the nominal growth rates of the economy were 6% while real growth rates were 2.3%.

Figure 5. Economic and Public Debt Growth rates



Source: Ministry of Finance of the Republic of Macedonia, *Stock of government and public debt as of 31 December 2016*, 2017a, p.1, Table.1; Ministry of Finance of the Republic of Macedonia, *Basic macroeconomic indicators*, 2017b, p.1, Table.1; Own calculations.

2.2.2 Inflation

In the third section of the previous chapter that referred to factors influencing debt dynamics, inflation has been one of the identified factors. Within the past ten years, the inflation rate has been 2.2% on average. Namely, the highest increase in price levels in the past ten years was in 2008 when the inflation rate was 8.3%. The main explanation behind the peak in price levels was related to external factors. The rise in food, oil and raw material's prices at the global market manifested in an increase of domestic prices as well. That has been another confirmation for the connection between domestic price levels and global price movements (Ministry of Finance of the Republic of Macedonia, 2009). In 2009 Macedonia experienced deflation of -0.8% which was the highest deflation in the past ten years (Ministry of Finance of the Republic of Macedonia, 2017b). The combination of fall in food and energy prices with slowing growth was the reason for the occurrence of deflation (IMF, 2010). From 2010 onwards Macedonia had a positive inflation reaching a level as high as 3.9% and 3.3% in 2010 and 2011, respectively (Ministry of Finance of the Republic of Macedonia, 2017b). However, starting from 2014 to date, Macedonia has been experiencing deflation with inflation rates being negative around -0.3%. Deflation has not been experienced only by Macedonia but also by other countries in the region. More specifically, the explanation behind is again the fall in prices of food and energy that has been passed to domestic prices as well (IMF, 2015a). The conclusion regarding inflation rates in the past ten years is that the Macedonian small economy is strongly affected by the

global movements in prices. Thus, it can be concluded that external factors intensely influence domestic price movements.

2.2.3 Effective interest rate and required rate of return

Interest rates and their movements are possibly the most important indicators affecting debt trajectories. The effective interest rates on existing debt are calculated by the interest payments that the country pays and the outstanding stock of debt (IMF, 2016a). As per obtaining the interest payments from the Ministry of Finance, Annual Reports on Public Debt Management (2007-2016) and the Stock of General Government and Public Debt (Ministry of Finance of the Republic of Macedonia, 2017a), the calculation showed that the nominal effective interest rate for the past ten years was standing at an average of 3%. The highest average interest rates on existing debt were present in the period 2006-2008, when they were above 3%. However, from 2008 onwards, they moved around 3% or slightly below 3%. In the period post-crisis, global interest rates fell dramatically. Namely, interest rates on the international financial markets were close to the zero lower bound. Therefore, the fall in the effective interest rates can be attributed to the international financial markets movements. However, due to higher risk premiums, the fall in interest rates at the international financial markets was not that strongly reflected in the Macedonian effective interest rates.

Using the Fisher formula, and adjusting interest rates for inflation, the average real interest rate on outstanding public debt was standing at 0.4%. In 2008, due to the highest level of the inflation rate, the real interest rate was at its lowest and was negative, standing at -4.54%. Further, in the post-crisis years negative real interest rates occurred again in 2011 as well as in 2013 as -1.2% and -0.3% respectively. However, in the recent 2014 and 2015, deflation resulted in occurrence of relatively higher than average real interest rates of 2.68% and 3.02% respectively. For this time period, as well as for 2009, real interest rates were even higher than the nominal interest rates and also higher than the real growth rates of the economy. Such situation could be considered as one of the first indicators for debt unsustainability, since it indicates that stock of debt increases over time (Escolano, 2010). For 2016 again, due to the presence of deflation, the real interest rates are expected to be similar as in the past years which means slightly higher than their nominal level, and real growth rates of the economy.

Apart from the effective interest rate, an important factor for debt dynamics is the required rate of return or interest rate on new debt and refinancing. In order to have a sense of the movement of a required rate of return, the most appropriate indicator to be used is interest rates of long-term government bonds. Long-term government bonds usually refer to government bonds with ten-year maturity. However, in Macedonia government bonds with ten year maturity started being issued in 2014. The main motivation to do so was the

government policy target to develop domestic markets, which ultimately involved increasing the domestic debt maturity. The interest rates on long-term government bonds with ten-year maturity were ranging from 4.85% in 2014 to 3.8% in 2016, or 4.11% on average (National Bank of the Republic of Macedonia, 2017b). Until 2014, at the Macedonian market, long-term government bonds were maturing between two and five years. Considering the interest rates of all long-term government bonds with more than one-year maturity issued the interest rates for the past ten years were 5.9% on average. If the historical 5.9% interest rate on government bonds is taken as reference for required rate of refinancing, issuing new debt or refinancing for Macedonia would be considered relatively expensive. The highest interest rates on government bonds were present in 2006 and 2009 when they were 9% and 8.5% respectively, while the lowest ones were present in 2015 standing at 3.61%. In 2016, government bond interest rates increased again on 4.06% (National Bank of the Republic of Macedonia, 2017b).

2.2.4 Primary balance

Another factor identified as affecting debt dynamics, and also as one of the main indicators of debt sustainability is the primary balance. The calculation of primary balance is done by adding the interest payment of government debt on government budget balance (Escolano, 2010). For calculation of the Macedonian primary balance, the interest payments of government debt from the Ministry of Finance, the Annual Reports on Public Debt Management (2007-2016) and the government budget balance retrieved from the Ministry of Finance of the Republic of Macedonia were used (Ministry of Finance of the Republic of Macedonia, 2017b). In Macedonia within the past ten years the primary balance was positive only in 2006 and 2007, when it was 0.43% and 1.35% of GDP respectively. However, starting from 2008 onward, the primary balance was negative. Namely, it was ranging from -0.28% of GDP in 2008 to its lowest of -3.23% of GDP in 2014. The somehow better performance of fiscal imbalances happened in 2015 when the primary balance was -2.32% of GDP. The average primary deficit for the past ten years was -1.53% of GDP. Having continuously negative primary balance in the past eight years indicates that the country is facing fiscal imbalances, despite the interest obligations that the country has in regards to its debt. This means that Macedonia is not able to finance its public expenditures, even without the debt servicing obligations arising from interest payments. Ultimately, such situation shows the origin of the financing needs and issuance of new debt that led to debt accumulation during the past years, starting from 2008 (Ministry of Finance of the Republic of Macedonia, 2017a).

2.2.5 Trade balance, current account, and foreign direct investments

For Macedonia, imports have always been higher than exports, which is the reason why trade balance remains negative through the years. Within the past ten years, the trade

deficit has been around 22.5% of GDP (Ministry of Finance of the Republic of Macedonia, 2017b). The highest trade deficit was captured in 2008 when in relative terms it was 29% of GDP, while the lowest trade deficit occurred in 2015, which the Ministry of Finance reported on as one standing at 18.2% of GDP (Ministry of Finance of the Republic of Macedonia, 2017b). The current account has also always been negative, with current account deficit of 3.7% on average for the past ten years (Ministry of Finance of the Republic of Macedonia, 2017b). Highest current account deficit occurred in the period 2007-2009, when current account balance ranged from -6.8% of GDP to -12.7% of GDP (Ministry of Finance of the Republic of Macedonia, 2017b). The trade and current account deficit may be considered as a concern for countries such as Macedonia who strongly rely on external financing i.e. Macedonia has more than 70% of the entire public debt denominated in foreign currency (Ministry of Finance of the Republic of Macedonia, 2016). However, in relation to trade and current account deficit, a step in a positive direction is the level of the official reserves of the country. Namely, official reserves of the country increased almost two-fold from 2006 till now, and with that, they now cover at least four months of average imports of goods and services (National Bank of the Republic of Macedonia, 2017a).

Foreign direct investments as a share of GDP for the country in the past ten years have been 3.9% on average (Ministry of Finance of the Republic of Macedonia, 2017b). In the period 2006-2008 there were above 5.9% of GDP and even reached a level of 8.3% of GDP in 2007 which was considered as the highest one in the past decade (Ministry of Finance of the Republic of Macedonia, 2017b). From 2008 onwards, despite the costly government campaigns with a purpose of attracting foreign investors, FDI have been moving around 2% of GDP. There has been only one exception in 2011 when they reached almost 5% of GDP (Ministry of Finance of the Republic of Macedonia, 2017b).

2.3 Political overview of Macedonia

In terms of the political overview, Macedonia is undergoing one of the most severe political crises so far. In particular, the crises started two years ago and it is still persistent, starting to strongly affect the Macedonian economy. The following section provides an overview of the political crisis but also focuses on the main national issues that have been the underline reason for the crisis.

The origin of the prolonged political crisis starts with the accusations of the opposition party (SDSM) over the ruling coalition (VRMO-DPMNE) for their large scale abuse of power, over democracy and rule of law. The beginning of the crisis started in early 2015, with the revealing scandal disclosed by the opposition party involving illegal wiretaps, and their serious and intimidating content. However, the political crisis has further escalated

last year when the President of the country decided to pardon 56 individuals that were involved in the wiretaps scandal (European Commission, 2016c).

Some of the main problems within the country that have also been the core catalysts for the occurrence of a deep political crisis has been a lack of democracy, the rule of law i.e. functioning of judiciary and media freedom. Namely, as stated in the latest European Commission progress report for Macedonia (2016c), the democratic governance has been undergoing serious challenges. Regulatory, advisory, as well as supervisory bodies that are meant to work independently are under serious political pressures and with that, such are unable to work proactively and effectively (European Commission, 2016c). Furthermore, the core of the political crisis is strongly correlated with the rule of law i.e. functioning of the judiciary. The main concern has been the political interference in the work and appointment of the judiciary that results in the serious politically selective judiciary. As stated in the European Commission progress report (2016c, p.13): “Reports of selective justice in certain high-profile or politically sensitive court cases continued.”

Moreover, within the past several years, there has been a strong deterioration of media freedom. In a short explanation, there is a lack of objective within the media, and lack of diverse and balanced reporting. Additionally, there are serious concerns about intimidating journalists and conducting judicial proceedings against them (European Commission, 2016c). The discussion regarding the problem of media freedom in the latest European Commission report for Macedonia (2016c, p.20) points out the following:

“Political interference in the editorial policies of the media, in particular, nation wide broadcasters, remained a serious problem. There are indications that most private broadcasters appear to have coordinated their editorial policy in favor of the main ruling party.”

The active mediation from the U.S and the European Union led to an agreement by leaders of the four main political parties in Macedonia to ensure rule of law, promote media freedom and conduct early and fair elections. After postponing the elections for a few times due to unpreparedness, they were held at the beginning of December 2016 and ended with a dead heat between the main opposing parties SDSM and VRMO-DPMNE. Due to such results, and lack of capacity to compromise, the establishment of a new government was prolonged. Even by assuming a successful outcome with establishing of a government in the coming period, the political situation in Macedonia shall remain fragile and prone to further political tension.

The Institute for Economic Research and Policy - Finance Think, Skopje (2015) analyzed at the very beginning of the crisis in what way would the strong intensity of such crisis have a significant effect on both short-term and long –term economic activity in the

country. Some of the transmission channels through which the crisis would affect the economy are a slowdown in the investment growth due to deteriorating investors' sentiment both including domestic and foreign investors, deteriorating investor's sentiment for potential foreign investors etc. (Finance Think, 2015). Furthermore, according to the Institute for Economic Research and Policy Finance Think, Skopje (2015), the crisis would deteriorate consumer confidence as well, and will eventually result in consumers postponing their consumption. Such effects from the crisis would impose a need for increased public spending, which accompanied with a slight reduction of budget revenues as well as contraction of the economy would result in increasing budget deficits and new indebtedness. New issuance of debt, in such case, would be mainly used for financing the current government costs (Finance Think, 2015). As expected, according to the analysis of the crisis by the Institute for Economic Research and Policy Finance Think, Skopje (2015), the prolonged crisis had its effect on the economy and resulted in slowed growth rates in 2016 (Ministry of Finance of the Republic of Macedonia, 2017b). According to the latest IMF's country report (2016a), the confidence and prospects of the market were affected by the crisis. Namely, the country experienced a significant slowdown in the growth of deposits of the banking sector as well as moderate FDI inflows. Further, in regards to the EU candidate status of Macedonia, the accession aspiration is now conditional on significant progress in the political and governance area. By this, failing to resolve the current political position of Macedonia would further negatively affect FDI inflows in the future due to the fact that most of them are coming from the EU countries (IMF, 2016a). Apart from other factors affecting growth rates of the economy, the political position of Macedonia imposes a significant downside risk pressures over the economy. Any positive economic outlook would be strongly dependent on the return of political stability as well as productive economic moves (IMF, 2016a).

3 PUBLIC DEBT SUSTAINABILITY ANALYSIS – THE CASE OF THE REPUBLIC OF MACEDONIA

The following chapter focuses on debt sustainability analysis based on the conceptual framework for the Macedonian public debt, developed in the previous two chapters of this Master Thesis. The debt sustainability analysis takes into account the concept and definition of Macedonian public debt, comparison to the European benchmark, historical trends, and movements of debt and the overall economy, as well as current political position, all of which are essential for the future projections of the macroeconomic indicators.

3.1 Debt sustainability analysis methodology

The model used for this debt sustainability analysis relies strongly on the public debt sustainability analysis framework used by the International Monetary Fund (Cottarelli &

Moghadam, 2011), and the public debt sustainability guide by the European Commission (2014b). Further, it follows the debt dynamics equations derived in the 'Practical Guide to Public Debt Dynamics, Fiscal Sustainability, and Cyclical Adjustment to Budgetary Aggregates' (Escolano, 2010) and their simplification in the 'Introduction to Debt Sustainability Analysis' lecture notes by Prof. Rant Ph.D. (2015), professor at the Faculty of Economic, University of Ljubljana. To begin with, it is very important to point out that the public debt sustainability does not stand on its own, but it is a strongly interrelated concept with fiscal policy sustainability (Cottarelli & Moghadam, 2011).

According to Cottarelli and Moghadam (2011), the first signal for fiscal unsustainability is the stance in which the government is not able to service the debt without further fiscal adjustments. Debt sustainability analysis means, in particular, analyzing the trajectory and level of debt-to-GDP ratio, under baseline, as well as alternative scenarios which are relevant for the country. The analysis begins with realistic baseline projections for the trajectory of public debt, which are relying on realistic macroeconomic assumptions. For that purpose, the most important projections, whose realism is essential, are the primary balance, real economic growth rates, and interest rates. According to the 'Practical Guide to Public Debt Dynamics, Fiscal Sustainability, and Cyclical Adjustment to Budgetary Aggregates' (Escolano, 2010) the three indicators are identified in the debt dynamics equation as directly affecting the debt –to-GDP ratio.

Furthermore, it is very important that the analysis incorporates country specific circumstances and identified fiscal risks which allow for a development of alternative scenarios. Moreover, the debt structure also plays a significant role in identifying vulnerabilities that could be used for stress testing of debt levels (European Commission, 2014b; Cottarelli & Moghadam, 2011). Alternative stress and sensitivity analysis may include specific or combined shocks to essential macroeconomic variables, comparisons to 'no policy change' scenarios when historical averages of the factors influencing debt dynamics are used, or sensitivity analysis on the concept and definition of public debt (European Commission, 2014b; Cottarelli & Moghadam, 2011). For the purpose of alternative scenarios and sensitivity analysis, it is important to consider the likelihood of assumed risks or vulnerabilities underlying the scenario or sensitivity analysis. Namely, those with a high probability of occurrence shall be examined (Cottarelli & Moghadam, 2011).

The first essential segment, along with the debt trajectory, is the debt-to-GDP threshold that is to be considered sustainable (Cottarelli & Moghadam, 2011). Namely, for the Macedonian public debt, so far there have been a lot of discussions on the appropriate sustainable threshold of the above. Before the period of the European debt crisis, according to IMF (2010) the threshold point of sustainability for emerging countries with fixed exchange rate, such as Macedonia, was around 25% of GDP. However, from that period

onwards, debt levels around the world have been significantly increasing, leading to different perceptions for sustainable debt thresholds. Cottarelli and Moghadam (2011) have also identified empirical estimates for the maximum level of sustainable debt. For countries such as Macedonia, they identify that the maximum levels of debt sustainability are within the range of 35% to 77% of GDP. Above those levels of public debt-to-GDP ratio, debt distress is likely to happen (Cottarelli & Moghadam, 2011). On the other hand, the Macedonian fiscal strategy, by adhering to the Maastricht criteria, commits to keeping the Macedonian debt level below 60% of GDP (Government of the Republic of Macedonia, 2016). This ceiling of 60% has been commonly used by many other countries, especially within the Economic and Monetary Union of the EU. Besides all of the expert discussions, so far in Macedonia there has been no empirical study that would account for all country-specific characteristics and estimate the level of public debt sustainability. Therefore, the question of the appropriate threshold remains open for a lot of expert judgments that haven't reached consensus yet.

The International Monetary Fund (2016a) and the European Commission (2016c) both suggest that Macedonia shall need to already commence with fiscal consolidation since it is the most appropriate to keep public debt levels below 50% of GDP. In such way the country would allow for a fiscal space and use it for possible countercyclical fiscal stimulus when needed. The level of 50%, or even lower, has been used as a debt threshold by many other emerging countries in the region. For instance, countries with such debt threshold are Kosovo, Serbia, and Hungary. Others such as Romania, the Slovak Republic and Bulgaria that have debt rules of 60% are imposing fiscal brakes at 50% (IMF, 2015b).

Within this debt sustainability analysis, the used threshold for sustainability of the Macedonian public debt is 50%. The reason to do so is due to the fact that Macedonia is a country with a fixed exchange rate and it doesn't have a developed domestic market, so it relies a lot on external financing while at the same time having significant trade and current account deficits. Furthermore, taking into account the empirical study by the International Monetary Fund (2010), which suggests a sustainable level of 25% of GDP, as well as the empirical estimates pointed out by Cottarelli and Moghadam (2011) that range between 35% and 77%, Macedonia needs to strive to reduce its debt levels even below 50% of GDP. For that purpose, the desired debt level assumed in the analysis that Macedonia needs to strive to achieve is around 40% of GDP. The debt level of around 40% of GDP would build up an appropriate, much needed fiscal space, and even more it would allow for future productive fiscal spending, without inhibiting growth or imposing additional downside risks to debt sustainability.

In cases where there is no country-specific, empirically proved level of sustainable debt, besides the debt level and its trajectory, it is very helpful to include also other indicators that would help to determine the debt and fiscal sustainability. According to Cottarelli and

Moghadam's (2011), and the practical guide for debt dynamics (Escolano, 2010) one of the main indicators used with a purpose of assessing debt sustainability is the primary balance. The reasoning behind is that primary balance shows the fiscal imbalances not including the obligations arising from debt-servicing (Escolano, 2010). Countries that have a current level of primary balance which is insufficient to stabilize debt-to-GDP ratio are considered to be currently unsustainable (Cottarelli & Moghadam, 2011). The primary balance which is insufficient to stabilize the debt ratio means further financing needs, which eventually leads towards explosive debt paths. According to Cottarelli and Moghadam (2011) countries in which, under realistic fiscal adjustment, the primary balance can be brought to the necessary level for stabilizing debt mean that the country can be considered as sustainable. However, if the necessary primary balance is either economically or politically unfeasible, that would indicate that both the fiscal policy and public debt can be considered unsustainable and the country is undergoing a solvency problem in which there is a need of debt restructuring (Cottarelli & Moghadam, 2011).

Having this stated, the higher the debt levels the greater probability that public debt either is, or it will become unsustainable. Higher debt levels would require higher primary surplus to stabilize or achieve the desired debt level (Cottarelli & Moghadam, 2011). There are also cases in which, even though the fiscal policy stance and the public debt can be defined as sustainable, its sustainability is considered risky. Usually, in such cases debt levels are high and bringing them down is strongly recommended in order to maintain the level of sustainability (Cottarelli & Moghadam, 2011).

Following the guide for public debt sustainability by the European Commission (2014b), the analysis itself projects the main macroeconomic indicators for a period of the next ten years. The explanation behind it is that ten-year time interval is not too long to suffer from uncertainty, but also not too short to allow for relevant analysis in which impacts of projected variables can be seen (European Commission, 2014b). The period covered in the analysis starts from 2016 till 2026. Due to unavailability for some of the macroeconomic indicators for 2016, the same are estimated based on known variables, while starting from 2017 onwards they are being projected. The input projections for the macroeconomic variables result in three types of output projections.

The first output projection projects the future debt-to- GDP levels. The public debt dynamics and the level of public debt are calculated based on Escolano's (2010) equations for public debt dynamics. Escolano's (2010) equation for change in the public debt shows its direct relationship with growth rates, interest rates, and primary balance of the economy. More specifically, according to Escolano (2010) the relationship change in debt-to-GDP ratio is:

$$\Delta d_t - d_{t-1} = \left(\frac{r_t - g_t}{1 + g_t} \right) d_{t-1} - p_t \quad (1)$$

Where: Δd_t represents change in debt-to-GDP ratio for specific period; d_{t-1} is debt in previous period; r_t are real interest rates for specific period; g_t are real growth rates for specific period; p_t is the specific period primary balance;

By using input projections for real interest rates, real growth rates, and primary balance, the expected change in debt-to-GDP ratio is calculated, which also results in projections of debt-to-GDP levels.

The second output projections use Escolano's (2010) equations for determining one of the main indicators of sustainability and that is the debt-stabilizing primary balance. Namely, the required primary balance to stabilize debt dynamics, given by Escolano's equations (2010) is directly affected by the current debt-to-GDP level which shall remain constant over time, as well as real growth rates and real interest rates:

$$p^* = \left(\frac{r_t - g_t}{1 + g_t} \right) d^* \quad (2)$$

Where: d^* is the current period debt-to-GDP level which shall remain constant; r_t are real interest rates for specific period; g_t are real growth rates for specific period; p^* is debt stabilizing primary balance;

The second output projections determine the level of primary balance needed to stabilize the debt at the current level. In the case of Macedonia, under the assumption that 50% is the upper ceiling for sustainability level, while also being the current debt level, the second output projections are projections that give an overview of the Macedonian debt sustainability.

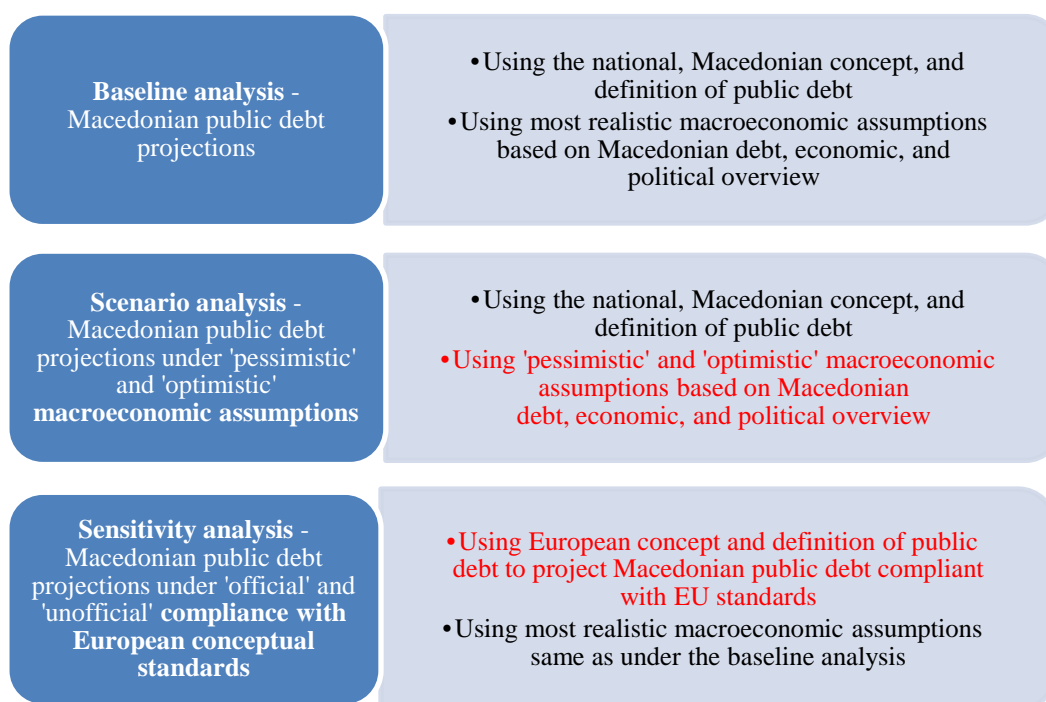
The third output projections again focus on the primary balance, but on the required permanent primary balance to achieve the desired debt level. The third output projections use the 'Goal Seek' function in Excel for calculating the required permanent primary balance to achieve the desired debt level. According to the previous discussion, within this section, for this output projections, 40% of the debt-to-GDP level is considered as the desired debt level to be achieved at a long run.

The debt sustainability analysis covers one baseline and four alternative analyses. The baseline analysis projects the Macedonian public debt, defined as it is, using the Macedonian concept and definition, under the most realistic macroeconomic assumptions. Two of the alternative analyses are scenario analysis, while the other two are sensitivity analysis.

The scenario analysis project the Macedonian public debt based on the Macedonian concept and definition, under ‘optimistic’ and ‘pessimistic’ macroeconomic assumptions. Namely, instead of projecting shocks only on certain variables, the ‘optimistic’ and ‘pessimistic’ scenarios assume combined shocks on key macroeconomic variables. The purpose of the alternative scenario projections is to show the Macedonian public debt level and trajectory under different macroeconomic conditions, with a focus on risks and vulnerabilities that have high materialization probability.

The sensitivity analysis, on the other hand, projects Macedonian public debt that would be compliant with European standards in terms of concept and definition. This means that under the sensitivity analysis the Macedonian public debt concept and definition corresponds to European standards. More specifically, the sensitivity analysis uses the discussion on the Macedonian public debt comparison to the European benchmark as the main assumption for the analysis. On the other hand, the underlying macroeconomic assumptions for the purpose of the sensitivity analysis are same as under the baseline projections. The purpose of the sensitivity analysis is to project the Macedonian public debt that will be compliant with EU standards and, with that, comparable to Eurostat data for other EU countries. The illustration below shows the structure of the debt sustainability analysis by summarizing the basic assumptions and differences under the baseline, scenario, and sensitivity analysis.

Figure 6: Debt Sustainability Analysis Structure



3.2 Baseline projections

The debt sustainability analysis starts with a baseline analysis of the Macedonian public debt. For such analysis, the official level of Macedonian public debt issued by the Ministry of Finance of the Republic of Macedonia (Ministry of Finance of the Republic of Macedonia, 2017a) (according to the national methodology) is being used. The key objective behind the baseline scenario is to realistically project all macroeconomic variables affecting debt dynamics. That also means a realistic projection of the future debt to GDP level and trajectory. The ‘Fiscal Strategy of the Republic of Macedonia 2017-2019’ (2016) and the latest country report for Macedonia by the International Monetary Fund (2016a) have already presented their projections for key macroeconomic variables, as well as the trajectory of debt level for the next three to five years horizon. The projections in the ‘Fiscal Strategy of the Republic of Macedonia 2017-2019’ (2016) are strongly relying on assumptions of fiscal consolidation and robust economic growth. Therefore, they can be considered slightly more optimistic than the projections generated by the International Monetary Fund (2016). According to the Institute for Economic Research and Policy – Finance Think, Skopje (2016) the main risk associated with the Fiscal Strategy of the Republic of Macedonia 2017-2019, is the risk of not following the above, which has already happened in the past, especially in regards to the fiscal adjustments assumed. Therefore, the baseline scenario in this analysis uses a combination of the projections by the ‘Fiscal Strategy of the Republic of Macedonia 2017-2019’ (2016), the International Monetary Fund (2016a), as well as the historical averages assuming ‘no change’ in certain segments and variables.

3.2.1 Assumptions of baseline projections

The main assumptions behind the baseline scenario include resolution and stabilization of the political crisis in the country, moving forward long-term fiscal consolidation, structural reforms in terms of public administration and rule of law, all of which combined would result in a restored confidence, increased productivity and therefore increasing growth rates of the economy at a long run. Moreover, baseline projections also assume reasonably favorable global economic movements that would lead towards more strengthened demand for exports, strengthen FDI inflows, as well as a boost of prices.

3.2.2 Real growth rates baseline projections

Projections for real growth rates are with increasing trend. Comparing them to the growth rate projections in the ‘Fiscal Strategy of the Republic of Macedonia 2017-2019’ (2016), they can be defined as slower and more in line with projection by the International Monetary Fund (2016a). Due to the prolonged political crisis in the first three months of 2017, and the still fragile position that imposes uncertainty, the projection for 2017 is 3%

of real growth rate. However, the assumption behind the above is that in the second half of 2017 the political stability and confidence will be restored. Under such assumptions, at medium-term, the economy would follow an increasing trend and real growth rates will peak to 3.8% in 2022. On a long run, real growth rates will slightly decrease, converging to 3.5% in 2026 which is by 0.3 p.p. higher than the historical average real growth rates. The reason behind projecting a slight decrease in real growth rates is due to the fact that, on a long run, the uncertainty over the projections is increased and on the other hand, real growth rates were subject to fluctuations in the past. Therefore, it would be over-optimistic to project continuously increasing trend, sustainable for the next ten years horizon. Positive growth rates on a long run also rely on the assumption of favorable economic growth globally, as well as in the euro area that would have a positive impact on exports and foreign direct investments.

3.2.3 Inflation baseline projections

Inflation under the baseline projections is in line with the projections issued by the International Monetary Fund (2016a), as well as the 'Fiscal Strategy of the Republic of Macedonia 2017-2019' (2016). After experiencing deflation in the past three years, the prices would increase at 1% for 2017, and would continue increasing at a medium-term to 2% in 2022. The positive inflation is also in line with the assumption of strengthening domestic demand at medium-term, but also with the assumptions of positive global economic expectations. The consumer prices in Macedonia are strongly influenced by external movements, and therefore the International Monetary Fund (2016a) projections are considered to be a relevant and useful guideline for the analysis. On a long run, the inflation is assumed to increase slightly more, to 2.2% in 2026, which would be the historical average inflation of Macedonia.

3.2.4 Effective interest rate baseline projections

The nominal effective interest rate of the stock of Macedonian public debt is projected to increase at medium-term. According to the last available data of interest payments, the effective interest rate for 2015 was 2.71%. However, according to newly issued debt in the past years (including 2016) and higher yield on the above, such as the 2016 Eurobond, the interest payments are projected to be higher. That results in projections for nominal effective interest rate being at 3% for 2016. Even if the government immediately cuts down greater part of the expenditures, as a result of debt issued in the past few years, as well as the already started infrastructure investments for which financing installments are already planned, the interest repayments in the following years are projected to be high and therefore the nominal effective interest rate is assumed to be increasing. The nominal effective interest rate is projected to reach a level of 3.6% in 2021 and 2022 which is in line with the International Monetary Fund (2016a) projections for the effective interest

rate. On a long run, by assuming commencement of the fiscal consolidation and no issuance of a new debt while reaching maturity of the already existing debt, would result in interest rates converging to 3% in 2026, which would be the historical average nominal interest rate.

Projections for real interest rates are obtained by adjusting the projected nominal interest rates for inflation projections with the Fisher formula. From the highest level of real interest rates in 2016, which was standing at 3.2%, the mid-term- and long-term projections of real interest rates follow a decreasing trend. They would reach a level of 1.8% in 2021, and are assumed to be going down as low as 0.8% in 2026. Following one of the indicators for debt sustainability, the real interest rates (under baseline projections) are higher than the real growth rates only for 2016, which can be interpreted as a current unsustainability indicator. However, on a mid-term and long-term basis, the real interest rates would be lower than the real growth rates, indicating that debt levels could be considered as sustainable.

3.2.5 Primary balance and average time to maturity baseline projections

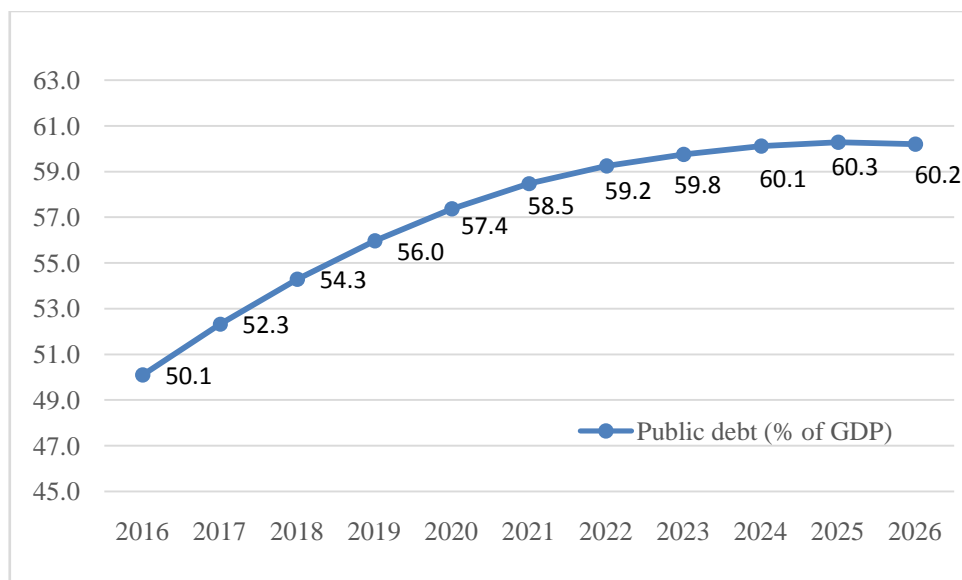
It is projected that the primary balance, under all of the assumptions already mentioned above (out of which some are strongly affected by assumed fiscal consolidation on a long run) would have an increasing trend. Even though it is projected to remain negative, which means having a primary deficit, is projected to increase from -2.8% in 2016 to -1.5% in 2026 which would be the historical average primary balance. The average time to maturity of debt, under baseline projections, is assumed to decrease from 4.1 years in 2016 to 3.6 years in 2020. This projection is in line with the projections of the ‘Fiscal Strategy of the Republic of Macedonia 2017-2019’ (2016). The reasoning behind the above assumptions is the development in domestic markets and increasing the share of long-term domestic borrowing, while at the same time having more short-term external borrowings. After 2020, by assuming presence of increased share of long-term borrowings at domestic markets, as well as fiscal consolidation under which expenditures would be limited and financing needs would be satisfied with domestic borrowings, the average time to maturity is assumed to pick up again to 5.2 years in 2026 which would be the historical average time to maturity of the Macedonian debt.

3.2.6 Public debt baseline projections

Under the baseline projections, public debt trajectory would follow an increasing trend. Namely, it would increase more rapidly mid-term till 2021-2022 and would slow down afterward. Public debt projections even decrease slightly from 2025 to 2026. The increase in public debt is in line with the projections for an increase in the ‘Fiscal Strategy of the Republic of Macedonia 2017-2019’ (2016). Public debt, under the following assumptions,

is projected to reach 56% in 2019, 59% in 2021-2022 and the highest level of 60.3% or 60.2% in 2025 and 2026 respectively.

Figure 7. Public Debt Baseline Projections (as % of GDP)



If we set the upper threshold for debt sustainability to be 50%, the public debt baseline scenario projections for debt would be considered as above the margins of sustainability starting from 2017 onwards. Furthermore, the constantly rising trend of debt-to-GDP level can serve as a support for such conclusion. As per the above, the current level of Macedonian debt requires a stronger fiscal consolidation and more proactive structural reforms that would bring debt levels down instead of letting them grow in the future. That means reduction of debt levels cannot be based on positive growth rates in the economy, but on significant fiscal expenditure cuts.

3.3 'Pessimistic' scenario projections

The first alternative scenario is the so-called 'pessimistic' scenario. The 'pessimistic' scenario also uses the national definition of Macedonian public debt and projects its sustainability based on alternative underlying macroeconomic assumptions. Instead of projecting negative shocks on different variables, the 'pessimistic' scenario comprises several downside risks on variables such as real growth rates, inflation and interest rates together and examines their effect on Macedonian public debt sustainability.

3.3.1 Assumptions of 'pessimistic' scenario projections

The macroeconomic assumptions behind the scenario are mainly: further deepening of the Macedonian political crisis and increased political uncertainty and vulnerability, further

expansion and no fiscal consolidation, as well as negative effects stemming from the European and global economic slowdown. Such economic downside risks according to the last country report by the International Monetary Fund (2016a) have a high relative likelihood of occurring.

3.3.2 Real growth rates ‘pessimistic’ scenario projections

The International Monetary Fund in their latest country report for Macedonia (2016a) discloses that the positive economic outlook is highly dependent on the return of the political stability, as the most significant downside economic risks. In case of further deepening of the political crisis, the real growth rates can even drop below 2% according to International Monetary Fund (2016a). As per this finding, and also as per the fact that Macedonian political crisis would not have a simple resolution (being also the reason why uncertainty has been prolonged in the first three months of 2017) the projections for real growth rates of 2017 are as low as 2%. Further deepening of the political crisis would have numerous negative impacts. For instance, without return of political stability i.e. prolonged increased uncertainty and loss of confidence could result in deposit outflows and adverse effect on credit growth private consumption and investments. The political crisis that started in 2015 and has been going on since without resolution would also impact the image of Macedonia as a destination for foreign investments. That would also result in slowing down of foreign direct investment flows in the future. Furthermore, assuming global economic slowdown would also have an effect on foreign direct investments and would result in a weaker export demand.

The greatest hit of the ‘pessimistic’ scenario assumptions are real growth rates, due to the fact that the economy would suffer the most from continuous deteriorating political environment. On a mid-term basis, the real growth rates would experience stagnation at the level of 2.1%. On a long run, the negative effects coming from the prolonged political crisis, as well as the European and global slowdown would result in growth rates standing at a level of 2.2% in 2026. Basically, the long-run downside projections of growth rates is for a percentage point lower than the historical average real growth rates of 3.2%.

3.3.3 Inflation ‘pessimistic’ scenario projections

The slowdown in real growth rates of the economy and assumption of unfavorable global economic movements would have a negative effect on prices as well. Namely, the Macedonian inflation rates are mainly driven by movements in world prices and their influence over domestic prices. Therefore, the assumed global demand slowdown would have an adverse influence on Macedonian inflation, which combined with the Macedonian economic contraction would result in a slowdown of prices in the country. According to the assumptions of the ‘pessimistic’ scenario, deflation experience would continue in 2017

standing at -0.2% inflation rate, after which the prices are projected to strengthen slightly. The projected long-term inflation of 1.2% in 2026 is by one percentage point lower than the historical average inflation rate.

3.3.4 Effective interest rates ‘pessimistic’ scenario projections

Fiscal expansion is projected to continue under this scenario. Assuming no reforms in the public administration and the pension system, budget transfers in such areas would continue to grow. Furthermore, assuming slowdown in domestic growth rates, but also external shock in global economic slowdown would require countercyclical fiscal policy to boost the economy, which would also contribute to further fiscal widening. Under the ‘pessimistic’ scenario assumptions, the domestic funds availability would be limited, while country’s credit rating would deteriorate even further, and all this would lead to increased risk premiums for external borrowings. Having in mind that almost 70% of the share of external debt falls on private creditors, the increased risk premium will have significant effect on the interest rates. As a result, the costs associated with sovereign borrowings are assumed to increase. The greatest hit of the ‘pessimistic’ scenario assumptions are reflected in the interest rates. Nominal effective interest rates are projected to increase starting from 3% in 2016 and reaching 4.1% in 2026. The reference of 4.1% nominal effective interest rate projection is in fact the average interest rate between the historical average effective interest rate and the historical average required rate of return of government bond at the domestic market with over one year maturity. It also corresponds to the average required rate of return on the Macedonian government bonds with ten year maturity that have been issued in the past few years.

As a result of projected deflation and increased nominal interest rates, the real interest rates would increase to 3.3% in 2017 and 2018. At mid-term and long-term they will start decreasing slightly due to projected price strengthening. In 2026 the real interest rates will reach 2.9%. The ‘pessimistic’ scenario assumptions result in projections where real interest rates are consistently much higher than the projected real growth. Such economic position is considered as the first indicator for fiscal policy and public debt unsustainability.

3.3.5 Primary balance and average time to maturity ‘pessimistic’ scenario projections

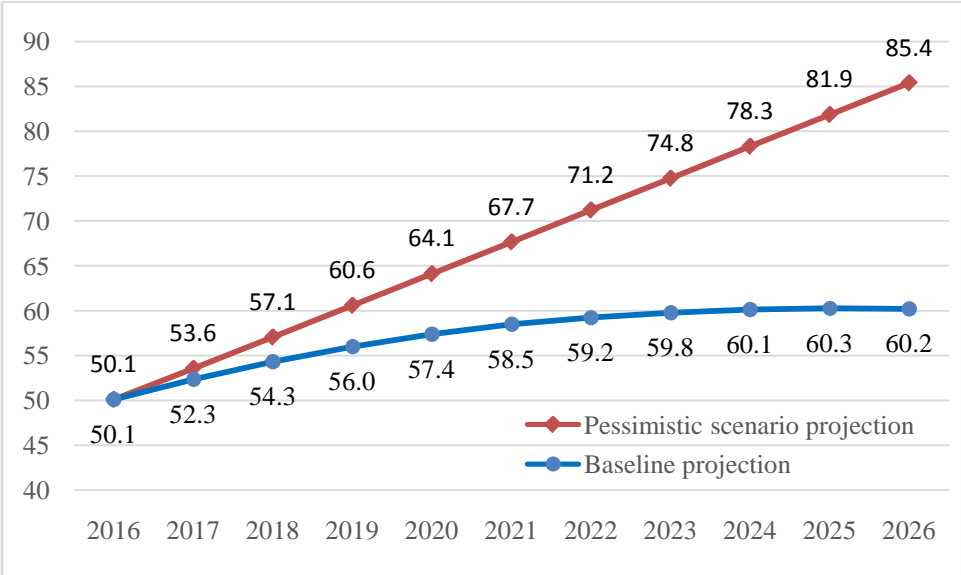
Primary balance is projected to further deteriorate under this scenario. Namely, assuming slowdown in growth rates and further fiscal expenditures in the future, the primary balance is assumed to continuously deepen and reach a level of -3% in 2026. By that, the primary deficit level on a long run will be for 1.5 percentage point higher than the historical average primary deficit.

Average time to maturity will decrease even further from 4.1 years in 2016 to 3.5 years in 2026. The underlying assumptions behind the projections is the decrease in the average time to maturity of external financing, according to the projections of the ‘Fiscal Strategy of the Republic of Macedonia 2017-2019’ (2016) while on the other hand increased financing needs that would not be able to be satisfied at the domestic market. Furthermore, under the ‘pessimistic’ scenario, the macroeconomic assumptions would also mean that external borrowing needs would have to be satisfied at worsened credit terms, which also involve shorter time to maturity.

3.3.6 Public debt ‘pessimistic’ scenario projections

Under the ‘pessimistic’ scenario projections, the public debt would continue to escalate even further.

Figure 8. Public Debt ‘Pessimistic’ Scenario Projections (as % of GDP)



Public debt-to-GDP projections under the ‘pessimistic’ alternative scenario will increase reaching the level of 85.4% of GDP in 2026. Comparing them to baseline projections, the downside risks would bring 25.2 percentage points higher public debt.

Under the assumption of 50% sustainable debt threshold for Macedonia, public debt under the ‘pessimistic’ scenario would be interpreted as being highly unsustainable. Even by assuming higher threshold level of sustainability, such as the Maastricht 60% level, or even considering the range for maximum debt sustainability level for emerging countries 35-77% of GDP, the Macedonian public debt would be defined as highly unsustainable. Taking into account that according to IMF (2016a) the assumed downside risks are with

high materialization probability, the Macedonian public debt can easily become ambiguously unsustainable.

3.4 ‘Optimistic’ scenario projections

The second alternative scenario is titled ‘optimistic’ scenario based on the optimistic underlying macroeconomic assumptions. Same as under the ‘pessimistic’ scenario analysis, the Macedonian public debt under the national definition is being used for this projection, while the underlying macroeconomic assumptions are being different than under the baseline. Rather than assuming positive shocks to key macroeconomic variables, the ‘optimistic’ scenario combines the positive shocks into one scenario that results in an overall positive economic outlook.

3.4.1 Assumptions of ‘optimistic’ scenario projections

The main assumptions under this scenario are also the main assumptions of the positive economic outlook projections in the latest country report by the International Monetary Fund (2016a). Contrary to the ‘pessimistic’ scenario projections, this alternative scenario combines ‘optimistic’ shocks to the main variables: real growth rates, interest rates, inflation and primary balance. In other words, the ‘optimistic’ scenario relies on the assumptions of resolution of the political crisis, political stability, strong structural reforms mainly in terms of management of public finances, using public finances more wisely and productively, reforms in the judiciary system, that would restore the rule of law and investor’s confidence, new government’s immediate fiscal consolidation that would be based on fiscal expenditure cuts instead of over-projecting economic growth rates, and favorable global economic movements.

3.4.2 Real growth rates ‘optimistic’ scenario projections

Under the ‘optimistic’ scenario, real growth rates start from 3% projected growth rate in 2017, which is the same as under the baseline scenario, and remains on the same trajectory as the baseline scenario till 2022 when projected growth rates stand at 3.8%. The reasoning behind is the political crisis that still remains unresolved, as well as the fact that the new government would need time to restore confidence after political instability and uncertainty in the past two years. On a long run, the real growth rate projections remain to follow the positive trend and increase further. They are assumed to peak in 2026 at 4.5%, which is by one percentage point higher than the long-term growth rate under the baseline and by 1.3 percentage points higher than the historical average. A positive outcome from restored confidence and stability would increase domestic investor’s incentives, and at the same time, favorable global economic movements could contribute to strengthening exports and increased FDI inflows.

3.4.3 Inflation ‘optimistic’ scenario projections

Strengthening the domestic and external demand would influence a normal increase of the prices. Inflation rate on a mid-term basis would strengthen from 1% in 2017 to 2.2% in 2023. On a long run, inflation rate is assumed to stabilize and remain around 2.2% until 2026.

3.4.4 Effective interest rates ‘optimistic’ scenario projections

Assuming expenditure cuts and immediate fiscal consolidation, the nominal effective interest rate would follow decreasing trajectory both mid-term and long-term. Assuming immediate fiscal consolidation, starting as early as the second half of 2017, the projected nominal effective interest rate is assumed to remain at the same level for the next three years 2017-2019. The already existing debt, together with high-interest payments, would result in nominal interest rate remaining at the level of 3% even without further debt issuance. However, from 2020 onwards, the nominal interest rate is assumed to start a decreasing trend. As per the above, it is projected to reach a level of 2% in 2026, which is by one percentage point lower than the historical average. Such movements are strongly based on the assumption of no new debt issuance as well as maturing of the existing one that so far had around 4 years average maturity time. With adjusting nominal interest rates for the projected inflation by using Fisher formula, the real interest rate projections would also follow a decreasing trajectory. Projections of real interest rates start with 2% real interest rate in 2017, going down to even negative real interest rates of -0.1% and -0.2% in 2025 and 2026 respectively. Real interest rates under the ‘optimistic’ scenario are consistently lower than the real growth rates which are the first indicator of debt sustainability in such case.

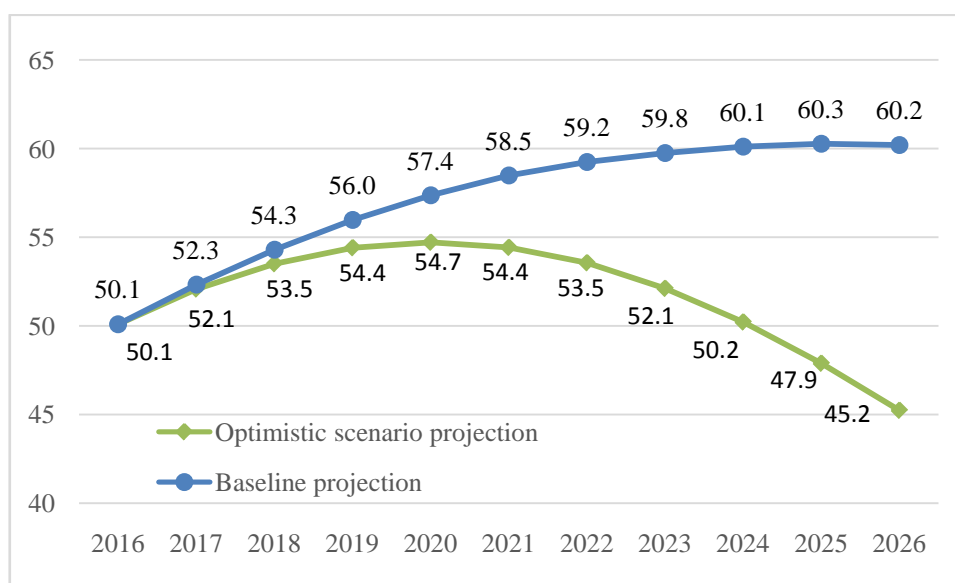
3.4.5 Primary balance and average time to maturity ‘optimistic’ scenario projections

Primary balance, according to the assumptions, would have a recovering trend and reach even surplus on a long run. Assumed immediate fiscal consolidation would result in lower level of primary balance as early as 2017, being projected as -2.5% of GDP. Increased economic growth, combined with the cut of fiscal expenditures, would result in primary balance reaching a positive surplus of 0.5% of GDP on a long run which is by one percentage point higher than the historical average primary balance of -1.5% of GDP. Average time to maturity under this alternative scenario is assumed to be the same as in the baseline projections, increasing to the historical average of 5.2 years maturity time.

3.4.6 Public debt ‘optimistic’ scenario projections

The ‘optimistic’ scenario, results in positive change in public debt levels till 2020 but with a low intensity, and negative change in the public debt levels afterward. That means that on a mid-term basis the public debt level will slightly increase, even under ‘optimistic’ macroeconomic assumptions, and reach the highest level of 54.7 % of GDP in 2020. However, from 2020 onwards the projected debt levels start following a negative trend and decrease down to 45.2% debt-to-GDP in 2026.

Figure 9. Public Debt ‘Optimistic’ Scenario Projections (as % of GDP)



For the public debt-to-GDP levels under the ‘optimistic’ scenario projections, it is easily observable that they can be interpreted as sustainable. Comparing them to the baseline projections, which were considered as ‘standing at the margins of sustainability’ on a long run, the Macedonian public debt under the ‘optimistic’ scenario is by 15 percentage points lower. Therefore, the underlying macroeconomic assumptions can serve as policy recommendations that would ensure Macedonian public debt sustainability. In fact, the underlying assumptions of the ‘optimistic’ alternative scenario show that key fiscal policy moves that Macedonia needs to undertake in order to stabilize debt levels and keep them within the range of sustainability is applying strong fiscal consolidation, wise and productive fiscal spending, and immediate resolution of the political crisis.

3.5 Gross borrowing requirements

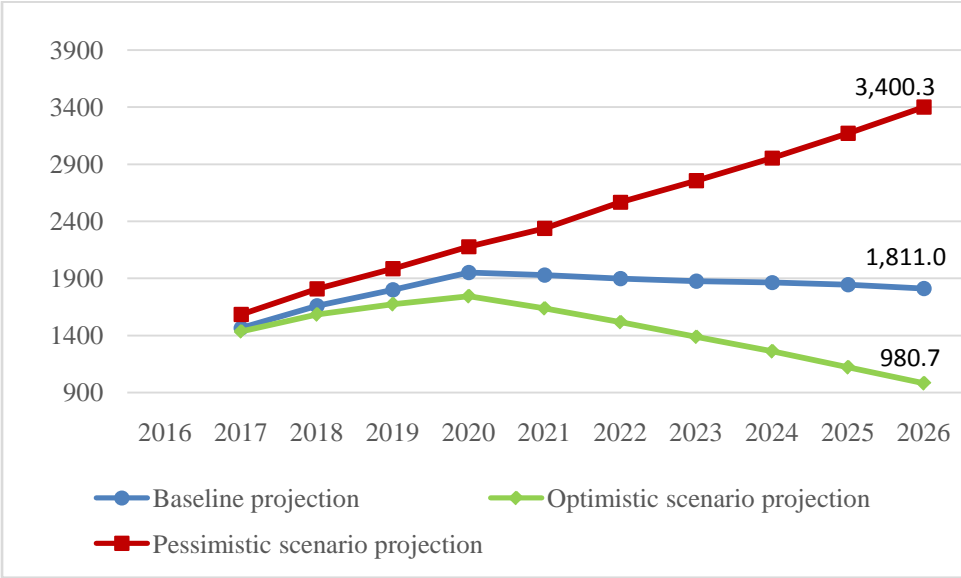
Gross borrowing requirements follow a similar trend as debt-to-GDP levels under baseline and scenario projections. To be exact, under the baseline scenario projections, gross borrowing requirements for 2017 are projected to stand at 1,468 million Euros, and they

increase continuously mid-term. In 2020 they would reach the peak by standing at 1,951 million Euros. Even though the debt-to-GDP levels in the years afterward increase, the gross borrowing requirements start decreasing. On a long run, that is, in 2026, their level would reach 1,811 million Euros.

Under the ‘pessimistic’ alternative scenario, gross borrowing requirements continuously increase. From, 1,583 million Euros requirements in 2017, they would more than double to 3,400 million Euros in 2026. Such output projection is expected, accounting for all of the assumptions this alternative scenario relies on.

The ‘optimistic’ alternative scenario borrowing requirements follow the same trend as projections under the baseline scenario, though with a lower intensity. More precisely, they increase from 1,436 million Euros in 2017 to 1,744 million Euros in 2020. Afterward, on a long run, they continuously decrease, reaching a minimal level of 981 million Euros in 2026.’ Optimistic’ economic situation, as projected in this alternative scenario, would result in lowest borrowing requirements on a long-term basis that would decrease even way below the gross borrowing requirements for 2017. The resulting effect would be the decrease in debt level to 45% of GDP.

Figure 10. Gross Borrowing Requirements (Million Euro)



3.6 Public debt stabilizing primary balance

The following section provides an overview of the public debt-stabilizing primary balance. Despite the use of debt threshold for determining public debt sustainability under baseline and scenarios, public debt- stabilizing primary balance serves as an indicator for interpreting debt and overall fiscal sustainability. If a sustainable threshold is set at 50%

for Macedonia as a country, the public debt stabilizing primary balance would show the required primary balance to maintain the sustainable public debt level under baseline and scenario projections.

3.6.1 Baseline projections debt stabilizing primary balance

Debt-stabilizing primary balance under baseline projections ranges from -0.4% of GDP in 2016 to -1.3% of GDP in 2026. However, the difference between debt stabilizing primary balance and the projected primary balance in the first output projections is not that dramatic. Namely, in order for Macedonia to maintain sustainable debt levels at 50%, it would need to focus on stronger fiscal consolidation that would rely on effective expenditure cuts, as well as effective collection of public revenues. By applying such moves, it would be feasible to achieve the debt stabilizing primary balance and remain at the sustainable level of a debt-to-GDP ratio of 50%.

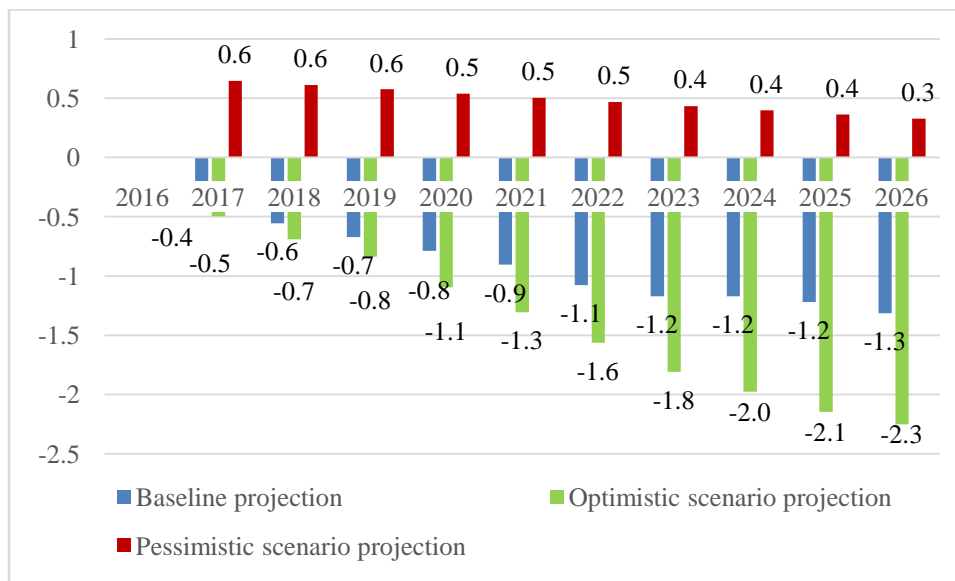
3.6.2 ‘Pessimistic’ scenario projections debt stabilizing primary balance

In order to stabilize the public debt under the ‘pessimistic’ macroeconomic scenario assumptions, the primary balance would start with a need 0.6% of GDP surplus, to 0.3% of GDP surplus on a long run. The reason for the slight decrease in debt stabilizing primary balance on a long run comes as a result of projected increase in inflation rates, and slight strengthening of real growth rates. The ‘pessimistic’ scenario primary balance, required to stabilize the public debt, can be defined as achievable, mainly due to the fact that historically there have been years in which Macedonia had an even higher primary surplus. However, in a case when the primary balance has been constantly negative in the past ten years, with an average of -1.53% of GDP, the primary surplus required may be unfeasible or difficult to realize. If the underlying assumptions of the ‘pessimistic’ scenario are taken into account, the primary balance required would be definitely unfeasible, which means the public debt and fiscal policy under this scenario would be considered unsustainable.

3.6.3 ‘Optimistic’ scenario projections debt stabilizing primary balance

The ‘optimistic’ alternative scenario confirms that under such circumstances Macedonia would have a sustainable debt level. Namely, according to the projections, the required primary balance to stabilize the debt at 50% of GDP is negative i.e. primary deficit ranging from 0.5% of GDP in 2017 to 2.3% of GDP in 2026. In particular, the underlying assumptions allow for a ground level of fiscal imbalances and increased public expenditures, when needed, and still resulting in debt levels being sustainable at 50% of GDP. Furthermore, due to positive long-run outcomes that come from the underlying assumptions, the primary deficit can be even widened with years.

Figure 11. Public Debt Stabilizing Primary Balance (as % of GDP)



3.7 Required permanent primary balance to achieve 40% of debt-to-GDP

This section shows the level of permanent primary balance that would be required to bring debt levels at the desired 40% of debt-to-GDP ratio.

3.7.1 Baseline projections required permanent primary balance

Under the baseline scenario, the permanent primary surplus required to bring Macedonian debt at the level of 40%, instead of increasing to 60%, is 0.2% of GDP. Namely, with achieving a permanent primary surplus of 0.2%, with all of the other baseline projections, in terms of nominal and real interest rates as well as growth rates, Macedonia would end up with 40% of debt –to-GDP level in 2026. However, if we consider the historically continuous negative primary balance with an average of -1.5% of GDP, the required permanent primary surplus would be hard to achieve or/ and even unfeasible to sustain for such a long period of time. All of the output projections lead towards the results that Macedonian public debt, under the baseline projections, is being at the margin of sustainability, and stronger fiscal consolidation is hardly recommendable in order to bring debt levels down and keep them within the range of sustainability.

3.7.2 ‘Pessimistic’ scenario projections required permanent primary balance

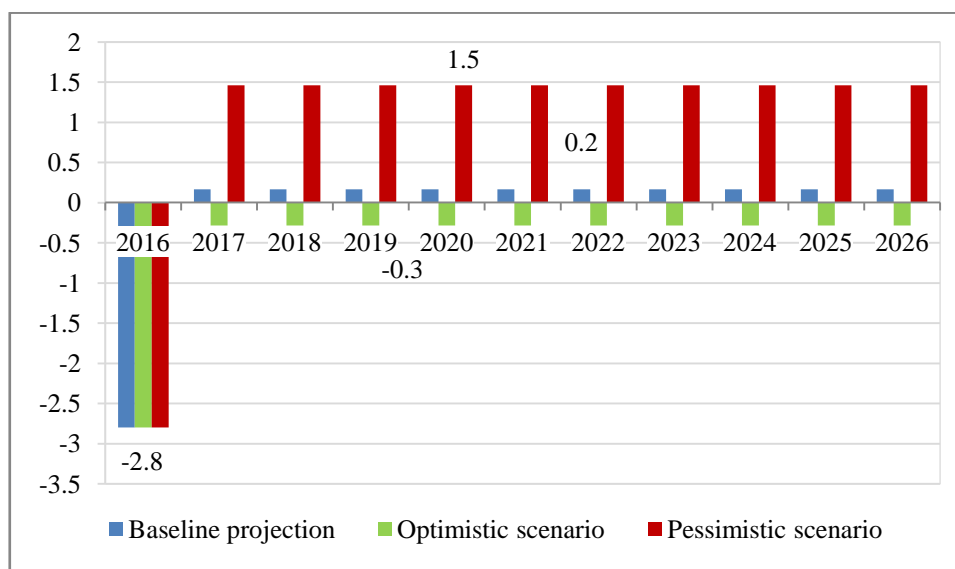
With ‘pessimistic’ macroeconomic assumptions, Macedonia would need almost 1.5% of GDP permanent primary surplus to achieve the desired public debt level of 40% of GDP. Achieving constant primary surplus of 1.5% of GDP would require serious expenditure cuts that under the ‘pessimistic’ scenario are unfeasible. Furthermore, sustaining

permanent 1.5% of GDP primary surplus for the next ten years would be even harder. Macedonia has achieved 1.3% of GDP primary balance only in 2007, mainly as a result of limited fiscal expenditures, combined with best economic performance from transition period till now, good performance in collecting tax revenues as well as extra revenues received from the dividend of Makedonski Telekomunikacii (Ministry of Finance, 2008). Such position is unattainable under the ‘pessimistic’ scenario projections, but can also be considered hardly attainable under baseline projections. Therefore, it is plausible to define public debt as unsustainable under the ‘pessimistic’ scenario projections that have a high likelihood of occurrence considering the current macroeconomic position of Macedonia.

3.7.3 ‘Optimistic’ scenario projections required permanent primary balance

Under the ‘optimistic’ assumptions, the permanent primary deficit of 0.3% would achieve the targeted debt to GDP ratio. Favorable assumptions contribute to debt to GDP levels converging to 45% in 2026 which makes it logical to assume that permanent primary balance would not be too high. Such primary balance is both economically and politically feasible, which means that under such economic scenario the Macedonian public debt can be certainly considered stable and sustainable.

Figure 12. Required Permanent Primary Balance to Achieve 40% of Debt-to-GDP (as % of GDP)



3.8 Compliance with European benchmark sensitivity analysis

The last segment of the debt sustainability analysis for Macedonian public debt is the sensitivity analysis of the national definition of public debt compliance with European standards. The sensitivity analysis is analysis that assumes Macedonian public debt

concept and definition that would be in compliance with European concept of public debt. The sensitivity analysis, unlike the baseline projections that uses the Macedonian public debt under the national definition, takes the Macedonian public debt and adjusts it in order to get the Macedonian public debt being compliant with the European benchmark, and comparable to Eurostat statistics of other European countries. The difference in Macedonian public debt resulting from compliance with European standards is assumed to be reflected immediately on the debt-to-GDP level of 2016. On the other hand, unlike the scenario analysis that use different macroeconomic assumptions for key variables, the sensitivity analysis relies on the most realistic macroeconomic assumptions i.e. the same macroeconomic assumptions as under the baseline projections. With this, the sensitivity analysis solely reflects the differences in debt-to-GDP levels resulting from differences in the national definition and concept of public debt with the European one.

The main references used for this analysis are the conceptual differences identified in the European Commission's 'Final Findings of Eurostat technical visit to the Republic of Macedonia' (2016b). The main differences, underlying the assumptions of the sensitivity analysis, are within the definition of the government sector i.e. classification of units within the scope of debt, recognition of guaranteed debt, and the time of recording transactions.

3.8.1 Assumptions of sensitivity analysis projections

In terms of definition of debt, the Macedonian public debt has a wider scope than the general government debt, both which are reported by the Ministry of Finance of the Republic of Macedonia (Ministry of Finance of the Republic of Macedonia, 2017a). So far, Eurostat reports the values of the general government debt as referent values for the Macedonian public debt. However, neither the national definition of the general government debt nor the public debt is compliant with the European benchmark discussed in the first chapter. The main differences come in the classification of units within the government sector, timing of transactions and guaranteed debt recognition.

Starting with the national level of public debt, the debt for which a sovereign guarantee has been issued shall not be considered to be in compliance with the European benchmark. However, part of the guaranteed debt is debt of public enterprises for which the Eurostat has proposed reclassification in the government sector (in European Commission, 2016b). Namely, in the 'Final Findings of Eurostat technical visit to the Republic of Macedonia' (2016b), a reclassification of units, such as the Public hospitals, Public Enterprise for State Roads, the Macedonian Bank for Development Promotion, was suggested. In terms of time of recording transactions, the difference between the Macedonian cash recording and the European accrual recording is basically reflected in the level of government sector arrears.

The current level of the Macedonian public debt, defined as it is, for the last quarter of 2016 was 4,711.4 million Euros (Ministry of Finance of the Republic of Macedonia, 2017a). The guaranteed debt of public enterprises and state-owned joint stock companies for the last quarter of 2016 was 859.9 million of Euros (Ministry of Finance of the Republic of Macedonia, 2017a).

According to the 'Annual Report on Public Debt Management of the Republic of Macedonia for 2015' (2016), a great share of the guaranteed debt for 2015 and for 2014 belonged to the Public Enterprise for State Roads and the Macedonian Bank for Development Promotion. In particular, around 61% for 2014 and 69% for 2015 of the guaranteed debt was attributed to these two units, which shall need to be reclassified within the government sector (European Commission, 2016b). Due to unavailability of the structure of guaranteed debt for 2016, the assumption takes the average of the last two years to represent the share of the Public Enterprise for State Roads and the Macedonian Bank for Development Promotion in the guaranteed debt. That represents around 65% of the guaranteed debt or around 559 million of Euros. Following the suggestion of the Eurostat to reclassify the Public Enterprise for State Roads and the Macedonian Bank for Development Promotion within the government sector, its guaranteed debt shall be recognized as part of government sector debt. The rest of the guaranteed debt, ownership of public enterprises that do not satisfy the requirements of government sector units, shall not be considered part of the Macedonian public debt. The remaining 301 millions of Euros shall not be considered part of the Macedonian public debt unless the sovereign guarantee gets activated. This means, the public debt would be at a level of 4410.4 million Euros or 47% of GDP.

Furthermore, the European Commission's 'Final Findings of the Eurostat technical visit to the Republic of Macedonia' (2016b) suggest classification of Public hospitals in the general government sector, which has not been the case so far. Macedonian Public hospitals so far have no issued debt. However, the assumption of their classification within the general government sector, combined with the accrual time of recording transactions, demands adding of the Public hospitals arrears to the level of Macedonian public debt. According to the 'Analysis for funds realization of the health insurance fund and public hospitals for 2015' (2016), annual arrears of Public hospitals exceeded three billion Macedonian Denars in the last three years, or on average they are about 0.56% of GDP. Classifying them within the general government sector would increase the Macedonian public debt to 47.56% of GDP. The 'Final Findings of the Eurostat technical visit to the Republic of Macedonia' (2016b) suggest further testing for other units that may fulfill the requirements for classification within the government sector. However, there is no further information for those units which is why they are not included into this analysis.

The last point referring to the level of government arrears has been a very persistent topic, of controversial discussion, within the Macedonian public lately. The need of transparency over government arrears was already mentioned by the European Commission in their progress reports for Macedonia (2016c) and by the International Monetary Fund as well (2012). The International Monetary Fund in their country report for 2011 (2012), officially disclosed for the first time a figure for Macedonian government arrears for 2011, that represented around 0.2% of GDP and were attributed to refund of VAT mainly.

Lately there has been an even louder and controversial discussion on the topic of government arrears in the country, since the exact level of government arrears still remains unknown. The official claims of the Ministry of Finance of the Republic of Macedonia are that the level of unpaid claims by the government changes on daily basis, and does not represent a significant number since the Macedonian government pays all of its due claims timely. On the other hand, there has been a strong accusation by many economic experts as well as entrepreneurs that the Macedonian government is a significant debtor to the Macedonian private sector. Nevertheless, the exact levels of government arrears are hardly mentioned even within expert discussions, since without proven evidence they are strongly judged to be speculations. As part of the TV broadcast '24 Open: Which economic moves shall the new government pull?' (2016, February 02) Mr. Goran Rafajlovski, an expert for international and domestic business law and taxes, owner of the Rafajlovski consulting, was one of the first people that publicly gave a statement claiming that the Macedonian debt level towards private creditors reached 1 billion Euros lately. Such statement, within the TV broadcast was partially or fully supported by the University Professor Adulmenaf Bedzeti, a former Minister for Development and Communications of the Republic of Macedonia, as well as by Mrs. Daniela Arsovska, current president of the Chambers of Commerce. At the same time, all of such claims were rejected as not true by the Ministry of Finance of the Republic of Macedonia (24 Open: Which economic moves shall the new government pull?, 2016)

Based on the reference of the 'Final Findings of Eurostat technical visit to the Republic of Macedonia' (European Commission, 2016b), the sensitivity analysis in terms of classification of units within the government sector and guaranteed debt was straight forward. However, due to the fact that two opposing views are presented on the last segment of comparison in terms of time of recording transactions, the sensitivity analysis has to distinguish between two options.

The first option of the sensitivity analysis relies on the assumption of the 'official' claims by the Ministry of Finance of the Republic of Macedonia, that Macedonia repays timely all of its claims. For that purpose the reference level of government arrears is the level of around 0.2% of GDP, officially disclosed in the International Monetary Fund country report for Macedonia (2012). Under this assumption, adding government arrears to the

public debt would result in Macedonian public debt reaching a level of almost 48% of GDP for 2016.

The second option of the sensitivity analysis relies on the assumption of the ‘unofficial’ level of government arrears of 1 billion Euros, stated by Mr. Goran Rafajlovski, and unofficially supported by other economic experts. Under such assumptions, adding the government arrears to the general government debt level would increase general government debt for additional 10%. That is, the general government debt-to-GDP level would reach 57.6 % for 2016.

Both the ‘official’ and ‘unofficial’ compliance with European benchmark result in Macedonian public debt-to-GDP ratio which can be comparable to other European countries from the Eurostat data statistics.

3.8.2 Public debt ‘official’ compliance with European benchmark sensitivity projection

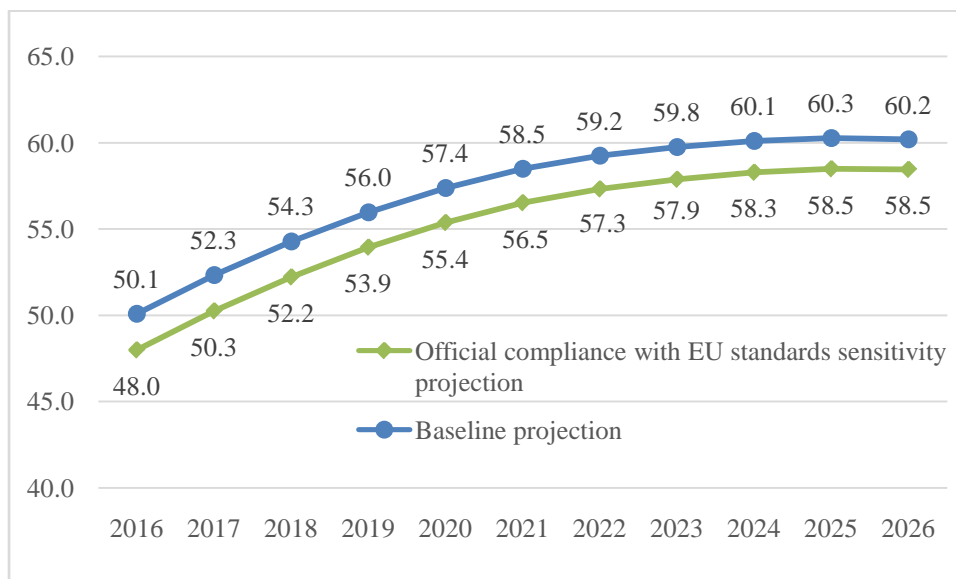
Under the ‘official’ sensitivity analysis projections, following the same macroeconomic assumptions as under baseline projections, the debt-to-GDP trajectory will follow the exact same trend. Macedonian public debt would increase from 48% of GDP to its highest of 58.5% in 2025 and 2026. The Macedonian public debt level of 58.5% of GDP is the ‘official’ one comparable to other EU countries from the Eurostat data statistics.

Under the assumption of 50% sustainable debt threshold, the Macedonian public debt under the ‘official’ compliance with EU standards sensitivity projection passes over the sustainability level. Same as under the baseline projections, the debt-to-GDP ratio is standing ‘at the margins of sustainability’ and its reduction is strongly recommended. In order to achieve the reduction thereto, a stronger fiscal consolidation is needed. However, since the main assumption of the sensitivity analysis is compliance with the European benchmark, the Macedonian general government debt would be below 60% which is acceptable according to the Maastricht criteria.

The figure below shows the Macedonian public debt under baseline projections, using the national definition, and the ‘official’ sensitivity projection which is comparable to Eurostat public debt statistics.

Comparing it to the baseline projections, the ‘official’ compliance with EU standards results in 1.7 percentage point lower public debt on a long run. The main reason for that is excluding the guaranteed debt of public enterprises which are not considered part of the government sectors according to the EU criteria.

Figure 13. Public Debt ‘Official’ Compliance with European Benchmark Sensitivity Projection (as % of GDP)



Under the ‘official’ sensitivity analysis projections, debt stabilizing primary balance will be identical as the one under the baseline projections, ranging from -0.4% in 2017 to -1.3% in 2026. Such primary balance would stabilize the debt level at the current 48% of GDP. The debt stabilizing primary balance, same as under the baseline, is considered to be achievable. On the other hand, the required permanent primary balance to achieve 40% of debt-to-GDP level under the ‘official’ sensitivity analysis is 0% of GDP, which can also be considered an achievable primary balance. Even though primary deficit has been relatively high in the past years, under the relevant macroeconomic assumptions, a permanent balance of 0% of GDP is feasible. Overall, under the Macedonian public debt as per the ‘official’ compliance with EU standards would be interpreted as being ‘at the margins of sustainability’, with recommendations for its reduction.

3.8.3 Public debt ‘unofficial’ compliance with European benchmark sensitivity projections

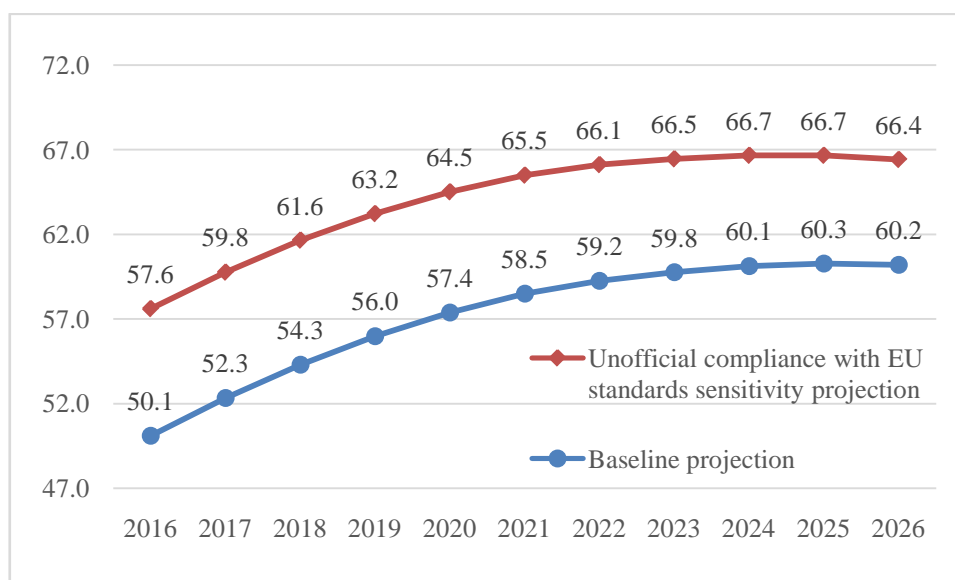
Under the ‘unofficial’ compliance with EU standards of the sensitivity analysis of Macedonian public debt, the starting level of public debt-to-GDP can be interpreted as being ‘over the margins of sustainability’. Further, due to same underlying macroeconomic assumptions, the public debt-to-GDP trajectory follows the same trend as under the baseline projections. Under this sensitivity analysis, the public debt-to-GDP ratio would reach its peak in 2025 at 66.7% and then it would reduce slightly down to 66.4% of GDP. Interpreting the sustainability, under the assumption of 50% threshold sustainability, the Macedonian public debt ‘unofficial’ compliance with EU standards will be considered as

unsustainable. Moreover, it will also overstep the 60% threshold determined under the Maastricht criteria.

The figure below shows the Macedonian public debt under baseline projections, using the national definition, and the ‘unofficial’ sensitivity projection which is comparable to Eurostat public debt statistics.

The ‘unofficial’ level of Macedonian public debt comparable to Eurostat statistics is at long run by 6.2 percentage point higher than the Macedonian public debt under the national definition, and as such it is unsustainable. The main reason for such discrepancy is coming from the difference in the time of recording transactions. It refers to the level of the government arrears, which is potentially very high for Macedonia.

Figure 14. Public Debt ‘Unofficial’ compliance with European benchmark Sensitivity Projection (as % of GDP)



Under the ‘unofficial’ compliance with EU standards sensitivity projections, the debt stabilizing primary balance would range from -0.5% of GDP primary balance in 2017, to -1.5% of GDP primary balance in 2026. The debt stabilizing primary balance is achievable and in line with historical averages of the Macedonian primary balance. However, debt stabilizing primary balance, under the ‘unofficial’ sensitivity analysis means maintaining the debt-to-GDP ratio at 57.6 % of GDP which is already interpreted as unsustainable. On the other hand, the required permanent primary balance to achieve the desired debt level of 40% of GDP is 0.9% of GDP. Such primary surplus is achievable; however, it may become economically and politically unfeasible under the relevant macroeconomic assumptions of the analysis.

Overall, the ‘unofficial’ sensitivity analysis is of a great importance since it shows the possible hidden debt of the Macedonian government. Namely, if the level of government arrears is approximately equal to the “unofficial” 1 billion Euros government arrears, the overall status of the Macedonian public debt and fiscal policy will change from sustainable to unsustainable. Even under the baseline macroeconomic assumptions, such debt-to-GDP ratio will be interpreted as unsustainable. Adding the downside risk pressures assumed in the ‘pessimistic’ scenario projections would most probably result in sky rocketing debt-to-GDP ratios.

CONCLUSION

The research herein gives a comprehensive overview of the Macedonian public debt. To start with, it develops a conceptual framework by studying European standards of government statistics, and identifies key factors that affect debt dynamics and may contribute to risks and vulnerability of debt sustainability. Further on, it develops a comprehensive overview on public debt, economic and political situation in Macedonia. More specifically, it studies the definition and concept of Macedonian public debt, and its compliance with the European standards. Further, it analyzes the trend and structure of debt portfolio, most important macroeconomic movements, and the current political instability in Macedonia which serve as the basis for future macroeconomic assumptions underlying the debt sustainability analysis. Based on the overall conceptual framework, the analysis gives an answer to the main research questions about Macedonian public debt sustainability, as well as sustainability under different scenario and sensitivity analyses. It also incorporates policy recommendations to ensure sustainability and protect it from main risks and vulnerabilities that arise from the structure and portfolio of the Macedonian public debt.

Under the baseline macroeconomic assumptions, public debt-to-GDP passes the sustainable debt threshold. Further, the primary balance, as an indicator, interprets Macedonian public debt as being ‘at the margins of sustainability’. ‘Optimistic’ macroeconomic assumptions can be interpreted as the policy recommendations that Macedonia shall need to undertake in order to keep its public debt levels sustainable. The main assumption behind the ‘optimistic’ scenario is applying a strong fiscal consolidation based on explicit fiscal expenditure cuts and better performance in fiscal revenue collection. The ‘Pessimistic’ scenario combines all of the downside risk pressures, which are highly likely to occur, based on the current economic and political position of Macedonia. Under that scenario, the public debt will be interpreted as unsustainable, which further adds to the conclusion that Macedonia shall need to immediately undertake meaningful structural reforms and strong fiscal consolidation.

Last, but not least, is the sensitivity analysis that analyzes the Macedonian debt under the assumption of compliance with European standards. Under baseline macroeconomic assumptions, the sustainability of the Macedonian debt in compliance with European standards is highly conditional on the level of government sector's arrears. Specifically, same as under the baseline scenario, the Macedonian public debt will be interpreted at the margins of sustainability, if there is no significant number of government arrears. In that particular case, the Macedonian public debt will pass over the 50% sustainable threshold, and bringing it down will be recommended. However, passing over the threshold 50% would not be that significant, so the primary balance indicators still interpret the level of public debt as being 'within the margins of sustainability'.

In case of significant number of government arrears, which is key subject of discussion and claims by many domestic economic experts, as well as representatives of the Macedonian private sector, the Macedonian public debt is unsustainable. In such case, even without assuming further negative shocks over the macroeconomic variables, Macedonia would need a significant structural reforms and fiscal consolidation to bring debt levels within the margins of sustainability.

REFERENCE LIST

1. Abbas, S.A., Belhocine, N., El-Ganainy, A., & Horton, M. (2010, November). A historical public debt database (*IMF Working Paper No. 10/245*). Retrieved September 15, 2016, from <https://www.imf.org/external/pubs/ft/wp/2010/wp10245.pdf>
2. Arsovski, D. (2008). *Javni finansii* [Public finance]. Skopje: University American College Skopje.
3. Arsovski, D., Nenovski, T., & Smiljkovski, I. (2009). *Javni finansii* [Public finance]. Ohrid: Center for Scientific Research at the Faculty for Tourism and Hospitality.
4. Cadikovski, M. (2016, February 02). 24 Otvoreno: Koi ekonomski potezi treba da povlece novata vlada? [24 Open: Which economic moves shall the new government pull?]. Skopje: 24 Vesti.
5. Cecchetti, G.S., Mohanty, S.M., & Zampolli, F. (2011, September). The real effects of debt (*BIS Working paper No. 352*). Retrieved January 17, 2017, from <http://www.bis.org/publ/othp16.pdf>
6. Cherif, R., & Hasanov, F. (2012, September). Public debt dynamics: The effects of austerity, inflation and growth shocks (*IMF Working Paper No. 12/230*). Retrieved January 17, 2017, from <https://www.imf.org/external/pubs/ft/wp/2012/wp12230.pdf>
7. Commission of the European Communities. (2007). *The Former Yugoslav Republic of Macedonia 2007 progress report*. Retrieved March 12, 2017, from https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/pdf/key_documents/2007/nov/fyrom_progress_reports_en.pdf
8. Cottarelli, C., & Moghadam, R. (2011, August). Modernizing the framework for fiscal policy and public debt sustainability analysis. Retrieved January 17, 2017, from <https://www.imf.org/external/np/pp/eng/2011/080511.pdf>
9. Dipplesman, R., Dziobek, C., & Gutierrez Mangas C.A. (2012, July 27). What lies beneath: The statistical definition of public sector debt. Retrieved March 10, 2017, from <https://www.imf.org/external/pubs/ft/sdn/2012/sdn1209.pdf>
10. Elemendorf, W.D., & Mankiw, G.N. (1999, March). Government debt (*NBER Working Paper No. 6470*). Retrieved January 17, 2017, from <http://www.nber.org/papers/w6470.pdf>
11. Engen, E., & Hubbard, G. R. (2004, August). Federal government debts and interest rates (*NBER Working Paper 10681*). Retrieved January 17, 2017, from <http://www.nber.org/papers/w10681.pdf>
12. Escolano, J. (2010, January). Practical guide to public debt dynamics, fiscal sustainability and cyclical adjustments of budgetary aggregates. Retrieved January 17, 2017, from <https://www.imf.org/external/pubs/ft/tnm/2010/tnm1002.pdf>
13. European Commission. (2013a). *Report from the Commission to the Council and the European Parliament: Towards implementing harmonized public sector accounting standards in Member States – The suitability of IPSAS for the Member States*.

- Retrieved March 11, 2017, from <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013DC0114&from=EN>
14. European Commission. (2014a, October). *The Former Yugoslav Republic of Macedonia progress report*. Retrieved March 10, 2017, from https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/pdf/key_documents/2014/20141008-the-former-yugoslav-republic-of-macedonia-progress-report_en.pdf
 15. European Commission. (2014b, September). *European economy: Assessing public debt sustainability in EU member states: A Guide*. Retrieved March 12, 2017, from http://ec.europa.eu/economy_finance/publications/occasional_paper/2014/pdf/ocp200_en.pdf
 16. European Commission. (2016a). *Manual on government deficit and debt: Implementation of ESA 2010*. Retrieved March 10, 2017, from <http://ec.europa.eu/eurostat/documents/3859598/7203647/KS-GQ-16-001-EN-N.pdf/5cfae6dd-29d8-4487-80ac-37f76cd1f012>
 17. European Commission. (2016b, April 07). *Final findings eurostat technical visit to the Former Yugoslav Republic of Macedonia 24-25 June 2015*. Retrieved September 16, 2016, from <http://ec.europa.eu/eurostat/documents/1015035/6940197/Final-findings-Tech-visit-MK-24-25-June-2015.pdf/6da7bcac-9aa8-461e-8f3a-e455b90caff2>
 18. European Commission. (2016c, November). *Commission staff working document: The Former Yugoslav Republic of Macedonia 2016 report* (SWD (2016) 362 Final). Retrieved March 11, 2017, from https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/pdf/key_documents/2016/20161109_report_the_former_yugoslav_republic_of_macedonia.pdf
 19. Fitch Ratings. (2009, May). *Sovereigns Macedonia special report; Macedonia: An update on rating drivers*. Retrieved March 12, 2017, from http://www.finance.gov.mk/files/u4/mk_may09_fitch.pdf
 20. Fitch Ratings. (2016, September). *Macedonia full rating report*. Retrieved March 12, 2017, from http://www.finance.gov.mk/files/u252/report_final_mk_published_fitch.pdf
 21. Fond za zdravstveno osiguruvanje na Makedonija [Health Insurance Fund of Macedonia]. (2016, February). *Analiza za realizacija na sredstvata od budzetot na fondot I budzetite na javnite zdravstveni ustanovi vo 2015 godina [Analysis for funds realization of the health insurance fund and public hospitals for 2015]*. Retrieved March 11, 2017, from <http://www.fzo.org.mk/WBStorage/Files/Analiza%20jan-dekemvri%202015%20godina%20za%20objava%20na%20web%20stranata%20na%20FZOM.pdf>
 22. Fond za zdravstveno osiguruvanje na Makedonija [Health Insurance Fund of Macedonia]. (2017, January). *Analiza za realizacija na sredstvata od budzetot na fondot I budzetite na javnite zdravstveni ustanoviza periodot 01.01-30.11.2016 godina [Analysis for funds realization of the health insurance fund and public hospitals for the*

- period 01.01-30.11.2016J.* Retrieved March 11, 2017, from <http://www.fzo.org.mk/WBStorage/Files/Izvestaj%20NOEMVRI%202016%20FZOM.pdf>
23. Government of the Republic of Macedonia. (2016, October). *Fiscal strategy of the Republic of Macedonia 2017-2019*. Retrieved March 10, 2017, from <http://www.finance.gov.mk/en/node/4112>
 24. Hyman, D.N. (2011). *Public finance a contemporary application of theory to policy* (10th ed.). Mason: Thomson/South-Western.
 25. Institute for Economic Research and Policy Finance Think, Skopje. (2015, May). *On the political crisis in Macedonia and its implications for the economy*. Retrieved March 13, 2017, from http://www.financethink.mk/wp-content/uploads/2013/11/FT-comment_6.pdf
 26. Institute for Economic Research and Policy Finance Think, Skopje. (2016). *On the Fiscal Strategy 2017-2019*. Retrieved March 11, 2017, from http://www.financethink.mk/mk/wp-content/uploads/sites/2/2013/11/FT-comment_11.pdf
 27. International Budget Partnership. (2015). *Transparency (Open Budget Index) 35/100*. Retrieved March 12, 2017, from <http://www.internationalbudget.org/wp-content/uploads/OBS2015-CS-Macedonia-English.pdf>
 28. International Monetary Fund. (2010, January). *Former Yugoslav Republic of Macedonia: staff report for the 2009 article IV consultation* (Country Report No.10/19). Retrieved March 12, 2017, from <http://www.imf.org/external/pubs/cat/longres.aspx?sk=23549.0>
 29. International Monetary Fund. (2011, February). *Former Yugoslav Republic of Macedonia: 2010 article IV consultation and request for an arrangement under the precautionary credit line* (Country Report no. 11/42). Retrieved March 12, 2017, from <https://www.imf.org/external/pubs/ft/scr/2011/cr1142.pdf>
 30. International Monetary Fund. (2012). *Former Yugoslav Republic of Macedonia 2011 article IV consultation* (Country Report no. 12/133). Retrieved March 12, 2017, from <https://www.imf.org/external/pubs/ft/scr/2012/cr12133.pdf>
 31. International Monetary Fund. (2013, June). *Former Yugoslav Republic of Macedonia: 2013 article IV consultation and first post-program monitoring discussions* (Country Report no. 13/178). Retrieved March 12, 2017, from <https://www.imf.org/external/pubs/ft/scr/2013/cr13178.pdf>
 32. International Monetary Fund. (2014a). *Government finance statistics manual 2014*. Retrieved March 10, 2017, from <http://www.imf.org/external/Pubs/FT/GFS/Manual/2014/gfsfinal.pdf>
 33. International Monetary Fund. (2014b, April). *Revised guidelines for public debt management*. Retrieved January 17, 2017, from <https://www.imf.org/external/np/pp/eng/2014/040114.pdf>

34. International Monetary Fund. (2015a, September). *The Former Yugoslav Republic of Macedonia: 2015 article IV consultation – press release; Staff report; And statement by the executive director for Former Yugoslav Republic of Macedonia*. (Country Report No. 15/242). Retrieved March 12, 2017, from <https://www.imf.org/external/pubs/ft/scr/2015/cr15242.pdf>
35. International Monetary Fund. (2015b, September). *The Former Yugoslav Republic of Macedonia: Selected issues* (Country Report No.15/243). Retrieved March 12,2017, from <https://www.imf.org/external/pubs/ft/scr/2015/cr15243.pdf>
36. International Monetary Fund. (2016a, November). *The Former Yugoslav Republic of Macedonia: 2016 article IV consultation – press release; Staff report; And statement by the executive director for Former Yugoslav Republic of Macedonia* (Country Report No.16/356). Retrieved March 12, 2017, from <https://www.imf.org/external/pubs/cat/longres.aspx?sk=44407.0>
37. International Monetary Fund. (2016b, October). *The Former Yugoslav Republic of Macedonia: selected issues* (Country Report No.16/357). Retrieved March 12,2017, from <https://www.imf.org/external/pubs/ft/scr/2016/cr16357.pdf>
38. Irwin, T.C. (2015, November). *Defining the government’s debt and deficit (IMF Working Paper No. 15/238)*. Retrieved March 10, 2017, from <https://www.imf.org/external/pubs/ft/wp/2015/wp15238.pdf>
39. Mankiw, G.N. (2004). *Principles of macroeconomics* (3rd ed.). Mason: Thomson/ South-Western.
40. Ministry of Finance of the Republic of Macedonia. (2007, July). *Annual report for implementing the public debt management strategy for 2006*. Retrieved March 10, 2017 from http://www.finance.gov.mk/files/u4/y_for_public_debt_management_for_2006_actual.pdf
41. Ministry of Finance of the Republic of Macedonia. (2008, March). *Annual report on implementation of the public debt management strategy of the Republic of Macedonia for 2007*. Retrieved March 10, 2017, from http://www.finance.gov.mk/files/u4/the_public_debt_management_strategy_for_2007.pdf
42. Ministry of Finance of the Republic of Macedonia. (2009, April). *Annual report on implementation of the public debt management strategy of the Republic of Macedonia for 2008*. Retrieved March 10, 2017, from http://www.finance.gov.mk/files/u4/n_implementation_of_the_public_debt_strategy.pdf
43. Ministry of Finance of the Republic of Macedonia. (2010, March). *Annual report on implementation of the public debt management strategy of the Republic of Macedonia for 2009*. Retrieved March 12, 2017, from http://www.finance.gov.mk/files/u4/rategy_of_the_Republic_of_Macedonia_for_2009.pdf

44. Ministry of Finance of the Republic of Macedonia. (2011). *Annual report on public debt management strategy of the Republic of Macedonia for 2010*. Retrieved March 12, 2017, from http://www.finance.gov.mk/files/u252/Annual%20Report%20on%20Public%20Debt%20Management%20of%20the%20Republic%20of%20Macedonia%20for%202010_1.pdf
45. Ministry of Finance of the Republic of Macedonia. (2012). *Annual report on public debt management strategy of the Republic of Macedonia for 2011*. Retrieved March 12, 2017, from http://www.finance.gov.mk/files/u252/Annual%20Report%20on%20Public%20Debt%20Management%20of%20the%20Republic%20of%20Macedonia%20for%202011_0.pdf
46. Ministry of Finance of the Republic of Macedonia. (2013). *Annual report on public debt management strategy of the Republic of Macedonia for 2012*. Retrieved March 12, 2017, from <http://www.finance.gov.mk/files/u252/Annual%20Report%20on%20Public%20Debt%20Management%20of%20the%20Republic%20of%20Macedonia%20for%202012.pdf>
47. Ministry of Finance of the Republic of Macedonia. (2014). *Annual report on public debt management strategy of the Republic of Macedonia for 2013*. Retrieved March 10, 2017, from http://www.finance.gov.mk/files/u252/Annual%20Report%20on%20Public%20Debt%20Management%20of%20the%20Republic%20of%20Macedonia%20for%202013_web.pdf
48. Ministry of Finance of the Republic of Macedonia. (2015). *Annual report on public debt management strategy of the Republic of Macedonia for 2014*. Retrieved March 13, 2017, from <http://www.finance.gov.mk/files/u252/Annual%20Report%20on%20Public%20Debt%20Management%20of%20the%20Republic%20of%20Macedonia%20for%202014x.pdf>
49. Ministry of Finance of the Republic of Macedonia. (2016). *Annual report on public debt management of the Republic of Macedonia for 2015*. Retrieved March 13, 2017, from http://finance.gov.mk/files/u252/https___mail.finance.gov__0.pdf
50. Ministry of Finance of the Republic of Macedonia. (2017a). *Stock of general government and public debt as of 31 December 2016*. Retrieved March 12, 2017, from <http://www.finance.gov.mk/en/node/2678>
51. Ministry of Finance of the Republic of Macedonia. (2017b). *Basic macroeconomic indicators*. Retrieved March 12, 2017, from <http://www.finance.gov.mk/en/node/882>
52. National Bank of The Republic of Macedonia. (2017a). *Basic economic data*. Retrieved February 26, 2017, from <http://www.nbrm.mk/?ItemID=89A26FA4B8AA8F4CA6CF243F984FF307>

53. National Bank of The Republic of Macedonia (2017b). *History of Government bonds auctions*. Retrieved March 12, 2017, from <http://www.nbrm.mk/default-en.asp?pmenu=do>
54. Petreski, M. (2016, November 18). Hrabra no (po)pametna fiskalna politika po izborite [Courageous but smart(er) fiscal policy after the elections]. Retrieved January 17, 2017 from <http://respublica.edu.mk/blog/2016-11-18-10-09-16>
55. Popis na naselenieto 2002 [Census of the Population 2002]. Retrieved March 12, 2017, from <http://www.stat.gov.mk/OblastOpsto.aspx?id=31>
56. Popovski, N. (2015, December 17). Rastot na javniot dolg vo Makedonija [Growth of Macedonian public debt]. Retrieved March 11, 2017, from <http://respublica.edu.mk/blog/2015-12-17-11-38-49>
57. Rant, V. (2015). *Introduction to debt sustainability analysis*. Personal Collection of V.Rant, Faculty of Economic University of Ljubljana, Slovenia.
58. Reinhart, M.C., & Rogoff, S.K. (2010, January). Growth in time of debt (*NBER Working Paper No. 15639*). Retrieved January 17, 2017, from <http://www.nber.org/papers/w15639>
59. Schechter, A., Alper, E.C., Arbatli, E., Caceres, C., Callegari, G., Gerard, M., Jonas, J., Kinda, T., Shabunina, A., & Weber, A. (2012, January). A toolkit to assessing fiscal vulnerabilities and risks in advanced economies (*IMF Working Paper No.12/11*). Retrieved January 17, 2017, from <https://www.imf.org/external/pubs/ft/wp/2012/wp1211.pdf>
60. Standard & Poor's. (2005). *News release: Republic of Macedonia long-term FC and LC ratings raised to 'BB+' and 'BBB-'; Outlook stable*. Retrieved March 12, 2017, from http://www.finance.gov.mk/files/u4/s_p_2005.pdf
61. Standard & Poor's. (2009, September). *Research update: Republic of Macedonia's outlook revised to stable from negative on improved external liquidity; Ratings affirmed*. Retrieved March 12, 2017, from the http://www.finance.gov.mk/files/u4/sp_macedonia_2009.pdf
62. Standard & Poor's. (2013, November). *Research update: Ratings on Republic of Macedonia affirmed at 'BB-/B'; Outlook stable*. Retrieved March 12, 2017, from http://www.finance.gov.mk/files/u4/2013_11_29_macedonia.pdf
63. Standard & Poor's. (2016, September). *Research update: Republic of Macedonia 'BB-/B' ratings affirmed; Outlook stable*. Retrieved March 12, 2017, from http://www.finance.gov.mk/files/u252/macedonia_ru_2016sep30_sp.pdf
64. Stiglitz, J.E. (2000). *Economics of the public sector* (3rd ed.). New York: W.W. Norton & Company.
65. Zakon za javen dolg [Public debt law]. *Sluzben vesnik na Republika Makedonija* [Official Gazette of the Republic of Macedonia] no. 62/2005, 88/2008, 35/2011, 139/2014, 165/2014- OPT.

66. Zakon za smetkovodstvo na budzetite I budzetskite korisnici [Accounting for Budget and Budget Users Law]. *Sluzben vesnik na Republika Makedonija* [Official Gazette of the Republic of Macedonia] no.61/2002,98/2002,81/2005, 24/2011, 145/2015-OPT.

APPENDIXES

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Appendix A: Results of Debt Sustainability Analysis Input Projections

Table 1. Debt Sustainability Input Projections 2016-2026

Nominal (effective) interest rate (%), i_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Baseline projection	3.0	3.1	3.2	3.4	3.5	3.6	3.6	3.5	3.3	3.2	3.0	
Optimistic scenario analysis projection	3.0	3.0	3.0	3.0	2.9	2.7	2.6	2.4	2.3	2.1	2.0	
Pessimistic scenario analysis projection	3.0	3.1	3.2	3.3	3.4	3.6	3.7	3.8	3.9	4.0	4.1	
Official sensitivity analysis projection	3.0	3.1	3.2	3.4	3.5	3.6	3.6	3.5	3.3	3.2	3.0	

(table continues)

(continued)

Unofficial sensitivity analysis projection	3.0	3.1	3.2	3.4	3.5	3.6	3.6	3.5	3.3	3.2	3.0	
Inflation rate (%), π_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Baseline projection	-0.2	1.0	1.2	1.4	1.6	1.8	2.0	2.1	2.1	2.2	2.2	
Optimistic scenario analysis projection	-0.2	1.0	1.2	1.4	1.6	1.8	2.0	2.1	2.1	2.2	2.2	
Pessimistic scenario analysis projection	-0.2	-0.2	0.0	0.1	0.3	0.4	0.6	0.7	0.9	1.0	1.2	
Official sensitivity analysis projection	-0.2	1.0	1.2	1.4	1.6	1.8	2.0	2.1	2.1	2.2	2.2	
Unofficial sensitivity analysis projection	-0.2	1.0	1.2	1.4	1.6	1.8	2.0	2.1	2.1	2.2	2.2	

(table continues)

(continued)

Real interest rate (%) , r_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Calculated as the fisher formula (1+nominal interest rate/1+inflation rate)-1
Baseline projection	3.2	2.1	2.0	1.9	1.9	1.8	1.6	1.4	1.2	1.0	0.8	
Optimistic scenario analysis projection	3.2	2.0	1.8	1.6	1.2	0.9	0.6	0.2	0.1	-0.1	-0.2	
Pessimistic scenario analysis projection	3.2	3.3	3.3	3.2	3.2	3.1	3.1	3.0	3.0	2.9	2.9	
Official sensitivity analysis projection	3.2	2.1	2.0	1.9	1.9	1.8	1.6	1.4	1.2	1.0	0.8	

(table continues)

(continued)

Unofficial sensitivity analysis projection	3.2	2.1	2.0	1.9	1.9	1.8	1.6	1.4	1.2	1.0	0.8	
Growth rate (%), g_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Baseline projection	2.3	3.0	3.2	3.3	3.5	3.6	3.8	3.8	3.6	3.5	3.5	
Optimistic scenario analysis projection	2.3	3.0	3.2	3.3	3.5	3.6	3.8	4.0	4.2	4.4	4.5	
Pessimistic scenario analysis projection	2.3	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	
Official sensitivity analysis projection	2.3	3.0	3.2	3.3	3.5	3.6	3.8	3.8	3.6	3.5	3.5	
Unofficial sensitivity analysis projection	2.3	3.0	3.2	3.3	3.5	3.6	3.8	3.8	3.6	3.5	3.5	

(table continues)

(continued)

Primary balance (as % of GDP), pb_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Baseline projection	-2.8	-2.7	-2.5	-2.4	-2.3	-2.2	-2.0	-1.9	-1.8	-1.6	-1.5	
Optimistic scenario analysis projection	-2.8	-2.5	-2.1	-1.8	-1.5	-1.2	-0.8	-0.5	-0.2	0.2	0.5	
Pessimistic scenario analysis projection	-2.8	-2.8	-2.8	-2.9	-2.9	-2.9	-2.9	-2.9	-3.0	-3.0	-3.0	
Official sensitivity analysis projection	-2.8	-2.7	-2.5	-2.4	-2.3	-2.2	-2.0	-1.9	-1.8	-1.6	-1.5	
Unofficial sensitivity analysis projection	-2.8	-2.7	-2.5	-2.4	-2.3	-2.2	-2.0	-1.9	-1.8	-1.6	-1.5	

(table continues)

(continued)

Gross domestic product (mio EUR, current prices), GDP_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Calculated as: $GDP_t = GDP_{t-1} * (1 + g_t) * (1 + \pi_t)$
Baseline projection	9,410.0	9,789.2	10,219.7	10,706.9	11,256.7	11,876.5	12,574.3	13,319.7	14,089.0	14,895.7	15,756.2	
Optimistic scenario analysis projection	9,410.0	9,789.2	10,223.7	10,708.9	11,261.1	11,876.5	12,574.4	13,361.8	14,228.6	15,183.7	16,216.0	
Pessimistic scenario analysis projection	9,410.0	9,579.0	9,768.4	9,979.2	10,212.6	10,469.9	10,752.7	11,062.6	11,401.5	11,771.5	12,174.9	
Official sensitivity analysis projection	9,410.0	9,789.2	10,219.7	10,706.9	11,256.7	11,876.5	12,574.3	13,319.7	14,089.0	14,895.7	15,756.2	

(table continues)

(continued)

Unofficial sensitivity analysis projection	9,410.0	9,789.2	10,219.7	10,706.9	11,256.7	11,876.5	12,574.3	13,319.7	14,089.0	14,895.7	15,756.2	
Average maturity of debt (years), AMT_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Baseline projection	4.1	4.1	3.8	3.7	3.6	3.9	4.1	4.4	4.7	4.9	5.2	
Optimistic scenario analysis projection	4.1	4.1	3.8	3.7	3.6	3.9	4.1	4.4	4.7	4.9	5.2	
Pessimistic scenario analysis projection	4.1	4.1	3.8	3.7	3.6	3.6	3.5	3.5	3.5	3.5	3.5	
Official sensitivity analysis projection	4.1	4.1	3.8	3.7	3.6	3.9	4.1	4.4	4.7	4.9	5.2	

(table continues)

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Unofficial sensitivity analysis projection	4.1	4.1	3.8	3.7	3.6	3.9	4.1	4.4	4.7	4.9	5.2	
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Source: Government of the Republic of Macedonia, *Fiscal Strategy of the Republic of Macedonia 2017-2019*, 2016, p.13, Graph 5; International Monetary Fund, *The Former Yugoslav Republic of Macedonia: 2016 article IV consultation – press release; Staff report; And statement by the executive director for Former Yugoslav Republic of Macedonia*, 2016a, p.28, Table.1; Ministry of Finance of the Republic of Macedonia, *Stock of general government and public debt as of 31 December 2016*, 2017a, p.1, Table.1; Ministry of Finance of the Republic of Macedonia, *Basic macroeconomic indicators*, 2017b, p.1, Table.1; Own calculations.

Appendix B: Results of Debt Sustainability Analysis Output Projections 1, Public Debt

Table 1: Debt Sustainability Analysis Public Debt Projections 2016-2026

Change in public debt (% of GDP), Δd_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Calculated as: $\Delta d_t = d_{t-1} * \left(\frac{r_t - g_t}{1 + g_t}\right) - pb_t$
Baseline projection		2.2	2.0	1.7	1.4	1.1	0.8	0.5	0.4	0.2	-0.1	
Optimistic scenario analysis projection		2.0	1.4	0.9	0.3	-0.3	-0.9	-1.4	-1.9	-2.3	-2.7	

(table continues)

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Pessimistic scenario analysis projection		3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.5	3.5	
Official sensitivity analysis projection		2.3	2.0	1.7	1.4	1.1	0.7	0.5	0.4	0.2	-0.1	
Unofficial sensitivity analysis projection		2.2	1.9	1.6	1.3	1.0	0.6	0.3	0.2	0.0	-0.3	
Public debt (% of GDP), d_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Calculated as: $d_{t-1} + (d_{t-1} * \Delta d_t)$
Baseline projection	50.1	52.3	54.3	56.0	57.4	58.5	59.2	59.8	60.1	60.3	60.2	
Optimistic scenario analysis projection	50.1	52.1	53.5	54.4	54.7	54.4	53.5	52.1	50.2	47.9	45.2	
Pessimistic scenario analysis projection	50.1	53.6	57.1	60.6	64.1	67.7	71.2	74.8	78.3	81.9	85.4	

(table continues)

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Official sensitivity analysis projection	48	50.3	52.2	53.9	55.4	56.5	57.3	57.9	58.3	58.5	58.5	
Unofficial sensitivity analysis projection	57.6	59.8	61.6	63.2	64.5	65.5	66.1	66.5	66.7	66.7	66.4	
Gross borrowing requirement (mio EUR), GBR_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Calculated as: $\Delta d_t * GDP_t + (d_t * \frac{GDP_t}{AMT})$
Baseline projection		1,468.0	1,660.4	1,799.7	1,951.3	1,928.6	1,898.3	1,875.9	1,865.8	1,844.8	1,811.0	
Optimistic scenario analysis projection		1,436.6	1,584.8	1,673.3	1,743.9	1,638.9	1,518.6	1,389.7	1,261.2	1,121.7	980.7	
Pessimistic scenario analysis projection		1,583.6	1,808.0	1,984.5	2,179.3	2,338.5	2,569.4	2,756.1	2,956.0	3,170.3	3,400.3	
Official sensitivity analysis projection		1,420.0	1,607.4	1,743.9	1,892.4	1,872.6	1,845.2	1,825.2	1,816.7	1,797.4	1,765.6	

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Unofficial sensitivity analysis projection		1,639.0	1,849.7	1,999.0	2,161.7	2,128.6	2,088.1	2,057.4	2,041.2	2,013.7	1,972.9	
Primary balance (as % of GDP), pb_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Baseline projection	-2.8	-2.7	-2.5	-2.4	-2.3	-2.2	-2.0	-1.9	-1.8	-1.6	-1.5	
Optimistic scenario analysis projection	-2.8	-2.5	-2.1	-1.8	-1.5	-1.2	-0.8	-0.5	-0.2	0.2	0.5	
Pessimistic scenario analysis projection	-2.8	-2.8	-2.8	-2.9	-2.9	-2.9	-2.9	-2.9	-3.0	-3.0	-3.0	
Official sensitivity analysis projection	-2.8	-2.7	-2.5	-2.4	-2.3	-2.2	-2.0	-1.9	-1.8	-1.6	-1.5	
Unofficial sensitivity analysis projection	-2.8	-2.7	-2.5	-2.4	-2.3	-2.2	-2.0	-1.9	-1.8	-1.6	-1.5	

Source: Ministry of Finance of the Republic of Macedonia, *Stock of general government and public debt as of 31 December 2016*, 2017a, p.1, Table.1; Own calculations.

Appendix C: Results of Debt Sustainability Analysis Output Projections 2, Public Debt Stabilizing Primary Balance

Table 1. Debt Sustainability Analysis Public Debt Stabilizing Primary Balance 2016-2026

Change in public debt (as % of GDP), Δd_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Baseline projection		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Optimistic scenario analysis projection		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Pessimistic scenario analysis projection		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Official sensitivity analysis projection		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Unofficial sensitivity analysis projection		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

(table continues)

(continued)

Public debt (as % of GDP), d_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Baseline projection	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	
Optimistic scenario analysis projection	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	
Pessimistic scenario analysis projection	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	
Official sensitivity analysis projection	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	
Unofficial sensitivity analysis projection	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	57.6	
Gross borrowing requirement (mio EUR), GBR_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Calculated as: $\Delta d_t * GDP_t + (d_t * \frac{GDP_t}{AMT})$
Baseline projection		1,196.2	1,347.4	1,449.8	1,566.6	1,538.8	1,524.1	1,516.6	1,512.6	1,512.7	1,518.0	

(table continues)

(continued)

Optimistic scenario analysis projection		1,243.3	1,439.3	1,574.9	1,711.2	1,671.8	1,629.1	1,582.4	1,531.0	1,474.0	1,410.8	
Pessimistic scenario analysis projection		1,170.5	1,287.9	1,351.2	1,421.2	1,457.1	1,539.2	1,583.5	1,632.0	1,685.0	1,742.7	
Official sensitivity analysis projection		1,146.1	1,290.9	1,389.0	1,500.9	1,474.3	1,460.2	1,453.1	1,449.2	1,449.3	1,454.4	
Unofficial sensitivity analysis projection		1,375.3	1,549.1	1,666.8	1,801.1	1,769.2	1,752.3	1,743.7	1,739.0	1,739.2	1,745.3	
Debt stabilizing primary balance (as % of GDP), pb_t^* for $\Delta d_t = 0$	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Calculated as: $pb_t^* = d_t * \left(\frac{r_t - g_t}{1 + g_t}\right)$
Baseline projection		-0.4	-0.6	-0.7	-0.8	-0.9	-1.1	-1.2	-1.2	-1.2	-1.3	
Optimistic scenario analysis projection		-0.5	-0.7	-0.8	-1.1	-1.3	-1.6	-1.8	-2.0	-2.1	-2.3	

(table continues)

(continued)

Pessimistic scenario analysis projection		0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.3	
Official sensitivity analysis projection		-0.4	-0.5	-0.6	-0.8	-0.9	-1.0	-1.1	-1.1	-1.2	-1.3	
Unofficial sensitivity analysis projection		-0.5	-0.6	-0.8	-0.9	-1.0	-1.2	-1.3	-1.3	-1.4	-1.5	

Source: Ministry of Finance of the Republic of Macedonia, *Stock of general government and public debt as of 31 December 2016, 2017a*, p.1, Table.1; Own calculations.

Appendix D: Results of Debt Sustainability Analysis Output Projections 3, Required Permanent Primary Balance to Achieve 40% of Debt to GDP

Table 1: Debt Sustainability Analysis Required Permanent Primary Balance to Achieve 40% of Debt to GDP 2016-2026

Change in public debt (as % of GDP), Δd_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Baseline projection		-0.6	-0.7	-0.8	-0.9	-1.0	-1.2	-1.2	-1.2	-1.2	-1.3	

(table continues)

(continued)

Optimistic scenario analysis projection		-0.2	-0.4	-0.5	-0.8	-1.0	-1.2	-1.4	-1.5	-1.6	-1.6	
Pessimistic scenario analysis projection		-0.8	-0.9	-0.9	-0.9	-1.0	-1.0	-1.1	-1.1	-1.2	-1.2	
Official sensitivity analysis projection		-0.4	-0.5	-0.6	-0.7	-0.8	-0.9	-1.0	-1.0	-1.0	-1.1	
Unofficial sensitivity analysis projection		-1.4	-1.5	-1.6	-1.7	-1.8	-1.9	-2.0	-1.9	-1.9	-2.0	
Public debt (as % of GDP)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	Using the Goal Seek function of Excel
Baseline projection	50.1	49.5	48.8	48.0	47.0	46.0	44.9	43.6	42.5	41.3	40.0	
Optimistic scenario analysis projection	50.1	49.9	49.5	48.9	48.2	47.2	46	44.6	43.1	41.6	40.0	

(table continues)

(continued)

Pessimistic scenario analysis projection	50.1	49.3	48.4	47.5	46.6	45.6	44.5	43.5	42.3	41.2	40.0	
Official sensitivity analysis projection	48	47.6	47.1	46.5	45.8	45.0	44.0	43.0	42.1	41.1	40.0	
Unofficial sensitivity analysis projection	57.6	56.2	54.8	53.2	51.5	49.7	47.8	45.8	43.9	42.0	40.0	
Gross borrowing requirement (mio EUR) GBR_t	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Baseline projection		1,122.4	1,238.6	1,299.6	1,366.8	1,292.6	1,219.2	1,159.0	1,114.1	1,066.5	1,015.0	
Optimistic scenario analysis projection		1,170.4	1,290.2	1,358.7	1,418.0	1,334.0	1,249.9	1,171.4	1,105.5	1,042.5	990.5	
Pessimistic scenario analysis projection		1,073.5	1,160.8	1,191.3	1,224.1	1,221.5	1,257.1	1,254.7	1,252.2	1,249.4	1,246.2	

(table continues)

(continued)

Official sensitivity analysis projection		1,097.9	1,215.3	1,280.3	1,352.0	1,286.4	1,221.3	1,168.8	1,131.2	1,090.6	1,046.1	
Unofficial sensitivity analysis projection		1,209.9	1,321.8	1,368.6	1,419.4	1,314.6	1,211.7	1,124.0	1,053.3	980.4	903.9	
Required permanent primary balance to reach target debt ratio (as % of GDP), pb_t^{**}	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	
Baseline projection	-2.8	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
Optimistic scenario analysis projection	-2.8	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	
Pessimistic scenario analysis projection	-2.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	

(table continues)

(continued)

Official sensitivity analysis projection	-2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Unofficial sensitivity analysis projection	-2.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	

Source: Ministry of Finance of the Republic of Macedonia, *Stock of general government and public debt as of 31 December 2016, 2017a*, p.1, Table.1; Own calculations.